Fast Track to AI

Transitioning from Reactive to Predictive

Leslie Lee Fook

iRobot
Roomba

Fraunhofer
Dussmann
PPS

AIRBUS
AIRBUS

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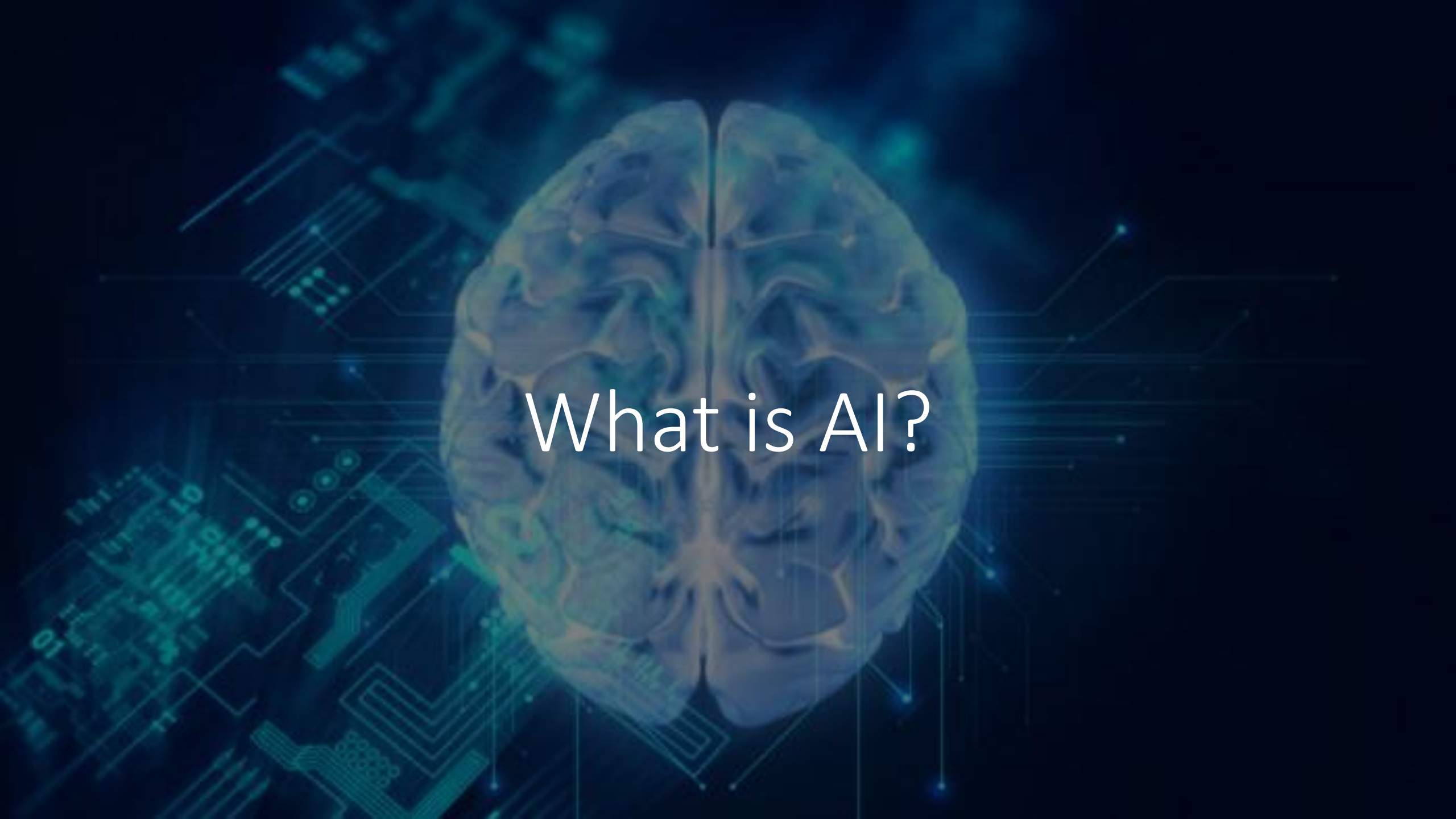
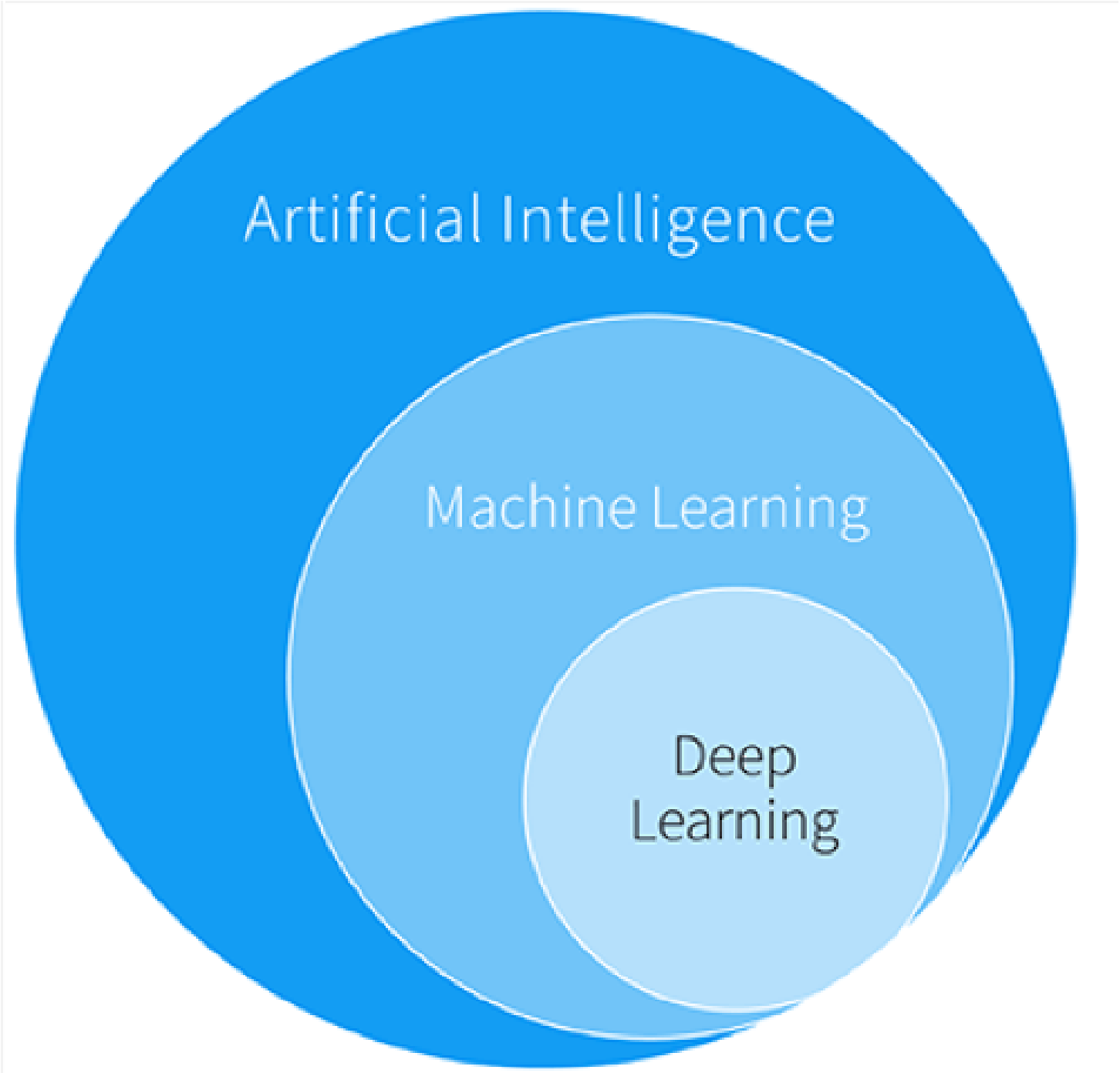
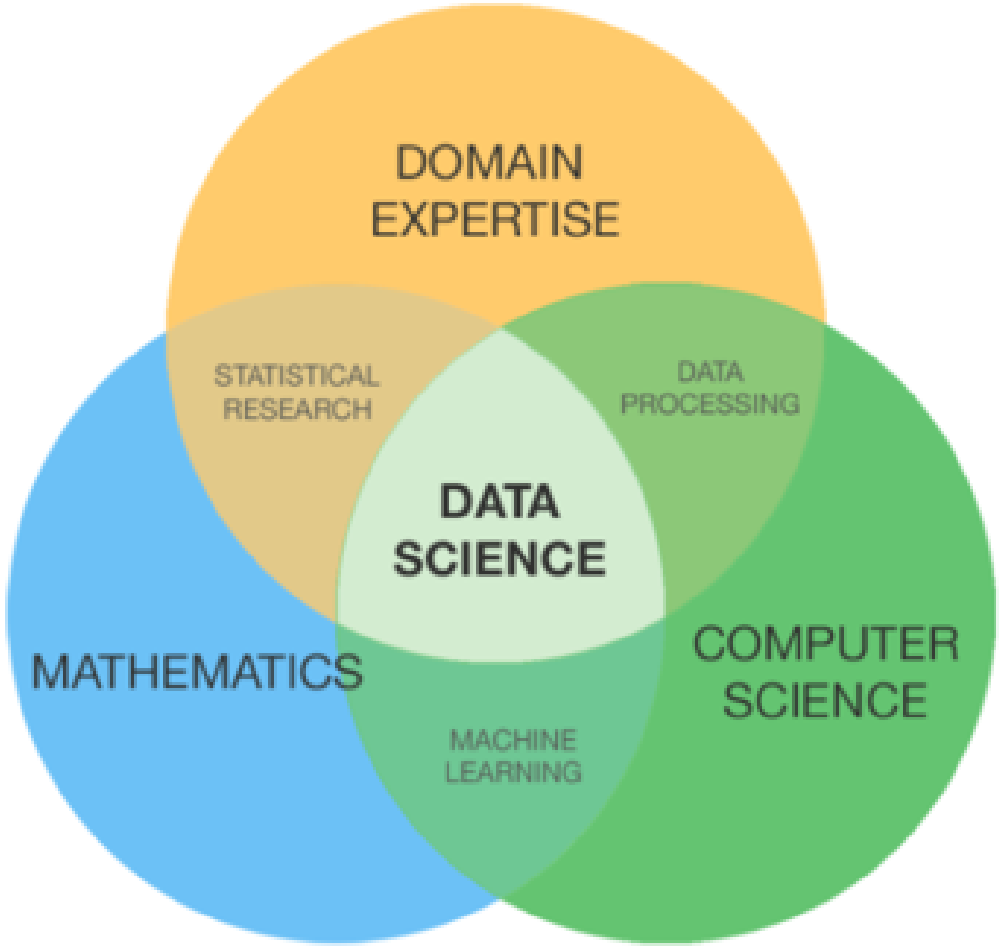

What is AI?


Artificial Intelligence
Machine Learning
Deep
Learning


DOMAIN
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LEARNING

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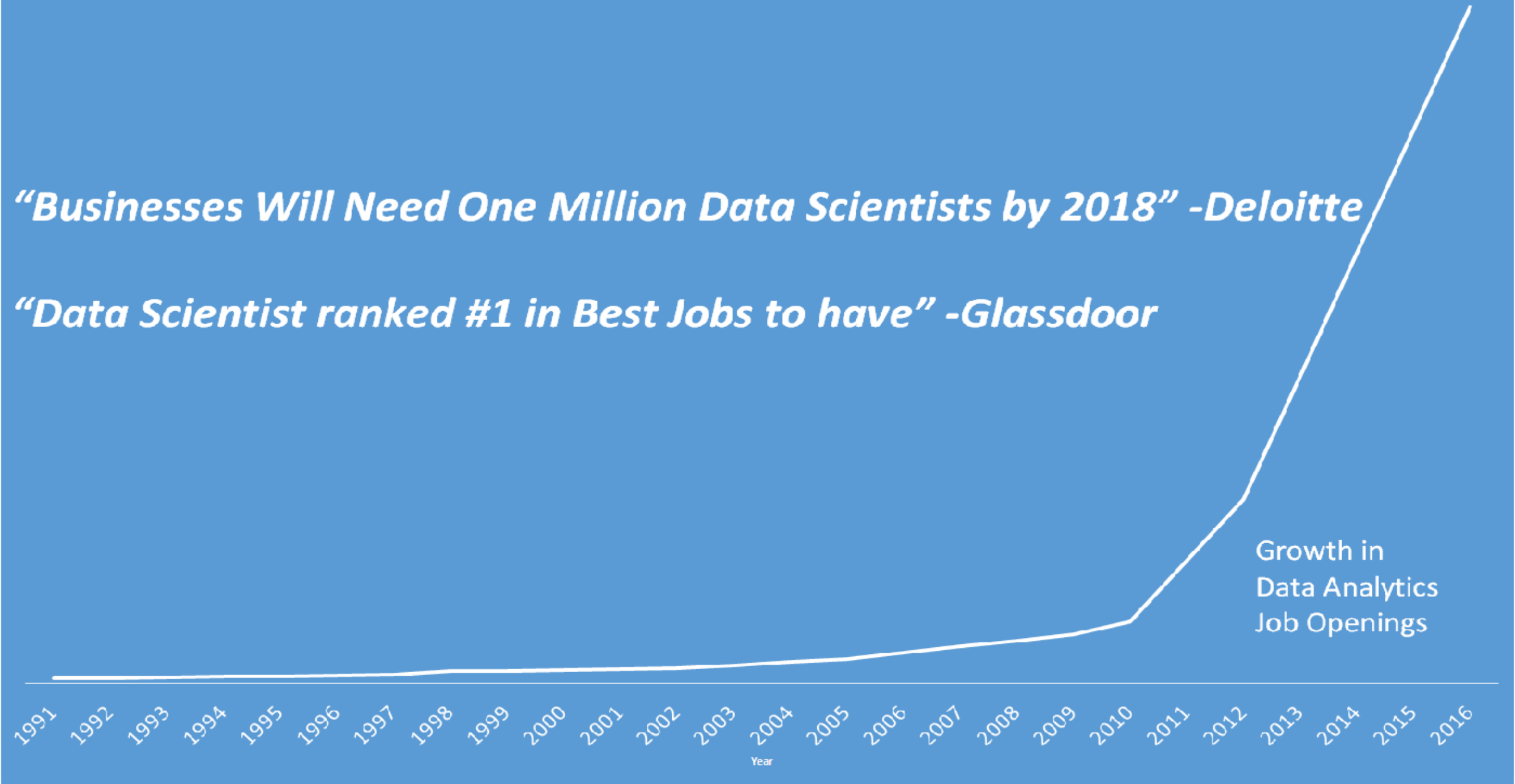
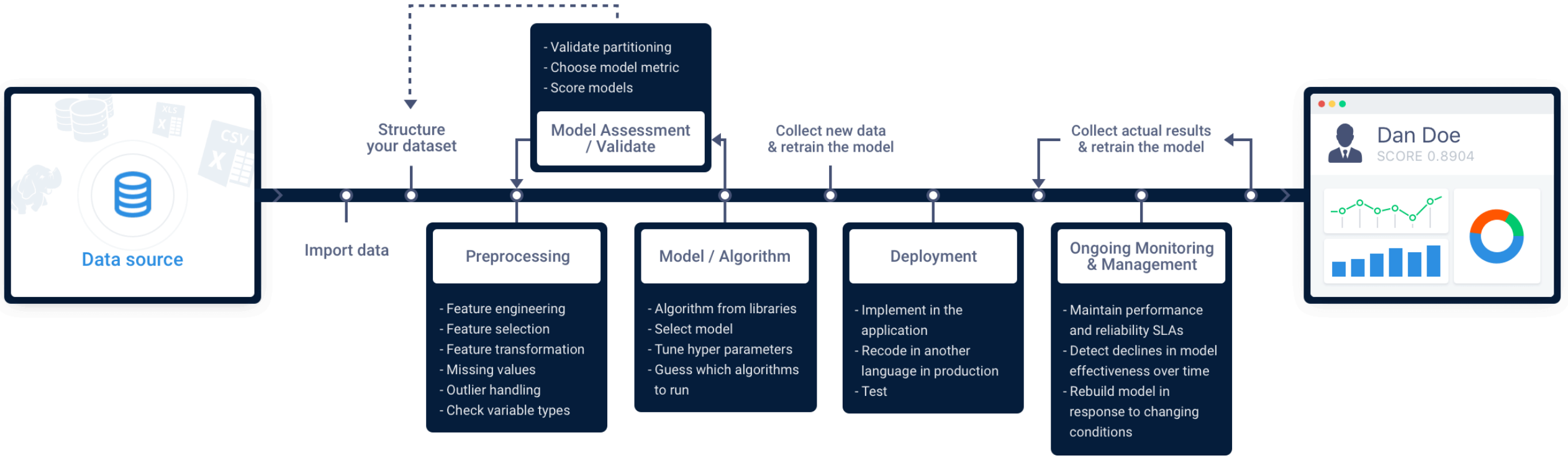
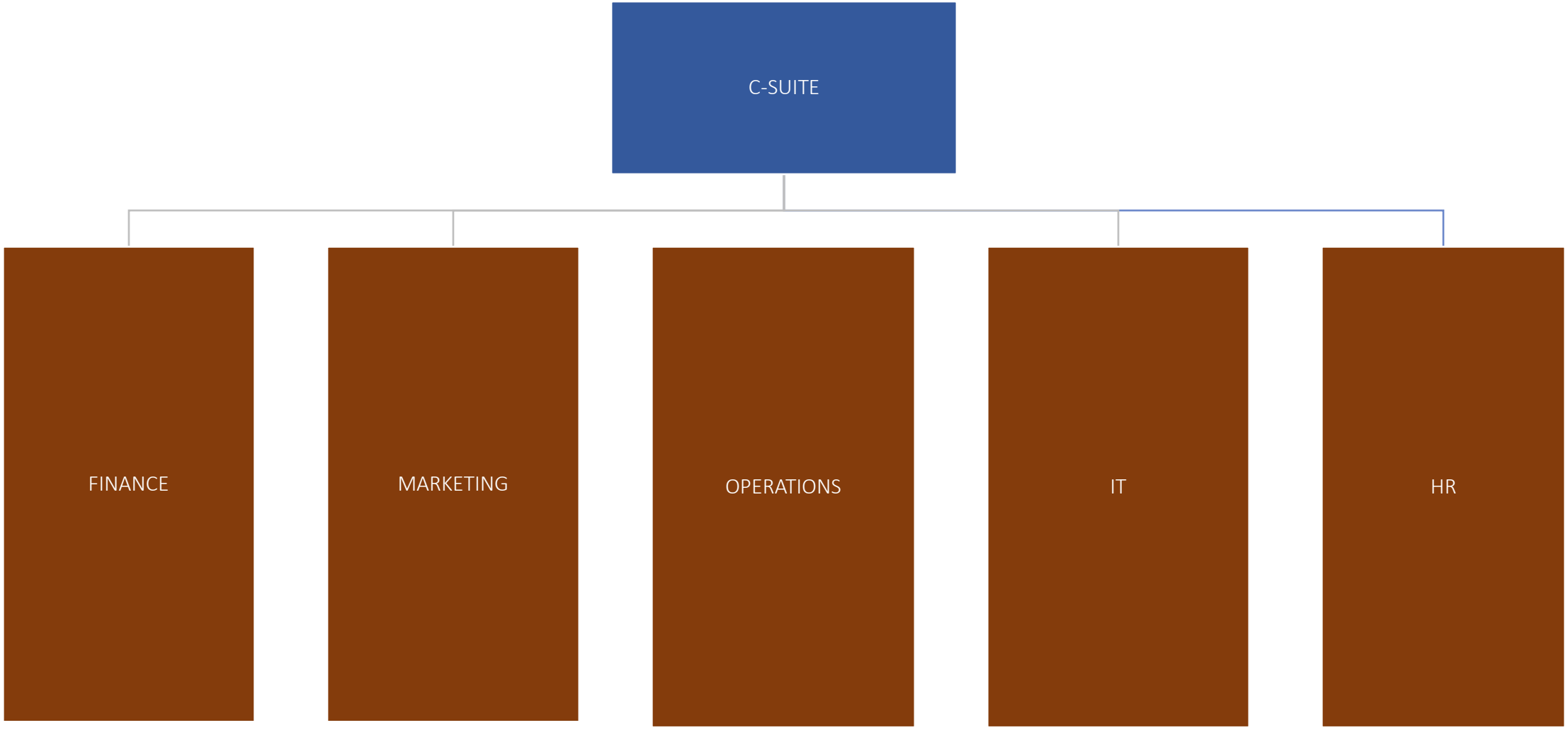
"Businesses Will Need One Million Data Scientists by 2018" -Deloitte

"Data Scientist ranked #1 in Best Jobs to have" -Glassdoor



Data Science Life Cycle

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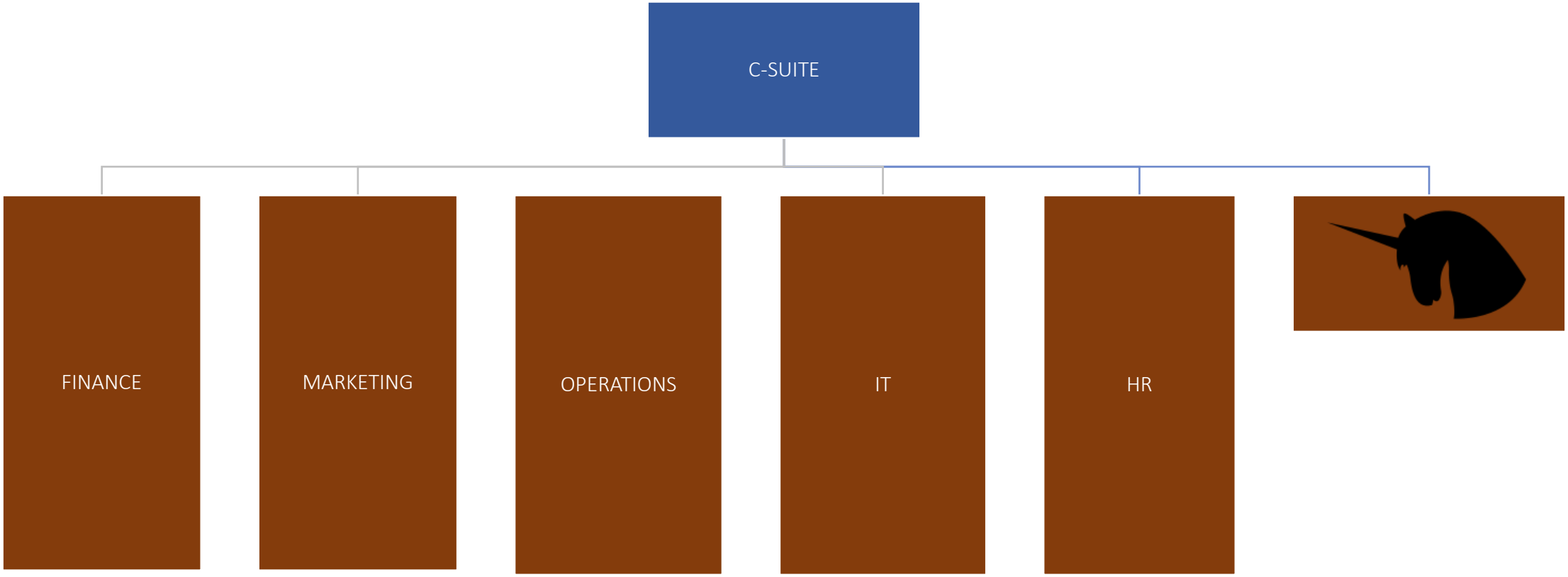
OPERATIONS
IT
HR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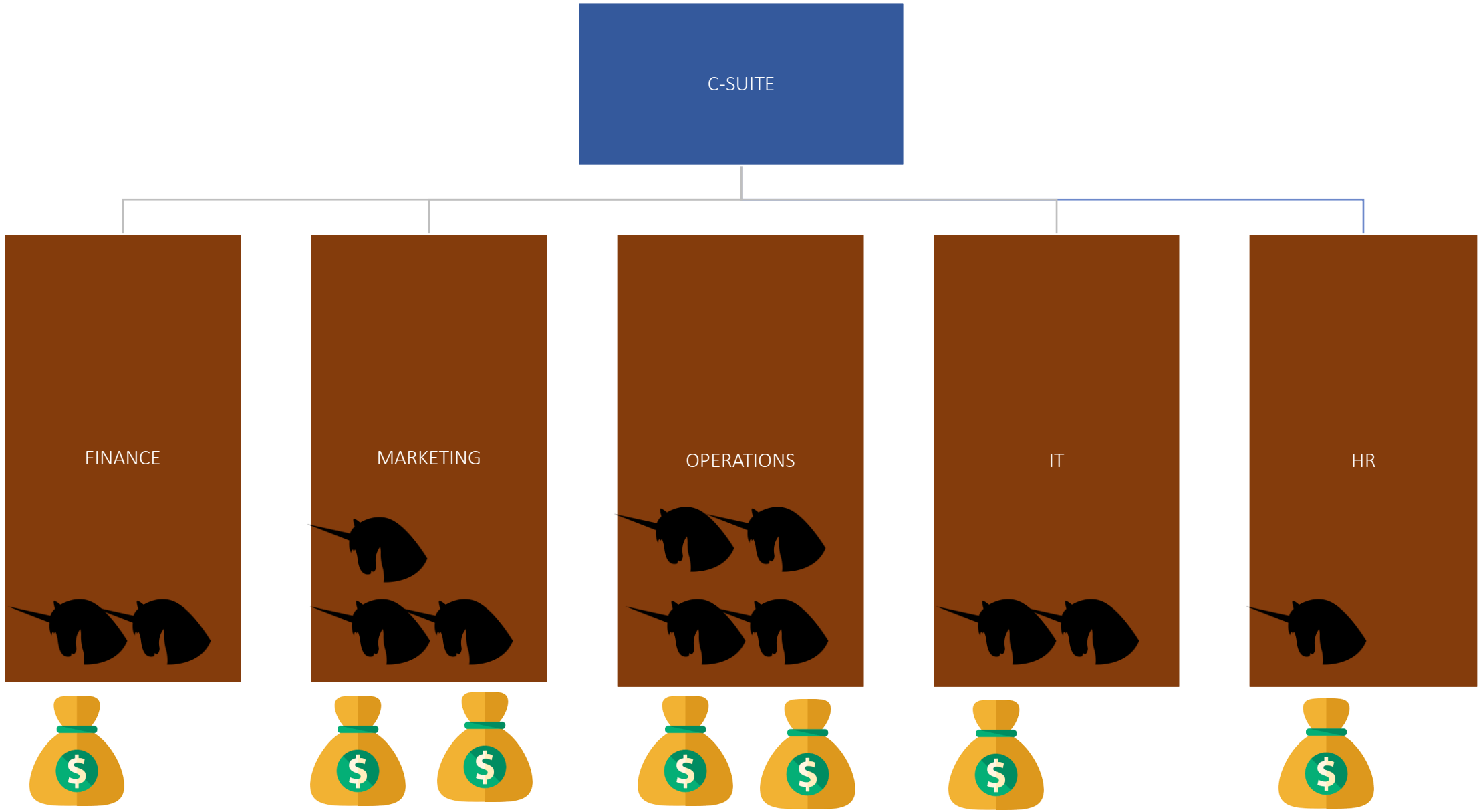
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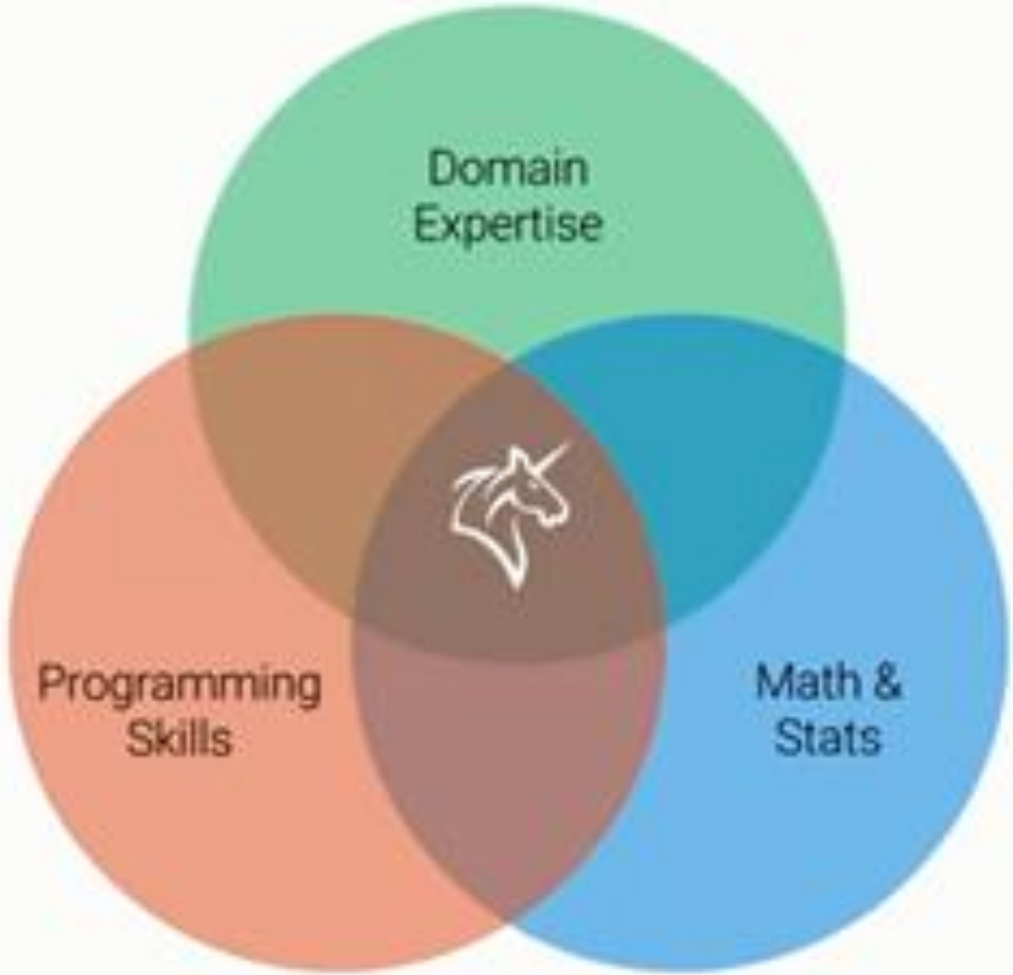
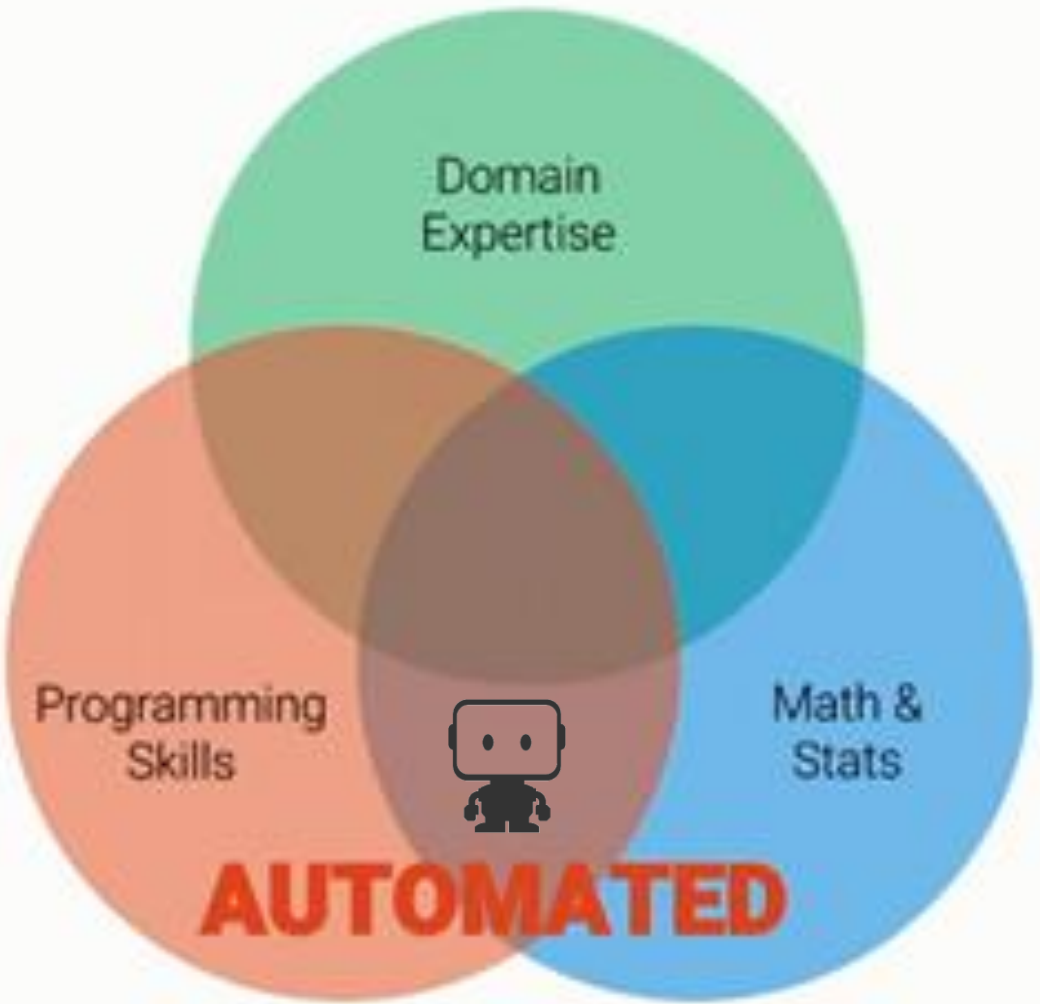
kaggle



PREREQUISITES

1. Knowledge of the overall & specific missions
2. Knowledge of the data
3. Ability to write code to gather data
4. Ability to write code to explore/inspect data
5. Ability to write code to manipulate data
6. Ability to write code to extract actionable intel
7. Ability to write code to build models
8. Ability to write code to implement models
9. Foundational statistics
10. Internals of algorithms
11. Practical knowledge and experience
12. Knowing how to interpret and explain models



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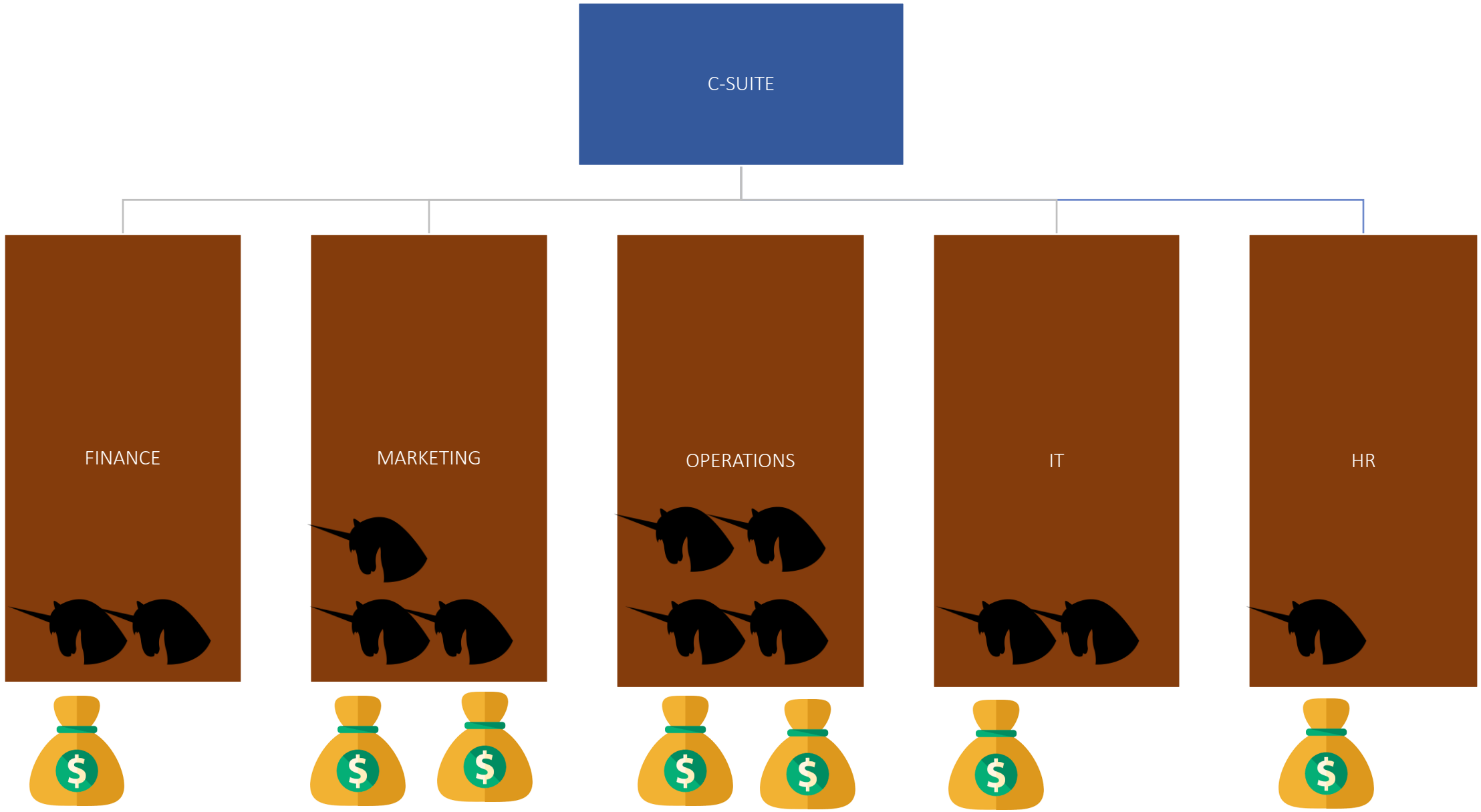
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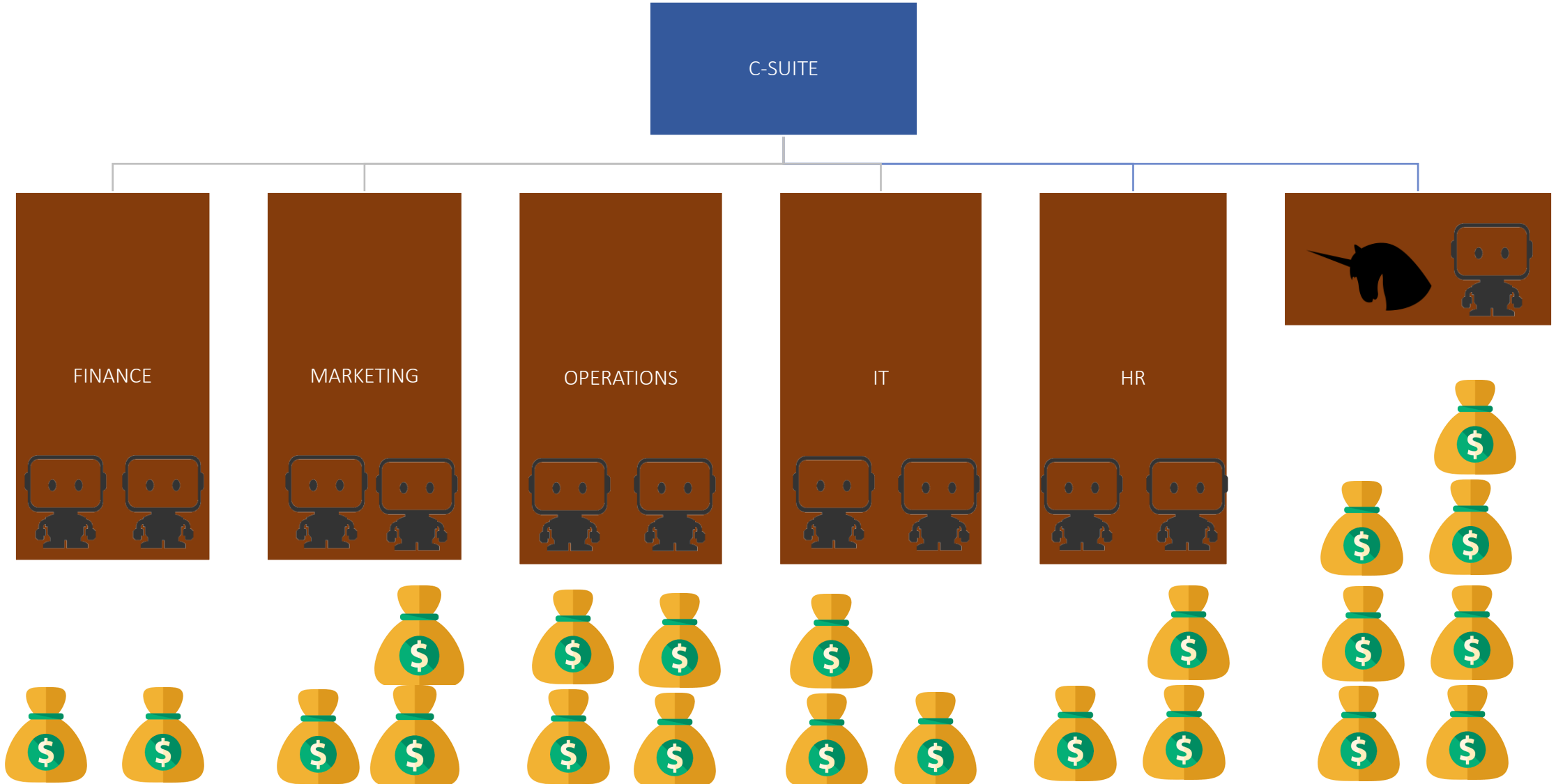
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So how do we get there?

*Spot opportunities by identifying **a number** or **an event** to predict*

Business Problem

Data Science Problem

THERE ARE MANY OPPORTUNITIES TO OPTIMIZE EVERY LINE OF BUSINESS IN A TELCO

Network planning

- Drop call probability
- Bandwidth forecasting
- Roaming forecast
- Peak data
- High volume app/website usage
- On demand video usage forecasting

Network operations

- Predictive maintenance
- Video download experience
- Predict network usage to improve energy efficiency

Network security

- DOS attack
- Fraud
- BotNet detection

Operations - call centre

- Call volume forecasting
- Net promoter score
- Executive performance
- Automated call routing

Customer

- Churn
- Fraud detection
- Next best offer
- Data usage forecast
- Tenure of subscription
- Propensity to competitor
- Ad targeting
- Personalised portal
- Up sell / cross sell
- Wangiri fraud detection
- Spam detection

Product

- New feature simulation
- Dynamic pricing / discounts
- Promotional effectiveness

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DESCRIPTION OF OPPORTUNITY

What is the right price point for prepaid connection?

INDUSTRY

Telco

NUMBER OR EVENT TO PREDICT

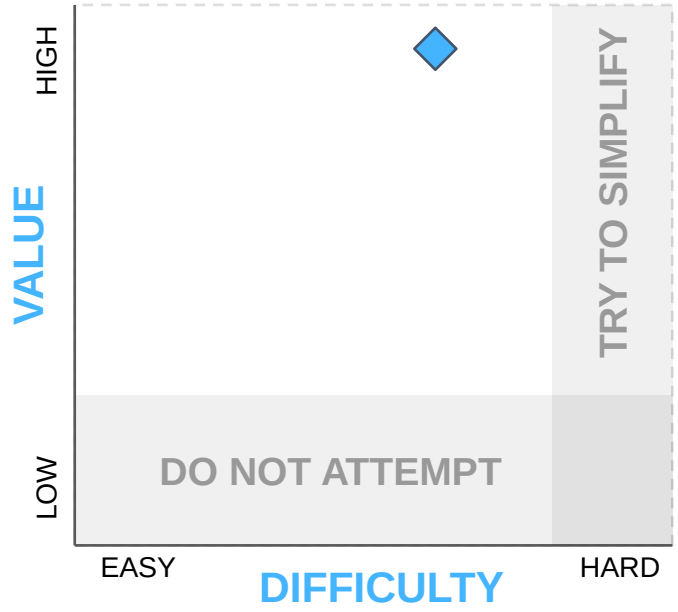
Correct price point can be devised based on competition and customer affluence

VALUE/ROI CALCULATION

- ➔ Increase in customers 1%
- ➔ Average recharge $5
- ➔ Total subscriber base 300 million

IMPLEMENTATION

SMS data can be used to study customer's recharge behaviour with competitors and also their affluence. These can be used to inform pricing decisions



ESTIMATED VALUE

$15m per year

DESCRIPTION OF OPPORTUNITY

Will a customer call to complain within the next week?

INDUSTRY

ANY

NUMBER OR EVENT TO PREDICT

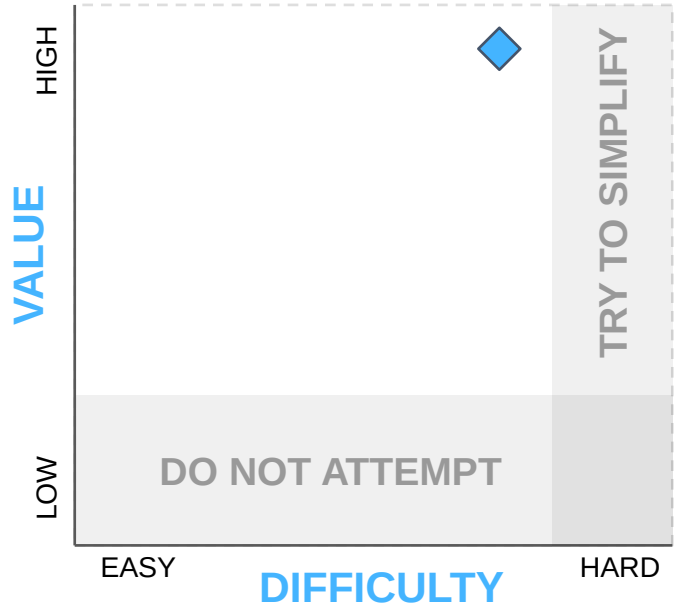
Customers that complain are at higher risk to churn

VALUE/ROI CALCULATION

- ➔ Reduction in churn by 5%
- ➔ Profit margin of 15%
- ➔ Annual Revenue €100M

IMPLEMENTATION

Nightly predictions based on customer behavior to identify the most at risk customers. Present predictions to special team whose mission is to reduce churn by helping unhappy customers.



ESTIMATED VALUE

€750,000 per year

DESCRIPTION OF OPPORTUNITY

Which device is most likely to experience an outage

INDUSTRY

ANY

NUMBER OR EVENT TO PREDICT

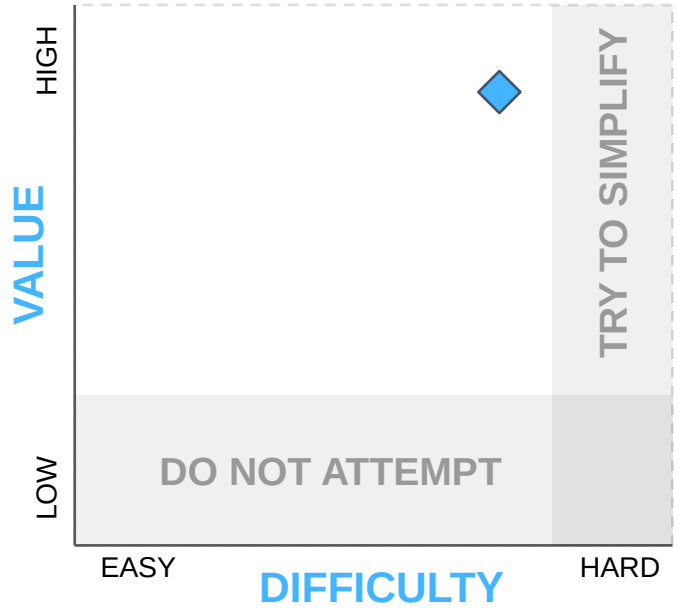
Network and device outages impact employee productivity

VALUE/ROI CALCULATION

- Average man-hours per outage: 40
- Duration of outage: 4 hours
- Average employees impacted by outage: 5000
- Cost per hour to repair: 100
- Cost per hour of employee downtime: 75

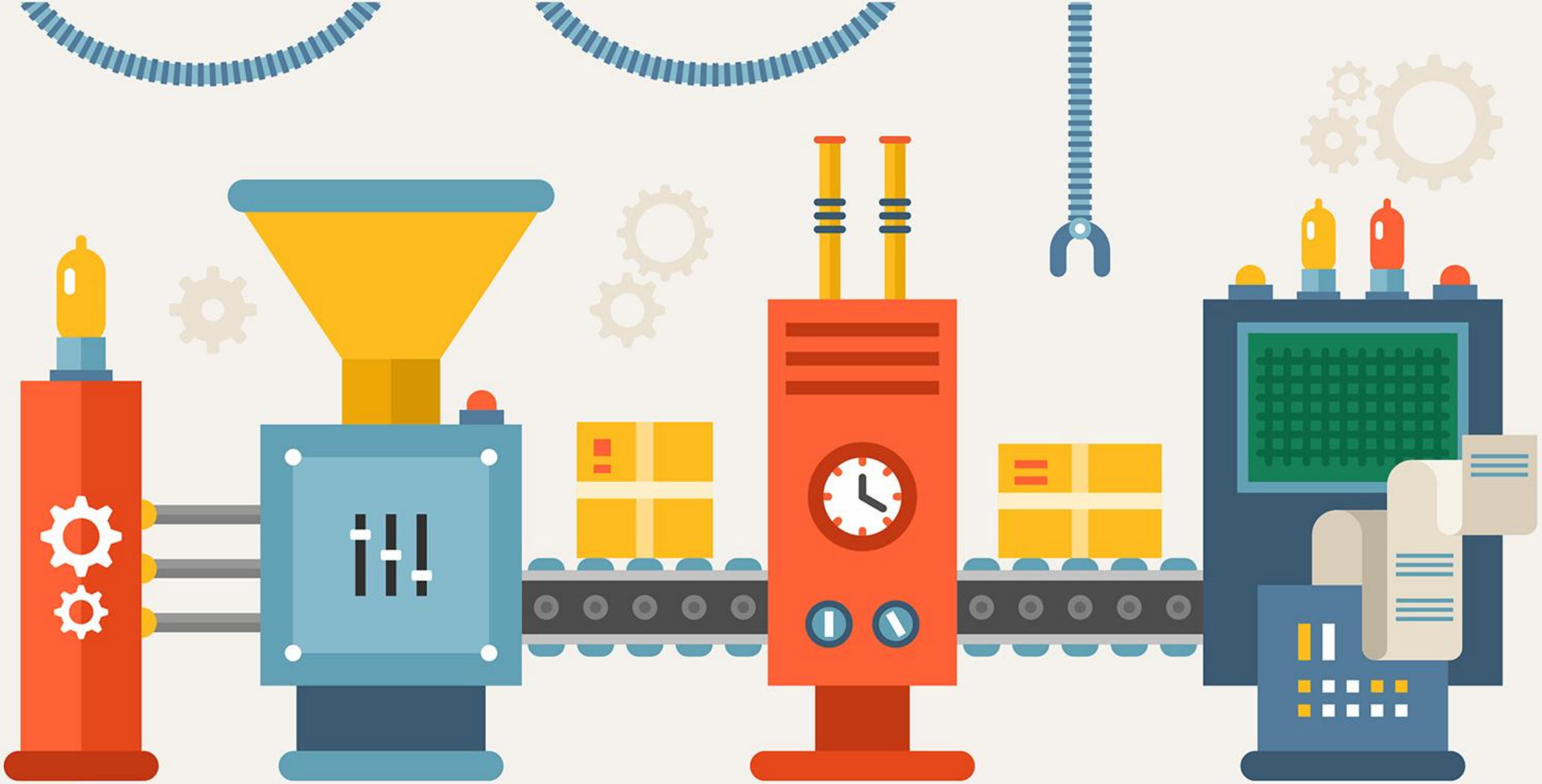
IMPLEMENTATION

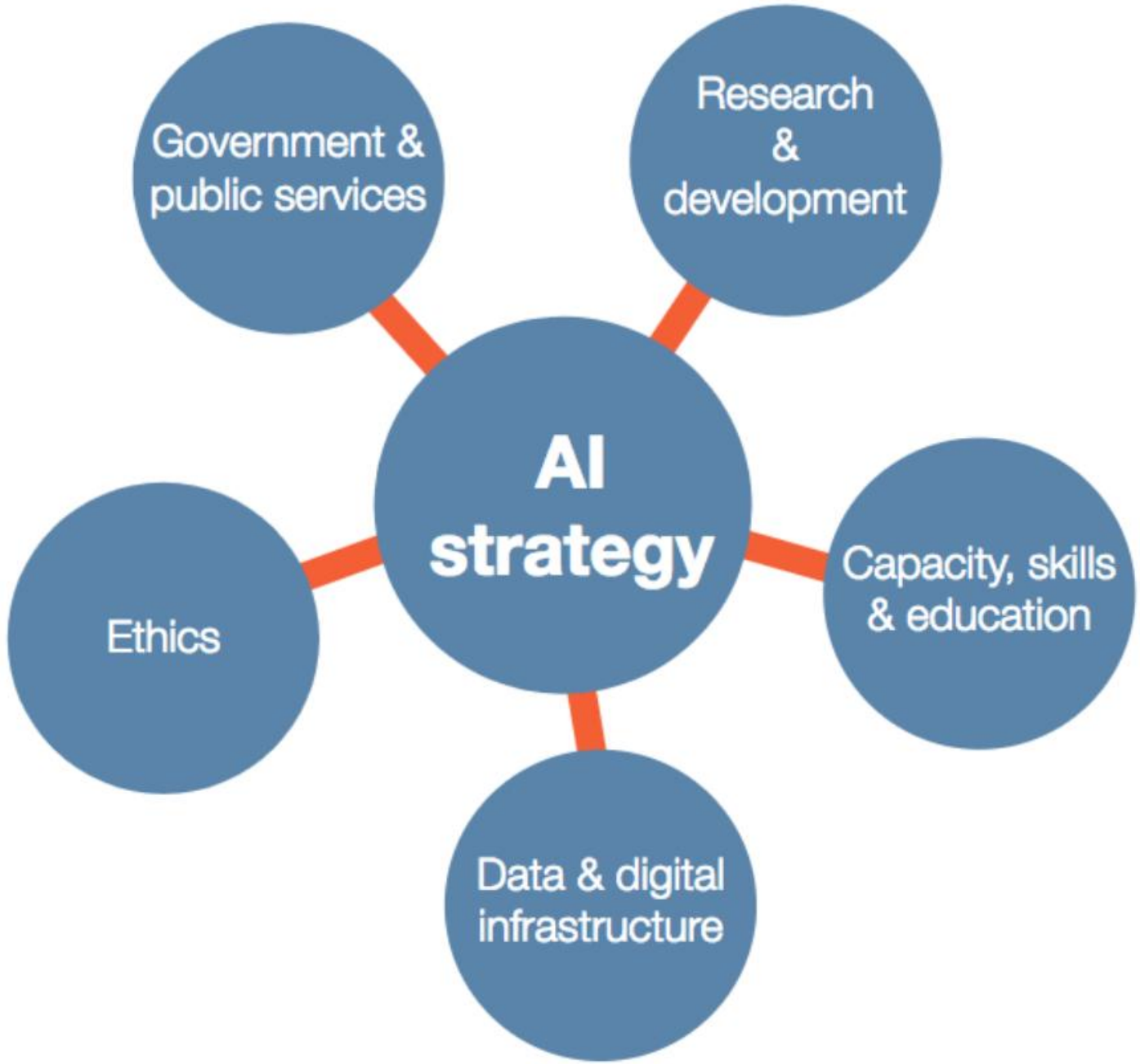
Based on log data, score each device for risk in order to prevent an outage before it impacts users. Proactively fix issues before they occur



ESTIMATED VALUE

$1.5M per outage




Government & public services
Research & development
AI strategy
Ethics
Capacity, skills & education
Data & digital infrastructure

“If your competitor is rushing to build AI and you don’t, it will crush you”

~Elon Musk

Thank you!
Leslie Lee Fook