**Xen ECom360.AI - an Artificial Intelligence (AI), Machine Learning (ML) and Deep Learning based solution for E-commerce business.**

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# Overview

# The data importance is increasing with every single click on the internet. In order to make sense of this huge data and use it for company’s benefits, a help from different Data Science and Machine Learning techniques is required. For example, to keep customers engaged with the website or to improve customer’s experience, one needs to recommend a customer only goods/services he would potentially be interested in, i.e. develop a recommendation system.

It is also important to know what customers are most valuable. We have to know a customer lifetime value (CLV), i.e. predicted net profit, amount which customer will bring into the company during the entire future relationship with a customer. It is needed to optimize a company growth and business marketing strategies, adjust advertising campaign.

One needs to take care about customer retention. Having a solid knowledge and confidence in existing customers, it helps businesses to expand their market. Existing customers bring more new customers, so they are the best source of marketing. There are many ways to achieve customer retention but the most commonly used model is a churn model, which should help identify main factors causing customer churn and then take actions in order to keep existing customers.

Living in a digital world where millions of transactions happen with every single click, it is easy to get some fraudulent activity online. So, in order to have a successful eCommerce business, the companies will need to consider implementing some security related measurements, and accurately predict a fraud probability based on a given type of customer and action.

To retain loyal customers and to attract new customers, one needs to know what customers say about the company. It helps reveal weak and strong sides of the business and products, and timely take necessary actions.

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# Goals of Xen ECom360.AI Solution

1. Permanent online monitoring of customer activity.
2. Recommendation of goods/services that best match to a given customer.
3. Customer analytics, CLV modeling and churn prediction.
4. Fraud detection.
5. Analysis of customer reviews and their classification.
6. Running chatbots for a customer support.

**Xen ECom360.AI Solution Overview**

1. **Online monitoring of customer activity.**

It is important to know what kind of customer categories are related with different actions on your website. Free online tools like Google Analytics, Yandex Metrica would help collecting customers data which can be segmented, for example, by geographic location, demographics, device, browsers and type of the user action. It may also help reveal most visiting web pages and even particular places on those web pages. This information can be used to make predictive models for future user actions and also optimize web page content.

1. **Recommendation engine.**

On the basis of collected data about user activities on the website and by finding similarity between their activities with other users we can create a recommender system through dedicated Machine Learning algorithms (like Collaborative Filtering). It learns from user’s past activities and purchases. These recommendations can be more complete and precise if we use information from the user’s profile and items description by applying a content based filtering. The user’s profile can be formed from his data during registration, behavior on site, reviews customer read, every story customer share on social media etc.

1. **Customer analytics, CLV modeling and churn prediction.**

Having collected customer data, we can create predictive models that help answering some important business questions like (a) how much a customer can bring to the revenue of a company during his/her lifetime, (b) what most important factors affecting customer retention and churn, (c) how much revenue should be expected for next month/quarter, etc. It is a big data problem which would be solved using modern data processing and Machine Learning techniques. The more such data we have for longer time period, the more accurate will be predictions.

1. **Fraud detection.**

Each eCommerce business can suffer from a number of fraudulent activities that lead to a profit loss. With the help of Data Science and Machine Learning Techniques, these fraudsters can be found.  In order to use Data Science techniques, one needs to detect a list of fraud actions (shipping address differs from the billing address, multiple orders of the same item, etc.). In most cases, using data mining, time series analysis, clustering and classification to find associated groups in the data help detect anomalies, and predict them online.

1. **Analysis of customer reviews.**

Customers may provide review on the company website or other online services (Yelp, Google, or social media like Twitter, Facebook). While these reviews are quite valuable, their timely extraction, processing and classification is not that easy task.

That is where Data Science techniques such as Natural Language Processing (NLP) may significantly help. One can group and classify reviews, run sentiment analysis, and try to find correlations between positive, negative responses and particular goods/services and/or business strategies.

1. **Chatbots.**

Use of virtual conversational AI agents, chatbots, can facilitate communication to customers and help effectively resolve many of their needs online. One of the most intensive applications of AI bots is as a personal assistant. It is capable of comprehending open conversations while contextualizing them to a particular case or scenario. The crux of conversational AI bots is to solve customer issues by conversing with them in as few interactions as possible, avoid asking for unnecessary information, and try and leverage the existing content.

1. **Usage of Open Source tools**

To minimize dependence on vendors, we prefer to use open source tools (like Python and machine learning libraries) as much as possible.

**Xen ECom360.AI Solution Features**

**Automated insight generation.**

Using ongoing and historical data, one can perform factor analysis, and find out driving factors and trends to improve performance of eCommerce business. Results can be presented in clear graphical and tabular formats to be used to better plan business strategy towards different customer groups.

**Data storage.**

Customer data would be needed to run online and offline analytics.

We can take care of secure data storage in a cloud-based database.

**Real-time recommendation system.**

The more engaging a website is, the more people will shop there. This will eventually increase the revenue of the eCommerce company. We can train and set up a recommender system that would recommend proper goods for each customer in real time.

**Automated training of predictive models.**

All models should be trained autonomously on a regular basis. It helps provide accurate

recommendations, churn analysis, CLV predictions with minimal human involvement, and be constantly available for business needs.

**A/B testing.**

Often it is hard to say a-priori which version of website or machine learning model is best.

Sometimes it is needed to experiment with different views of website for different customer groups. Similarly, we can train a few machine learning models and choose best ones using ongoing data.

**Key Benefits of Xen ECom360.AI Solution**

The suggested solution can be helpful for most eCommerce businesses who is struggling with amount of diverse data, and trying to reach their target audiences to increase their sales. We suggest the following:

* Automated reports showing key metrics and their relationship with customer data in online regime. Online monitoring of current and expected metrics would reveal main trends, and help define business strategy.
* In-built recommendation system, which allows recommending specific goods and services to different customers individually based on historical data.
* Customer analytics, prediction of customer lifetime value, cost of attracting customers, churn analysis. It helps businesses in deciding their spends, know about their customers and effectively plan their future.
* Run fraud detection models to predict main factors causing the fraud and timely take actions to prevent them.
* Periodical analysis of customer reviews to determine positive and negative sides and business to quickly tune business tactics and increase number of loyal customers.
* Run AI chatbots that can facilitate communication to customers and help resolve many of their needs online.