

A.I IN RETAILER PROPOSAL

Team #45: KhongSuy



ABOUT US

Born from the passion of young minds for Artificial Intelligence applications in business, the **KhongSuy** team from major Data Science in HCMUS is a fusion of logical reasoning and business acumen. Comprising five members, we aspire to bring forth an intriguing and highly applicable product for the **Vietnam Datathon** competition. Our collective belief is that this product has the potential to address the challenges faced by the retail industry.



TABLE OF CONTENTS

01

PAIN POINTS

02

SOLUTION OVERVIEW

03

AI APPLICATIONS

04

PERFORMANCE METRICS

05

TIMELINE

TABLE OF CONTENTS

06

PROBLEM STATEMENT

07

MINIMUM VIABLE PRODUCT

08

FUTURE ENHANCEMENTS

09

CONCLUSION



DBMS IN VIETNAM

The common Database Management System (DBMS) depends on the old manually stored method. This method may cause inefficiencies, slow processes, and limit effective data management.

FORECASTING

Predicting customer demand in the fashion industry is a difficult task. The rapid fluctuations in trends and preferences create challenges in providing the right products and stimulating shopping demand.



STRATEGIC DECISION-MAKING

Retailers may miss out on optimizing pricing strategies and fail to adapt quickly to market changes, affecting profitability.



02.

SOLUTION OVERVIEW

How this solution is innovative, highlighting its novelty either in terms of its technical aspects or its fulfillment of business needs

WHAT WE ARE IMPRESSING UPON OTHERS

INVENTORY MANAGEMENT

Automated (ETL) system and deploy a DBMS data warehouse that is optimized for the storage and retrieval of inventory data for analytical purposes.

FORECAST PRICE OPTIMIZATION

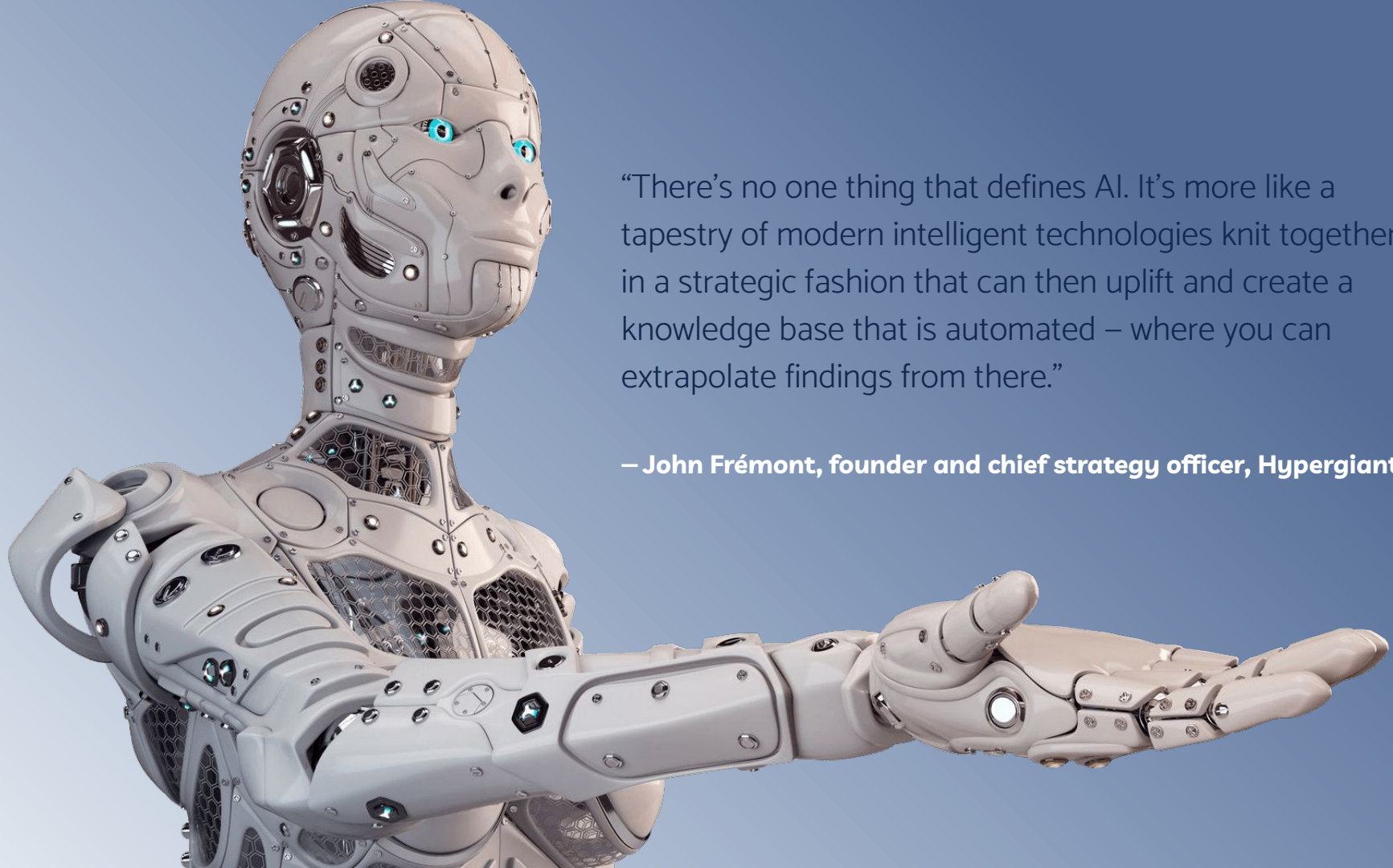
Listing prices are separated by month, weekday, weekend, and special events due to the fluctuating demand during those time periods.

SEASONAL STRATEGIES

Plan discounts for special days and celebrations during each season: International Women's Day, Vietnamese Family Day, back-to-school. Offer free shipping or returns, or create seasonal packages or subscriptions depending on seasonal goals.

SUPER SETS APPLICATION

Using Apache Superset, an open-source software, will provide to our customers highly customizable product that fits company standards and demands, while still be able to get the jobs done like many other software on the market.



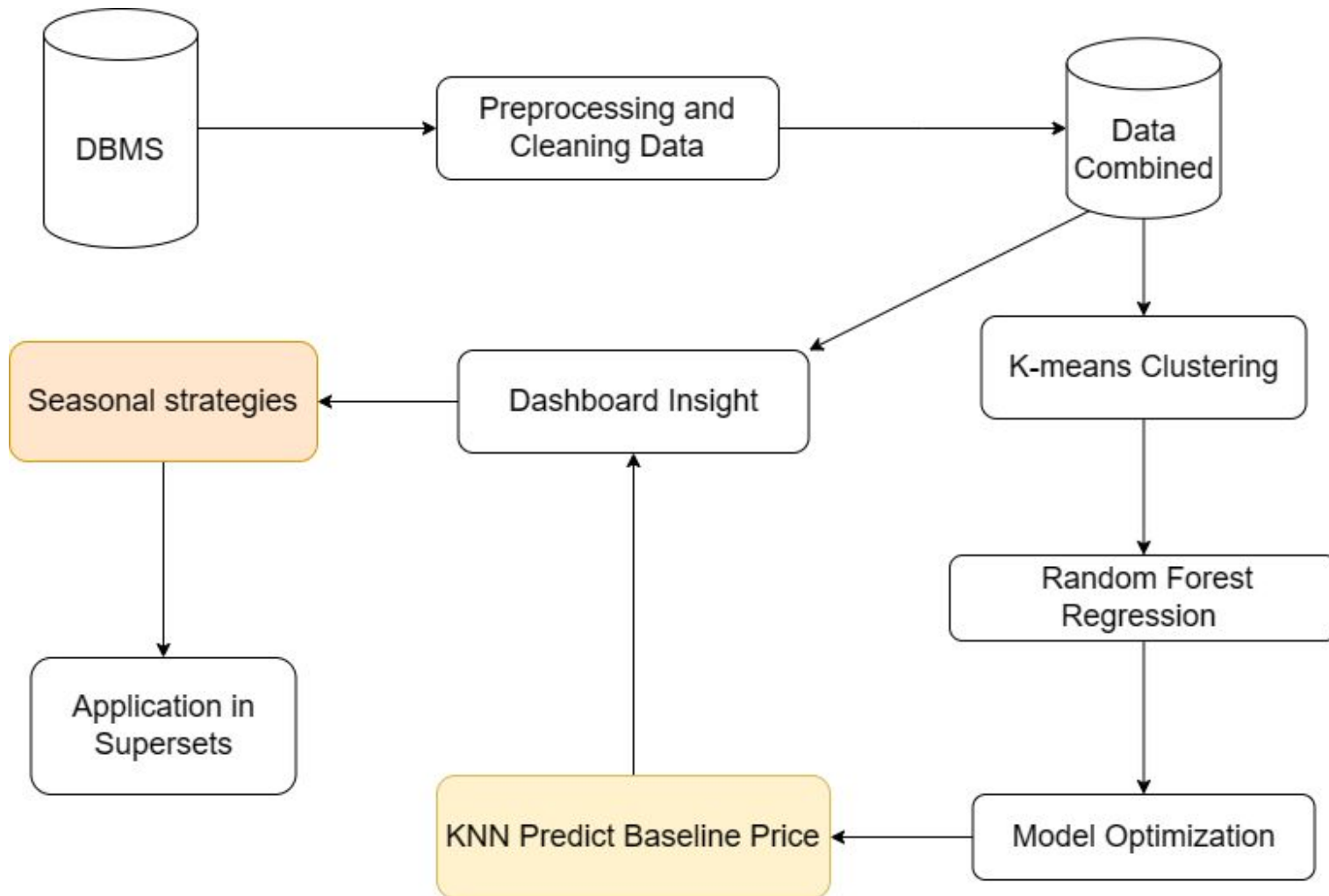
“There’s no one thing that defines AI. It’s more like a tapestry of modern intelligent technologies knit together in a strategic fashion that can then uplift and create a knowledge base that is automated – where you can extrapolate findings from there.”

— John Frémont, founder and chief strategy officer, Hypergiant

03.

AI APPLICATIONS





- **Business Metrics:**

- + Inventory Turnover:

- Description: The frequency of inventory turnover within a specific timeframe.

- Measurement: Sales revenue / Average inventory.

- + Profit:

- Description: Total income minus costs and fixed expenses.

- Measurement: Overall profit, profit by product category, profit from specific sales channels.

- **DBMS metrics:**

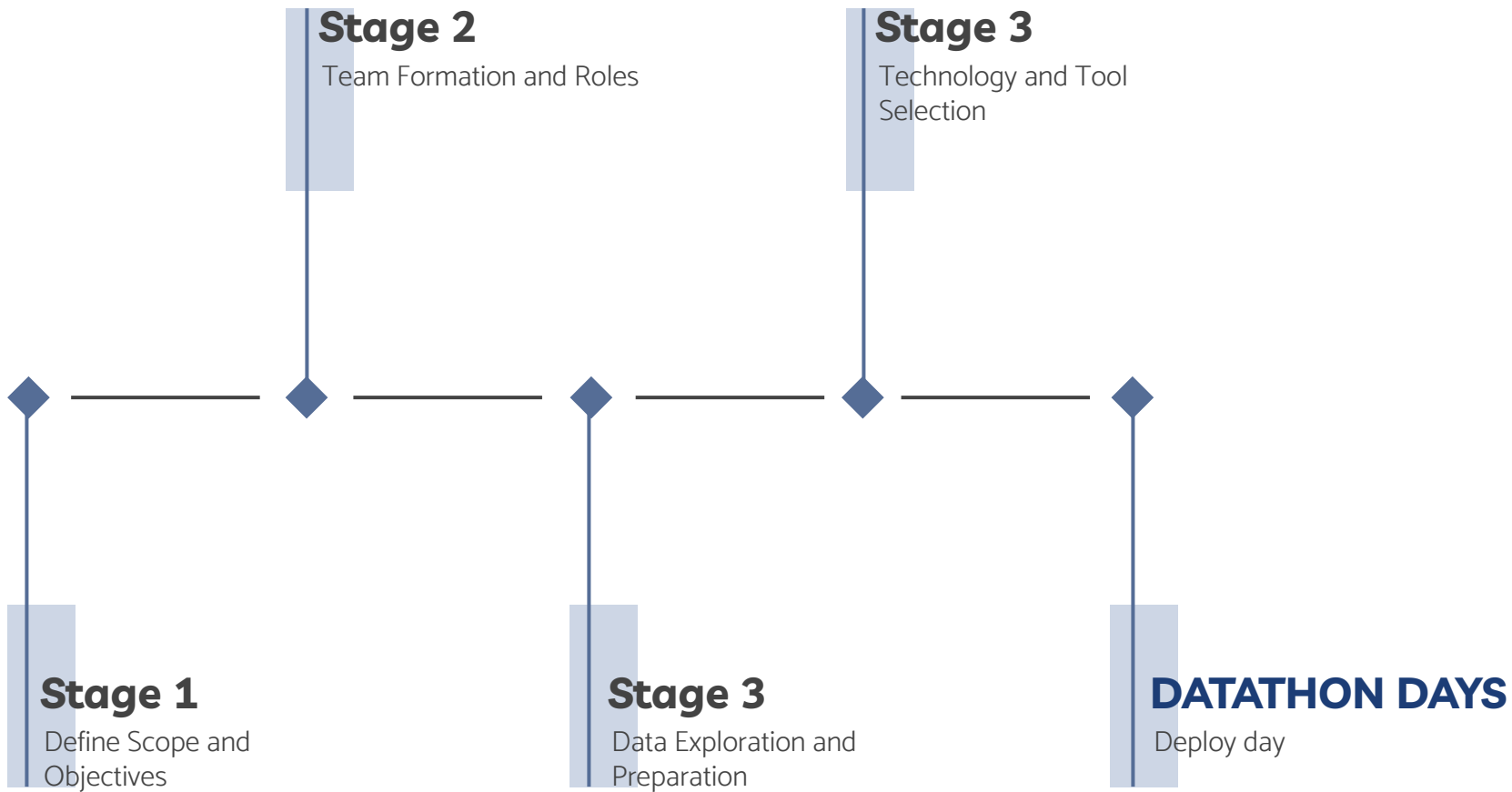
- + Memory used

- + Execution Time

- **Models:**

- + Mean Squared Error (MSE) - LR

- + Feature Importance - RF



PROBLEM STATEMENT

1

ETL

- Make the workflow in automatically
- Ensure the end-to-end processing
- Import and Export data in real time smoothly

2

The DMS

- Build module for Preprocessing and cleaning data to fit in demand field in model and data in reality
- Set up and maintain the SQL Server Database system for efficient analytics

3

AI Model

- Choose suitable model for the targets
- Up the performance of model by fine tuning and other ways

Data Missing Values

month	week	site	branch_id	channel_id	distribution_channel	distribution_channel_code	sold_quantity	cost_price	net_price	customer_id	product_id
2023006	202325	1200	1200	TGPP	Phát sinh	ZRD	-42	-8568000	-9030750	ec6ba7565	f72621e222d940c4b074b6bff489edcfHOG33
2023006	202325	1200	1200	TGPP	Phát sinh	ZRD	-23	-4926600	-5288850	ec6ba7565	1f22dfa184ca471dab38f422cd55ccf0HOG35
2023003	202313	1200	1200	TGPP	Phát sinh	ZRD	-21	-1328040	-1464750	7d2a82c60	521844b57252468082e29f9b3283d215DEN39
2023003	202313	1200	1200	TGPP	Phát sinh	ZRD	-47	-2972280	-3278250	7d2a82c60	d3be75230d9a4b558e6ec94bddac291cNAU43
2023001	202302	1200	1200	TGPP	Phát sinh	ZRD	-42	-21848400	-23028450	c6d7079f0	894694de569447289195bd1c2fbce9dcDEN42

07. MINIMUM VIABLE PRODUCT



Three fundamental objectives for the team's product are as follows:

1. Establish a database for **Inventory Management**.
2. Address two challenges in the retail sector:
 - Employ a Machine Learning model to **forecast sales optimization**
 - Utilize Data Analyst skills to **analyze seasonal strategies**.
3. **Deploy a web page** accessible with supersets for showcasing our technology and insights applicable to other retail datasets.

These goals are aimed at creating a comprehensive **end-to-end system** that enables retailers to gain insights and utilize various functions, ultimately enhancing sales performance through AI applications.

08. FUTURE ENHANCEMENTS



**Time Series
Integration**



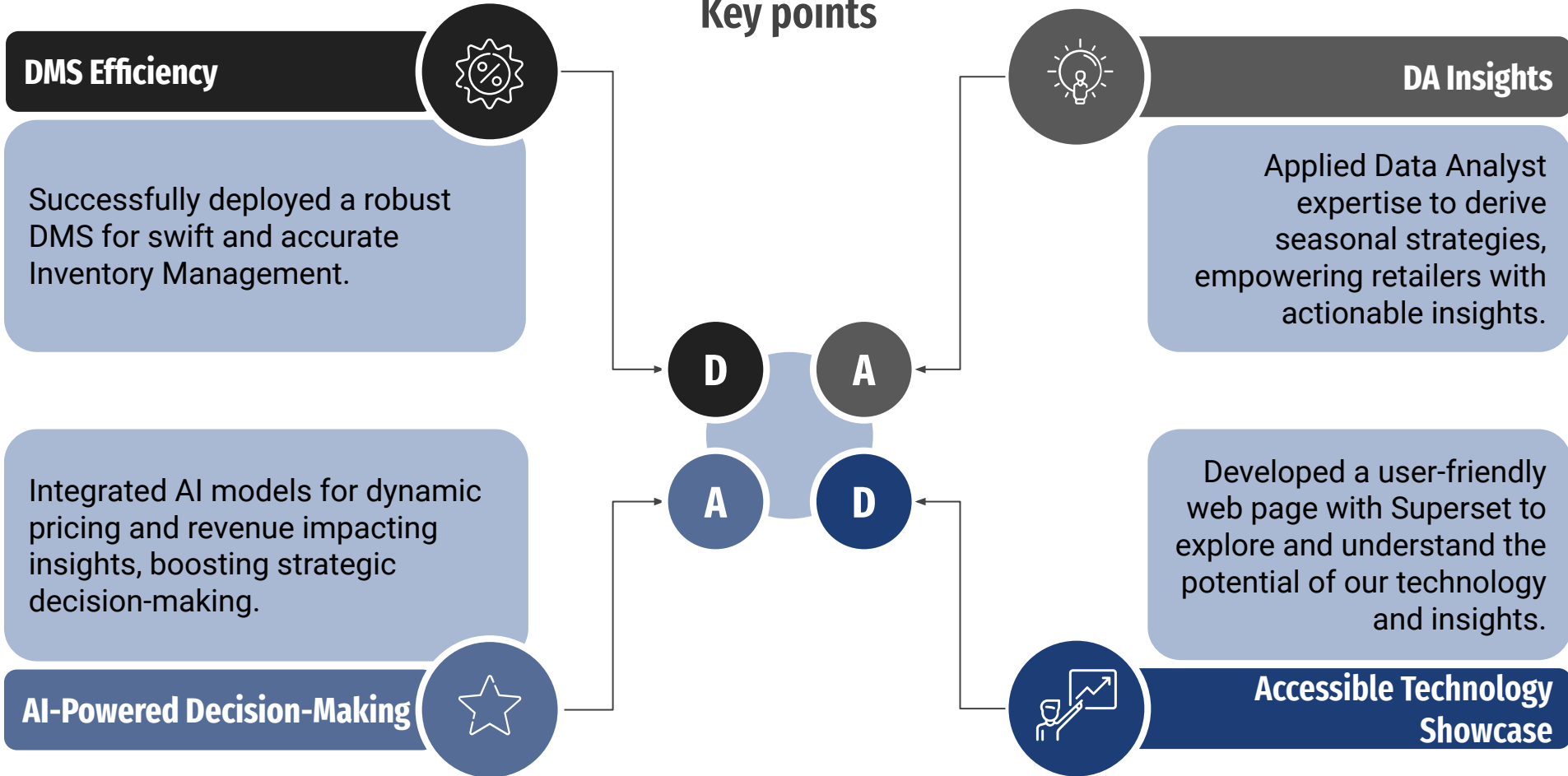
**Neural
Network
Regression**



**Competition
Analysis**

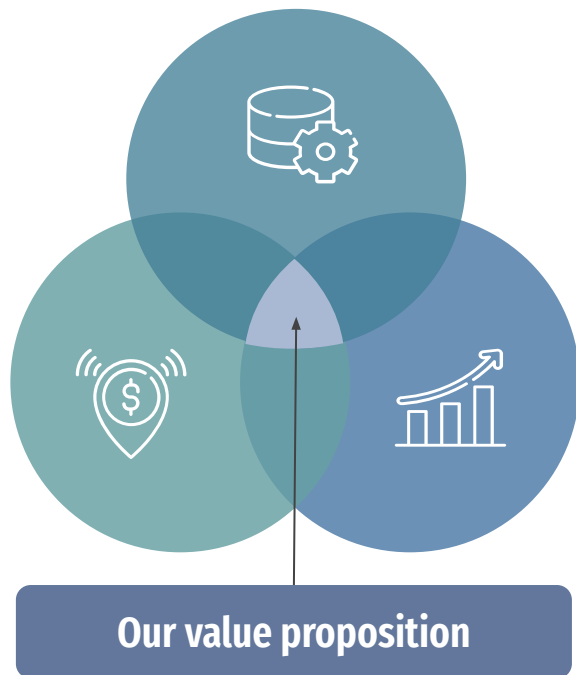
09. CONCLUSION

Key points



09. CONCLUSION

Reiterating Value Proposition



Operational Excellence

Ensures DMS operational efficiency without sacrificing accuracy in inventory management.



Strategic Advantage

Provide a strategic advantage, enhancing sales performance and anticipating market trends by AI.



Data-Driven Planning

The insights enable precise planning, contributing to proactive and informed decision-making.

THANKS

Does anyone have any questions?

Please contact with our team:

Team #45 - KhongSuy

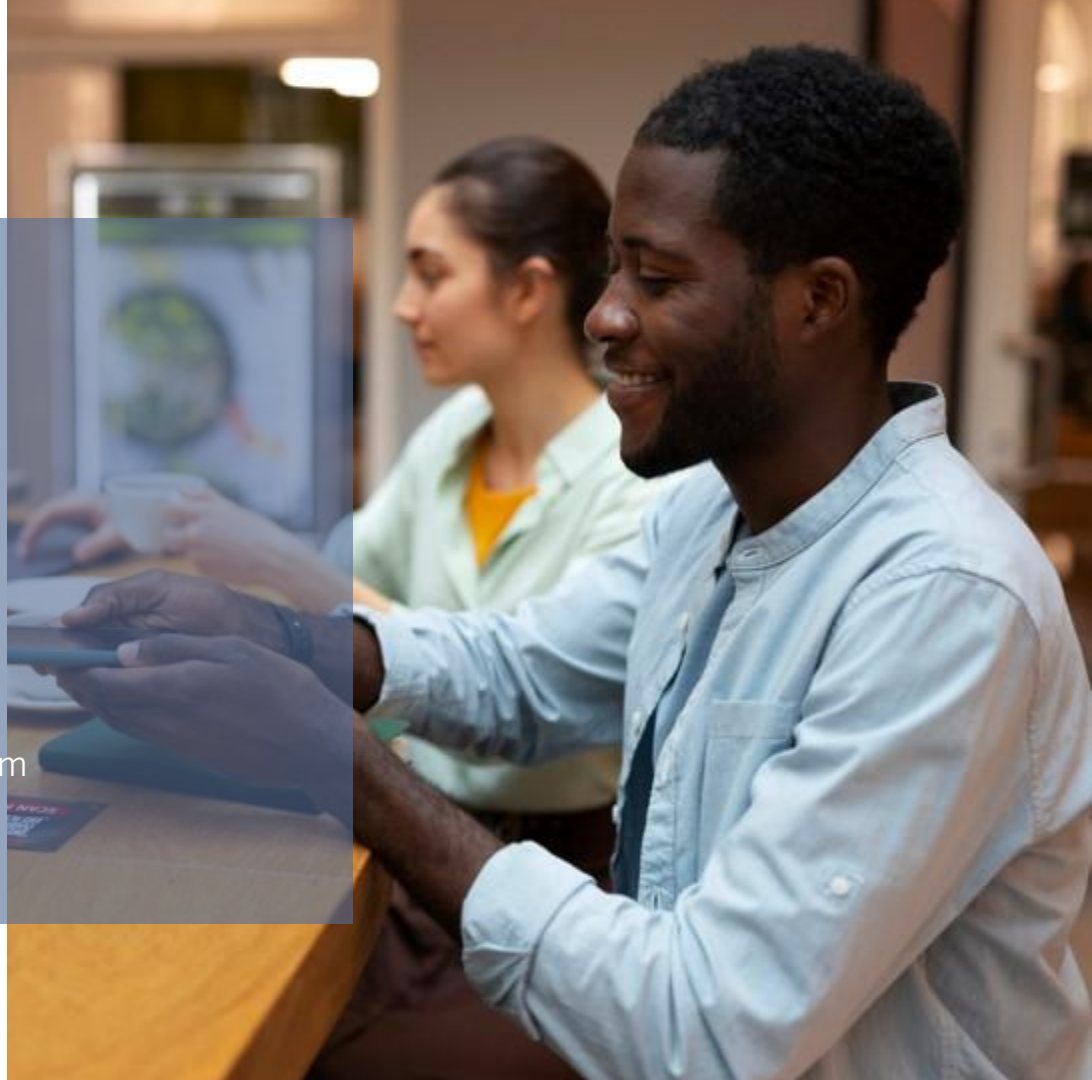
Member 1: Trần Công Quang

Member 2: Trần Nguyễn Tiến Lộc

Member 3: Nguyễn Khải Huy

Member 4: Nguyễn Lưu Phương Ngọc Lam

Member 5: Trần Hữu Chí Công



REFERENCES

There are the resources we are using in all of our presentation:

- Presentation template by [Slidesgo](#)
- Icons by [Flaticon](#)
- Infographics and Images by [Freepik](#)