RMIT UNIVERSITY

School of Science, Engineering & Technology

Ahamove®

BALANCED SCORECARD: SETTING KPIS FOR VARIOUS DEPARTMENTS IN AN ON-DEMAND LOGISTICS COMPANY

OENG1183/1185 ENGINEERING CAPSTONE PROJECT (PARTS A & B)

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BACKGROUND & MOTIVATION

As Ahamove scaled rapidly across Vietnam, it faced critical challenges with manual performance tracking, inconsistent KPI definitions, and siloed departmental reporting. These inefficiencies caused delays in decision-making and missed opportunities for cost and service optimization. The company's reliance on spreadsheets made it difficult to align metrics across business units.
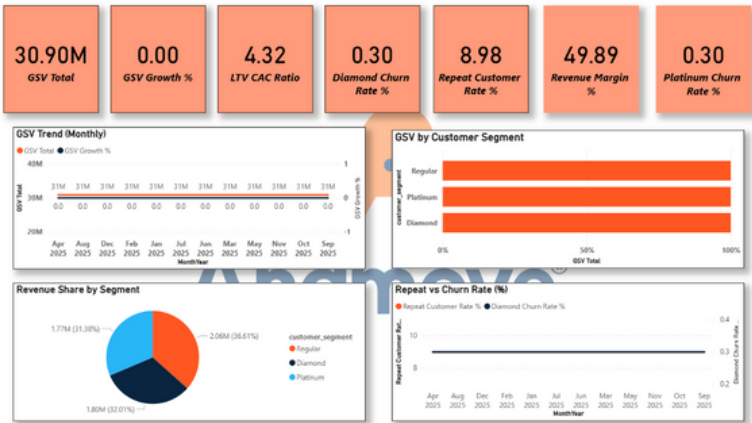
This project was initiated to solve those pain points by building a **centralized, automated, and AI-assisted performance management system** that could provide:
- **Real-time operational visibility**
- **Predictive insights**
- **Strategic control**
- **Lightweight usability** for everyday business stakeholders

EXPERIMENT & RESULTS

Internal Testing (Not in Production):
- Trained **XGBoost classification models** on one year of historical KPI data for each department
- **Goal:** Predict whether the current month's KPI target will be met, using only partial-month data as input
- Achieved **R² > 0.9** and high classification accuracy for key KPIs, including delivery cost, support cost, and CSAT
- **Production Replacement:** OpenAI Assistant now performs the same forecasting — taking a year's worth of data for each department and analyzing the current month's partial results to predict KPI achievement at month-end
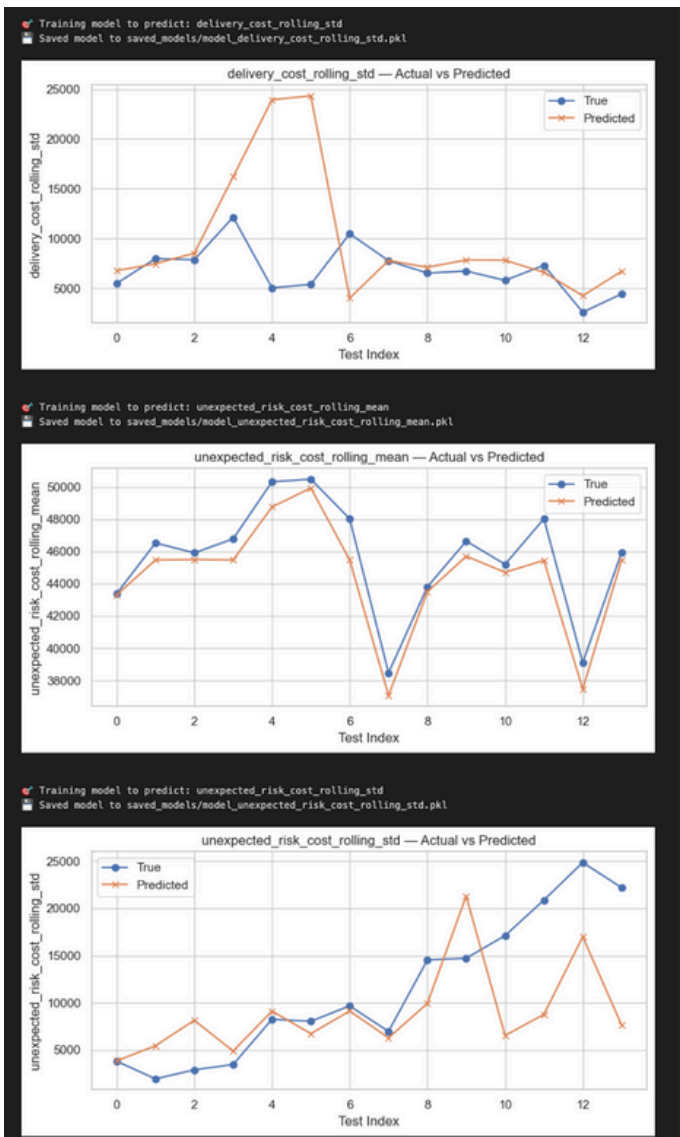

Caption: Example of real-time departmental KPI dashboard used for analysis and predictions.

Caption: Extract from the standardized KPI dictionary co-developed with department stakeholders.

Caption: Sample model prediction results for operational KPIs, demonstrating close alignment with actual values
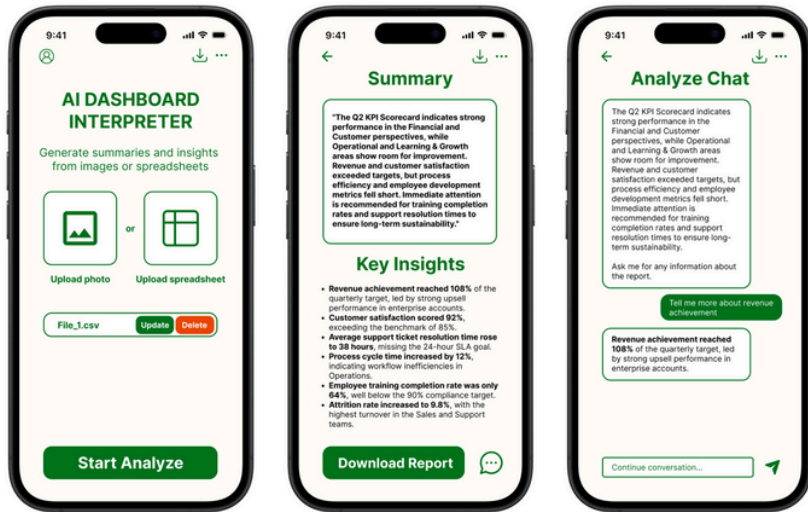

Caption: Performance summary of trained regression models across multiple KPIs.

METHODOLOGY

Our approach followed a **wave-based MVP** process:
- **KPI Dictionary Design Workshops** across 7 departments
- **Power BI Dashboards** with automated SQL integration & refresh logic
- **AI Dashboard Interpreter** (mobile + web)
- **OpenAI Assistant** for both OCR from dashboard screenshots and structured spreadsheet parsing — all handled automatically without manual preprocessing
- **Iterative Feedback Loops** at each delivery stage to refine functionality

Caption: Mobile AI Dashboard Interpreter for uploading KPI dashboards (images or spreadsheets) and receiving instant summaries and insights.

DELIVERABLES

1. Department-Specific KPI Dictionary
- Contains **40+ validated KPIs** covering **Operations, Sales, Customer Support, Technology, Product, Marketing, and Finance & Accounting.**
- Each KPI entry includes:
  - **Precise formula** for calculation
  - **Update frequency** (daily, weekly, monthly)
  - **Data owner** and department responsibility
  - **Criticality rating** for prioritization
- Developed through **cross-departmental workshops** to ensure alignment with both operational needs and strategic goals.

2. Real-Time Power BI Dashboards
- **Custom dashboard** for each department with interactive charts, scorecards, and drill-down capabilities.
- Visual indicators for **SLA compliance, customer satisfaction, delivery performance,** and **financial efficiency.**
- Automated SQL-based data integration with **scheduled refresh logic**, ensuring minimal manual intervention.

3. AI Dashboard Interpreter (Android & iOS)
- Mobile application enabling managers to upload:
  - KPI dashboard screenshots (image-based inputs)
  - Raw spreadsheet exports (CSV, XLSX)
- Provides **instant AI-generated summaries, KPI achievement forecasts, and actionable insights.**
- Optimized for **low-latency responses** and **offline-first mobile UI design** for field use.

4. Interactive Chatbot
- **B**uilt on OpenAI Assistant to allow natural language queries about uploaded files.
- Supports both quantitative forecasting (e.g., "Will our delivery cost target be met this month?") and qualitative insight extraction (e.g., "Which KPI is most at risk?").
- Accessible from both the mobile app and web dashboard.

5. Full Documentation & Governance Plan
- User guides, admin manuals, and training materials for onboarding new staff.
- Governance framework detailing:
  - KPI ownership per department
  - Dashboard maintenance schedules
  - Data quality assurance processes
- Designed for **self-sustaining management** post-handover without vendor dependency.

FUTURE WORK

1. **Expand KPI Coverage**
2. **Advanced Trend Analysis & Anomaly Detection**
3. **Multi-File Batch Analysis**
4. **Deeper Integration with Operational Databases**
5. **Department-Level AI Assistants** *(Future Vision)*