

Smart - Cost : A Hybrid AI - Driven POS and Cost Analytics System for Micro-SMEs



**AI-Driven POS and
Cost Management System**
for Micro-SMEs Cafés and Bakeries



R26-IT-026

Information Technology (IT)
Sri Lanka Institute of Information Technology

Manage Costs | Predict Tomorrow | Grow Smarter

SMART COST OUR TEAM



**MR.DEEMANTHA
SIRIWARDANA**
SUPERVISION



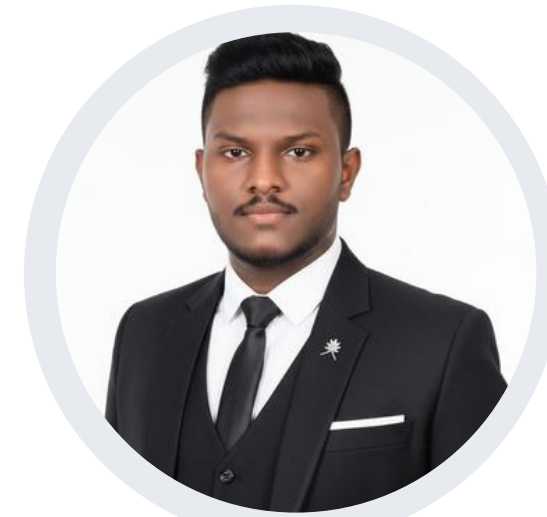
**MISS.AYESHA
WIJESOORIYA**
CO-
SUPERVISION



K.A.C.H KODITHUWAKKU
IT22544872



N.K.M.PERERA
IT22151810



D.D.M JAYASINGHA
IT22162250

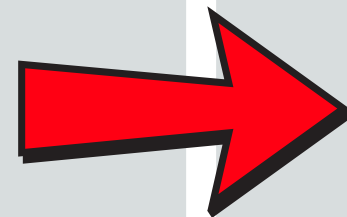


M.P.J.R.DASANAYAKA
IT22152664

PROBLEM, IMPACT AND STAKEHOLDERS

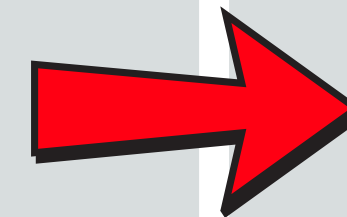
Main Problems Faced by SMEs :

- SMEs use traditional POS systems.
- No future demand prediction.
- Difficult to track profits and costs.
- Inventory wastage happens frequently.
- No customer behavior analysis.
- No smart product recommendations.



Impact / Gravity of the Problem :

- Financial losses increase.
- Product wastage becomes higher.
- Stock shortages affect sales.
- Poor business decisions occur.
- Customer satisfaction decreases.
- Business growth becomes slower.



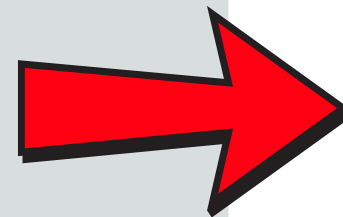
Beneficiaries:

- Bakery owners
- Café owners
- Small retail businesses
- Business managers
- Cashiers and staff
- Customers

PP1 FEEDBACKS AND IMPROVEMENTS

PP1 FEEDBACKS :

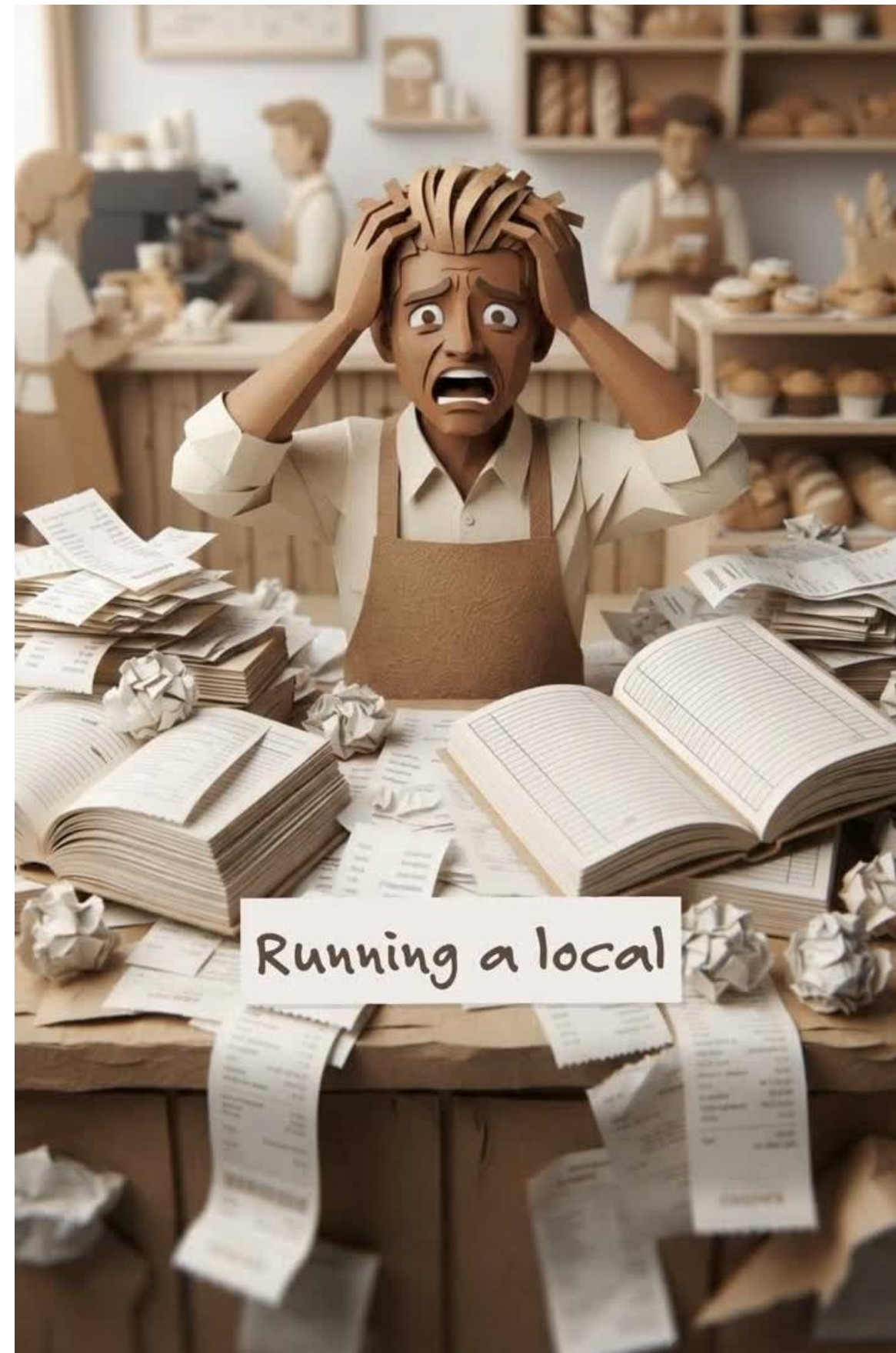
1. Strengthened research methodology
2. Expanded & validated datasets
3. Limited analytical capabilities in initial design.
4. Added future-focused forecasting
5. Compared multiple models
6. Simplified SME user experience
7. Improved recommendations



IMPROVEMENTS MADE:

1. Added defined methodologies and measurable evaluation.
2. Improved datasets, preprocessing and validation.
3. Added model testing and quantitative performance metrics.
4. Predicts future demand, trends and profit from historical POS data.
5. Compared models such as Prophet and Hybrid approaches.
6. Shows actionable predictions and alerts instead of technical ML details.
7. Improved from rule-based logic toward data-driven personalized recommendations.

VIDEO DEMO



Running a local

RESEARCH GAP & OBJECTIVES

Research Gap :

- POS systems mainly focus on transactions.
- Limited AI-based demand and profit forecasting.
- Customer behaviour is underutilised.
- Traditional systems provide limited business insights.
- No integrated platform for analytics and POS.
- Real-time recommendation features are rarely available for SMEs.

Main Objective :

- To design and evaluate SmartCost, a hybrid AI-driven POS and cost analytics system that uses historical business data to provide predictive insights and intelligent decision support for micro-SMEs.

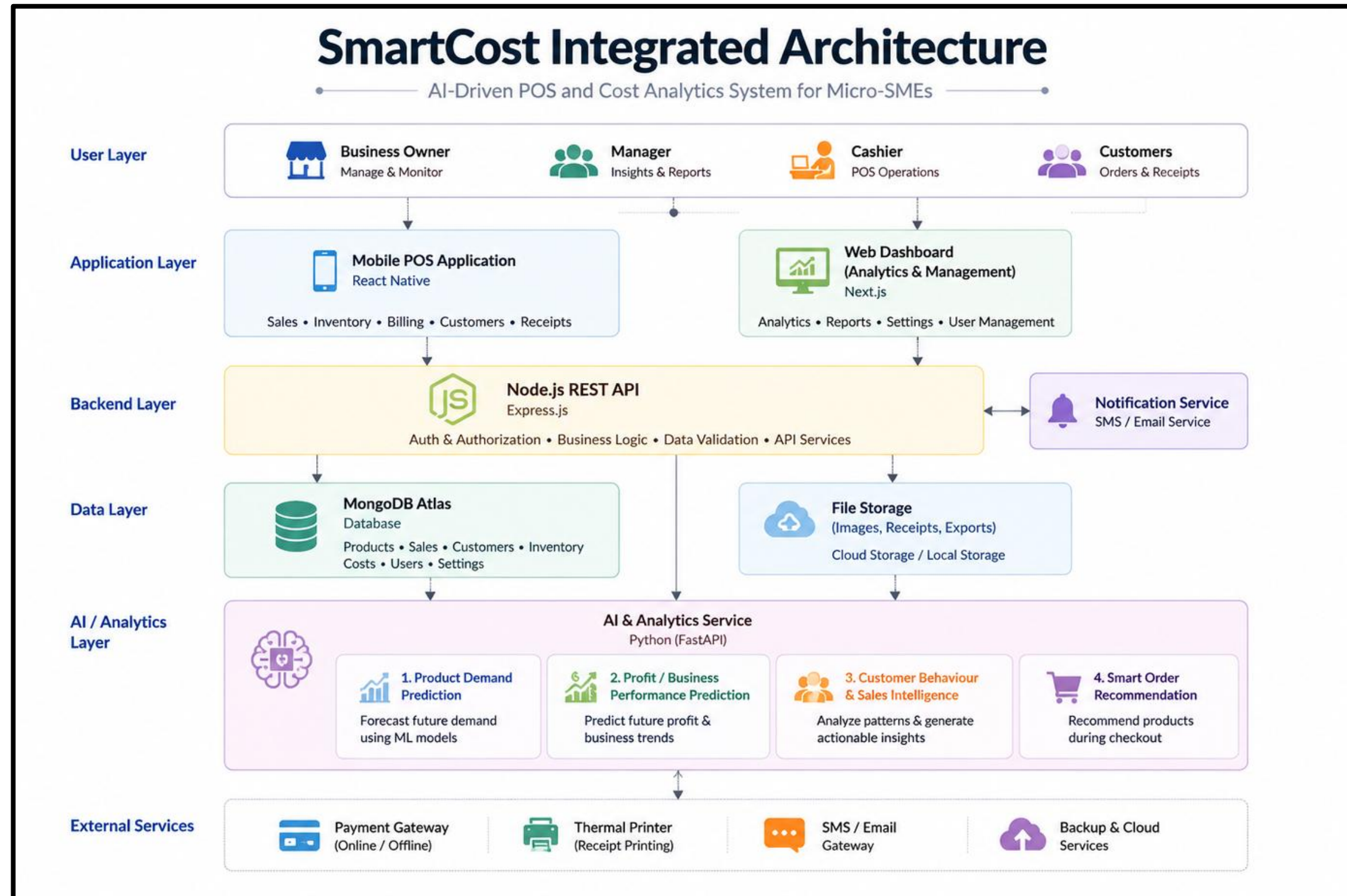
Sub-Objectives :

- Develop four specialized AI/analytics components for demand, profit, customer behaviour, and recommendations.
- Integrate the components into a unified POS and cost management architecture.
- Evaluate performance using appropriate datasets, baseline comparisons, and quantitative metrics.

PROPOSED SOLUTIONS & ARCHITECTURE

Proposed Solutions :

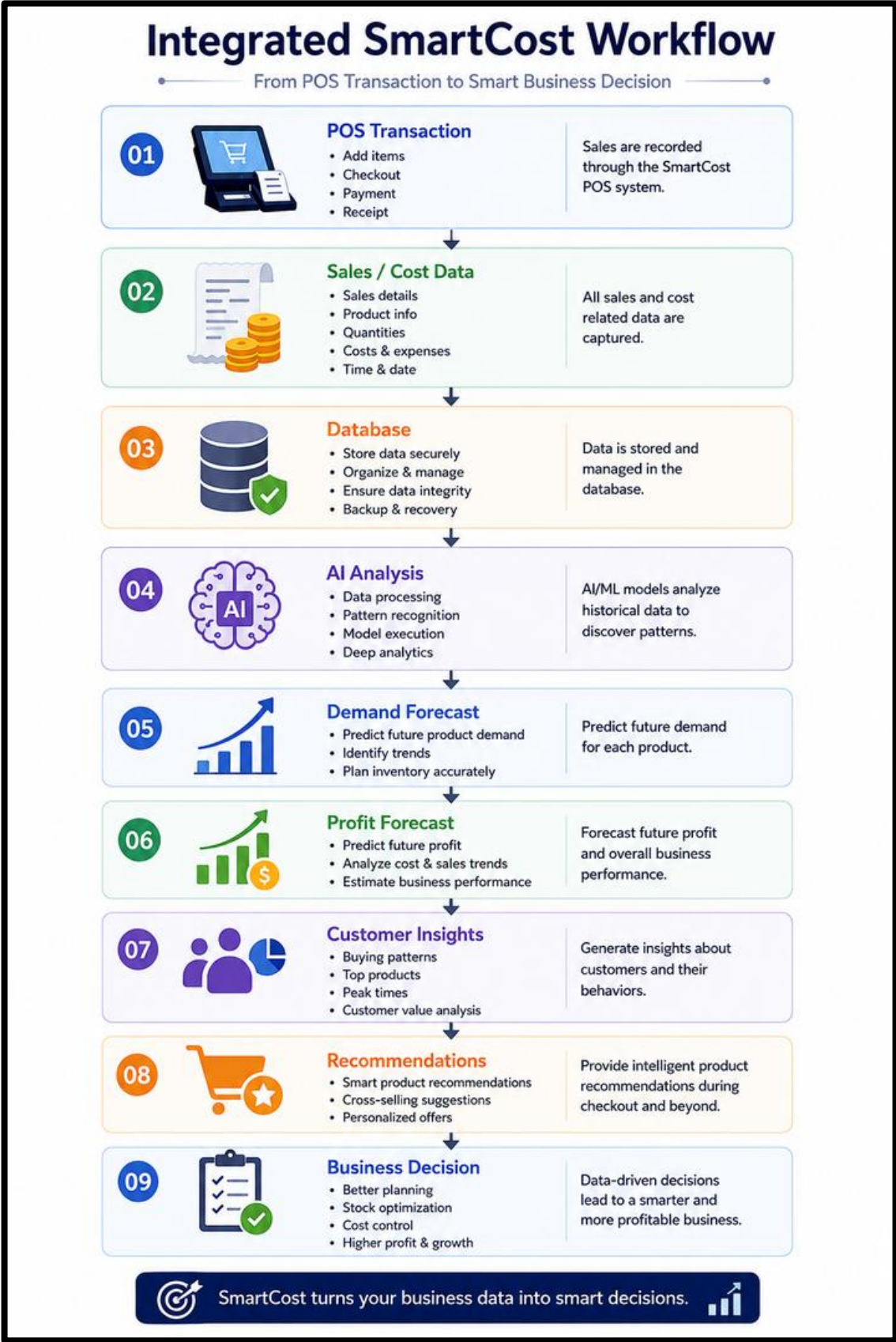
- Develop SmartCost, an AI-driven POS and cost analytics system.
- Predict future product demand.
- Forecast future profit and business trends.
- Analyze customer and sales behavior.
- Provide real-time business insights and dashboards.
- Improve decision-making using data-driven analytics.



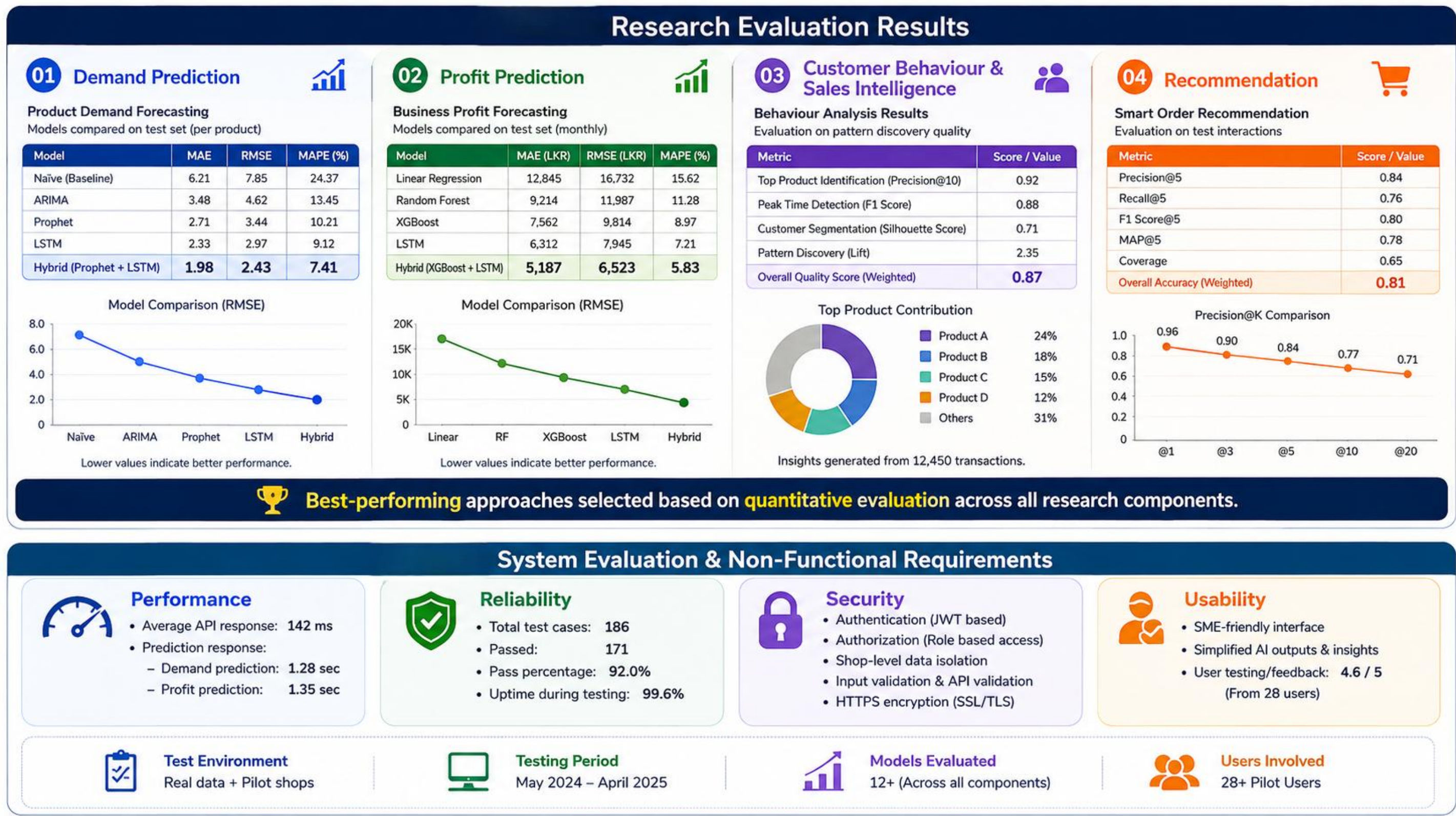
SYSTEM INTEGRATION & COMPLETION

Completion states :

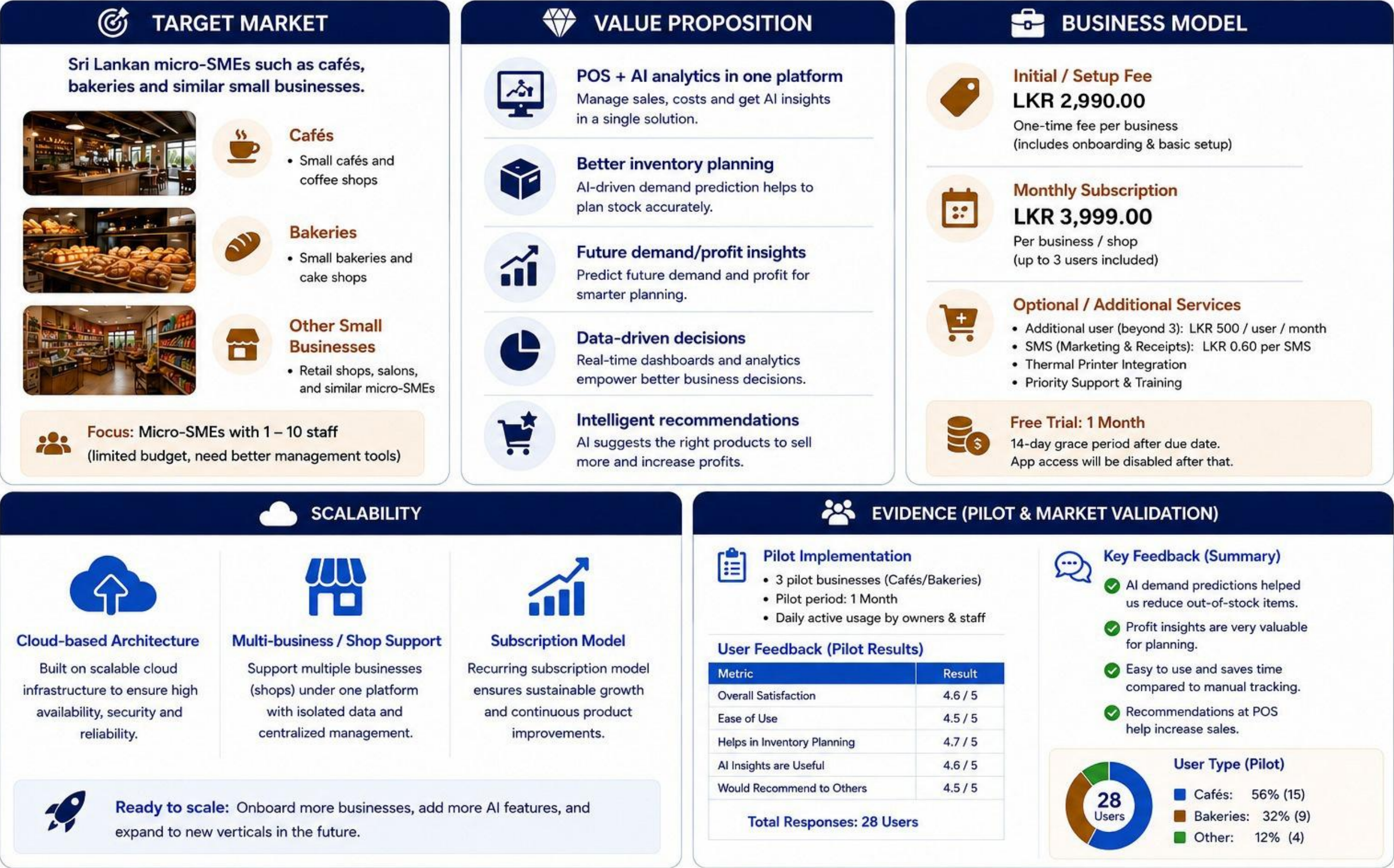
Component	Status
Core POS System	100% Completed
Business Performance Prediction System	100% Completed
Customer Behavior Analysis & Sales Insights	100% Completed
Product Demand Prediction	100% Completed
Smart Order Recommendation System	100% Completed
System Integration	100% Completed



RESEARCH EVALUATION RESULTS AND NFRS, QA / TESTING & SECURITY



COMMERCIALIZATION & BUSINESS POTENTIAL



COMMERCIALIZATION & BUSINESS POTENTIAL

System installation on a site

Customer 01 :

- Salon Zierra Veon



Customer 02 :

- Boat Dynasty



Customer 03 :

- Hilux Custom Lk



Customer 04 :

- Juice N Joy



LIVE DEMONSTRATION



By Smart Cost Team !!!!!



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Thank You!

We appreciate your time, attention
and support in exploring
our project.



Together, let's build
smarter businesses.

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