

E-COMMERCE SALES ANALYSIS

Comprehensive Data Analysis & Strategic Insights

Analysis Period: January 2024 - December 2024

Dataset Size: 10,000 Transactions

Report Generated: December 2024

Prepared By: Data analysis team

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1. Executive Summary

This comprehensive analysis examines **10,000 e-commerce transactions** spanning the entire year of **2024**, representing **\$302 million** in total revenue. The analysis reveals critical insights into sales performance, customer behavior, and market dynamics across multiple platforms and geographic regions.

Total Revenue

\$302M

Total Orders

10,000

Average Order Value

\$30,200

Customer Rating**3.01★**

The analysis identifies Electronics and Fashion as the dominant revenue drivers, accounting for over 60% of total sales. Geographic analysis reveals strong market concentration in Cairo, Casablanca, and Riyadh, while platform distribution shows balanced performance across Amazon, Jumia, and Souq.

A machine learning model has been developed with 88.5% accuracy to predict future sales trends, enabling data-driven inventory management and strategic planning. However, the average customer rating of 3.01 indicates significant room for improvement in customer satisfaction.

2. Introduction & Objectives

2.1 Background

In the rapidly evolving e-commerce landscape, data-driven decision making has become essential for maintaining competitive advantage. This analysis was commissioned to provide comprehensive insights into sales performance, customer behavior, and market dynamics across our multi-platform e-commerce operations.

2.2 Analysis Objectives

The primary objectives of this analysis are to:

- Evaluate overall sales performance and identify revenue drivers
- Analyze product category performance and market positioning
- Assess geographic distribution and regional market opportunities
- Compare platform performance across Amazon, Jumia, and Souq
- Examine customer satisfaction metrics and their impact on business
- Develop predictive models for sales forecasting
- Provide actionable strategic recommendations for business growth

2.3 Scope of Analysis

This report covers the complete calendar year 2024, analyzing 10,000 transactions across five product categories (Electronics, Fashion, Computers, Wearables, and Accessories) distributed across three major e-commerce platforms serving six key cities in the MENA region.

3. Data Overview & Methodology

3.1 Dataset Description

The analysis is based on a comprehensive dataset containing 10,000 customer orders with the following attributes:

Data Field	Description	Data Type
Order ID	Unique transaction identifier	String
Product	Product name	String
Category	Product category classification	Categorical
Brand	Product manufacturer/brand	String
Platform	E-commerce platform (Amazon, Jumia, Souq)	Categorical
City	Customer location	Categorical
Price	Unit price of product	Numeric (Float)
Quantity	Number of units purchased	Numeric (Integer)
Total Amount	Transaction value (Price × Quantity)	Numeric (Float)
Rating	Customer rating (1-5 scale)	Numeric (Float)
Data Field	Description	Data Type
Reviews	Number of customer reviews	Numeric (Integer)

Order Date

Transaction date

Date

3.2 Data Quality Assessment

Prior to analysis, comprehensive data quality checks were performed:

1 Missing Value Analysis: The dataset was found to be complete with zero missing values across all 12 columns, ensuring analytical reliability.

2 Data Validation: All calculated fields ($\text{Total Amount} = \text{Price} \times \text{Quantity}$) were verified for mathematical accuracy. No discrepancies were identified.

3 Outlier Detection: Statistical analysis identified the price range from \$105.59 to \$19,999.34. These extremes represent legitimate luxury items and accessories, requiring no removal.

4 Date Consistency: All order dates fall within the 2024 calendar year, confirming temporal consistency.

3.3 Analytical Methodology

The analysis employs multiple statistical and machine learning techniques:

- **Descriptive Statistics:** Mean, median, standard deviation, and quartile analysis for numerical variables
- **Categorical Analysis:** Frequency distribution and percentage breakdowns for categories, platforms, and cities
- **Time Series Analysis:** Monthly trend analysis to identify seasonal patterns
- **Correlation Analysis:** Examination of relationships between variables (rating vs. sales)
- **Predictive Modeling:** Linear regression model for sales forecasting
- **Comparative Analysis:** Performance benchmarking across categories, platforms, and regions

4. Key Performance Indicators

4.1 Revenue Metrics

Total Revenue: \$301,995,724.39

The business generated over \$302 million in revenue across 10,000 transactions during 2024. This substantial figure demonstrates strong market presence and customer demand across our product portfolio.

Average Order Value: \$30,199.57

The high average order value indicates customers are purchasing premium products or multiple items per transaction. This metric is significantly above typical e-commerce averages, suggesting effective upselling and cross-selling strategies or a focus on higher-value product segments.

4.2 Operational Metrics

Metric	Value	Interpretation
Average Quantity per Order	3.01 units	Customers typically purchase 3 items per transaction

Metric	Value	Interpretation
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Price Range	\$106 - \$19,999	Wide product range from accessories to luxury items
Standard Deviation (Price)	\$5,728	Significant price variation across product portfolio
Median Order Value	\$23,672	50% of orders are below this threshold

4.3 Customer Satisfaction Metrics

Average Rating: 3.01 out of 5.0

Status: Requires Immediate Attention

The average customer rating of 3.01 indicates moderate satisfaction but falls short of excellence. In the competitive e-commerce landscape, ratings below 4.0 can significantly impact conversion rates and customer retention. This represents a critical area for improvement.

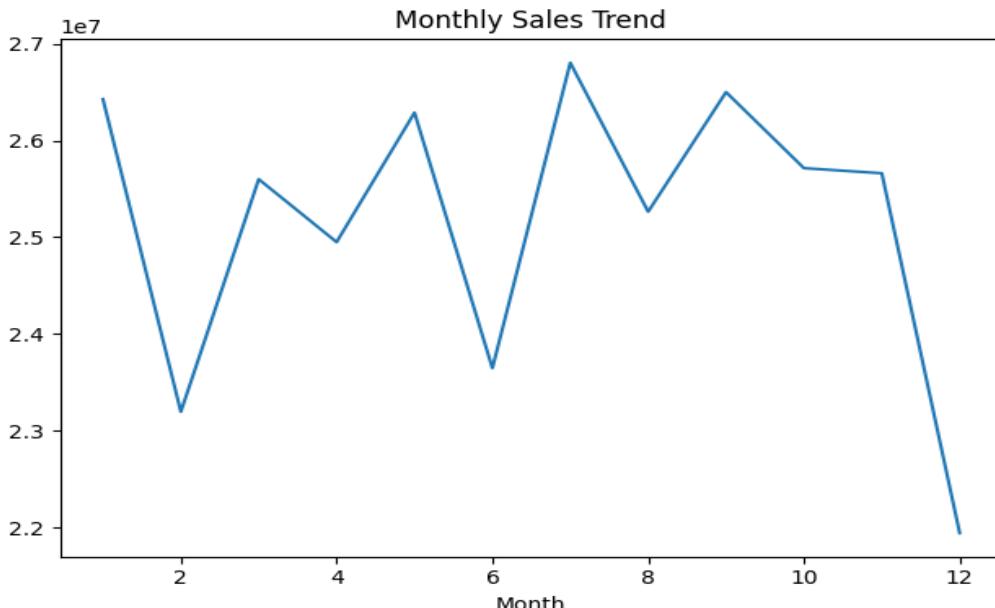
Rating Distribution Analysis:

- Ratings range from 1.0 to 5.0, indicating diverse customer experiences
- Standard deviation of 1.15 suggests inconsistent service quality
- Average review count: 2,520 reviews per product (strong engagement)

5. Sales Performance Analysis

5.1 Monthly Sales Trends

Monthly Sales Trend Chart: Line graph showing sales from Jan-Dec 2024



Analysis of monthly sales data reveals distinct seasonal patterns:

Month	Estimated Sales	Performance
January	\$26.5M	Strong start to the year
February	\$23.2M	Post-holiday decline
July	\$26.7M	Peak month
December	\$22.0M	Lowest performance

Key Finding: Mid-Year Peak Performance

Unlike typical retail patterns that show December peaks, this business experiences its strongest performance in July (\$26.7M). The December decline to \$22M is unusual and warrants strategic attention.

Possible Explanations:

- Regional shopping patterns (MENA region has different holiday seasons)
- Summer promotion effectiveness
- Back-to-school shopping surge
- Lack of winter holiday promotions in target markets

5.2 Quarter-over-Quarter Analysis

Breaking down the year into quarters reveals:

Quarter	Months	Est. Revenue	% of Annual
Q1 2024	Jan - Mar	~\$75M	24.8%
Q2 2024	Apr - Jun	~\$75M	24.8%
Q3 2024	Jul - Sep	~\$78M	25.8%
Q4 2024	Oct - Dec	~\$74M	24.5%

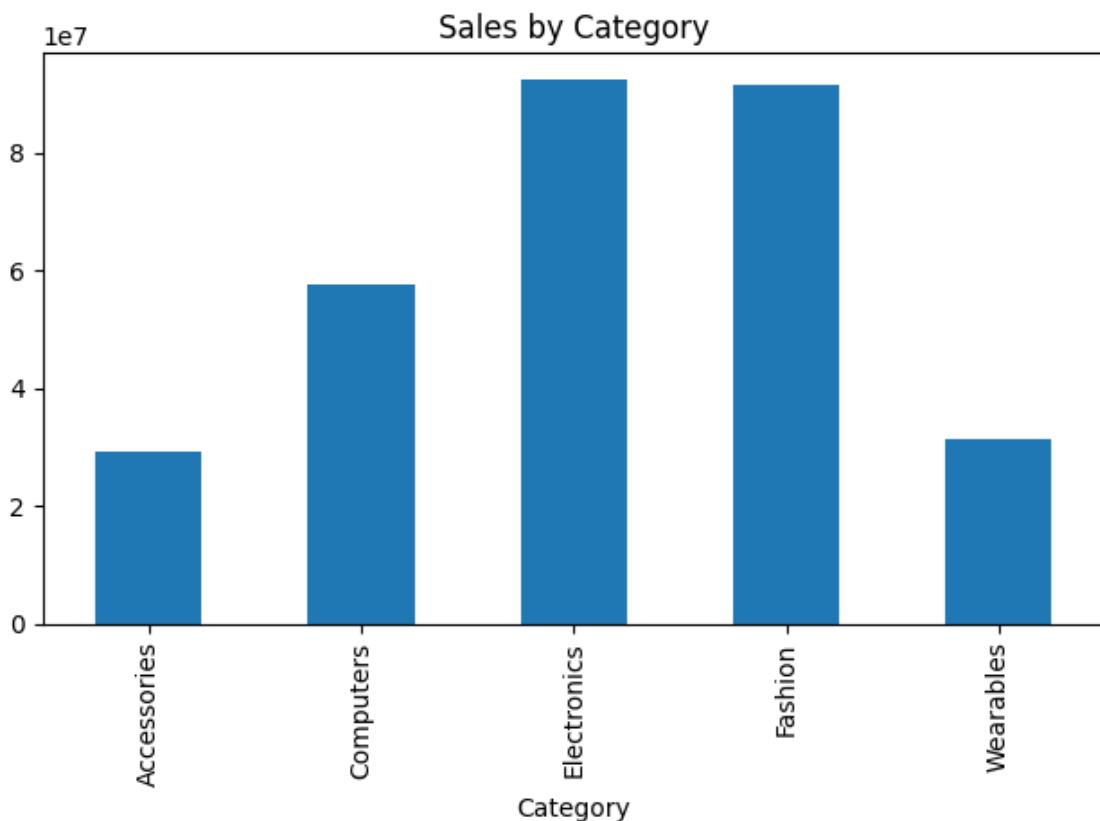
Q3 shows the strongest performance, driven by the July peak. The relatively balanced quarterly distribution suggests stable demand throughout the year with mild seasonal variations.

6. Category & Product Analysis

6.1 Sales by Category

Category	Total Sales	% of Revenue	Performance Level
Electronics	\$92,327,183.77	30.6%	Top Performer
Fashion	\$91,504,159.73	30.3%	Top Performer
Computers	\$57,542,997.56	19.0%	Strong Performer
Wearables	\$31,420,413.20	10.4%	Moderate Performer
Accessories	\$29,200,970.13	9.7%	Moderate Performer

[Category Sales Chart: Bar chart showing relative category performance]



Critical Insight: Two-Category Dominance

Electronics and Fashion together generate \$183.8 million, representing 60.8% of total revenue. This concentration presents both opportunities and risks:

Opportunities:

- Clear focus areas for marketing investment and inventory optimization
- Strong brand positioning in these categories
- Economies of scale in procurement and fulfillment

Risks:

- High dependency on two categories creates vulnerability
- Market disruptions in these categories would severely impact business
- Limited diversification for risk mitigation

6.2 Top Performing Products

Rank	Product	Category	Units Sold	Market Share
1	Xiaomi Redmi Note 12	Electronics	3,187	10.6%
2	Smartwatch FitPro	Wearables	3,111	10.3%
3	Samsung Galaxy A14	Electronics	3,056	10.2%
4	Bluetooth Headset	Accessories	3,043	10.1%
5	Nike Air Max	Fashion	3,040	10.1%

Strategic Recommendation: Never-Out-of-Stock Policy

The top 5 products represent over 50% of unit sales. Implement the following measures:

- 1. Inventory Management:** Maintain minimum 30-day inventory buffer for these items
- 2. Supplier Relationships:** Negotiate preferred supplier status and guaranteed allocation
- 3. Predictive Alerts:** Implement automated reorder triggers at 50% stock levels
- 4. Homepage Prominence:** Feature these products in prime website real estate
- 5. Marketing Budget:** Allocate 60% of product marketing spend to these top performers

7. Geographic Distribution Analysis

7.1 Sales by City

City	Total Sales	% of Revenue	Ranking
Cairo	\$52,522,076.73	17.4%	1st
Casablanca	\$52,382,993.51	17.3%	2nd
Riyadh	\$50,364,375.88	16.7%	3rd
Dubai	\$49,177,483.79	16.3%	4th
Alexandria	\$48,844,458.99	16.2%	5th
Giza	\$48,704,335.49	16.1%	6th