OVERVIEW OF E-COMMERCE

Expected User Penetration in 2028

- 2024
- 2028

(x-axis: 0, 20, 40, 60, 80)

E-Commerce Market in India

■ E-COMMERCE MARKET SIZE IN INDIA (B $)

(x-axis: 2009, 2011, 2015, 2017, 2024, 2030)
(y-axis: 0, 20, 40, 60, 80, 100)

Net Loss of Major E-Commerce Players in India

■ In INR Crores

(y-axis: 0, 1000, 2000, 3000, 4000, 5000, 6000)
(x-axis: Amazon, Flipkart, Snapdeal)

Losses in E-Commerce

- ORDER CANCELLATION 16%
- RETURN FRAUD 25%
- PAYMENT FRAUD 19%
- OPERATIONAL INEFFICIENCIES 17%
- LOGISTICS ISSUES 23%

The rapid growth of the e-Commerce market in India is evident, but the substantial losses incurred by major companies highlight a significant challenge. To solve this, it is imperative for businesses to adopt AI ML-Based PREDICTIVE ANALYTICS MODELS.

USING HISTORICAL SALES DATA TO PREDICT FUTURE DEMAND ACCURATELY
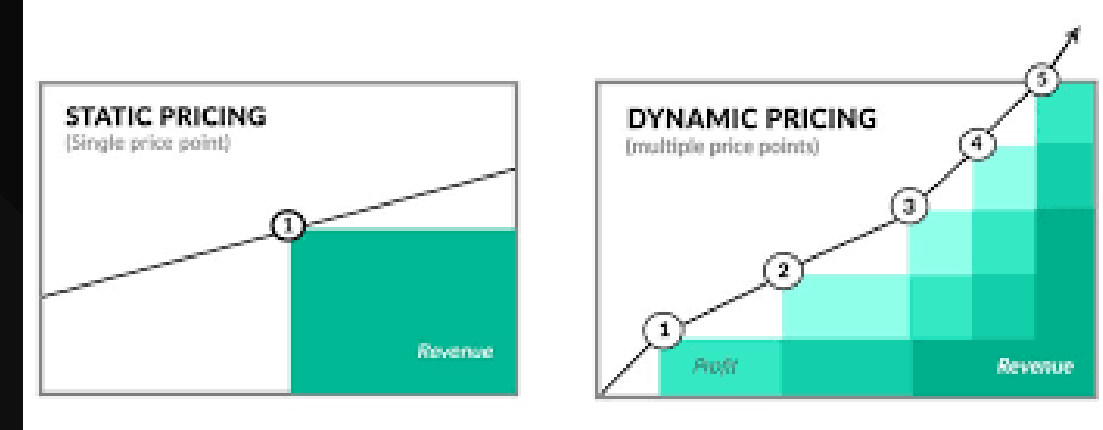
COLLABORATIVE FILTERING

01

The collaborative approach to recommending products implies that customers who have bought similar items in the past are likely to buy similar products in the future.

CONTENT-BASED FILTERING

02

For Ex- If a user has purchased a mobile phone and then bought a cover glass, he or she has a high chance of being interested in other phone accessories like mobiles cases.

LANDING PAGE OPTIMIZATION

03

It's always a good idea to show customers the most valued products first, as they have a higher chance of keeping new visitors on the website.

DYNAMIC PRICING

04

Predictive analytics and machine learning can also be used to dynamically adjust prices based on many factors including historical pricing data, supply and demand, market trends, competitors' prices and as well as consumer habits.

BEHAVIORAL TRENDS IN E-COMMERCE

- 49% of customers bought a product they did not intend to buy because they received a personalized product recommendation.

- 62% of consumers say they won't purchase from a retailer if free shipping isn't offered.

- Research shows that for every one second your site loads faster, conversion rates can increase by 17%. Fast loading times are crucial for maintaining user engagement.

- Prior to making a purchase, 81% of consumers trust online reviews as much as personal recommendations.

Avg. Sales of E-Commerce quarterly
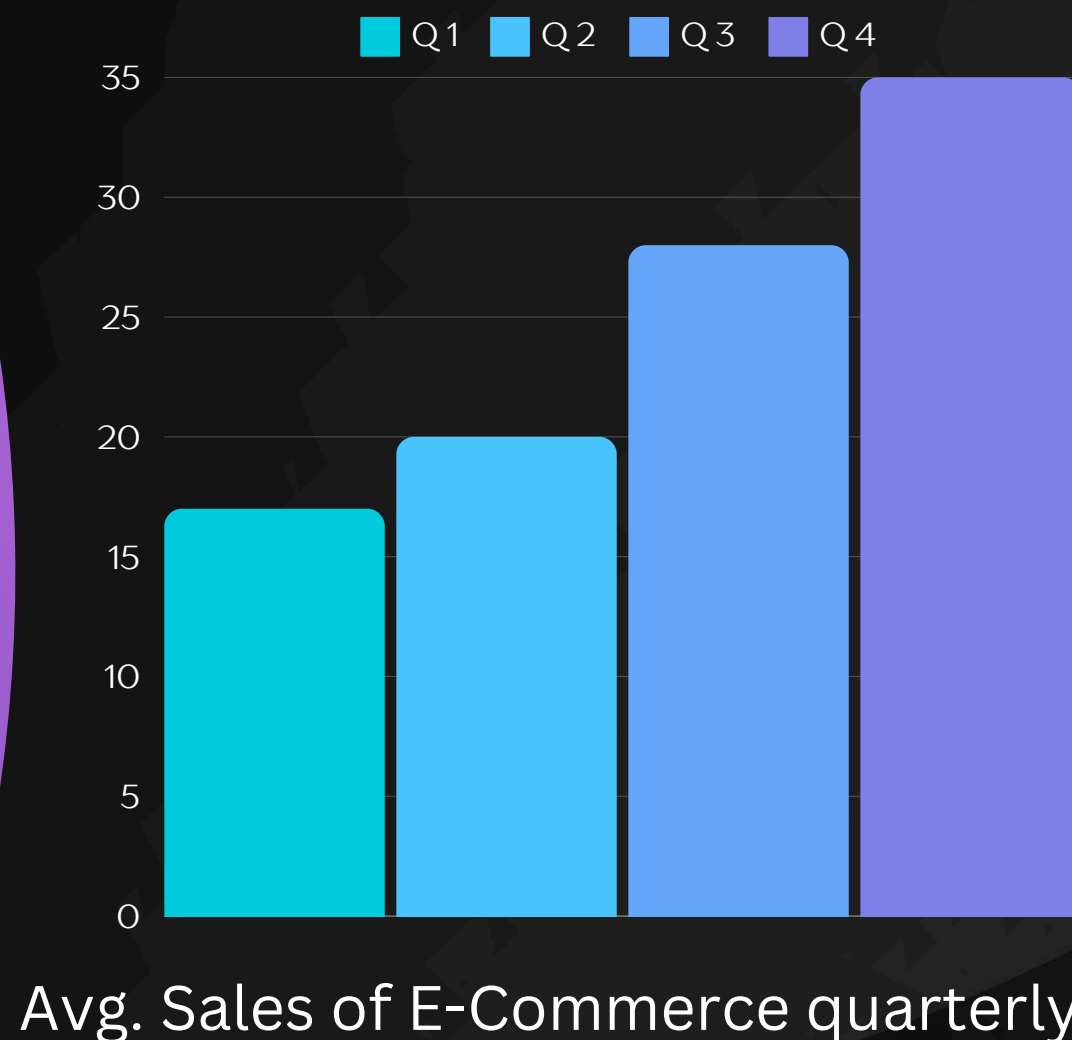
SEASONAL TRENDS IN E-COMMERCE

- **Time of Year**: Include variables indica4ng the month, quarter, and season to capture annual sales cycles.
- **Holidays, Events and Festivals**: Includes significant sales impacts from holidays and special events.
- **Weather**: Influences consumer behaviour and product demand

FACTORS ACCOUNTING SEASONAL TRENDS AND CUSTOMER BEHAVIOR

01 ESTABLISH CLEAR OBJECTIVES

- Clearly outline the desired outcomes and how they align with broader business goals.
- These objectives serve as guiding principles throughout the implementation process to ensure focused efforts and measurable results.

02 ENSURE DATA QUALITY

- Prioritize data quality assurance to ensure the reliability and accuracy of the data used for predicting customer behavior and seasonal .
- Identify relevant data sources such as transactional data, website analytics, demographic information, and social media interactions.

03 SELECTING SUITABLE TECHNIQUES

- Consider factors such as data complexity, prediction requirements, and available resources when choosing techniques.
- Explore various methods, like machine learning algorithms, regression analysis, and clustering, to identify the most appropriate approach.

04 INTEGRATE PREDICTIONS INTO DECISION MAKING

- Integrate predictions of customer behavior into key strategic initiatives, such as marketing campaigns and customer engagement strategies.
- Align predictive models with existing decision-making processes to ensure smooth integration into day-to-day operations.

05 MULTI-GENRE ANALYTICS

- Integrating multi-genre analytics into your predictive modeling and machine learning classifications ensures that you leverage a diverse group of analytics techniques to determine the likelihood of a business outcome.

06 CONTINOUS IMPROVEMENT

- Establish mechanisms for continuous monitoring and evaluation of predictive models, including performance metrics and feedback loops.
- Analyze prediction errors and discrepancies to identify areas for improvement and optimization.

SUPPLY CHAIN MANAGEMENT

MANUFACTURER

CUSTOMER

DISTRIBUTER

SUPPLIER

RETAILER

LOGISTICS
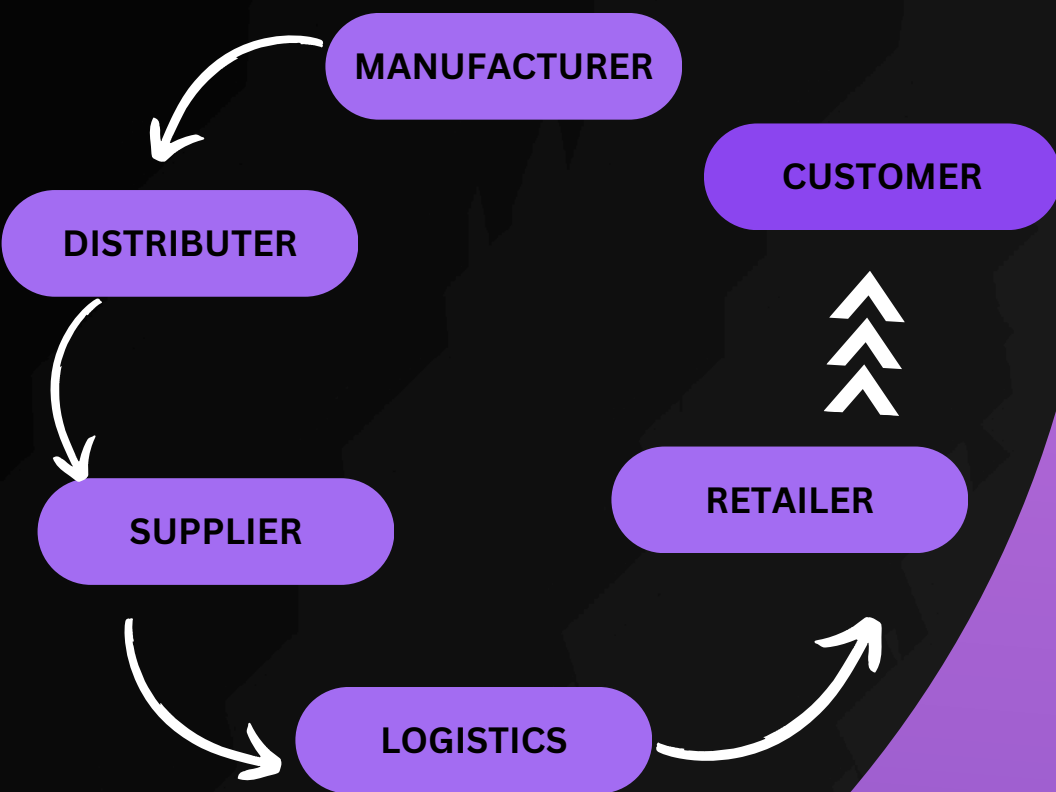
01

DATA INTEGRATION

- **Real time data sync**: ensuring that the supply chain management (SCM) system and the predictive model are in sync.
- **Unified Database**: Updating past sales, inventory, lead times for suppliers, and demand projections in a centralised database.

02

INVENTORY OPTIMIZATION

- Calculating Reorder Points based on demand forecasts, lead times, and service levels.
- Identifying safety stock levels to buffer against demand variability.

03

LOGISTICS AND DISTRIBUTION MANAGEMENT

- **Automated replenishment**: This system places orders based on demand forecasts and current inventory levels.
- **Transportation Scheduling**
- **Warehouse Management**: To guarantee effective storage, picking, and shipping procedures, optimize warehouse operations based on demand forecasts.

04

FORECASTING DEMAND

- **Run Predictive Models**: To project future demand for each product, apply the demand forecasting model which considers promotional effects, seasonal trends, and other permanent variables.
- **Forecast Updates:** Forecasts should be updated often (daily, weekly) to account for new information and trends.

05

PROCUREMENT PLANNING

- To determine the ideal order amounts, apply the Economic Order Quantity model. Work together with suppliers to enhance production planning.

METRICS

AVERAGE ORDER VALUE

$$AOV = \frac{\text{Total Revenue}}{\text{Number of Orders}}$$

CONVERSION RATES

$$CR = \frac{\text{Successful Orders}}{\text{Total Orders}}$$

CUSTOMER LIFETIME VALUE

CLV = Avg. Purchase Value x Avg. frequency rate x Total Time Duration

CUSTOMER ACQUISITION COST

$$CAC = \frac{\text{Total expenses for acquiring new customers over a period}}{\text{Total numbers of new customers acquired}}$$
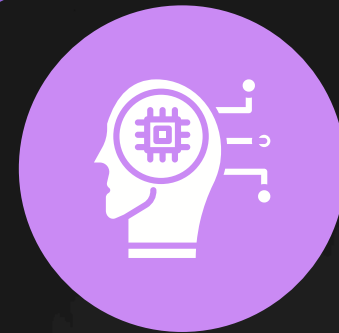
CONCLUSION

Business decisions

Promotions and price changes, range changes, changes in display and space

ML–powered predictive analytics models are used to forecast demand. Such models can ensure that every accessible data point is considered in demand prediction, helping to ensure an adequate amount of stock is available at all times.

Demand patterns

Seasonality, trends, weekday-related variation in demand

MACHINE LEARNING

Accurate forecasts for all retail planning

External factors

Holidays, footfall, weather, local events, competitor activities

THANK YOU