

E-commerce Business Using Analytics to Enhance Customer Experience

Course Title: CS504049 – Business Intelligence (BI)

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Location: Tan Phong Campus

Background

An e-commerce company, ShopWorld, has been growing rapidly over the past five years. They sell a wide range of products, including electronics, clothing, and household goods, to customers across multiple countries. However, with increased competition, ShopWorld has faced challenges in keeping customers engaged, providing personalized services, and improving operational efficiency.

To address these issues, the company has invested in a robust Business Intelligence (BI) system that employs Descriptive Analytics, Predictive Analytics, and Prescriptive Analytics to optimize its operations and enhance customer experience.

Descriptive Analytics

ShopWorld uses Descriptive Analytics to gain insights from historical data, including sales patterns, customer demographics, and website traffic. By analyzing past transactions and website activity, the company identifies trends such as the most popular products during specific times of the year (e.g., electronics in November and December due to holiday sales) and which customer segments are more likely to purchase high-end products.

Key insights from Descriptive Analytics:

- **Sales Data:** Over the past year, sales of electronic gadgets surged by 20% during Black Friday and Cyber Monday.
- **Customer Behavior:** Customers aged 25-35 are the largest group purchasing premium products.
- **Website Traffic:** Most website traffic spikes occur on weekends.

Predictive Analytics

By applying machine learning algorithms to customer data, ShopWorld uses Predictive Analytics to forecast future behavior and trends. For example, the system predicts which customers are most likely to purchase a new product launch based on their previous purchase patterns. Additionally, the system identifies customers who are likely to stop shopping with ShopWorld, allowing the company to engage them with targeted promotions or loyalty programs to reduce churn.

Key insights from Predictive Analytics:

- Customers who purchased electronics last year during Black Friday are 40% more likely to shop again this year.
- Customers who haven't made a purchase in the last 3 months are predicted to have a high churn risk.
- A spike in demand for eco-friendly products is expected due to changing customer preferences.

Prescriptive Analytics

Using Prescriptive Analytics, ShopWorld can make data-driven decisions to optimize operations. For instance, based on insights from Predictive Analytics, the BI system recommends increasing inventory for eco-friendly products ahead of the holiday season. Additionally, the system suggests personalized discounts and promotional offers to retain high-risk customers who might churn.

Key actions from Prescriptive Analytics:

- Increase stock levels of eco-friendly products by 15% before the holiday season.
- Offer a 10% discount to customers with high churn risk to encourage retention.
- Schedule additional marketing campaigns on weekends to capitalize on high traffic times.

Case Study Questions

1. Descriptive Analytics:

- a. Based on the case study, what kinds of data can ShopWorld analyze to gain insights into customer behavior?
- b. How does Descriptive Analytics help ShopWorld understand past sales patterns? Provide examples.
- c. Why is it important for ShopWorld to know the demographic that purchases premium products?

2. Predictive Analytics:

- a. What are the benefits of using Predictive Analytics to forecast customer behavior for ShopWorld?
- b. In the case study, how does Predictive Analytics help ShopWorld reduce customer churn?
- c. What other potential predictions could ShopWorld make using Predictive Analytics to enhance customer satisfaction?

3. Prescriptive Analytics:

- a. How does Prescriptive Analytics assist ShopWorld in making inventory decisions for eco-friendly products?

- b. Discuss how personalized discounts or promotions suggested by Prescriptive Analytics can improve customer retention.
- c. What other prescriptive recommendations could ShopWorld implement to improve its operational efficiency?

4. Overall Application:

- a. Explain how the combination of Descriptive, Predictive, and Prescriptive Analytics can create a competitive advantage for ShopWorld.
- b. How could ShopWorld's use of these analytics strategies impact long-term customer loyalty and business growth?
- c. What are the potential risks of relying too heavily on analytics for business decision-making?
