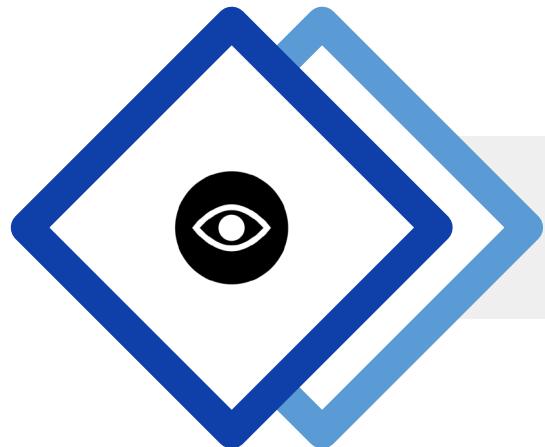


# Viplove Raj Sharma

Associate Director at Great Learning



- 14+ years of experience in designing, developing and delivering analytics and data science solutions for businesses
- Consulting senior management and leadership across geographies, industries, and functions
- Earlier at the Royal Melbourne Institute of Technology (RMIT) Melbourne, and Mu Sigma, Bangalore
- Leading product and delivery of Great Learning's data programs – analytics, data science and AI



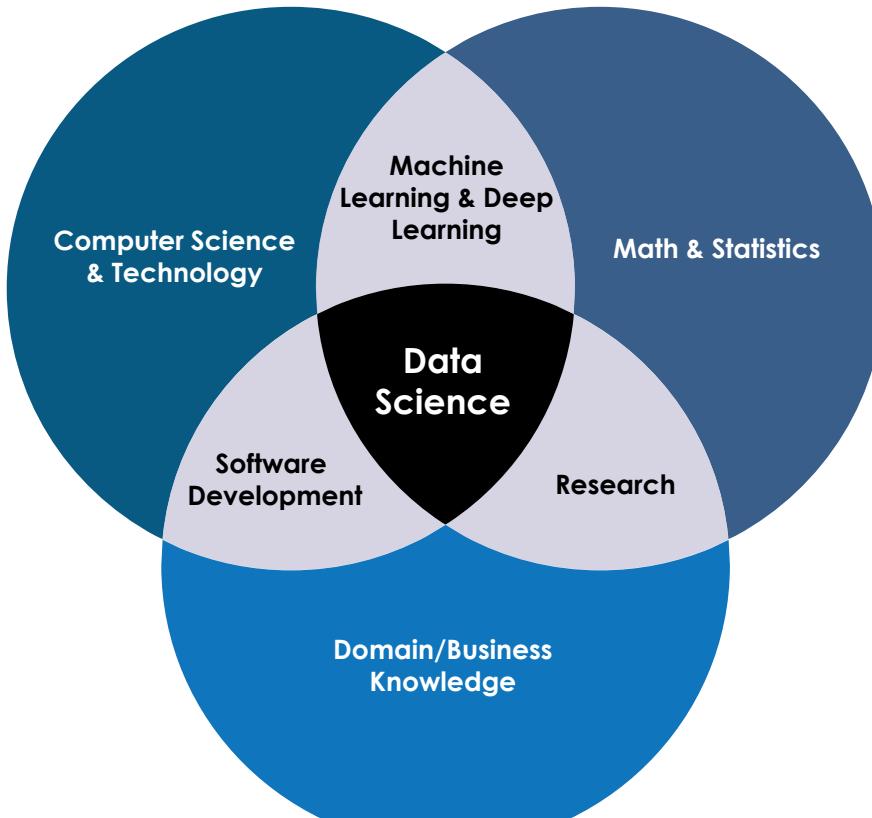
# From Insights to Impact

*Transforming Industries with  
Data Science*

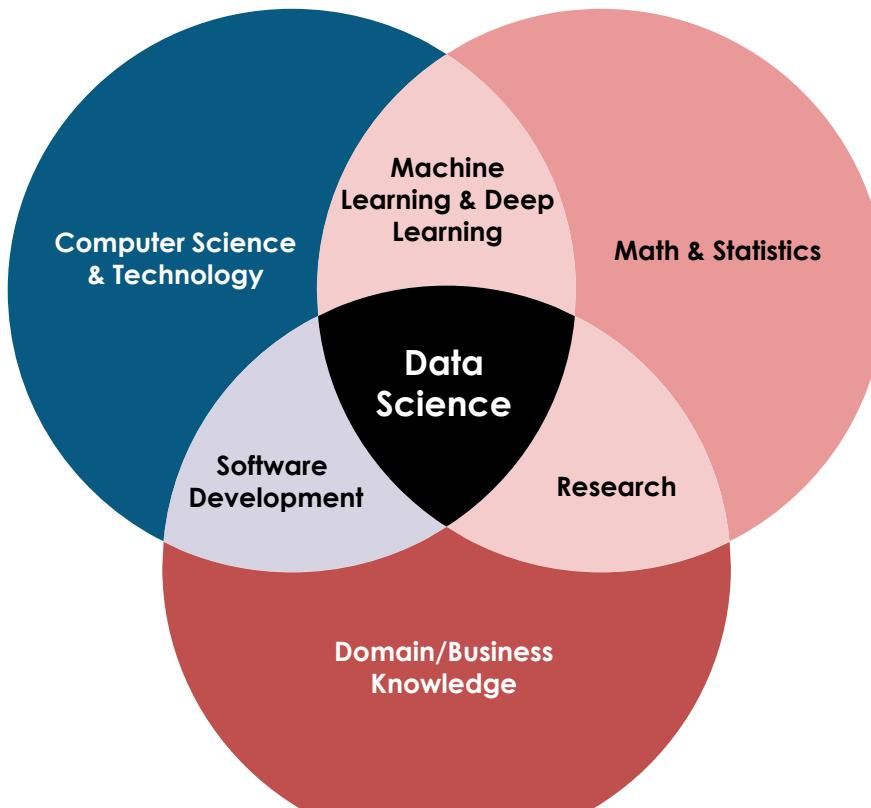
# Learning Objectives

- Develop an understanding of what is an “insight” for a business
- Get exposure to how problems exist in the real world
- Get a view on how data science can solve those problems
- Get initiated on what it takes to navigate that journey from insights to impact

# Revisiting definition of Data Science



# Revisiting definition of Data Science – today's focus



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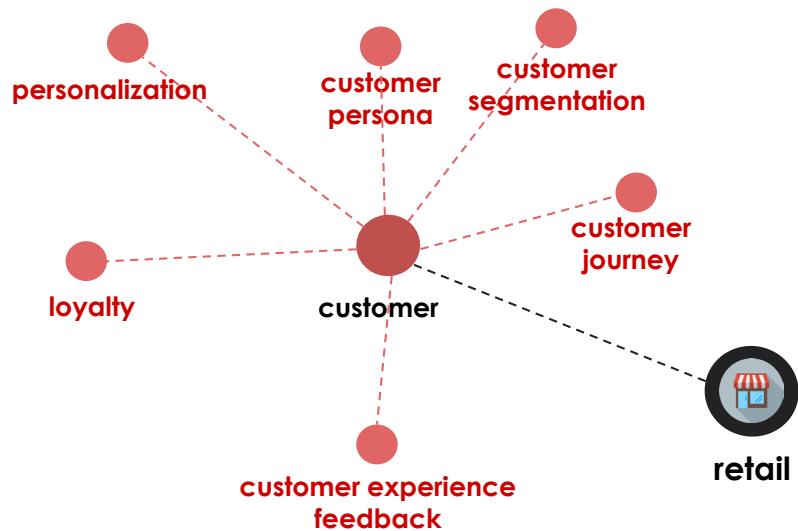
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# Problem Space - Retail Industry

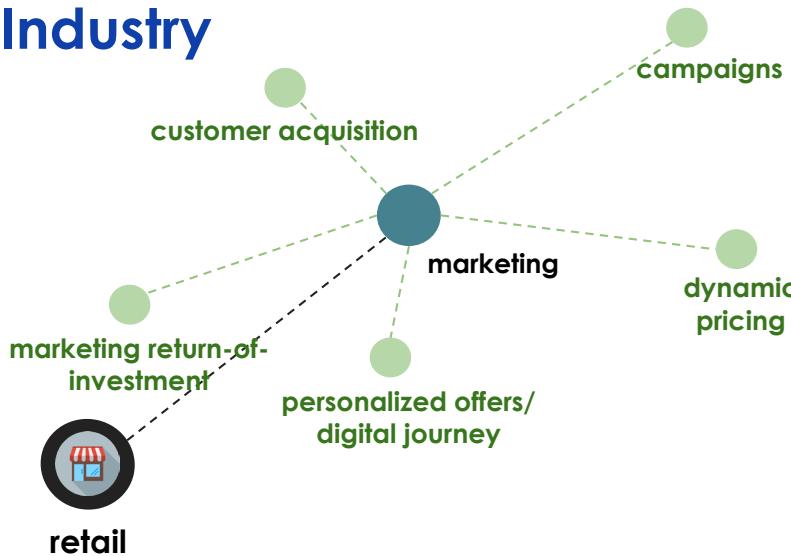


retail

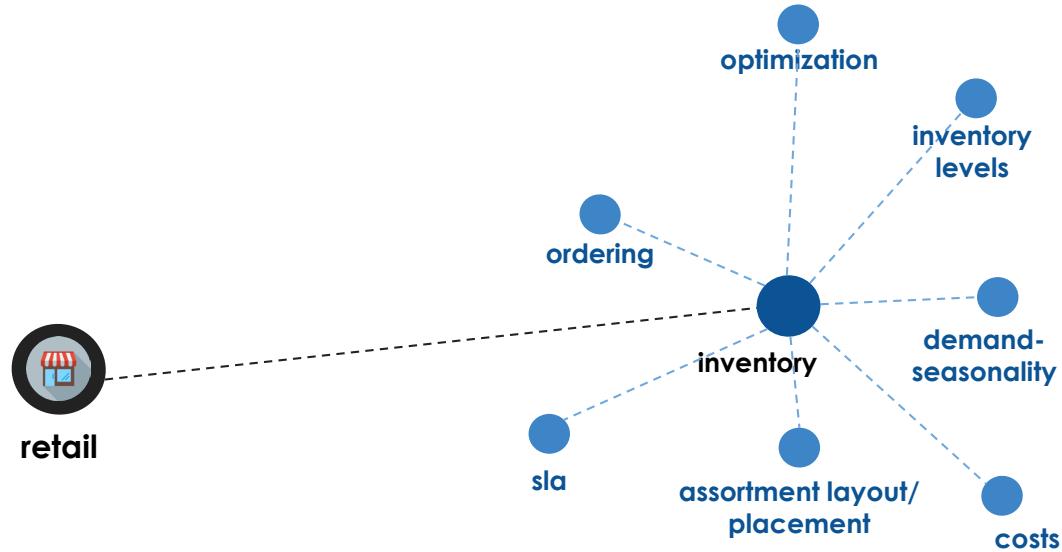
# Problem Space - Retail Industry



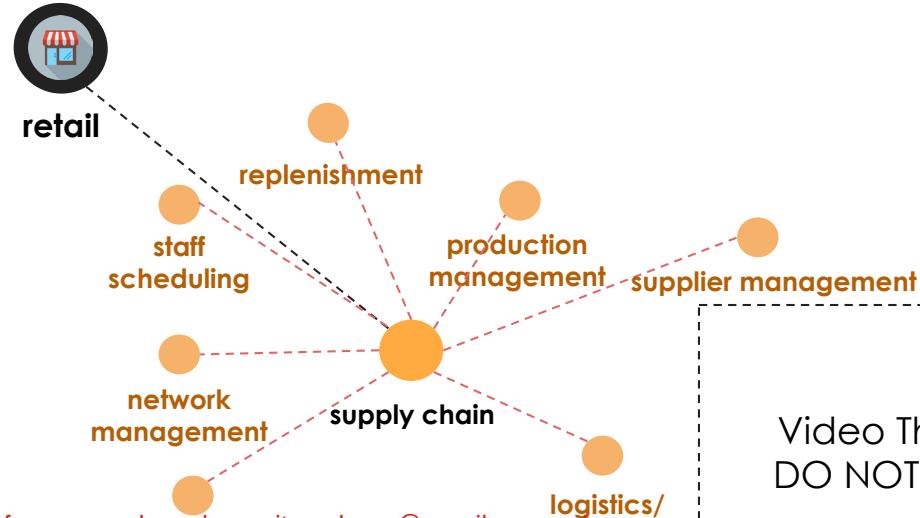
# Problem Space - Retail Industry



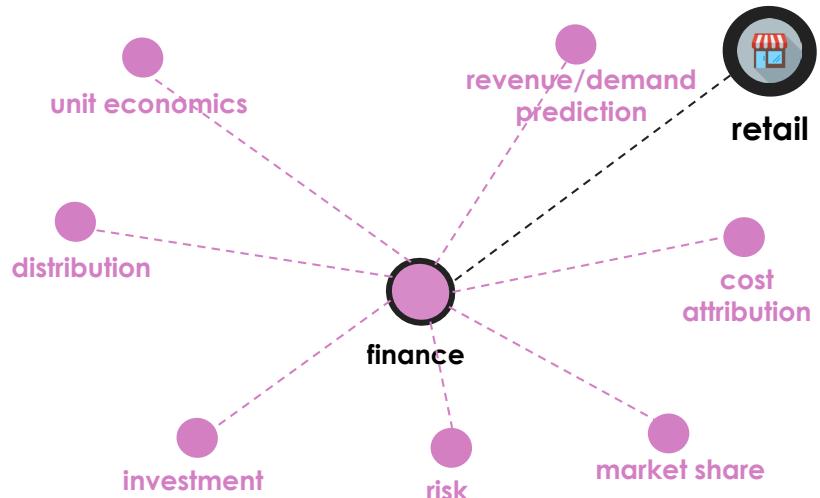
# Problem Space - Retail Industry



# Problem Space - Retail Industry



# Problem Space - Retail Industry



# Problem Space - Retail Industry



# Problem Space - Retail Industry



# Optimizing Inventory Levels

Current State



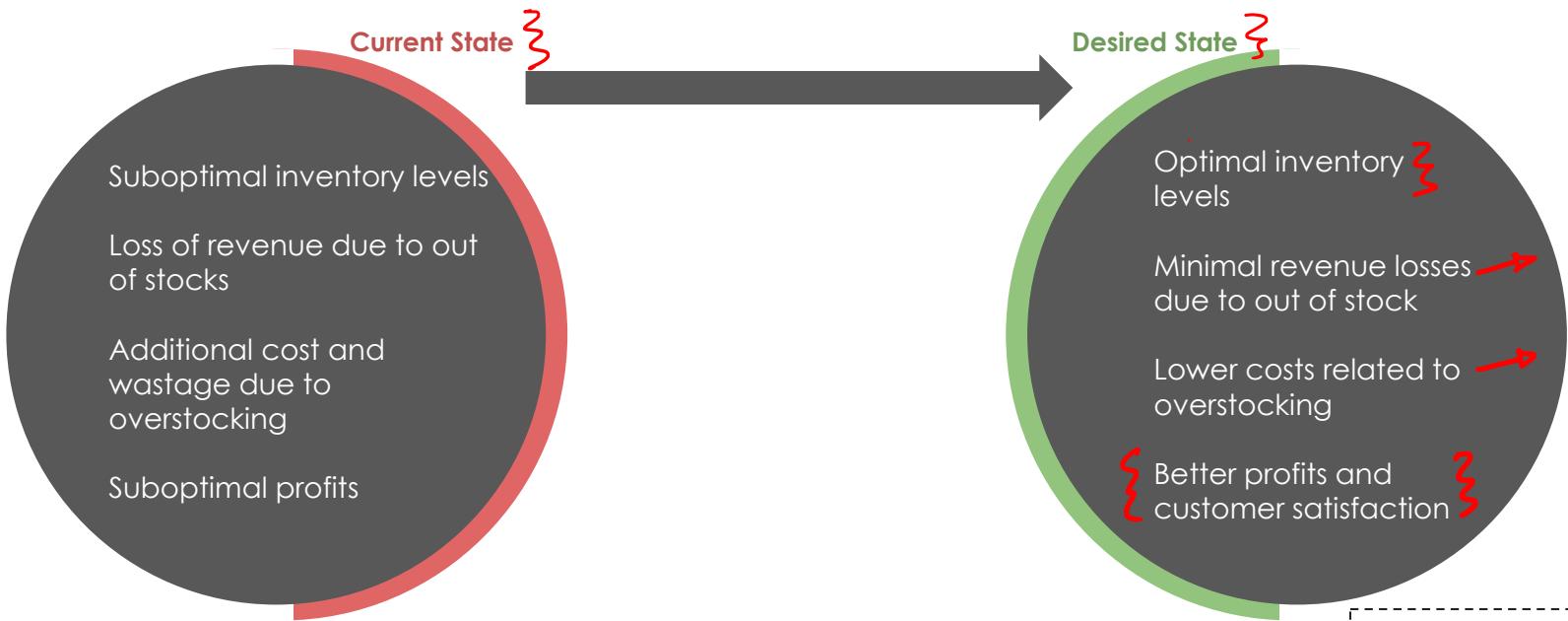
Desired State

# Optimizing Inventory Levels



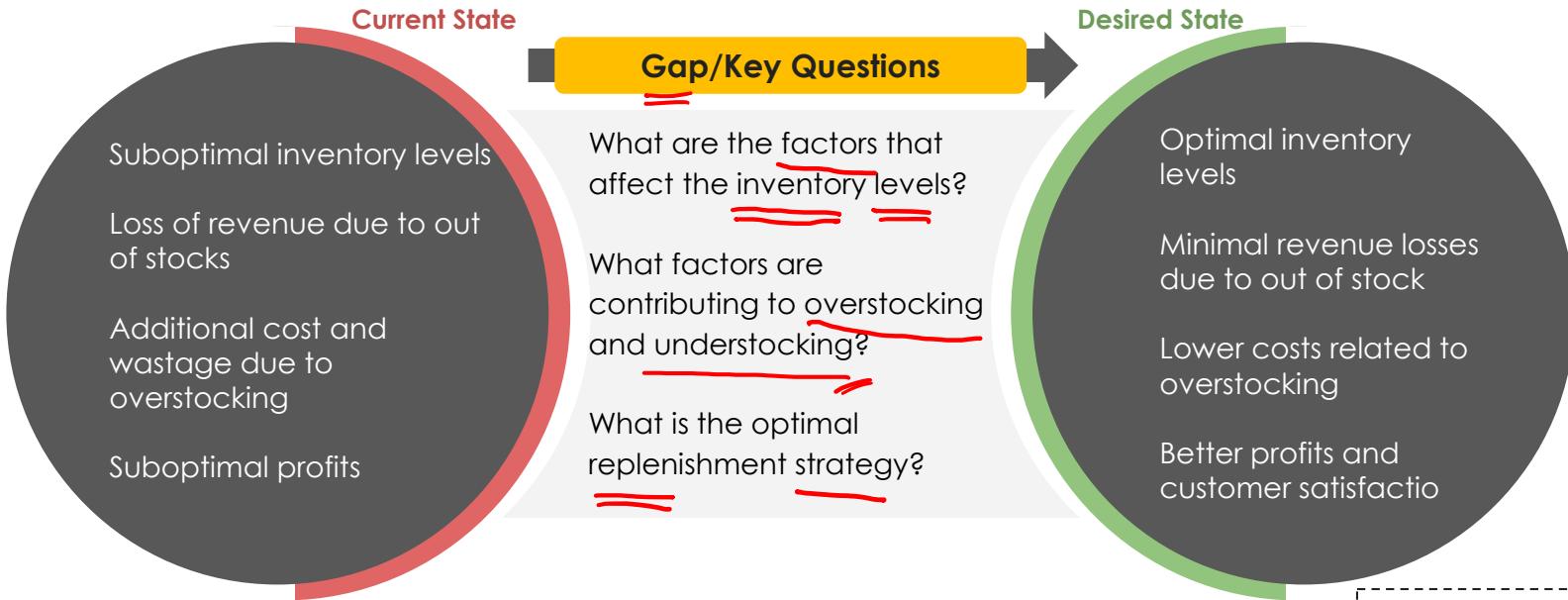
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# Optimizing Inventory Levels



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# Optimizing Inventory Levels



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# Optimizing Inventory Levels – data science solution

Opt. I  $\Rightarrow$  max. Rev / min. cost  $\Rightarrow$  Set smart SLAs + meet them

} demand forecast



+ seasonality



$\Rightarrow$  cluster

$\Rightarrow$  + replenishment constraint

$\Rightarrow$  lead time

n/n<sup>3</sup>  
warehouse  
production.

safety stock.

\$ A.C.

"optimal"



order quantity

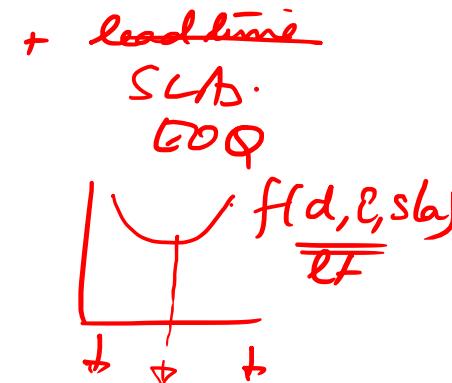
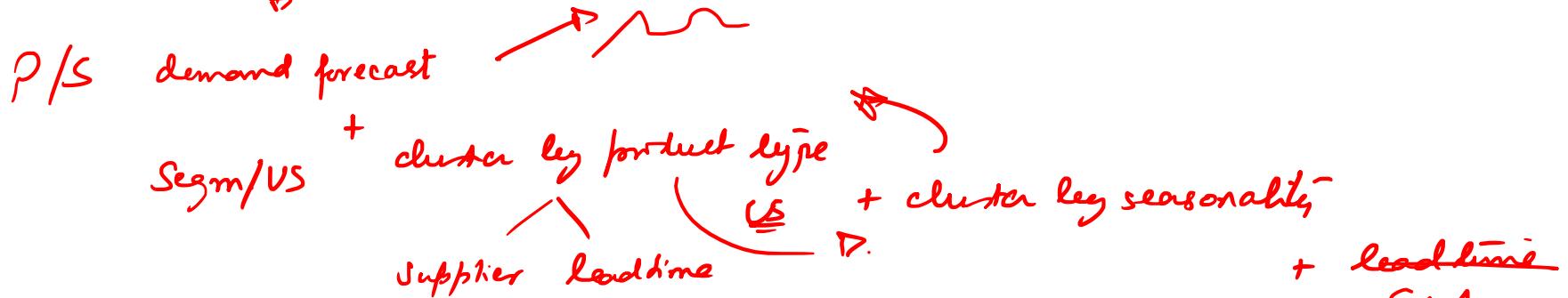
"statistics")

EDQ

+ SLA

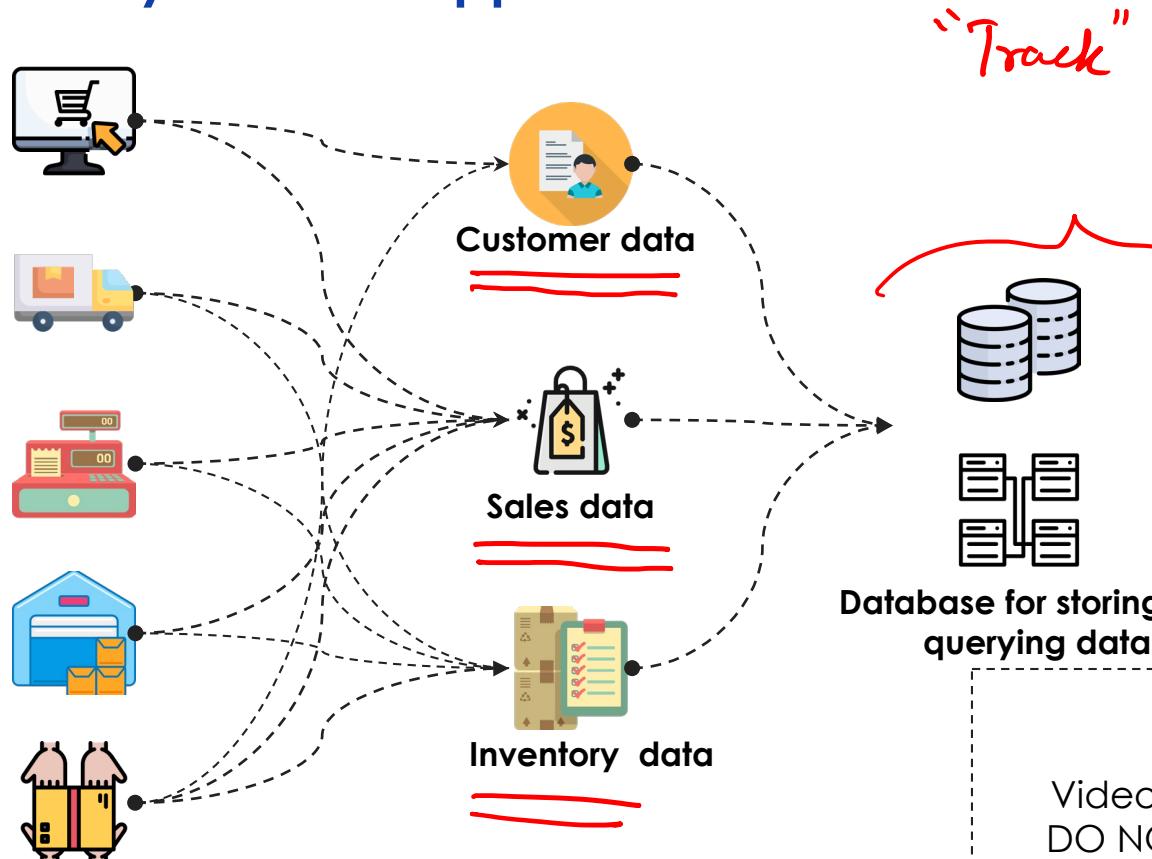
$$\Rightarrow f(d, c, r.c.) \quad \left\{ \begin{array}{l} \uparrow \\ \downarrow = \end{array} \right.$$

Opt. Inv.  $\Rightarrow$  maximize Rev / minimal costs  $\Rightarrow$  set smart SLAs + meet them + variations across time



# Optimizing Inventory Levels – Approach - Data

- Website
- Supplier shipment
- Checkout at stores
- Warehouse stock
- Dispatch and delivery



# Optimizing Inventory Levels – Approach - Factors

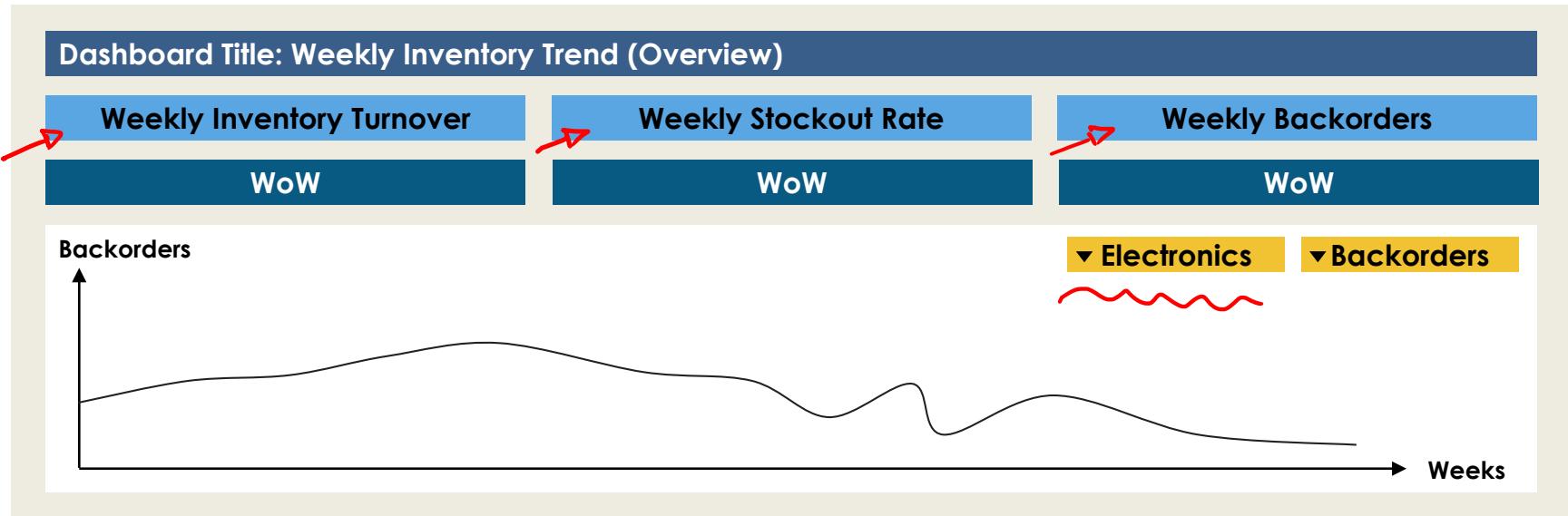


# Optimizing Inventory Levels – Approach

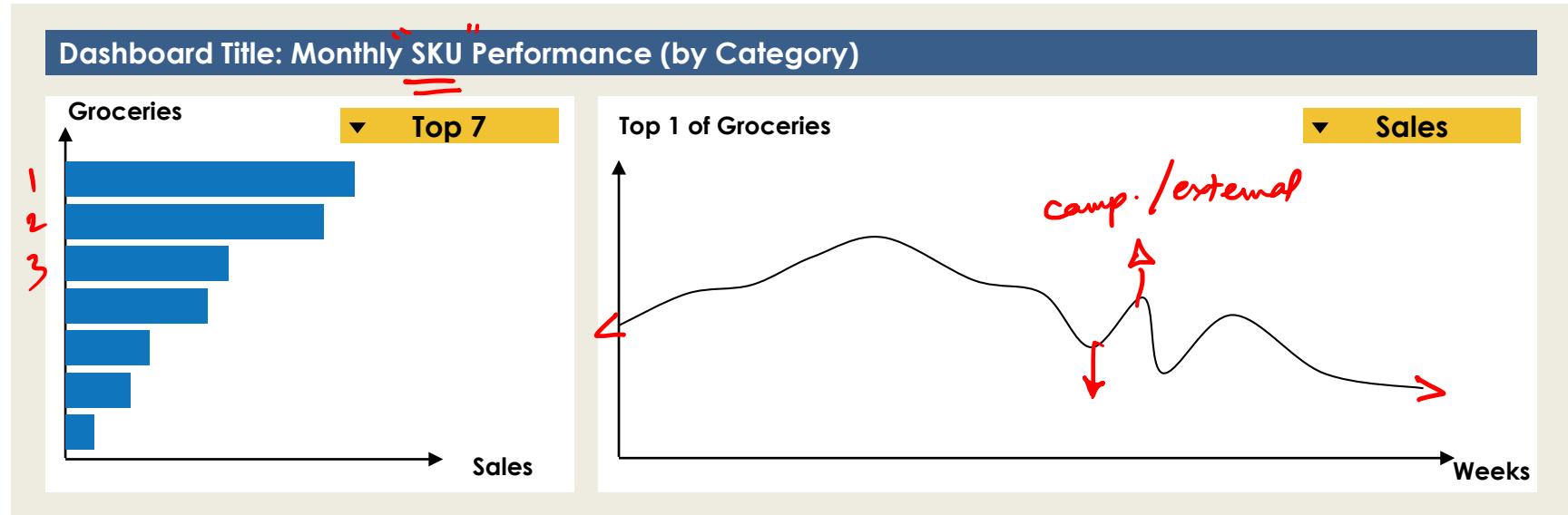
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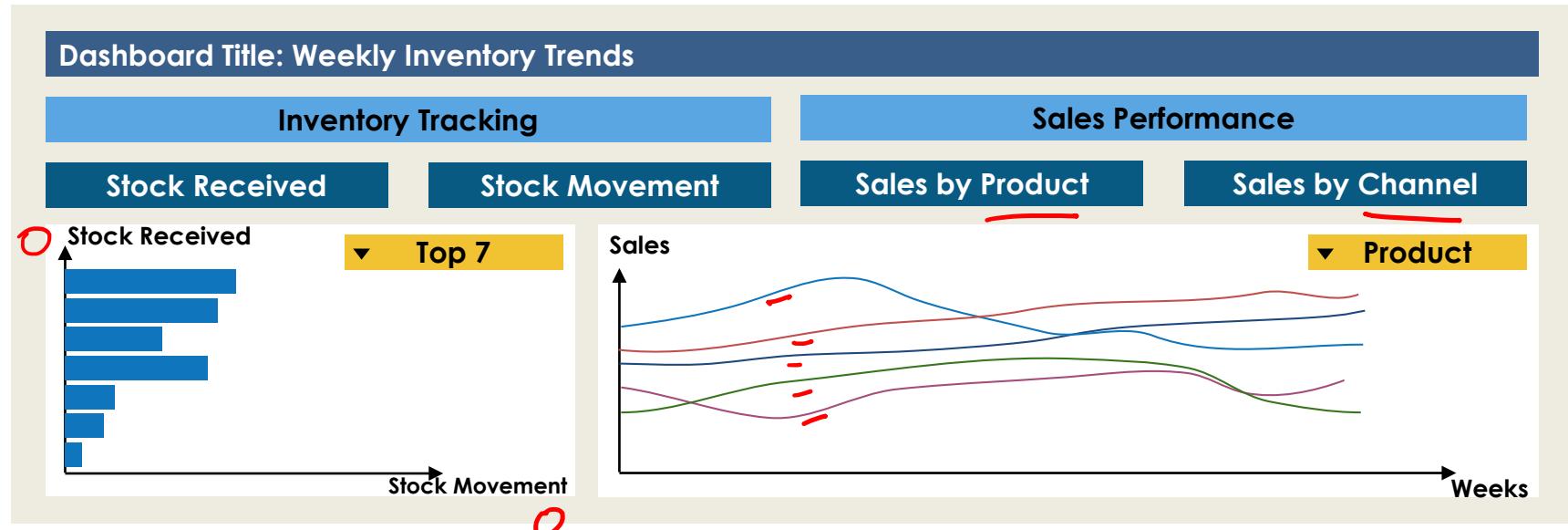
# Optimizing Inventory Levels - Tracking



# Optimizing Inventory Levels - Tracking



# Optimizing Inventory Levels - Tracking



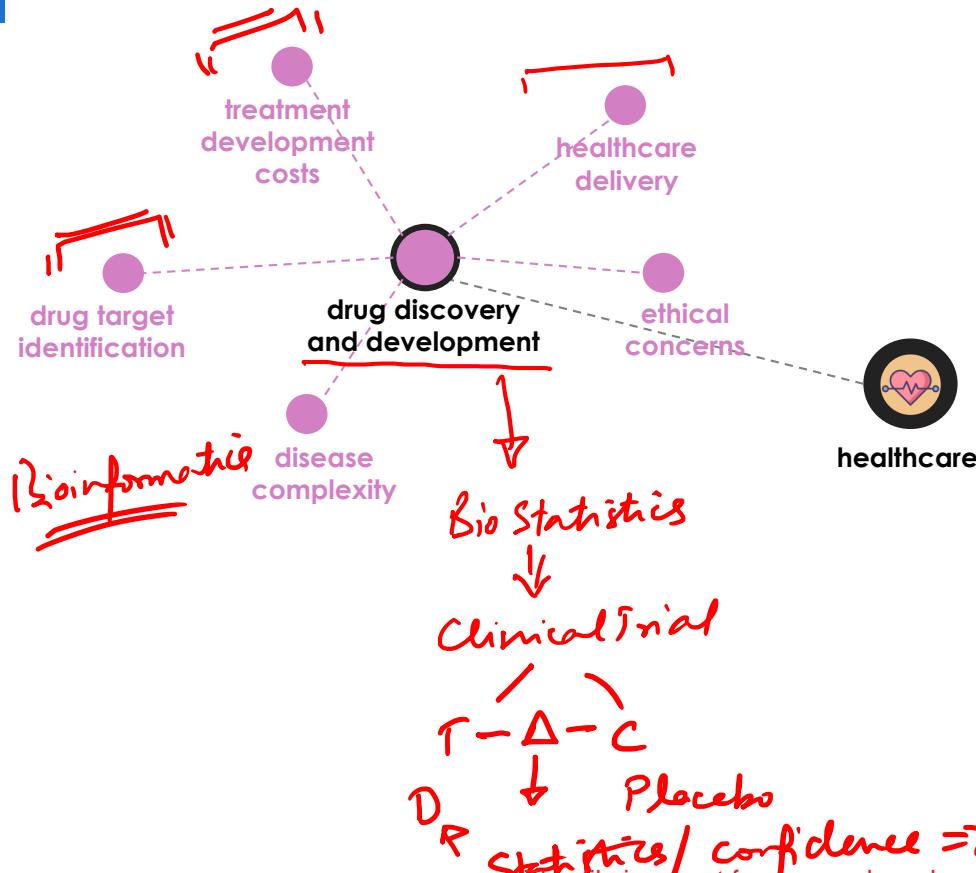
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# Problem Space - Healthcare Industry

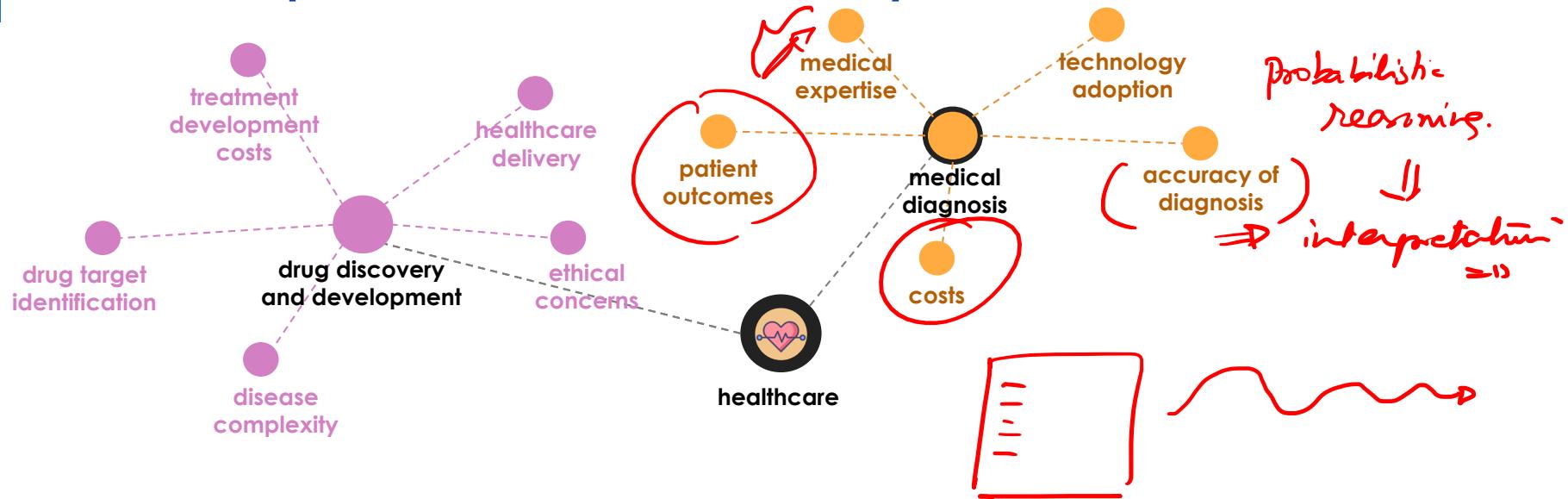


healthcare

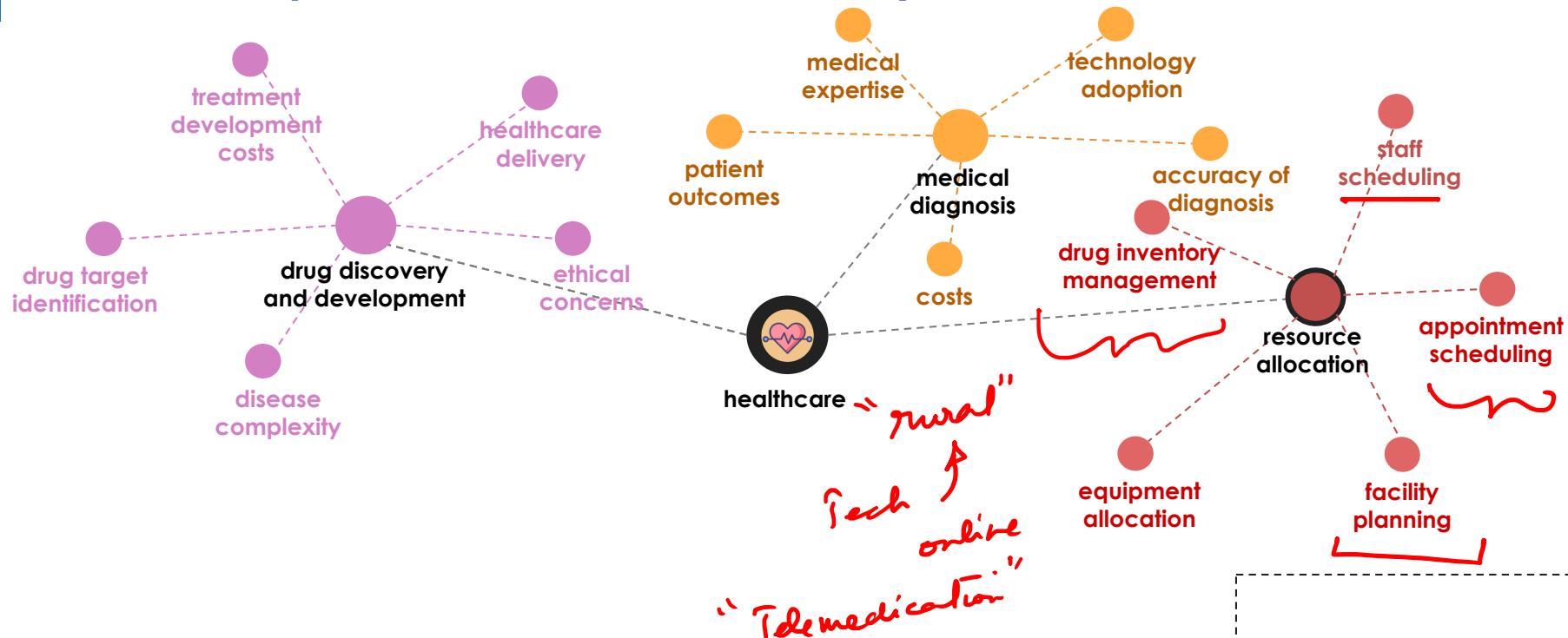
# Problem Space - Healthcare Industry



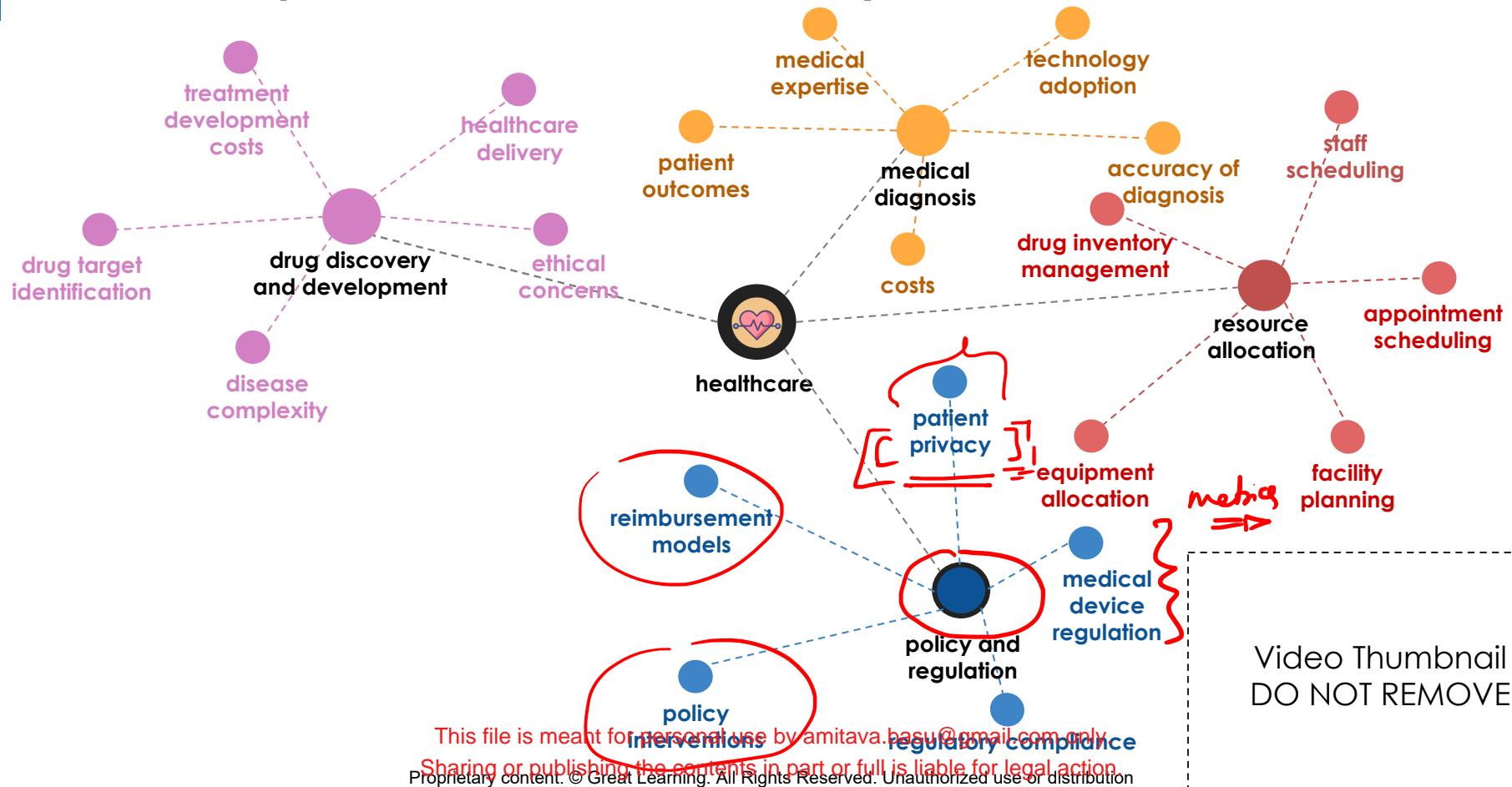
# Problem Space - Healthcare Industry



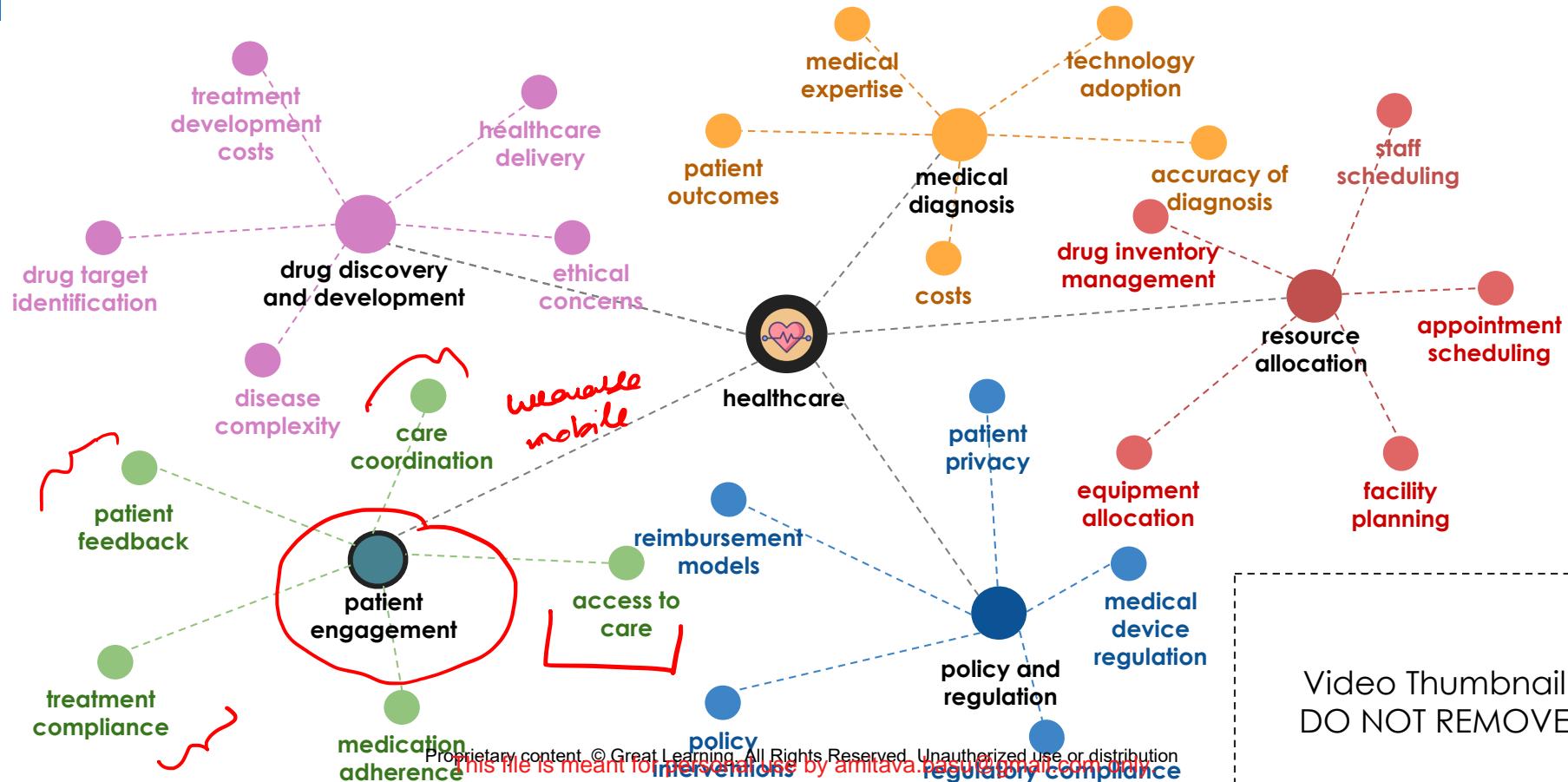
# Problem Space - Healthcare Industry



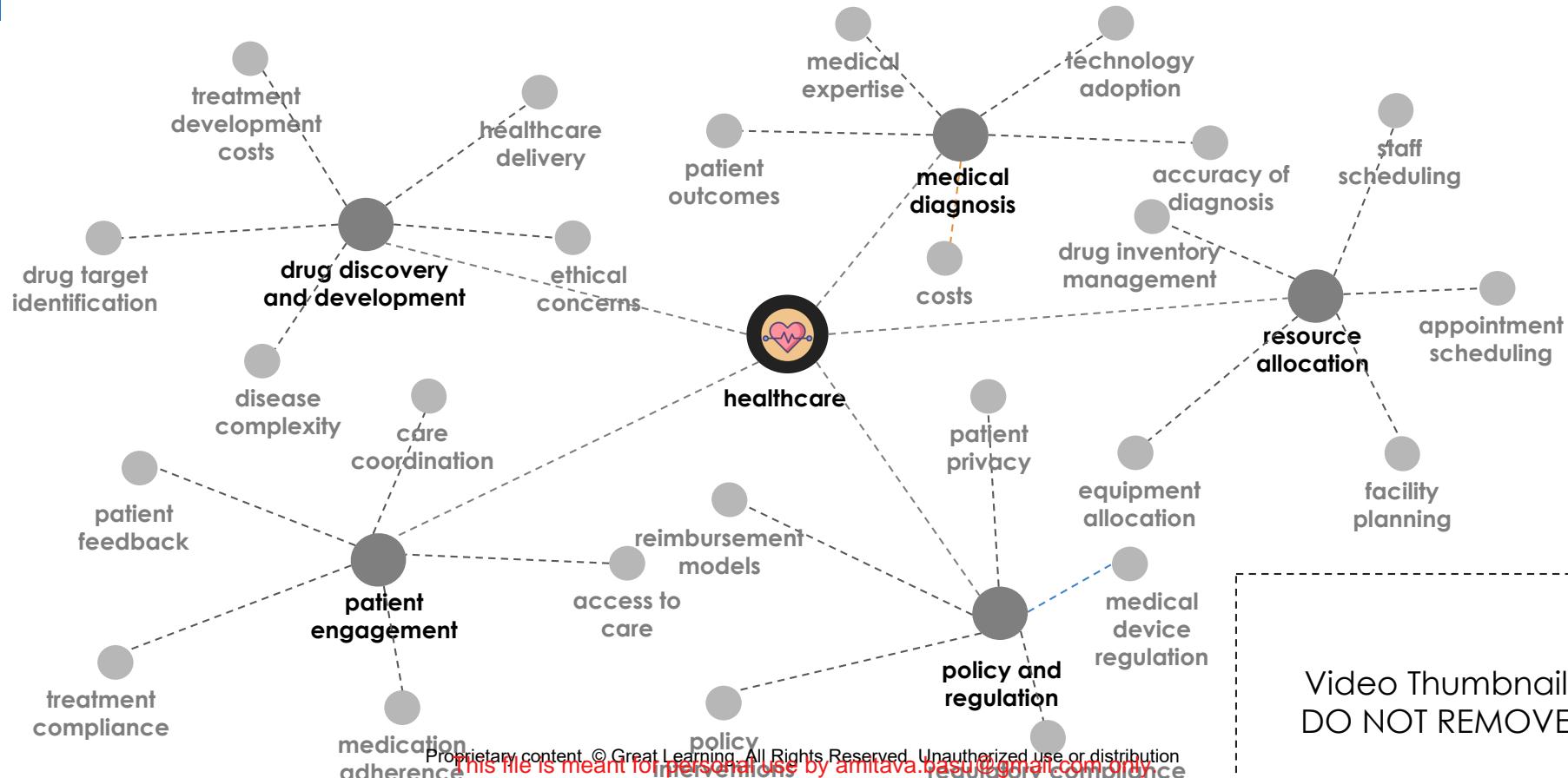
# Problem Space - Healthcare Industry



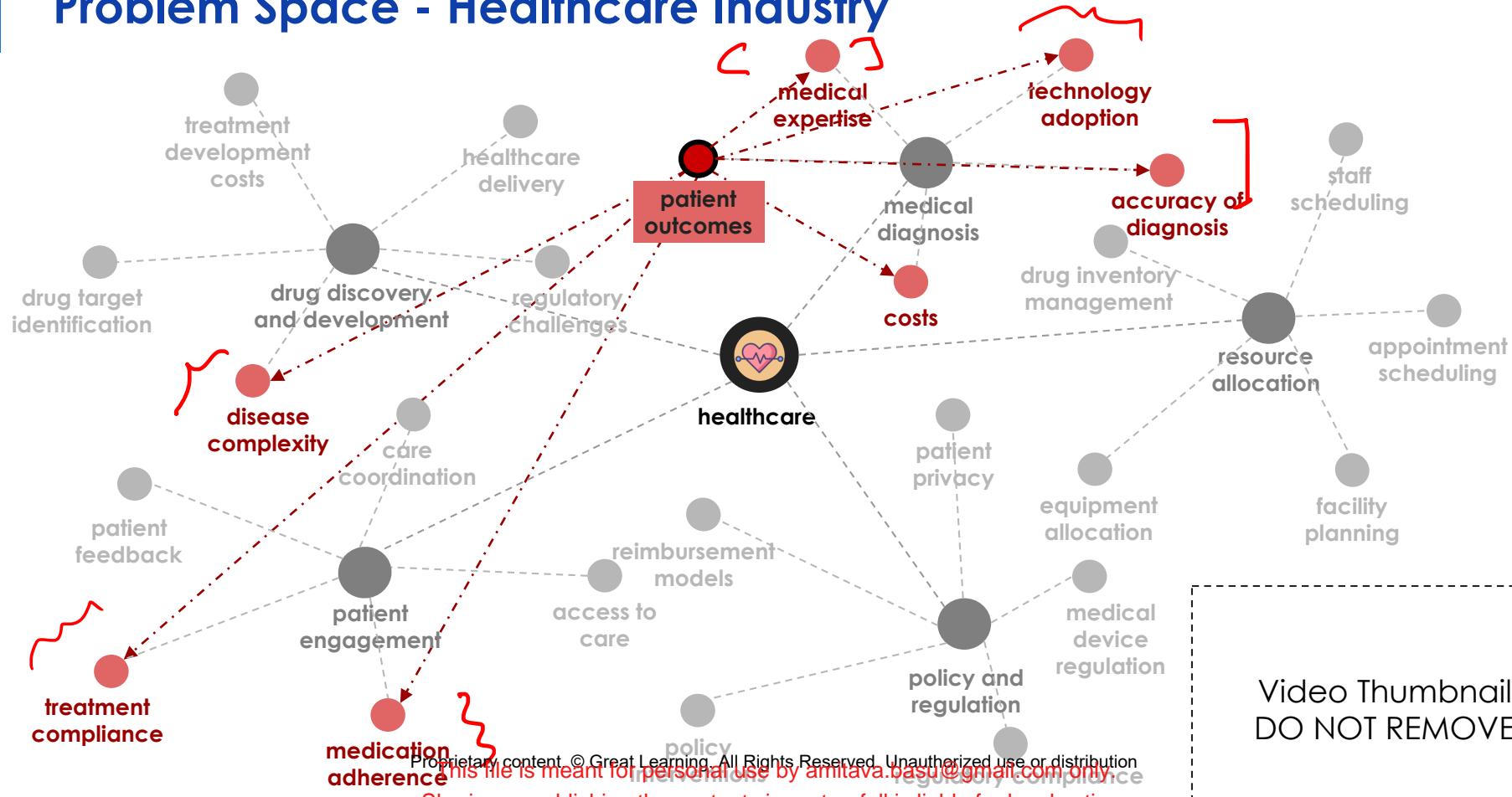
# Problem Space - Healthcare Industry



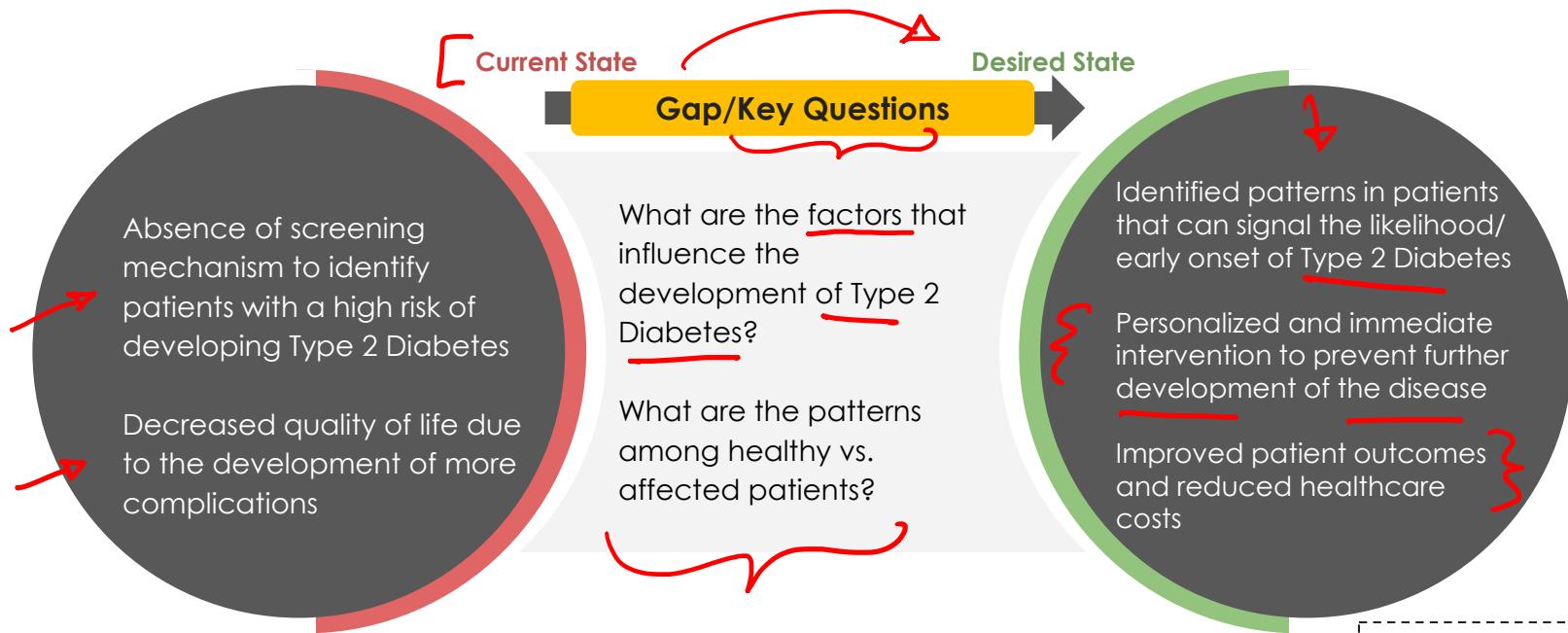
# Problem Space - Healthcare Industry



# Problem Space - Healthcare Industry

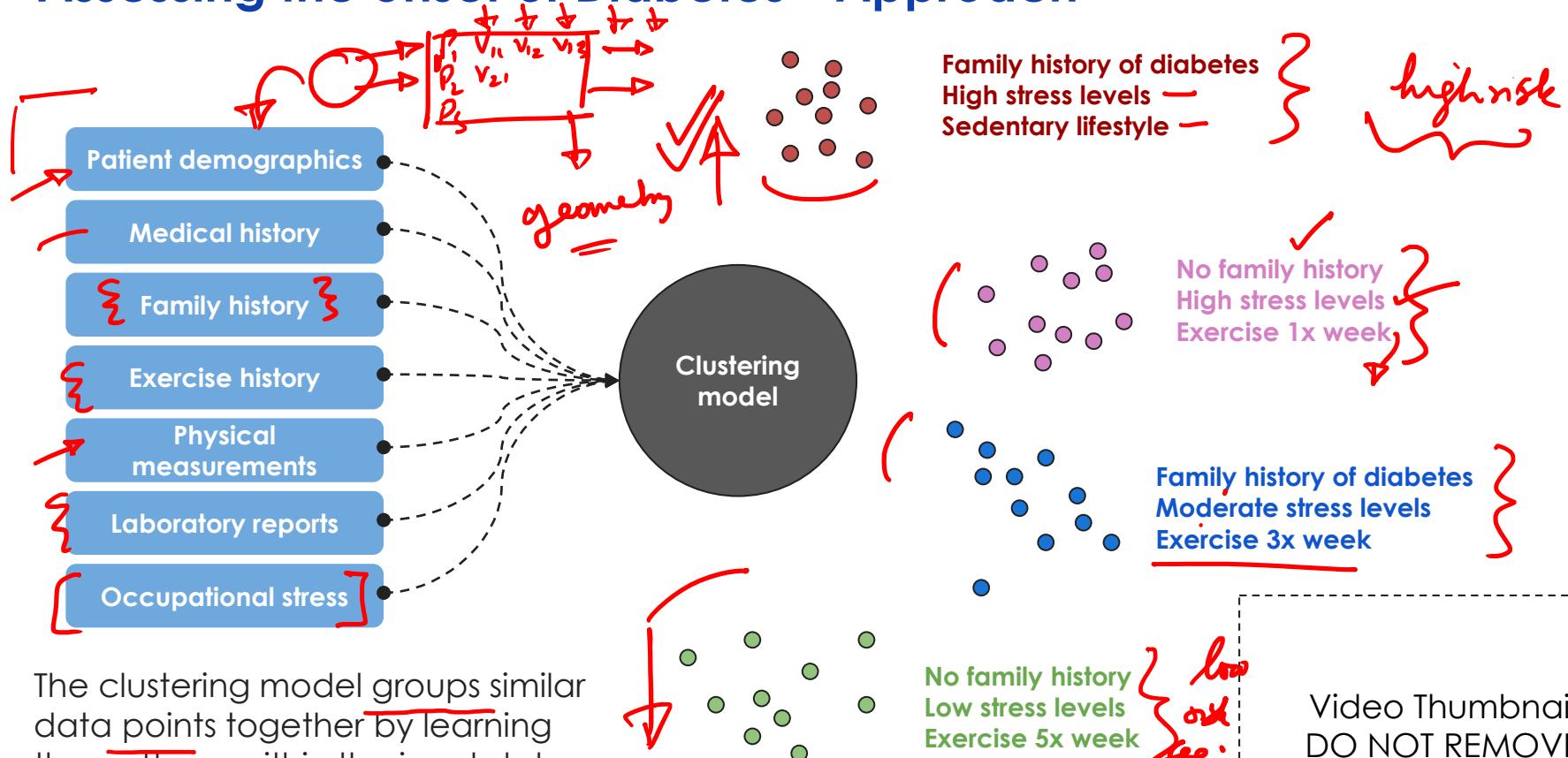


# Assessing the onset of Diabetes

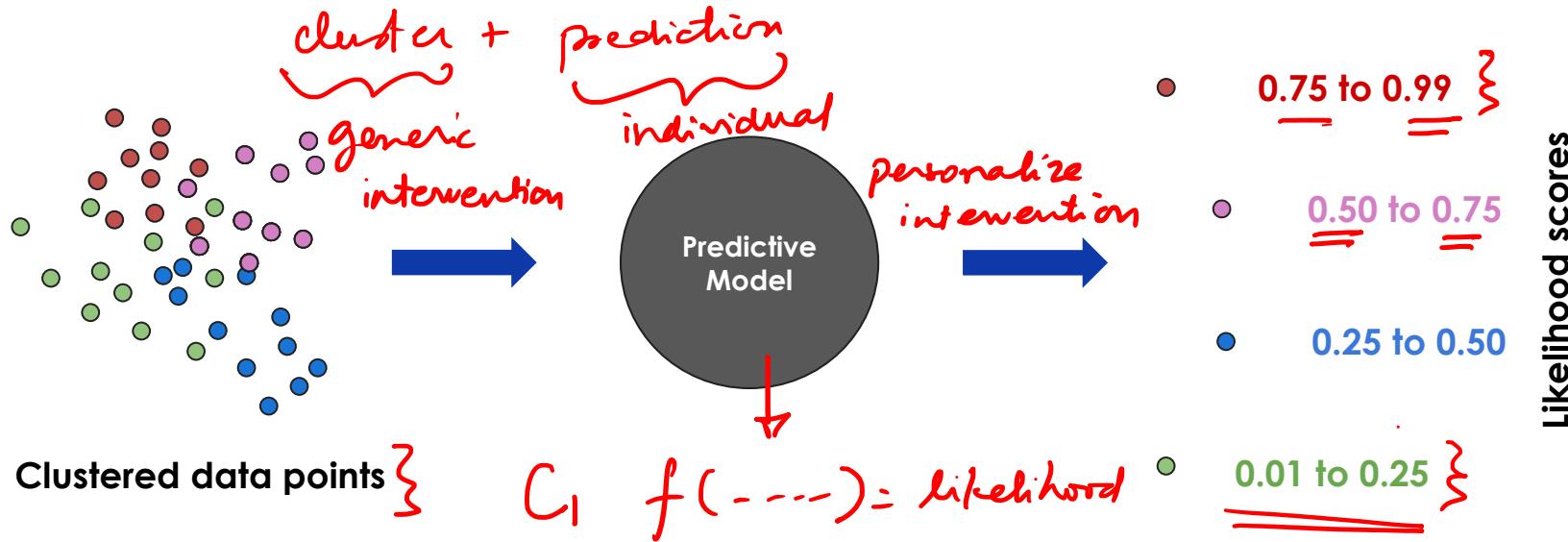


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# Assessing the onset of Diabetes - Approach



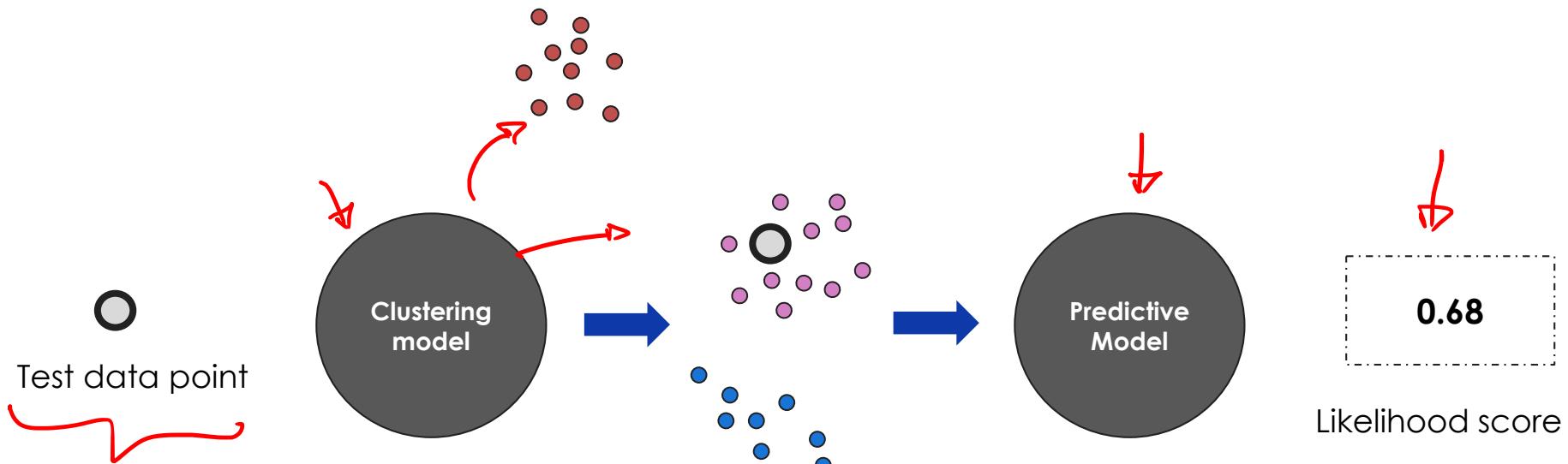
# Assessing the onset of Diabetes - Approach



The predictive model assigns a likelihood score to each data point depending on its features and the group characteristics.

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# Assessing the onset of Diabetes - Approach

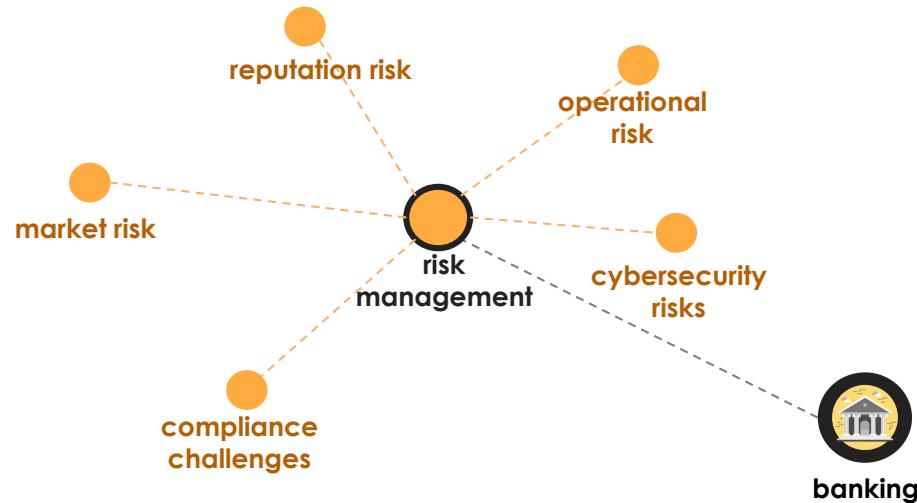


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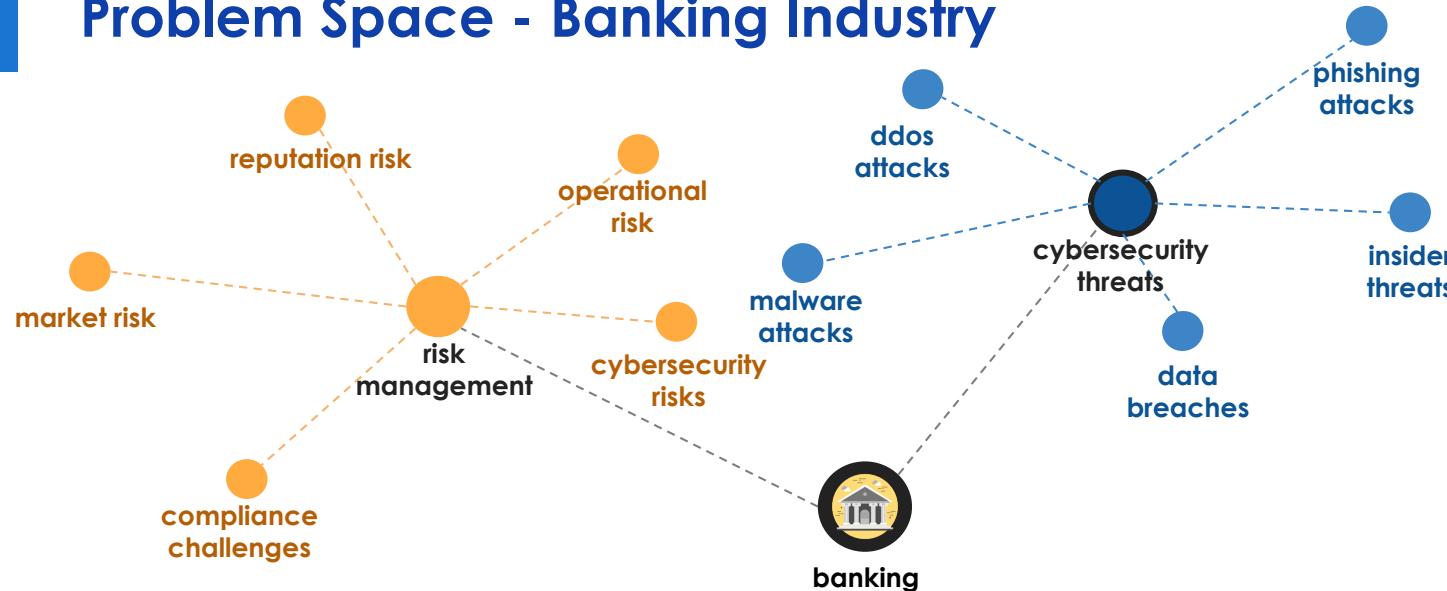
# Problem Space - Banking Industry



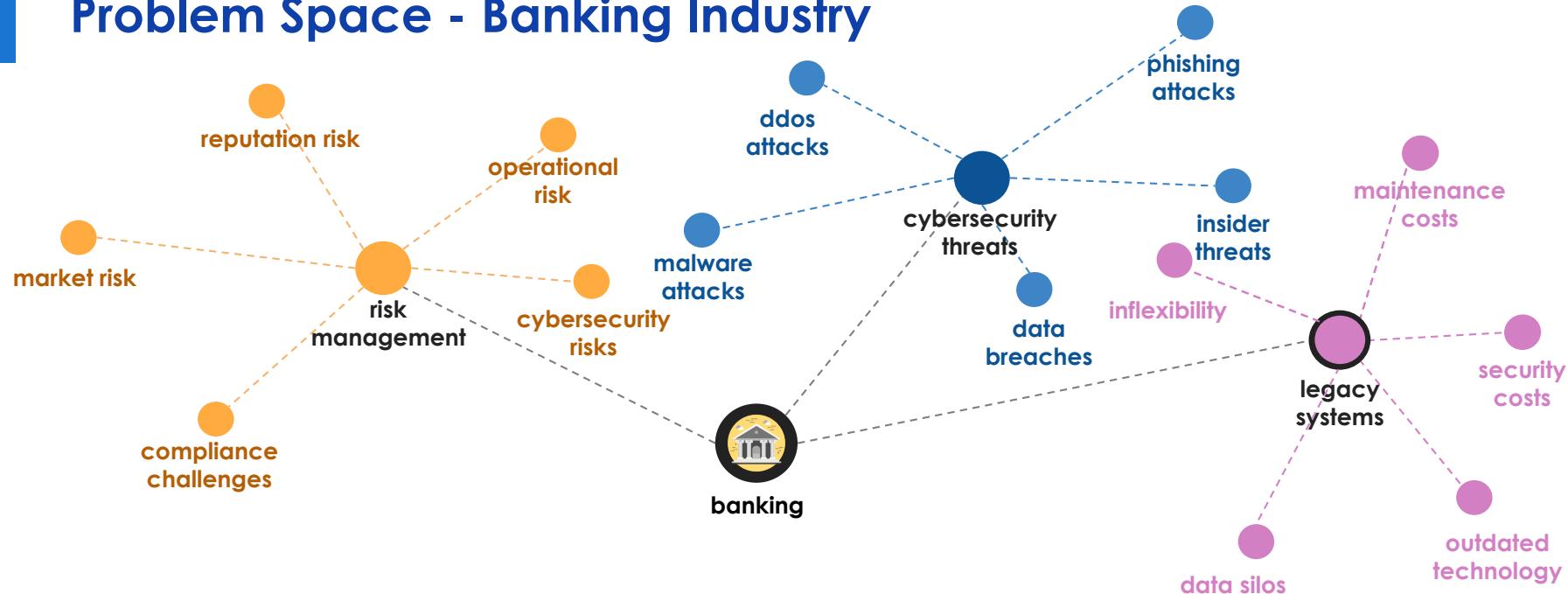
# Problem Space - Banking Industry



# Problem Space - Banking Industry

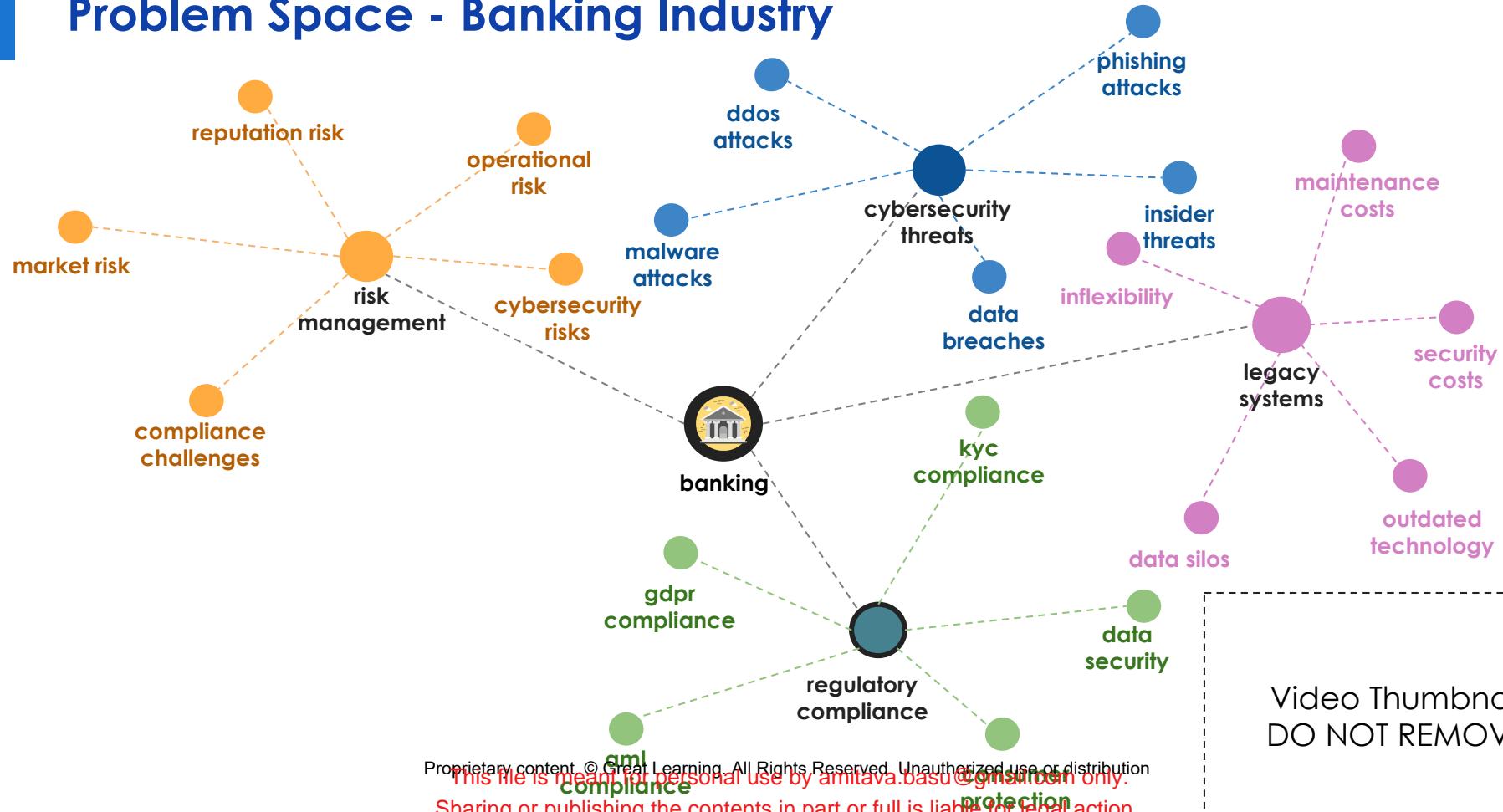


# Problem Space - Banking Industry

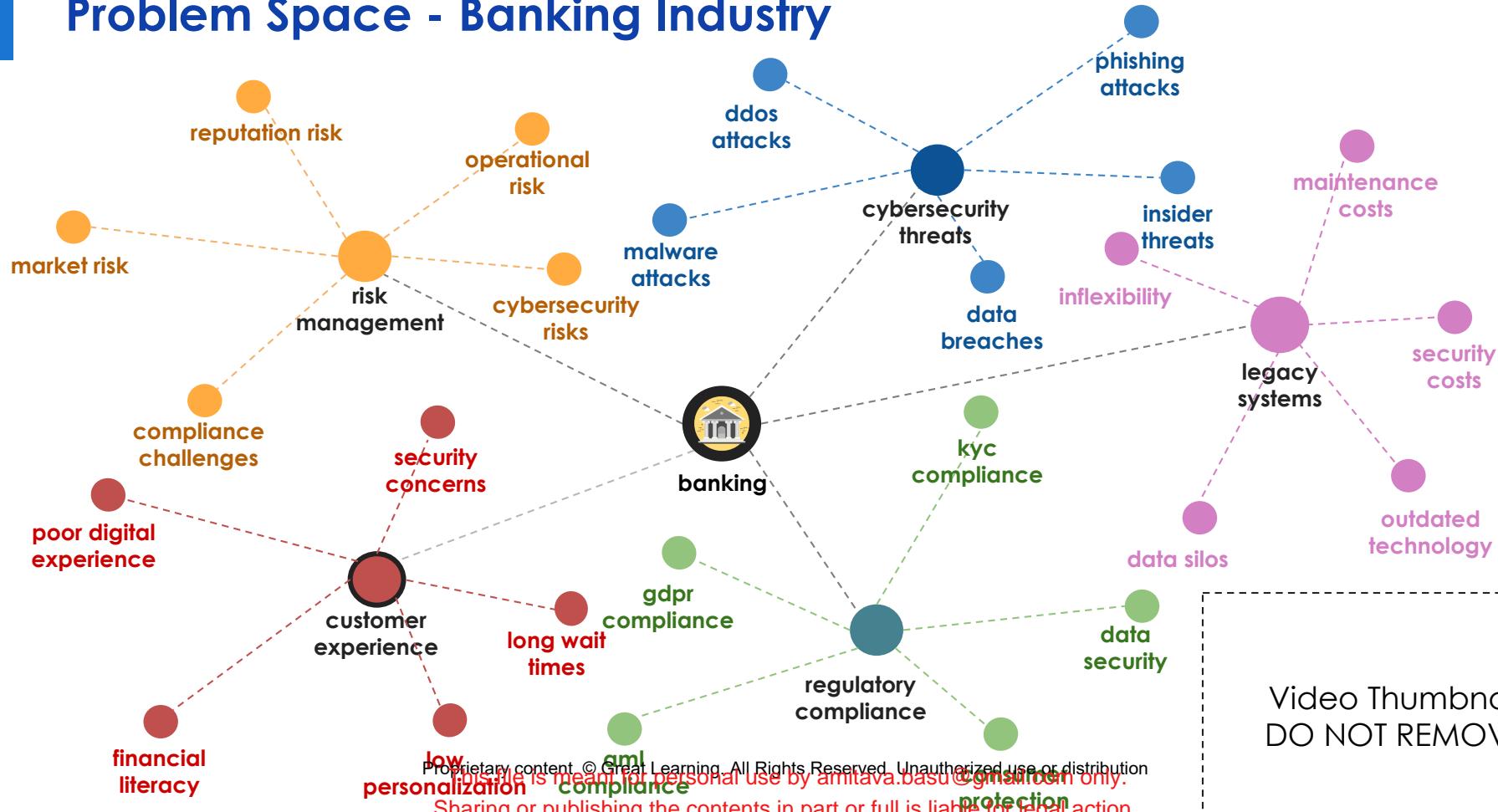


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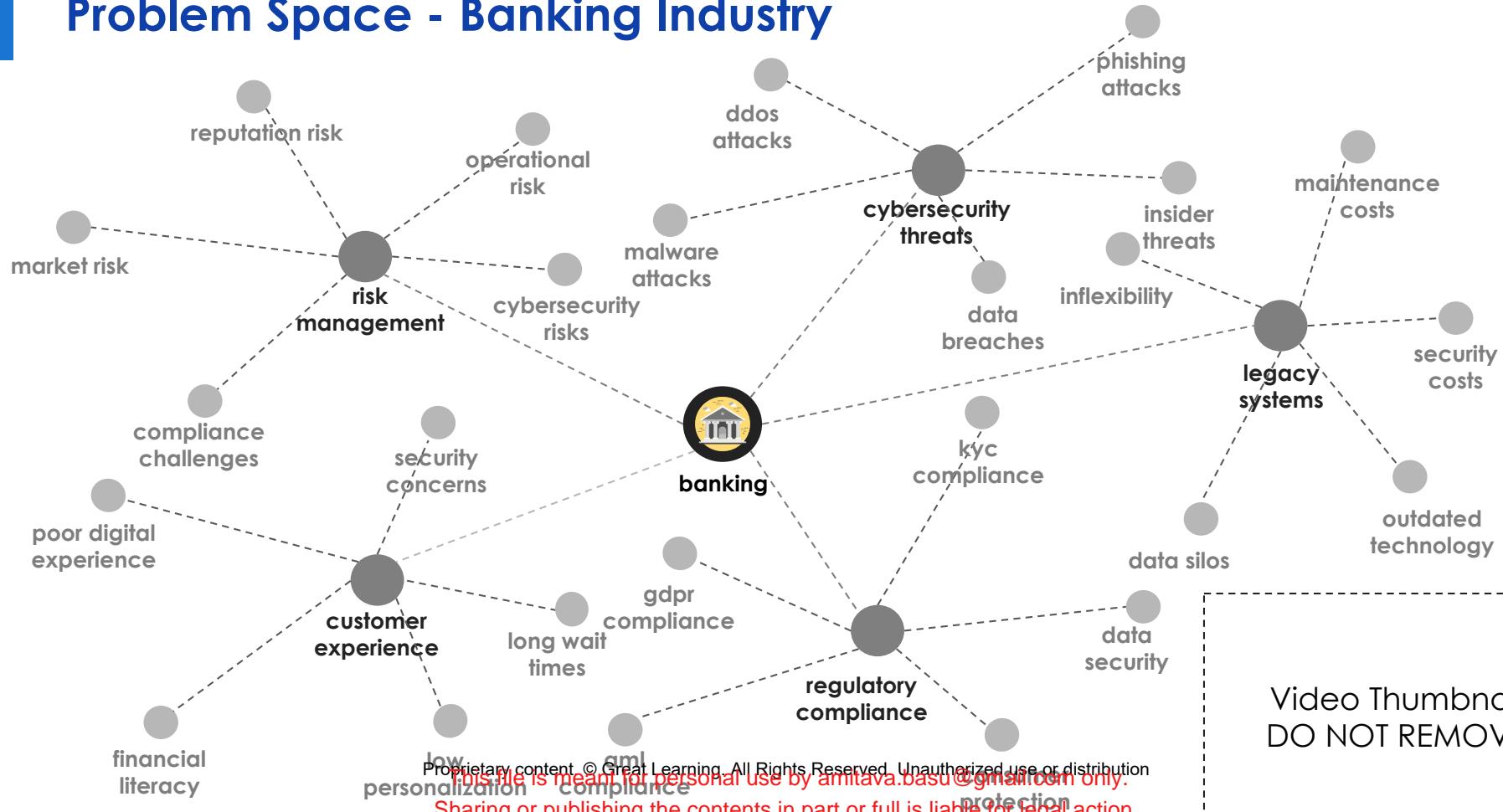
# Problem Space - Banking Industry



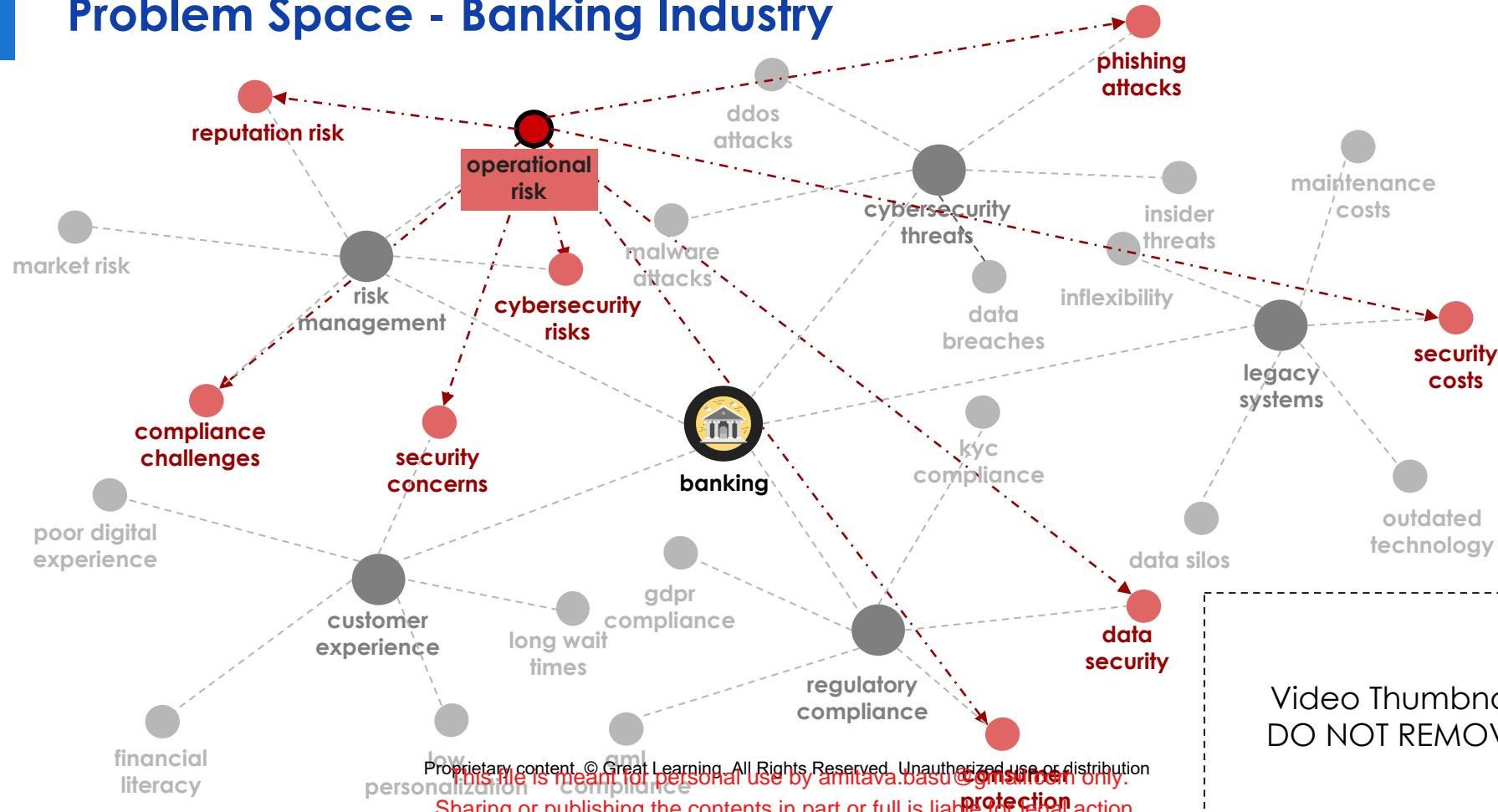
# Problem Space - Banking Industry



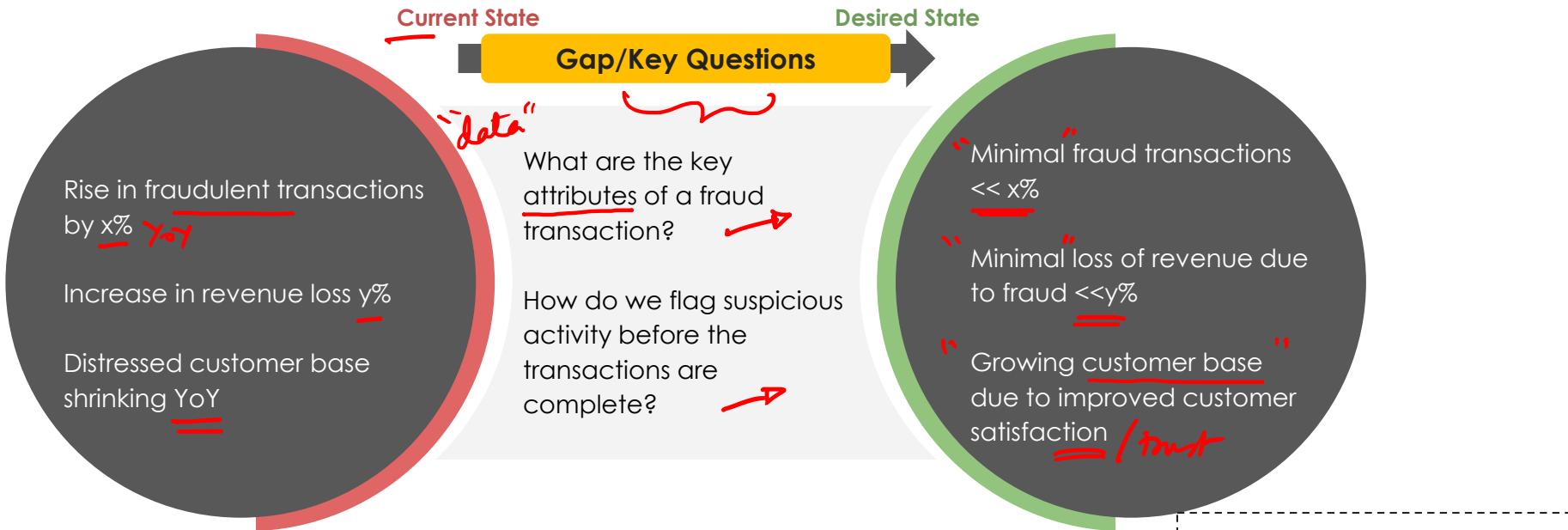
# Problem Space - Banking Industry



# Problem Space - Banking Industry



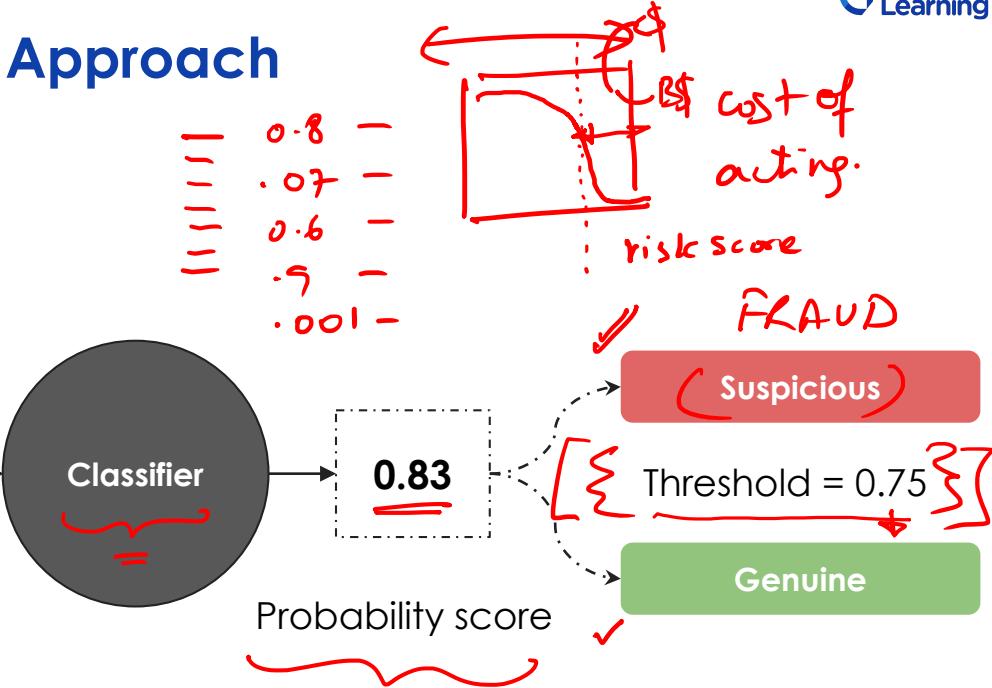
# Credit Card Fraud detection



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# Credit Card Fraud detection - Approach

- Is the transaction amount unusually high?
- Is the location of transaction new/unusual?
- Is the device new/old?
- Is the merchant category new/unusual?
- What kind of transactions have been performed in the past?
- When was the card issued?
- Has the card been reported stolen/lost?

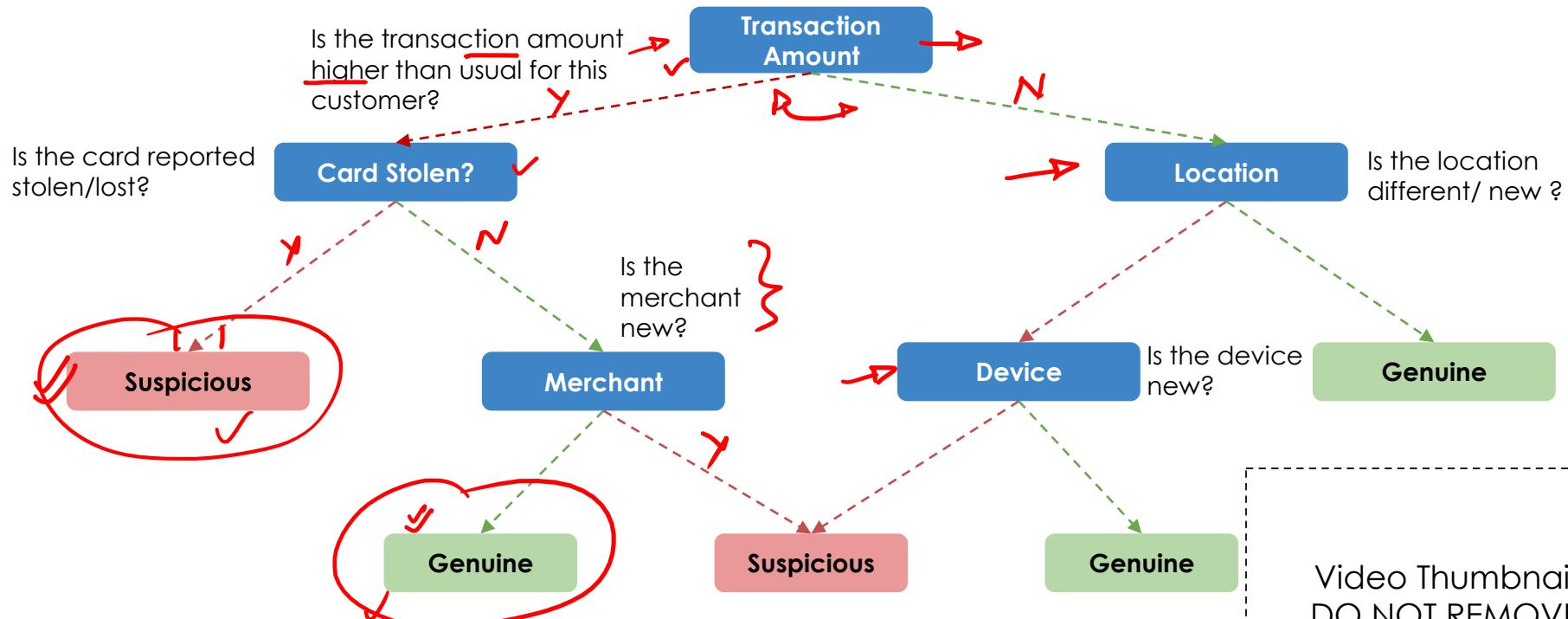


The classifier learns the features of the input data to classify data into categories based on a certain threshold.

# Credit Card Fraud detection - Approach

## A simple decision tree

Threshold: More than 2 questions are suspicious



# Summary

- The problems exist in an interconnected manner
- Solving one problem requires one to think thru many factors
- Ability to think through factors is driven by the depth of domain knowledge
- Collecting, preparing and using the right data is directly dependent on domain knowledge
- Using the right data science method is also heavily dependent one's understanding of the domain
- Defining the problem well in light of the domain context is critical to finding right insights and delivering impact for the business

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# Happy Learning !

