

# Optimized F&B menu driving upsell/cross-sell revenues for a luxury hospitality chain

## Introduction

A luxury hospitality chain that manages a portfolio of hotels, resorts, jungle safaris, palaces, spas, and in-flight catering services wanted to optimize its food and beverages (F&B) menu to increase sales and improve guest loyalty.

TransOrg analyzed guests' transactions on F&B by using advanced analytics techniques and machine learning models to:

- Find opportunities of bundling, cross-selling and up-selling menu items as combo deals and to prepare a recommendation guideline for the servers to suggest items to customers while dining.
- Find insights in revenue and quantity trends and suggest actionable strategies for increasing revenues, reducing costs and optimizing menu pricing.
- Identify opportunities of restructuring menu layout with reference to transactions.
- Identify opportunities to create offers based on the time of transaction and seasonality.



The project commenced with a premium hotel property situated in one metro city and eventually scaled up the solution to other hotel properties across India.

## Solution

Analysed the Point of Sales (POS) data for a period of one year comprising of approximately 30,000 transactions and 90,000 ordered items.

Transactional analysis was done on multiple parameters such as:

- Frequency of item ordered vs. item name
- Revenue of item ordered vs. item name
- Overall revenue vs. DOW, TOM, and season\*
- Revenue change per item vs. DOW, TOM, and season.
- Average, Overall and Daily revenue of top items vs. DOW, TOM, and season.

\*DOW: Day of the week (weekdays: Mon-Thu and weekend: Fri-Sun); TOM: Time of the meal (Breakfast, Lunch and Dinner); Season: Summer, winter, spring, autumn and monsoon

## Market Basket Analysis:

TransOrg used the Apriori association method to find frequent item sets and derived association rules to uncover meaningful correlations between different products according to their co-occurrence in a data set. The following measures were used to evaluate the strength of association:

- Support for the rule indicates its outcome in terms of overall size
- Confidence determines the operational usefulness of a rule
- Lift ratio indicates how efficient is the rule in finding consequences, compared to random selection of transaction

LHS		RHS	support	confidence	lift	count
Product N	=>	Product S	0.00156344	0.4936709	19.958866	39
Product M	=>	Product O	0.001282822	0.4507042	18.221745	32

Figure 1 Insights from MBA analysis

Figure 1 above depicts that the probability of finding “**Product N**” in the transactions with “**Product S**” is 19 times greater than the probability of finding “**Product N**” alone.

## Insights and Recommendations



**Increased revenues through combos and in-demand items**



**Targeted campaigns to up-sell and cross-sell**



**In-depth understanding of top revenue generating items across seasons and days**

### Key insights:

- Dishes with regional names and restaurant specific names have contributed significantly to revenue.
- Client earns highest revenues during summer.
- Buffet breakfast is the revenue driver for weekdays in all seasons except the monsoon.
- **Product R** dropped out of Top fifteen revenue contributors in Autumn and Winter
- In Autumn, seasonal **products P and Q** that are added to menu for 15 days contributed approximately USD 7,000.
- Spikes in order frequency align with suggestions by food aggregator apps such as Swiggy or Zomato.
- Demand for **products X, Y and Z** surge in summer.
- **Combo X** has negligible demand in monsoon.

**Key business suggestions:**

- Include more regional dishes and fusion dishes with regional sounding names.
- Promote breakfast offers during stays in monsoon season.
- Increase more varieties of **Products X, Y, and Z** in summers
- Offer combo deal for **product N** and **product S**
- Offer side dishes such as **Product A, Product B, and Product C** at discount price

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