

FnP Sales Analysis Project

Executive Summary

Project Overview

The **FnP (Flowers and Personalized Products) Sales Analysis** project is a comprehensive business intelligence initiative designed to extract actionable insights from sales data across multiple dimensions including occasions, categories, delivery times, and customer spending patterns. This report documents the complete data analytics workflow, from raw data extraction to interactive executive dashboard visualization.

Key Metrics (2023 YTD):

- **Total Orders:** 1,000
- **Total Revenue:** ₹3,520,984
- **Average Order Delivery Time:** 5.53 days
- **Average Customer Spend:** ₹3,520.98

Step 1: Data Extraction

Objective

Extract raw sales data from multiple operational data sources to establish a centralized analytical dataset.

Methodology

- **Data Sources:** Customer transactional databases, order management systems, and delivery tracking systems
- **Tool:** Power Query Editor (ETL component)
- **Scope:** All orders placed in 2023 with complete order lifecycle data
- **Data Points Captured:**
 - Order details (Order ID, Order Date, Order Time)
 - Customer information (Customer ID, Spending Behaviour)
 - Product information (Category, Product Name)
 - Delivery metrics (Delivery Date, Delivery Time)
 - Order attributes (Occasion type, Order value)

Outcome

Successfully extracted 1,000 complete transaction records with multiple attributes, creating a unified dataset for downstream processing. No data loss during extraction—all records retained for quality assessment in subsequent phases.

Step 2: Data Cleaning

Objective

Ensure data quality by identifying and resolving data inconsistencies, missing values, and formatting issues that could compromise analytical accuracy.

Methodology

Data validation and cleansing performed in Power Query Editor to address:

Issues Addressed:

- **Null Values:** Identified and treated missing data points in optional fields (notes, secondary contact info) using domain-appropriate strategies (removal or placeholder values)
- **Whitespace Inconsistencies:** Standardized leading/trailing spaces in text fields (product names, occasion types, customer locations)
- **Data Type Mismatches:** Corrected date formats, numeric formatting, and categorical field consistency
- **Duplicates:** Identified and removed duplicate transaction records to prevent inflated counts
- **Outliers:** Flagged extreme values (unusually high order values, negative delivery times) for validation against source systems

Quality Metrics

- **Records Processed:** 1,000
- **Records Retained:** 1,000 (100% retention after validation)
- **Data Completeness:** 98%+ across critical fields
- **Consistency Rate:** Achieved standardized formatting across all text and categorical fields

Outcome

Clean, validated dataset ready for transformation, with full audit trail of all data quality interventions.

Step 3: Data Transformation

Objective

Create derived data assets that enable advanced analysis by computing new variables from existing fields, enhancing analytical dimensionality without modifying source data.

Methodology

Using Power Query Editor, new columns were engineered to support business intelligence requirements:

Transformations Applied:

Transformation	Source Field(s)	Purpose	Business Value
Delivery Days Calculated	Order Date, Delivery Date	Measure fulfilment efficiency	Track SLA compliance & customer satisfaction
Revenue Buckets	Order Value	Segment customer value tiers	Identify high-value customer segments
Peak Order Hours	Order Time	Identify demand patterns	Optimize staffing & inventory
Seasonal Occasion Groups	Occasion Type	Classify buying patterns	Seasonal demand forecasting
Order Hour Extracted	Order Timestamp	Time-of-day analysis	Understand customer purchasing behaviour by hour
Month & Day Extracted	Order Date	Temporal analysis	Month-over-month and day-of-week trends
Customer Segments	Order Frequency, Order Value	Create behavioural segments	Targeted marketing & retention strategies

Outcome

Enriched dataset with 25+ analytical dimensions, enabling slice-and-dice analysis across temporal, categorical, and behavioural axes.

Step 4: Data Modelling

Objective

Establish dimensional relationships across multiple data entities to enable multidimensional analysis and eliminate data redundancy.

Methodology

Using Power Pivot (Excel Add-in), a relational data model was constructed to connect normalized tables:

Model Architecture:

Fact Table:

- **Sales_Fact:** 1,000 order records with Order ID, Customer ID, Product ID, Order Date, Order Value, Delivery Date, Delivery Days

Dimension Tables:

- **Dim_Date:** Date hierarchy (Day, Month, Quarter, Year) for temporal analysis
- **Dim_Product:** Product hierarchy (Category, Sub-category, Product Name) for product analysis
- **Dim_Customer:** Customer attributes (Customer ID, Segment, Purchase History)
- **Dim_Occasion:** Occasion types (Anniversary, Birthday, Diwali, Holi, Raksha Bandhan, Valentine's Day)

Relationships Established:

- Sales_Fact → Dim_Date (Order Date)
- Sales_Fact → Dim_Date (Delivery Date)
- Sales_Fact → Dim_Product (Product ID)
- Sales_Fact → Dim_Customer (Customer ID)
- Sales_Fact → Dim_Occasion (Occasion ID)

Data Model Benefits:

- Eliminates data duplication across queries
- Enables automatic relationship traversal for complex calculations
- Supports rapid pivot table creation across any dimensional combination
- Reduces query complexity and calculation redundancy

Outcome

A normalized dimensional model supporting unlimited analytical combinations while maintaining data integrity.

Step 5: Data Analysis

Objective

Uncover business insights and validate hypotheses through multidimensional analysis using pivot tables and custom calculations.

Methodology

Using Pivot Tables and DAX measures within the Power Pivot model:

Analysis Dimensions:

1. Revenue Analysis

- Total Revenue by Occasion (All Occasions, Anniversary, Birthday, Diwali, Holi, Raksha Bandhan, Valentine's Day)
- Total Revenue by Product Category (Cakes, Combos, Flowers, Personalized Products, Plants & Trees, Pooja Items, Sweets)

- Revenue trending by Month (January–December 2023)
- Revenue by Days of Week (Friday–Tuesday patterns visible)
- Revenue by Hour of Order (Order Time distribution)

Key Findings:

- Peak revenue occasions: Anniversary (₹1,200,000+), Birthday, and Diwali
- Top categories: Cakes and Combos generate >₹1,000,000 each
- Monthly volatility: Significant peaks in festival months (March, August)
- Weekend ordering: Higher transaction volumes Friday–Sunday

2. Order Volume Analysis

- Top 10 cities by order count (Bangalore, Delhi, Mumbai leading)
- Order distribution by occasion type
- Peak ordering hours (evening windows 18:00–22:00)

3. Delivery Performance

- Average delivery time: 5.53 days (across all orders)
- Delivery time distribution by occasion and location
- SLA compliance analysis

4. Customer Value Analysis

- Average customer spend: ₹3,520.98
- Revenue per order: ₹3,520.98 (consistent with average spend = single-order analysis)
- Customer segmentation by spending behaviour

5. Measures and Calculations Created:

Measure	DAX Formula Concept	Business Use
Total Orders	COUNT(Sales_Fact[Order ID])	Volume tracking
Total Revenue	SUM(Sales_Fact[Order Value])	Revenue monitoring
Avg Order Value	AVERAGE(Sales_Fact[Order Value])	Customer value assessment
Avg Delivery Days	AVERAGE(Sales_Fact[Delivery Days])	Operational efficiency
Revenue % by Category	Divide([Revenue by Category], [Total Revenue])	Category contribution analysis
YoY Growth	Calculate(Revenue, Previous Year)	Trend analysis

Outcome

Seven dimensional pivot tables delivering 40+ actionable insights across revenue, operations, geography, and customer behaviour.

Step 6: Dashboard & Visualization

Objective

Translate analytical findings into an interactive, visually intuitive executive dashboard enabling rapid business decision-making.

Dashboard Overview

Dashboard Architecture:

- **Platform:** Excel Dashboard
- **Interactivity:** Dynamic filters for Order Date, Delivery Date, and Occasion type
- **Refresh Frequency:** Real-time/daily depending on source system updates
- **Users:** Sales executives, marketing leadership, operations management

Visual Components:

Top KPI Cards:

Metric	Value	Interpretation
Total Orders	1,000	Annual order volume
Total Revenue	₹3,520,984	YTD gross revenue
Order Delivery Time	5.53 days	Average fulfilment cycle
Avg Customer Spend	₹3,520.98	Transaction size

Core Visualizations:

1. **Revenue by Occasions (Bar Chart)**
 - Top occasions: Anniversary, Birthday, Diwali
 - Visual insight: Clear seasonal spikes and occasion preferences
 - Use case: Promotional calendar planning, inventory allocation
2. **Revenue by Categories (Bar Chart)**
 - Top categories: Cakes (₹1,000,000+), Combos, Flowers
 - Visual insight: Product mix heavily skewed toward gift categories

- Use case: Product mix optimization, category marketing ROI

3. Top 10 Cities by Orders (Bar Chart)

- Leading cities: Bangalore, Delhi, Mumbai, Chennai, Hyderabad
- Visual insight: Metropolitan concentration of order volume
- Use case: Geographic expansion strategy, logistics planning

4. Revenue by Months (Line Chart)

- Trend pattern: Clear seasonality with peaks in March, August, October
- Visual insight: Festival-driven demand cycles
- Use case: Cash flow forecasting, staffing planning, inventory management

5. Top 5 Products by Revenue (Bar Chart)

- High-value products identified for cross-selling
- Visual insight: Product performance ranking
- Use case: Bundling strategies, promotional focus

6. Revenue by Days (Bar Chart)

- Daily revenue distribution across 30-day cycles
- Visual insight: Consistent week-over-week patterns
- Use case: Weekly demand management, promotional timing

7. Revenue by Hour (Order Time) (Line Chart)

- Peak hours: 18:00–22:00 (evening orders)
- Visual insight: Customer ordering behaviour concentrated post-work hours
- Use case: Marketing campaign timing, customer service staffing

Interactive Filters:

- **Order Date Slicer:** Month/Year selection (January–December 2023)
 - **Delivery Date Slicer:** Month/Year selection for delivery-based filtering
 - **Occasion Dropdown:** Filter by specific occasion or "All Occasions"
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Key Insights & Business Implications

Sales Performance

- **Revenue Concentration:** 60%+ of annual revenue concentrated in 4 peak occasions (Anniversary, Birthday, Diwali, Holi)

- **Geographic Concentration:** Top 5 cities account for 50%+ of total order volume, with Bangalore and Delhi as clear leaders
- **Product Mix:** Gift categories (Cakes, Combos, Flowers) represent 75%+ of total revenue

Operational Efficiency

- **Delivery Performance:** 5.53-day average delivery time is consistent and predictable
- **Order Timing:** Clear evening preference (18:00–22:00) indicates mobile-first customer engagement
- **Demand Volatility:** Monthly revenue fluctuations of ±35% necessitate dynamic inventory and staffing models

Customer Behaviour

- **Average Transaction Size:** ₹3,520.98 indicates mid-to-premium customer base
- **Ordering Patterns:** Consistent order volume (1,000 annually = ~83/month) with festival-driven peaks
- **Urban Focus:** Predominantly metropolitan order distribution suggests online-savvy, urban demographic

Technical Architecture Summary

Phase	Tool	Input	Output	Key Deliverable
1. Extraction	Power Query Editor	Multiple databases	Unified dataset (1,000 records)	Raw data load
2. Cleaning	Power Query Editor	Raw dataset	Validated dataset	Quality report
3. Transformation	Power Query Editor	Validated dataset	Enriched columns (25+)	Feature set
4. Modelling	Power Pivot	Multiple tables	Dimensional model	Relationship schema
5. Analysis	Pivot Tables + DAX	Data model	Analytical summaries	Insight repository
6. Visualization	Excel Charts	Analysis tables	Interactive dashboard	Executive dashboard

Recommendations

1. **Inventory Optimization:** Implement demand forecasting for festival periods (March, August, October) to optimize stock levels and minimize stockouts

2. **Geographic Expansion:** Leverage top-5 city success patterns to expand into Tier-2 cities with targeted digital marketing
 3. **Time-Based Marketing:** Concentrate promotional campaigns during peak ordering hours (18:00–22:00) to maximize conversion
 4. **Product Strategy:** Develop bundling strategies around top-5 products and consider limited-edition offerings around peak occasions
 5. **Dashboard Evolution:** Enhance with predictive analytics (customer lifetime value, churn prediction) and real-time operational metrics
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Conclusion

The FnP Sales Analysis project successfully transforms raw transactional data into strategic business intelligence through a rigorous six-step analytical pipeline. By leveraging Power Query Editor for ETL, Power Pivot for dimensional modeling, and advanced Excel analytics, the organization now possesses a scalable, maintainable analytics infrastructure capable of supporting data-driven decision-making across sales, operations, and marketing functions.

The resulting executive dashboard provides leadership with actionable insights into revenue drivers, customer behavior, and operational efficiency—enabling rapid response to market opportunities and operational challenges.

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Project Status: Complete & Operational

Refresh Frequency: Daily

Primary Users: Sales & Operations Leadership