

MARTECH EXP

Marketing Technology & Innovation Expo

Machine Learning for Business

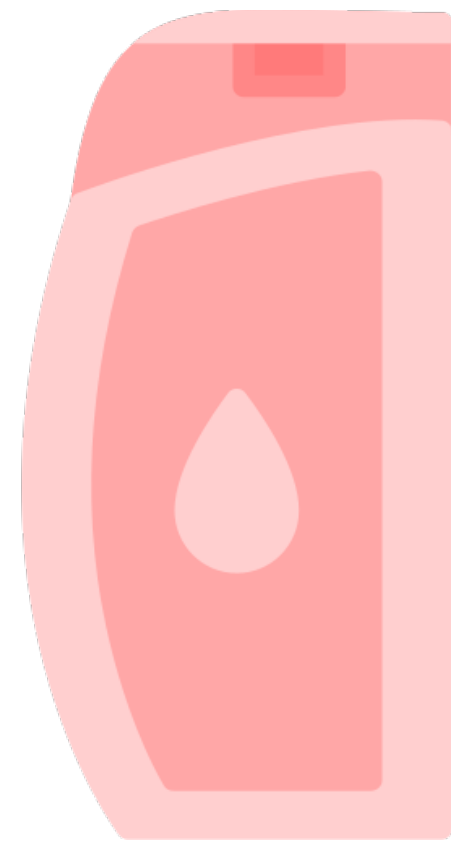
(workshop with MarTech App)

Eakasit Pachararwongsakda, Ph.D.

eakasit@datacubeth.ai

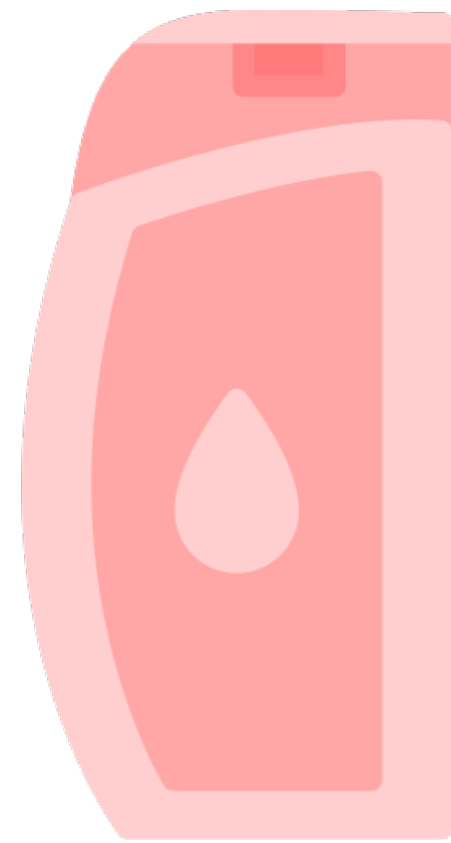
Co-founder and Data Science Team Lead

Cube Analytics Consulting Co., Ltd.

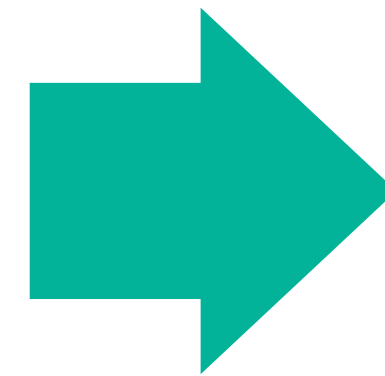


แอปพลิเคชัน

ควรเสนอลูกค้าแบบไหนดี ?



แบบฟูลสละฟม



ผู้หญิง

20-30 ปี

ประวัติการซื้อสินค้า

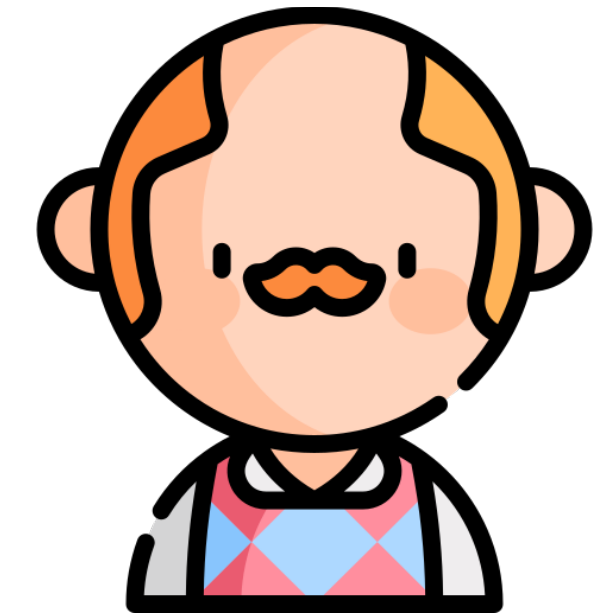
Customer	Gender	Age	Location
1	M	40-50	กรุงเทพ
2	F	40-50	ปทุมธานี
3	M	30-40	กรุงเทพ
4	M	40-50	อยุธยา
5	M	40-50	กรุงเทพ
6	M	40-50	กรุงเทพ
7	M	40-50	กรุงเทพ
8	F	40-50	กรุงเทพ
9	M	30-40	กรุงเทพ
10	M	30-40	เชียงใหม่

ประวัติการซื้อสินค้า

Customer	Gender	Age	Location
1	M	40-50	กรุงเทพ
2	F	40-50	ปทุมธานี
3	M	30-40	กรุงเทพ
4	M	40-50	อยุธยา
5	M	40-50	กรุงเทพ
6	M	40-50	กรุงเทพ
7	M	40-50	กรุงเทพ
8	F	40-50	กรุงเทพ
9	M	30-40	กรุงเทพ
10	M	30-40	เชียงใหม่

ประวัติการซื้อสินค้า

Customer	Gender	Age	Location
1	M	40-50	กรุงเทพ
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6	M	40-50	กรุงเทพ
7	M	40-50	กรุงเทพ
8	F	40-50	กรุงเทพ
9	M	30-40	กรุงเทพ
10	M	30-40	เชียงใหม่



ผู้ชาย

40-50 ปี

กรุงเทพ

ประวัติการซื้อสินค้า

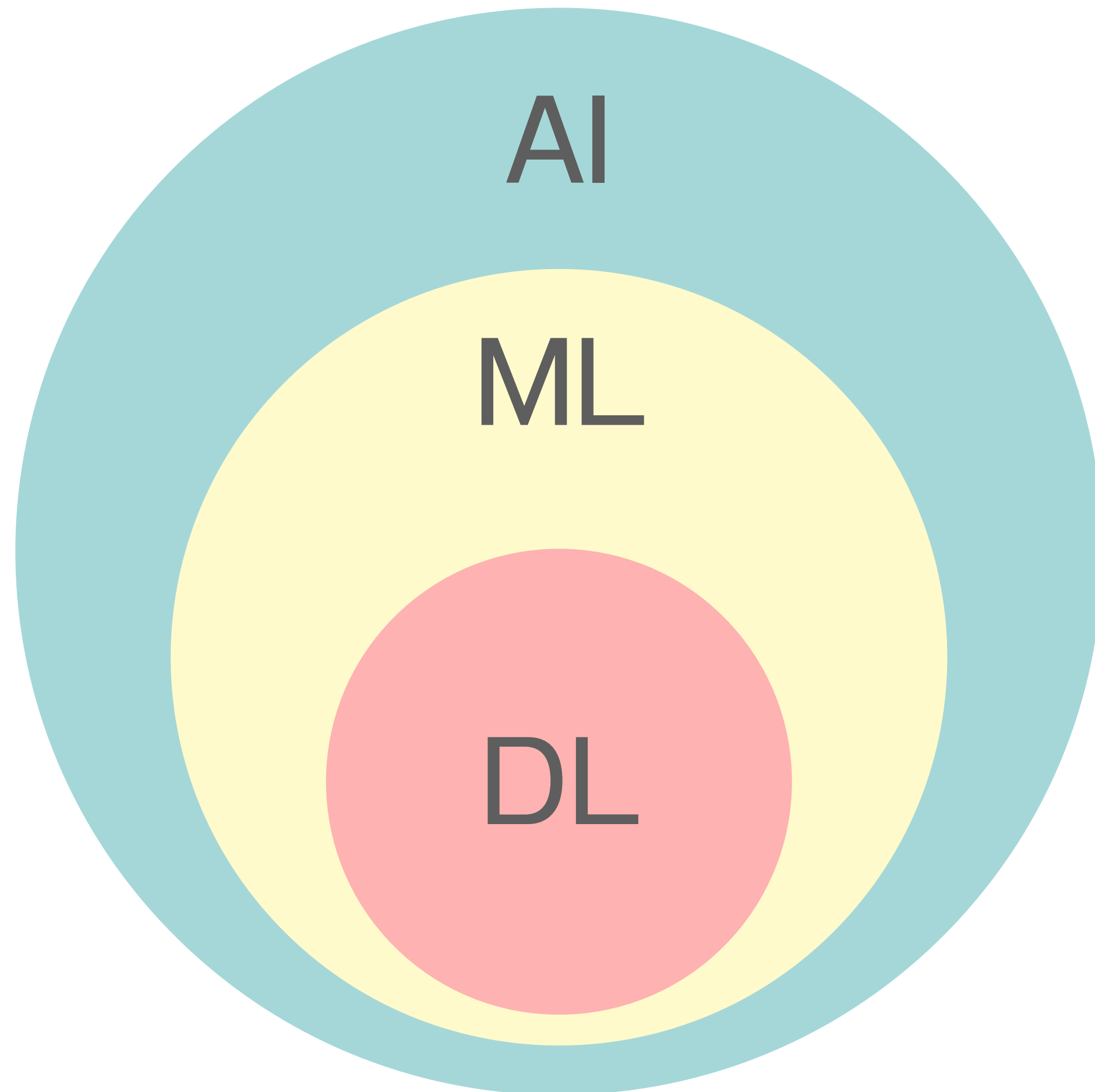
Customer	Gender	Age	Location
1	M	40-50	กรุงเทพ
2	F	40-50	ปทุมธานี
3	M	30-40	กรุงเทพ
4	M	40-50	อยุธยา
5	M	40-50	กรุงเทพ
6	M	40-50	กรุงเทพ
...			
...			
999,999	M	30-40	กรุงเทพ
1,000,000	M	30-40	เชียงใหม่

ควรเสนอ
ลูกค้า
แบบไหนดี ?

What is Machine Learning (ML) ?

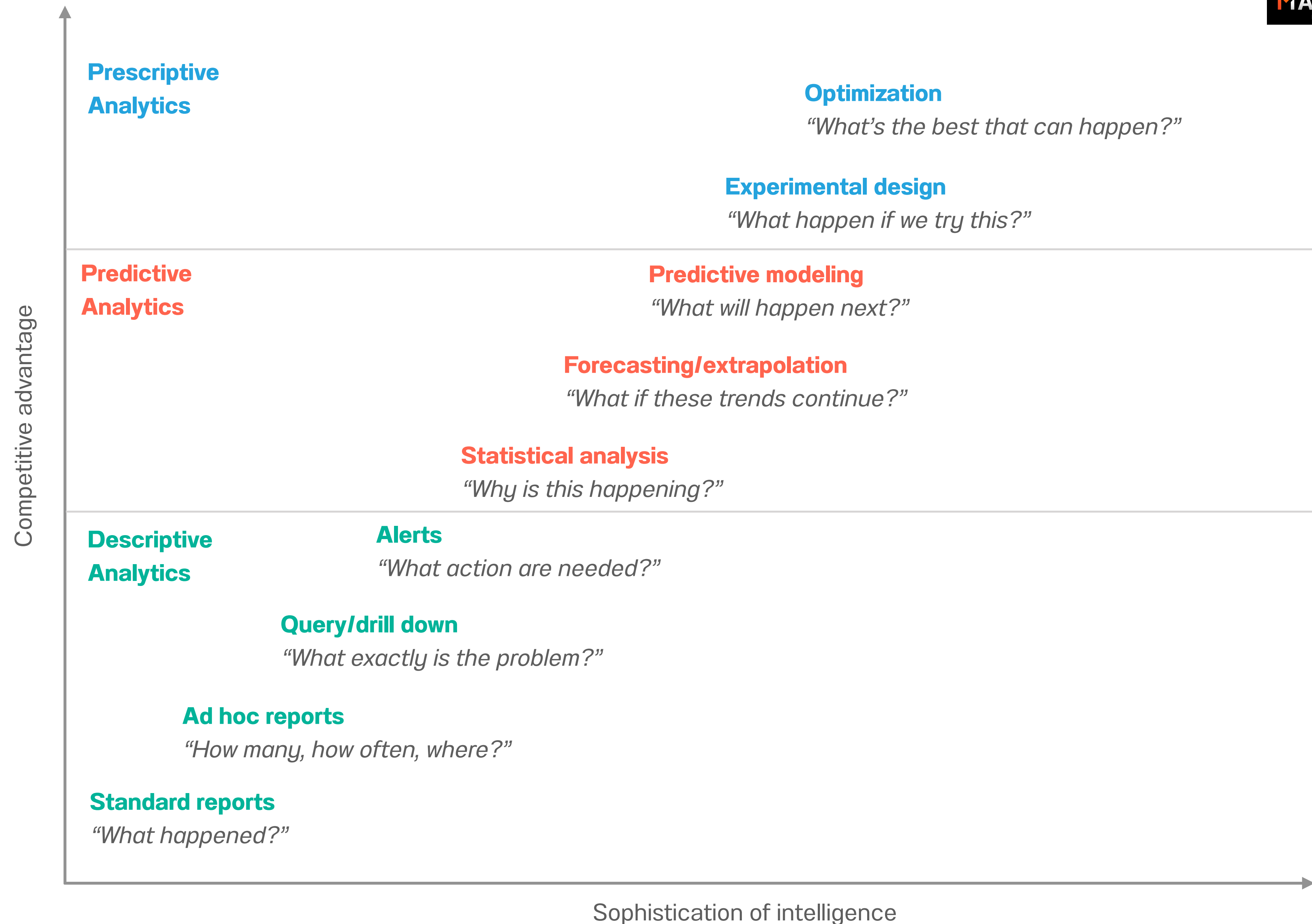
“Machine learning is a branch of computer science that **allows computers to automatically infer patterns** from data **without being explicitly told** what these patterns are.”

– <https://www.akkio.com/beginners-guide-to-machine-learning>

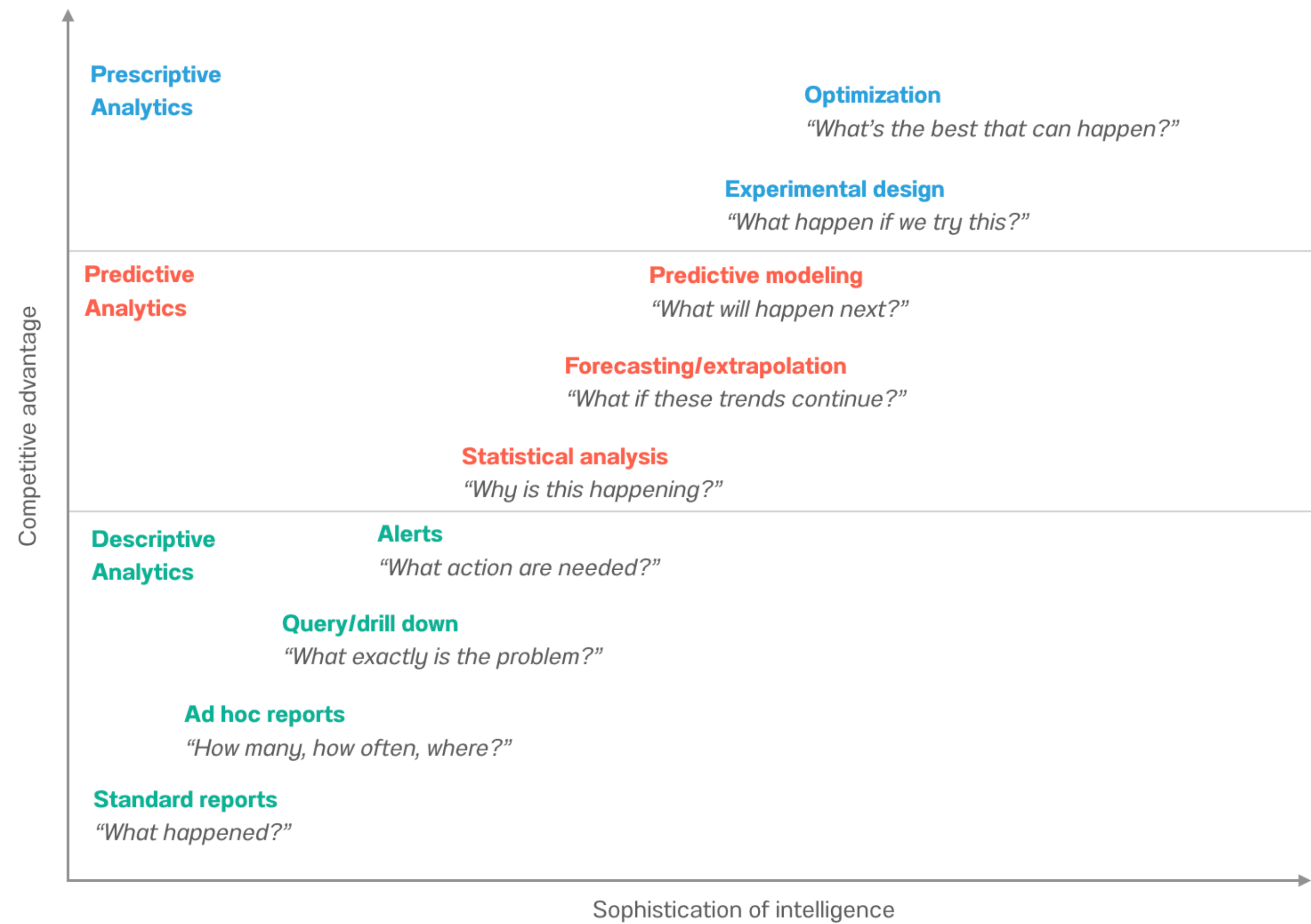


reference: <https://levity.ai/blog/difference-machine-learning-deep-learning>

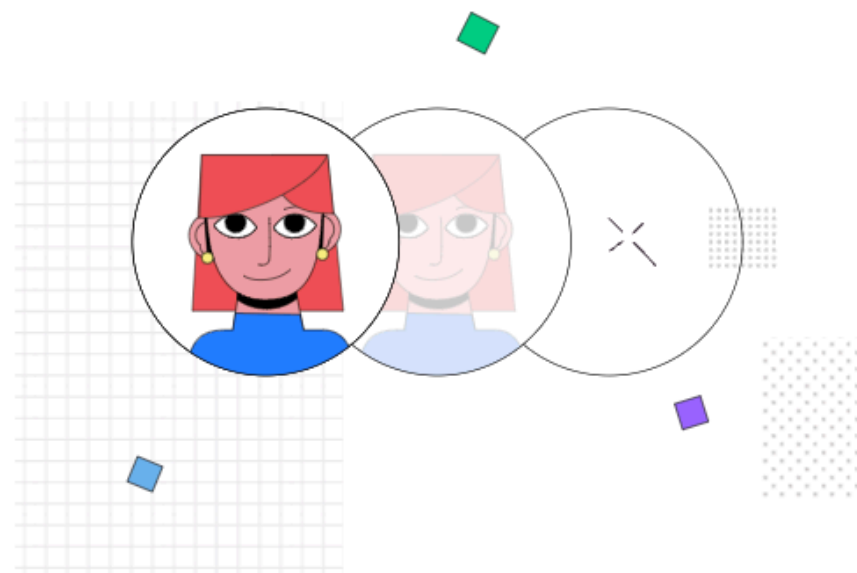
- **Artificial Intelligence (AI)**
 - The theory and development of computer systems able to perform tasks normally requiring human intelligence
- **Machine Learning (ML)**
 - Gives computers “the ability to learn without being explicitly programmed”
- **Deep Learning (DL)**
 - Machine learning algorithms with brain-like logical structure of algorithms called artificial neural networks



- **Descriptive analytics** (aka *business intelligence [BI]* or *performance reporting*)
 - provides access to historical and current data. It provides ability to alert, explore, and report using both internal and external data from variety of sources.
- **Predictive analytics**
 - uses quantitative techniques (e.g., propensity, segmentation, network analysis and econometric forecasting) and technologies (such as models and rule-base systems) that use past data to predict the future
- **Prescriptive analytics**
 - uses a variety of quantitative techniques (such as optimization) and technologies (e.g., models, machine learning and recommendation engines) to specify optimal behaviors and actions



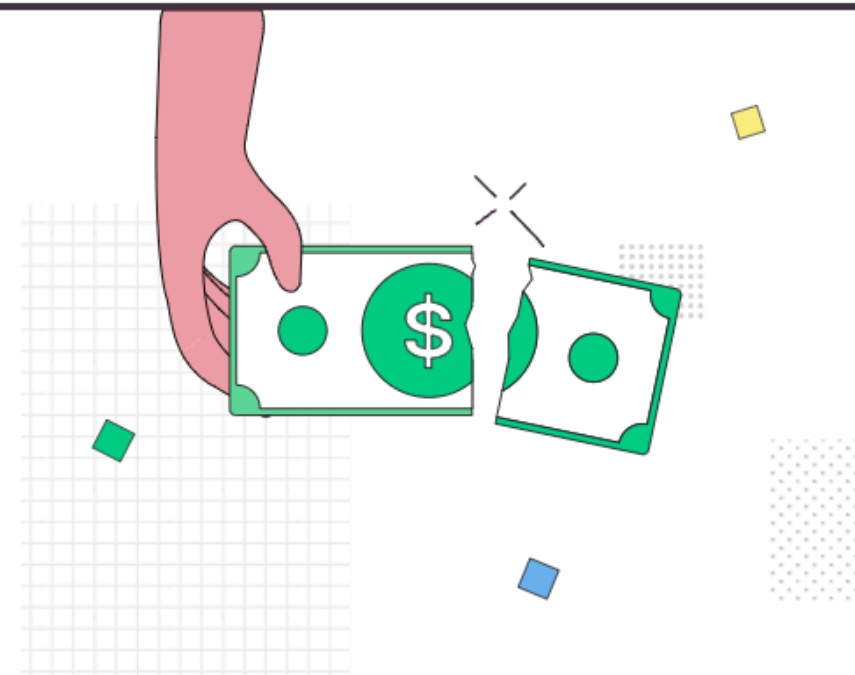
Reference: *Competing on Analytics: The New Science of Winning, 2nd Edition*



Churn Prediction

Predict which customers are likely to cancel and proactively take action on them.

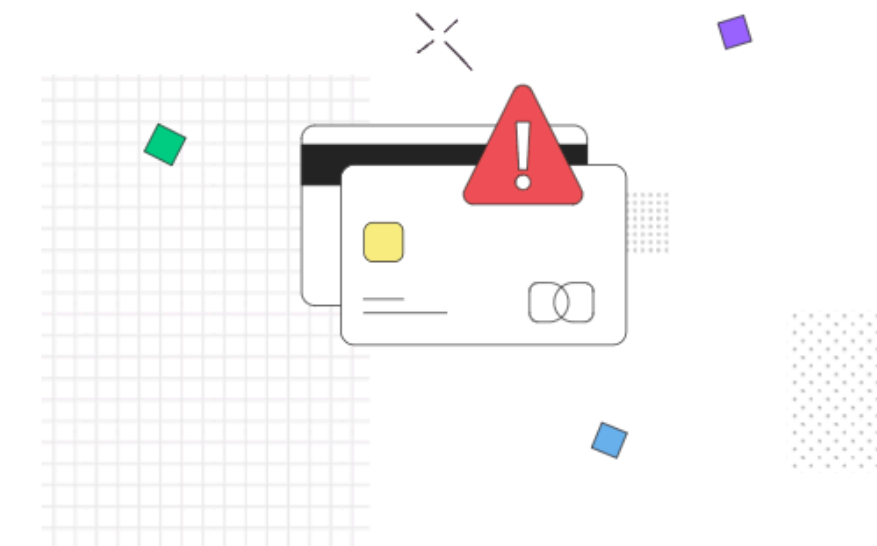
Sales Support Marketing



Credit Risk Scoring

Predict loan repayment and default rates on new inbound customers.

Finance Marketing Operations

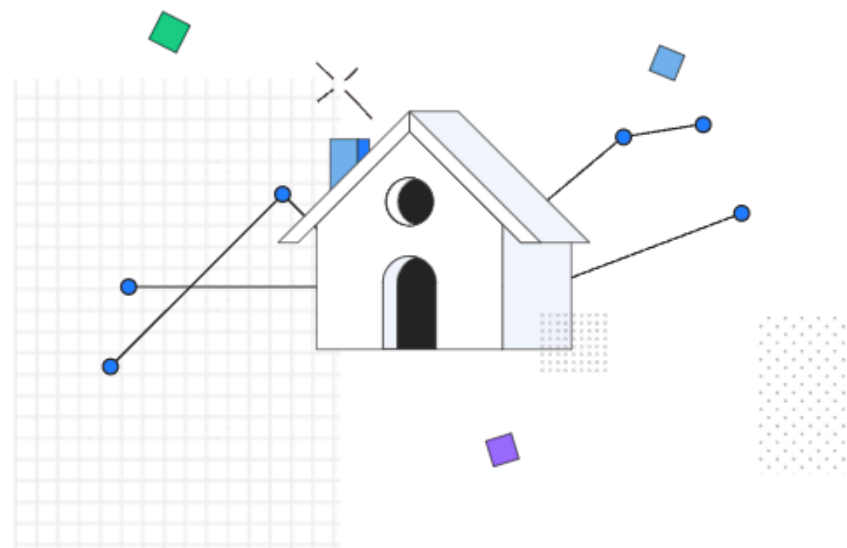


Fraud Detection

Instantly predict fraudulent transactions and proactively take action.

Finance Operations Support

Reference: Obviously AI



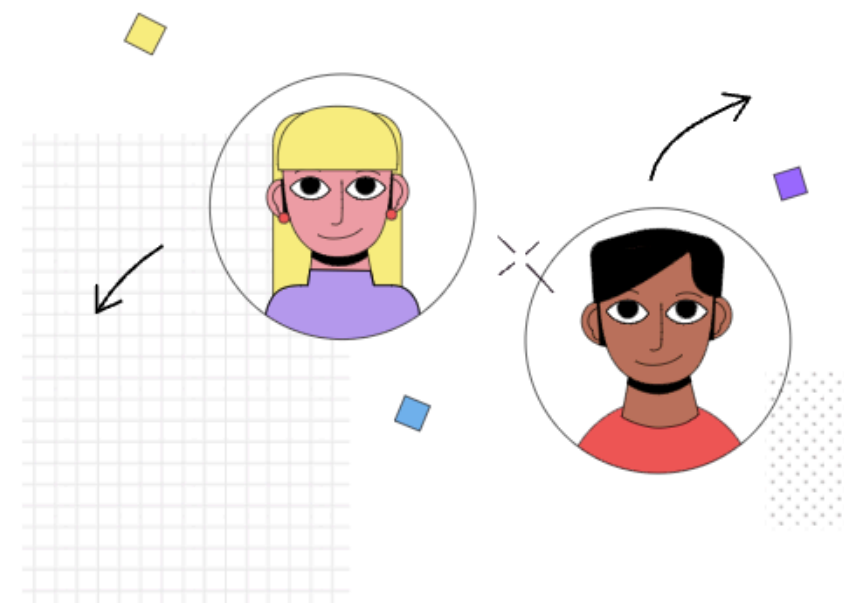
Property Prices

Predict property prices based on historical valuation and demographics.

Finance

Operations

Marketing



Employee Attrition

Predict which employees are at risk of leaving and engage with them more closely.

Operations

Finance

Product



Cross Selling

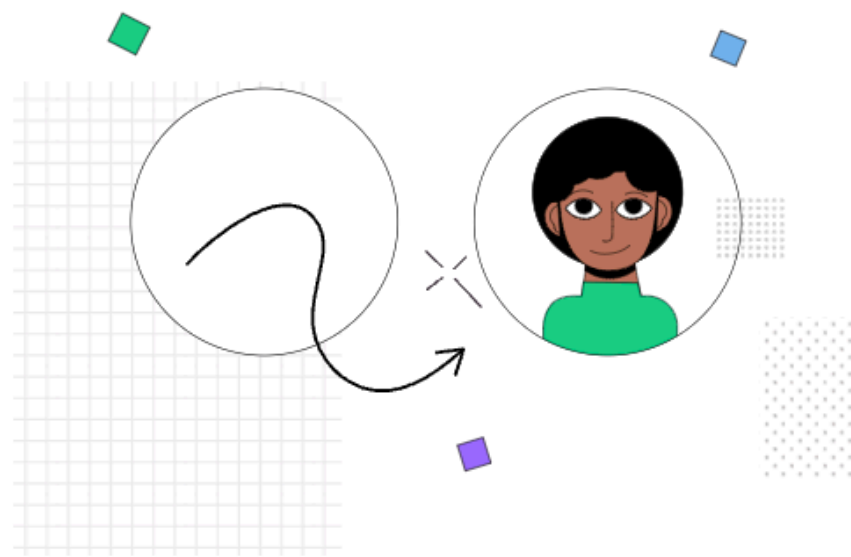
Predict future cost selling opportunities with existing customers.

Sales

Marketing

Finance

Reference: Obviously AI



Lead Conversion

Predict which leads have the most propensity to convert.

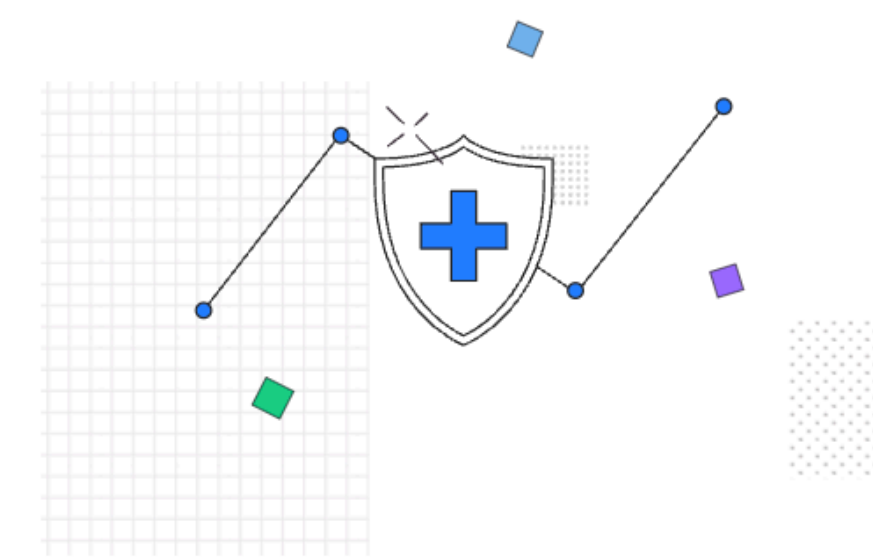
Sales Marketing Product



Dynamic Pricing

Predict willingness to pay and setup Uber-like dynamic pricing.

Product Sales Finance

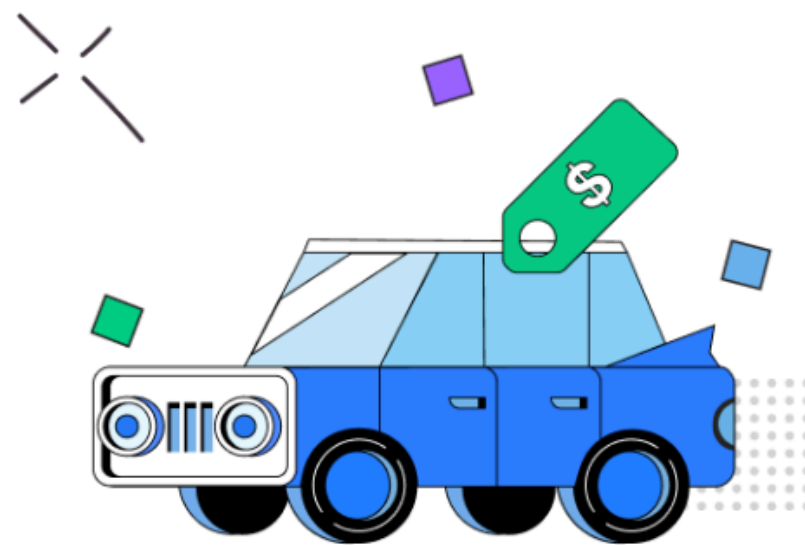


Insurance Costs

Predict individual insurance costs based on historical health data.

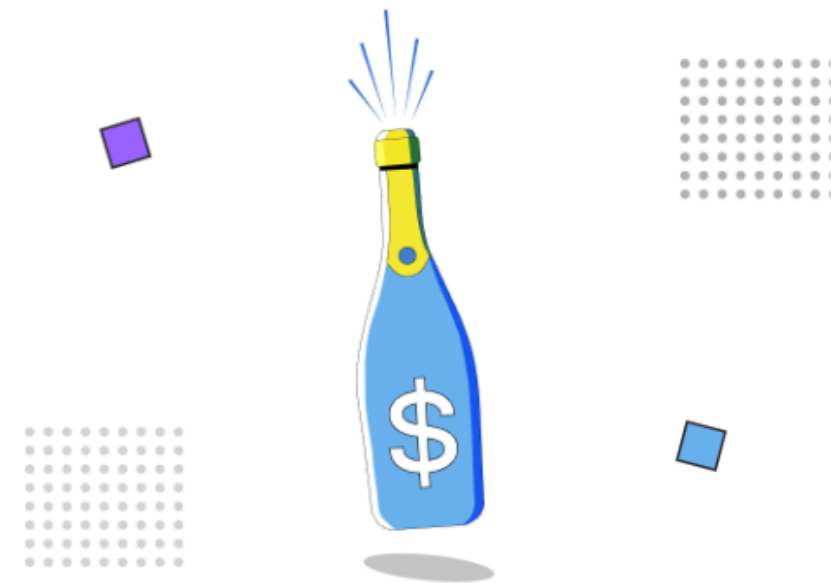
Operations Finance Sales

Reference: Obviously AI



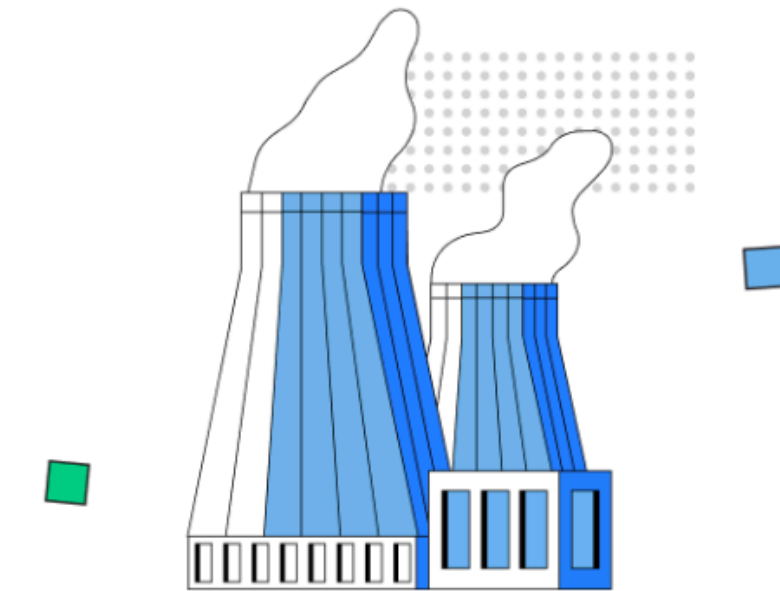
Time Series - How to Predict Revenue

Rapidly build a time series machine learning model that predicts revenue using your historical data.



Time Series - Predicting Sales

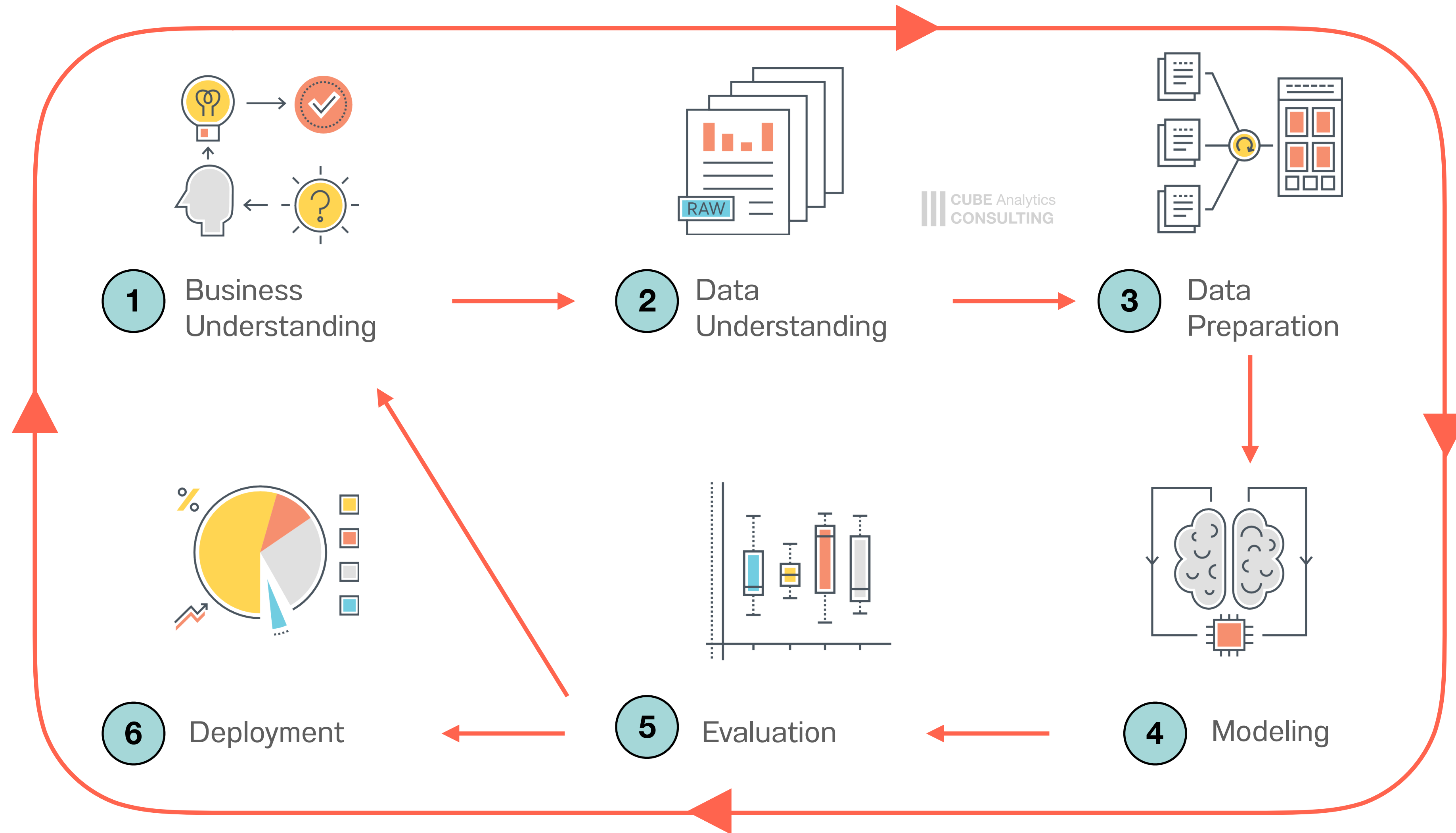
Build a time series machine learning model that predicts sales quickly using your historical data.



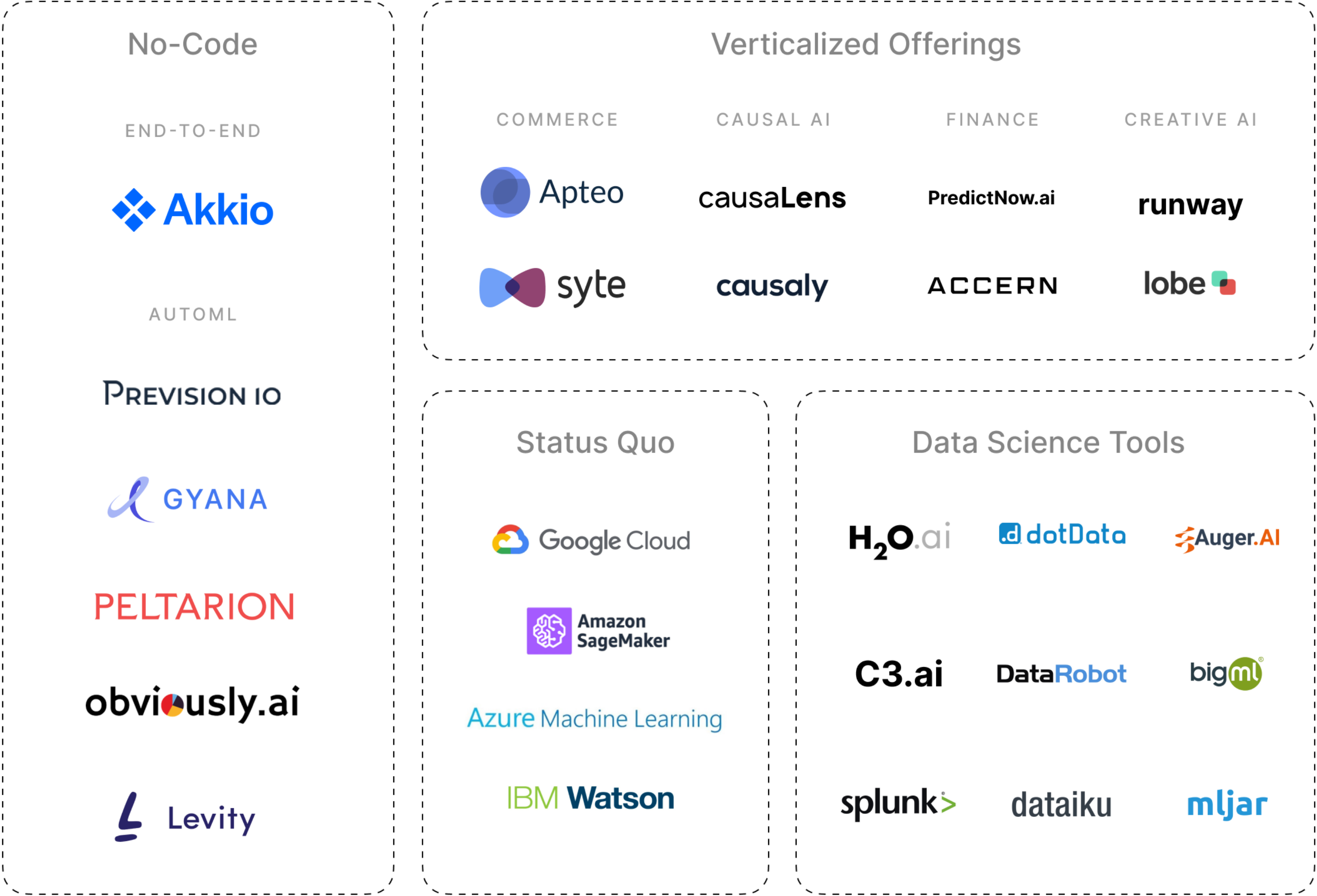
Time Series - Energy Consumption

Predict electricity demand using your historical data and make decisions in power system planning and operation.

Reference: Obviously AI




STEP	DESCRIPTION
Business Understanding	Define the project.
Data Understanding	Examine the data; identify problems in the data.
Data Preparation	Fix problems in the data; create derived variables.
Modeling	Build predictive or descriptive models.
Evaluation	Assess models; report on the expected effects of models.
Deployment	Plan for use of models.



Created by  Akkio

Reference: <https://www.akkio.com/post/45-no-code-ai-tools-complete-guide>

http://www.akkio.com

Platform SolutionsResourcesPlans

DocsLog InTry for Free →


Modern Business Runs on AI

Grow your business with data-driven decisions.
Go from data to AI in 10 minutes — no code or data science skills required.

Try for Free →Request a Demo →

AS SEEN IN

ForbesHarvard Business ReviewThe New York TimesFORTUNEInc.

Property Prices

Get SupportNot Deployed

Table

Table Upload and configure datasets

Property Prices.csvReplace4,550 rows, 18 columnsNo transforms applied

write a description for each house_id

CancelApply Transform

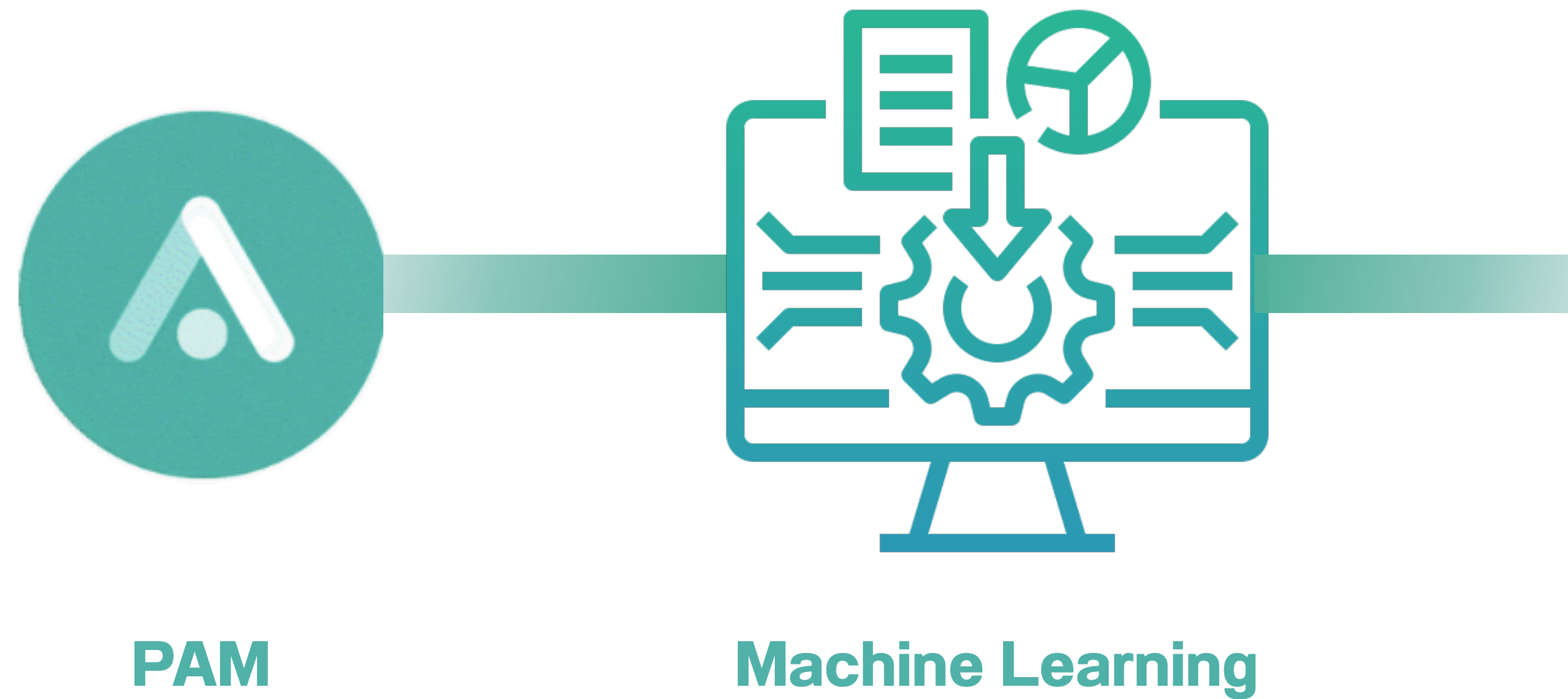
AI Interpretation

Create a new column in the dataset called 'description' and fill it with a description of each house. The description will include the number of bedrooms, bathrooms, sqft of living space, sqft of lot space, floors, waterfront, view, condition, sqft above, sqft basement, year built, year renovated, street, city, statezip, country, and price.

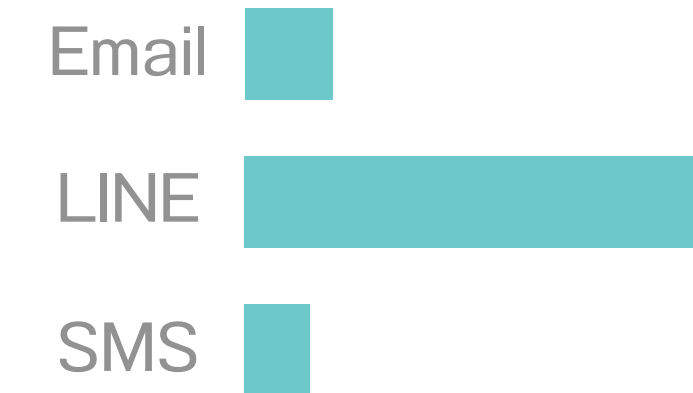
Clone

PRODUCT HUNT

#1 Product of the Day



Group 1



Group 2

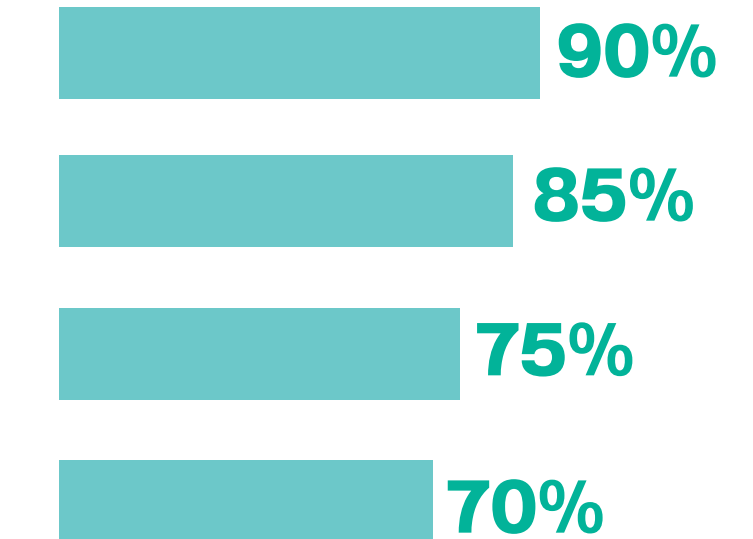


Channel Preference

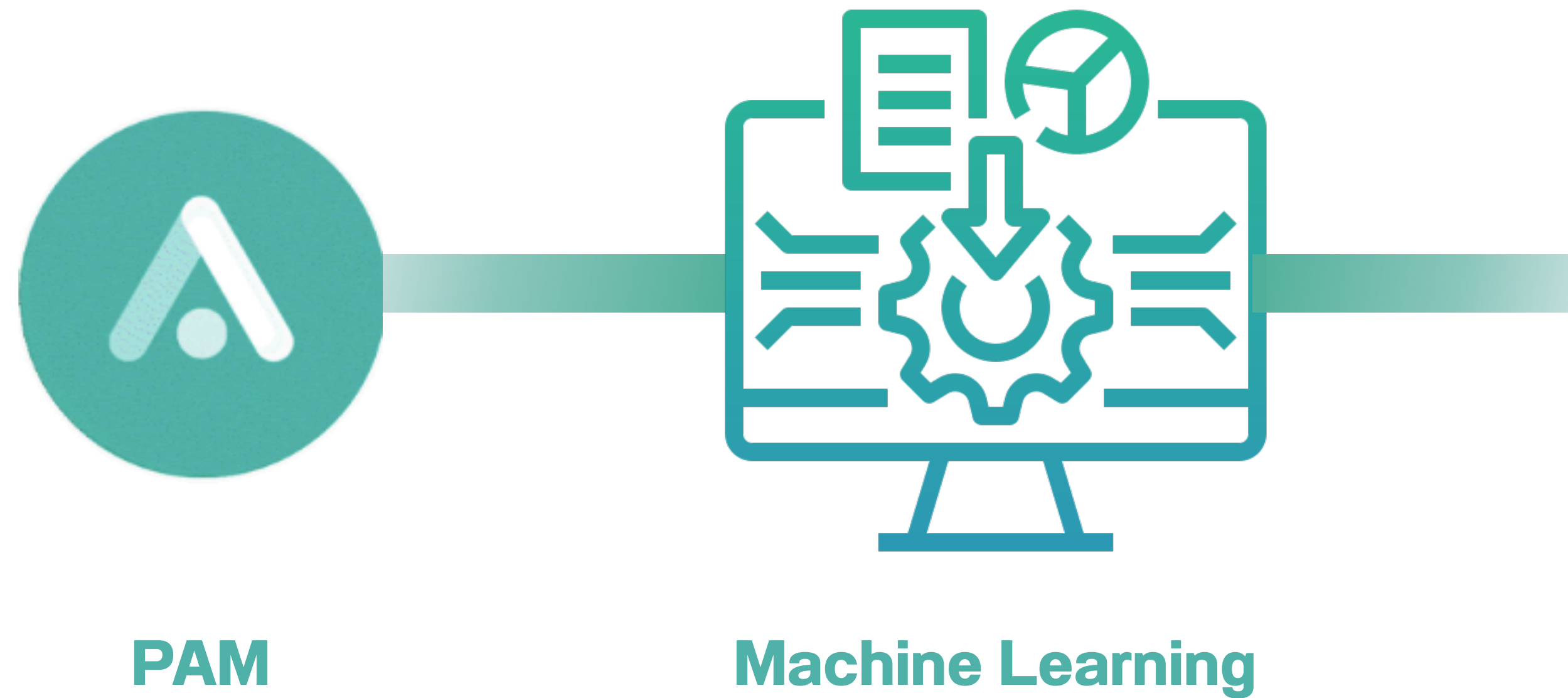
รหัสลูกค้า

Customer 1000
Customer 789
Customer 101
Customer 20

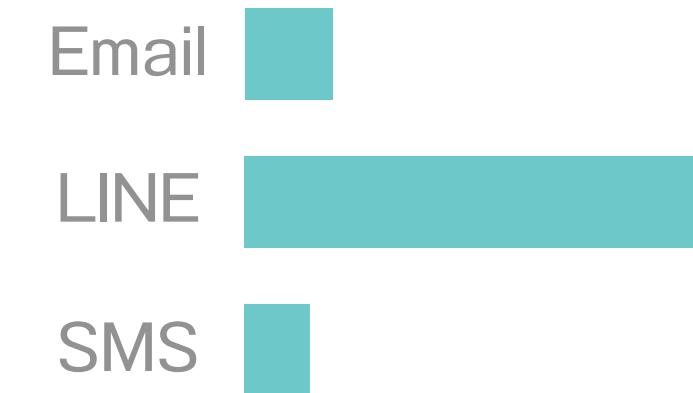
โอกาสซื้อสินค้า



Propensity to Buy



Group 1



Group 2



Channel Preference

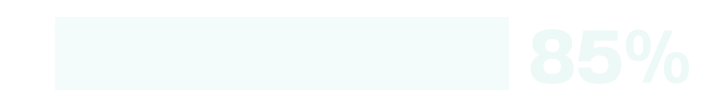
รหัสลูกค้า

Customer 1000

โอกาสซื้อสินค้า



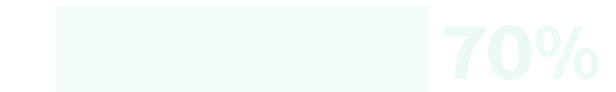
Customer 789



Customer 101



Customer 20

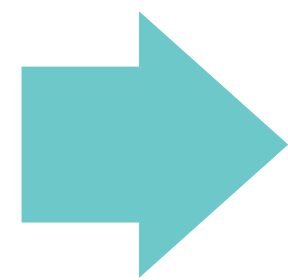


Propensity to Buy

- Clustering เป็นการแบ่งกลุ่มข้อมูลที่มีลักษณะคล้ายๆ กันให้อยู่ในกลุ่มเดียวกัน
- แบ่งกลุ่มลูกค้าตามพฤติกรรมการซื้อสินค้า
 - ลูกค้าที่ชอบซื้อสินค้าที่วางตลาดใหม่
 - ลูกค้าที่ชอบซื้อสินค้าตอนลดราคา
- แบ่งกลุ่มลูกค้าตามพฤติกรรมการรับข้อความในช่องทางต่างๆ (channel preference)
 - ลูกค้ากลุ่มที่ชอบอ่าน LINE และ email
 - ลูกค้าที่ชอบเปิดอ่านเฉพาะ Email



PAM



Customer ID	Email	SMS	LINE
C0001	10	3	1
C0002	1	10	2
C0003	1	1	10
C0004	8	2	1
C0005	10	1	1
C0006	2	9	1
C0007	1	1	15
C0008	0	1	9



Machine Learning

Customer ID	Email	SMS	LINE	Cluster
C0003	1	1	10	LINE
C0007	1	1	15	LINE
C0008	0	1	9	LINE
C0001	10	3	1	Email
C0004	8	2	1	Email
C0005	10	1	1	Email
C0002	1	10	2	SMS
C0006	2	9	1	SMS

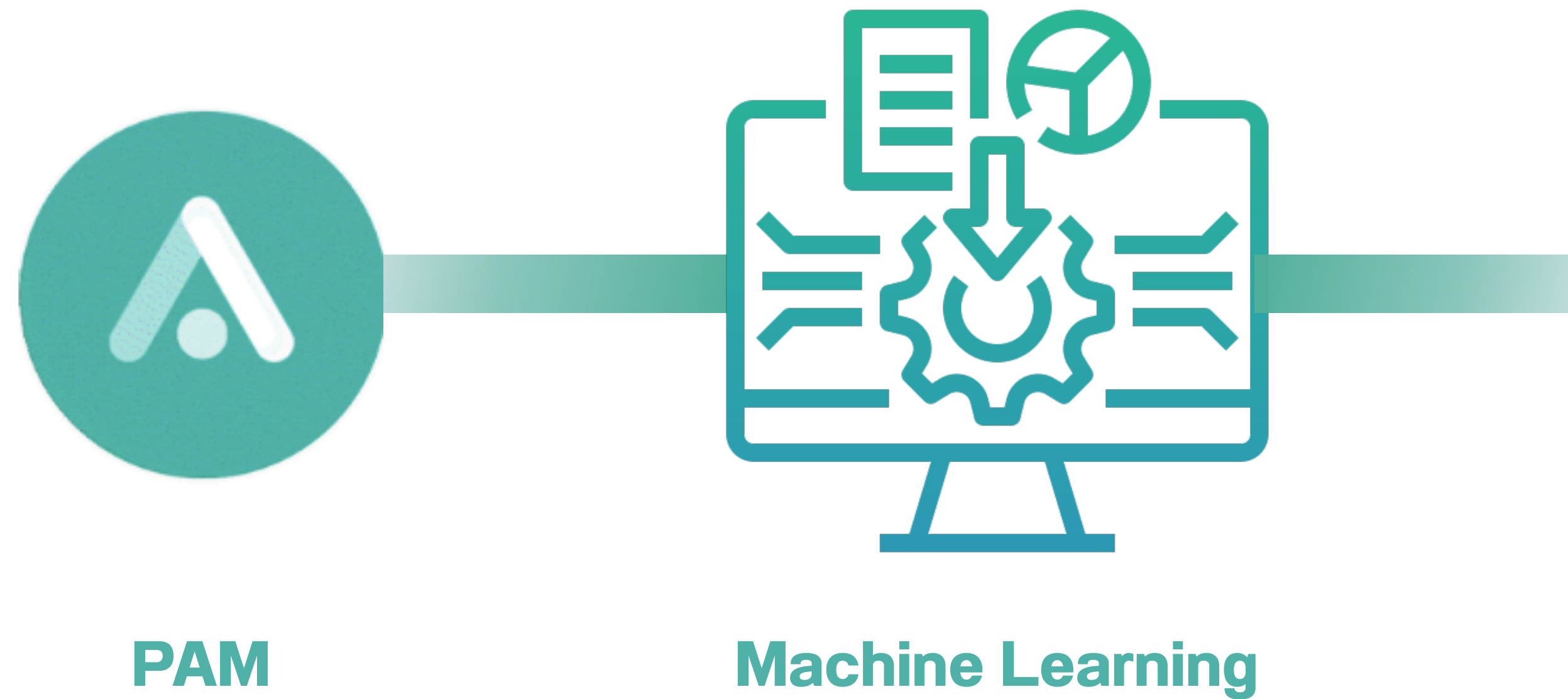


Customer ID	Email	SMS	LINE	Cluster
C0003	1	1	10	LINE
C0007	1	1	15	LINE
C0008	0	1	9	LINE
C0001	10	3	1	Email
C0004	8	2	1	Email
C0005	10	1	1	Email
C0002	1	10	2	SMS
C0006	2	9	1	SMS



Customer ID	Email	SMS	LINE	Cluster
C0003	1	1	10	LINE
C0007	1	1	15	LINE
C0008	0	1	9	LINE
C0001	10	3	1	Email
C0004	8	2	1	Email
C0005	10	1	1	Email
C0002	1	10	2	SMS
C0006	2	9	1	SMS





Group 1



Group 2



Channel Preference

รหัสลูกค้า

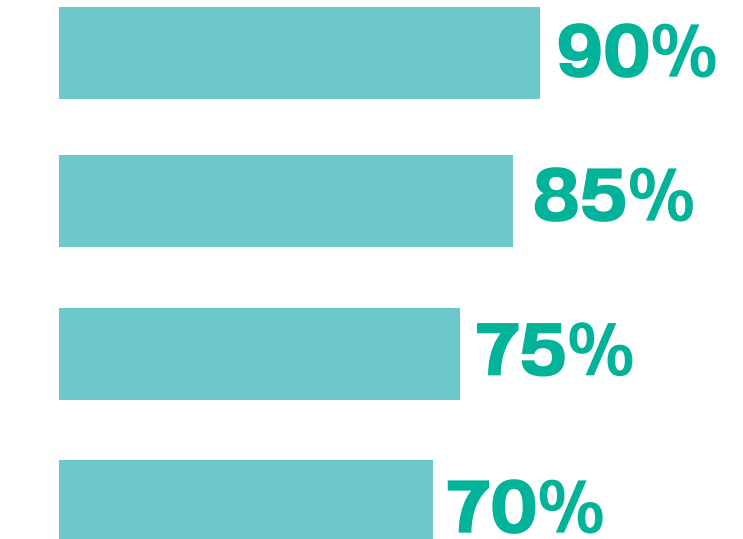
Customer 1000

Customer 789

Customer 101

Customer 20

โอกาสซื้อสินค้า



Propensity to Buy

- The goal of propensity modeling is to **find consumers who have a relatively high probability of behaving in a certain way** or **committing a certain action** in the future.
- **Propensity to try a new product**
 - Consumers who currently do not buy a certain product but **have a high propensity to buy it in the future** are good targets for acquisition campaigns.
- **Propensity for category expansion**
 - Consumers who have high propensity to **switch from one category of products to another or to try a new category** are good targets for up-selling or cross-selling campaigns. An example of such an audience are consumers who are likely to switch from casual to luxury products.
- **Propensity to buy more**
 - Consumers who are **likely to increase their average purchase quantity** of a product are the right targets for maximization campaigns.

- The goal of propensity modeling is to **find consumers who have a relatively high probability of behaving in a certain way** or **committing a certain action** in the future.
- **Propensity to churn**
 - Customers who are **likely to unsubscribe from a service or stop buying** a product can be targeted in retention campaigns.
- **Propensity to engage**
 - Propensity to engage is the **probability of responding to a marketing action**, for example, to click on an email link.

Internal Data



Data from PAM



Machine Learning



PAM



LINE



Email



SMS



App Push



Website

Personalized Communication

- Download example data: <https://tinyurl.com/4zby6cuv>

Table

Predict

Web App

+

Product_Propensity.xlsx

Get Support

Not Deployed

Table

Upload and configure datasets

Product_Propensity.xlsx

Replace

1,528 rows, 41 columns

No transforms applied

Chat Data Prep

Download

	buy	sum_total_price	sum_net_price	frequency	total_price_Alcohol	total_price_Bakery	total_price_Dairy, Juice
	Category	Number	Number	Number (Integer)	Number (Integer)		
	no	<div><div></div>63%</div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
	yes	<div><div></div>37%</div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		
1	no	1416.24	1253.4599999999998	13.0	0.0		
2	no	1632.4499999999998	1431.21	11.0	0.0		
3	yes	7167.0800000000001	6042.93	43.0	0.0		
4	no	1048.6499999999999	835.29	5.0	0.0		
5	no	785.78	665.03	6.0	0.0		
6	no	1166.55	1052.93	6.0	0.0		
7	no	2267.5699999999997	2059.89	9.0	0.0		
8	yes	5501.1199999999999	4964.6700000000002	31.0	0.0		
9	no	2574.95000000000003	2288.93	17.0	0.0		

Classification Summary

Below is a breakdown of how well the model predicted your outcome of interest

Overall Accuracy

82.4%

252 out of 306 rows tested are classified correctly

See accuracy details

Performance for yes

2.4x better than baseline

Rows predicted to be yes are 2.39x more likely to be yes than the baseline rate.

Top Fields

Fields ranked by their contribution to the prediction results

total_price_Skin & Hair Care

19.5%

total_price_Miscellaneous

6.4%

frequency_Skin & Hair Care

5.2%

sum_net_price

4.5%

When total_price_Skin & Hair Care is

Impact on likelihood of yes

0 to 221.2

- 11.2%

221.2 to 5852.34

+ 32.69%

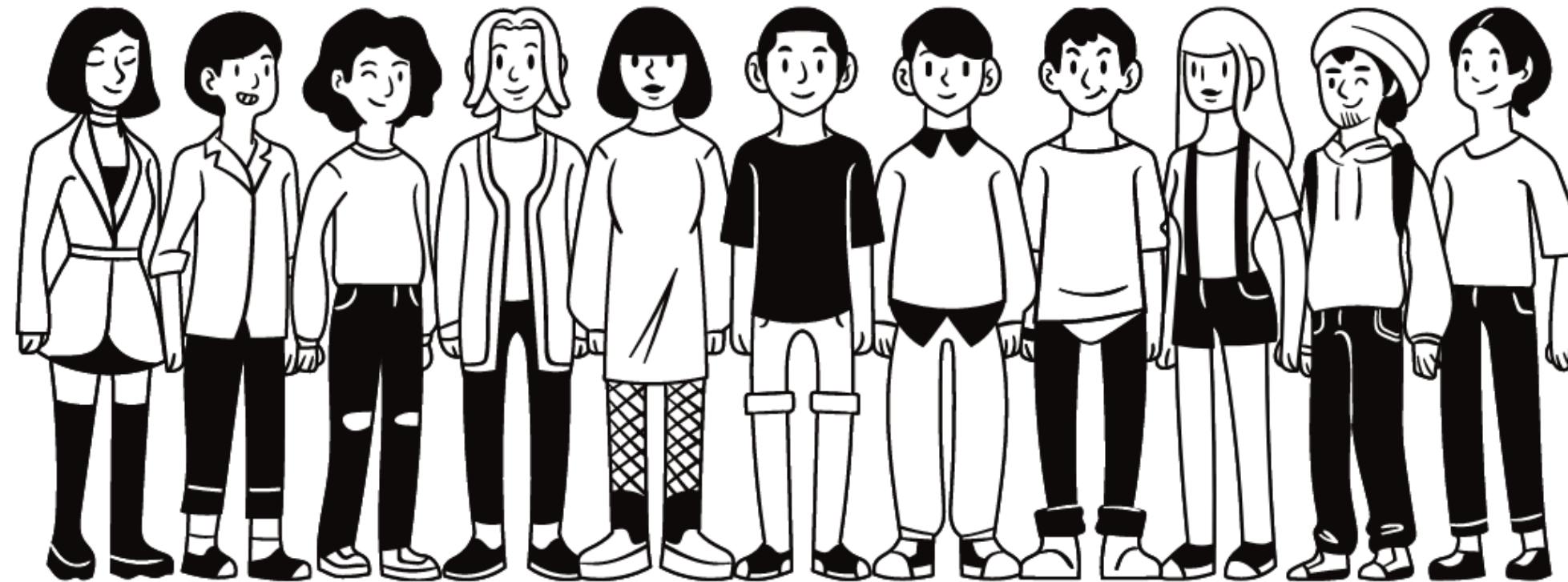
http://www.datacubeth.ai

http://www.datacubeth.ai

31



ขอบคุณทุกคนที่สนับสนุนเรามาตลอด ดาต้า คิวบ์ ก้าวเข้าสู่ปีที่ 10



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- email: eakasit@datacubeth.ai
- lineID: eakasitp