

# Predictive Modeling

## Lessons Learned in Developing Business Solutions

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# Agenda

- Setting the Stage
- Establishing a Framework for Success
- Making the Right Type of Prediction
- Building the Right Environment
- Preparing for Shifting Conditions

# Data Science at Voya



## CENTRALIZED TEAM

Supporting the enterprise



## DATA STORAGE

Transitioning from on-premises to cloud platforms



## ANALYTICS & MODELING

Strategically employ platform with Graphical User Interface



## VISUALIZATION

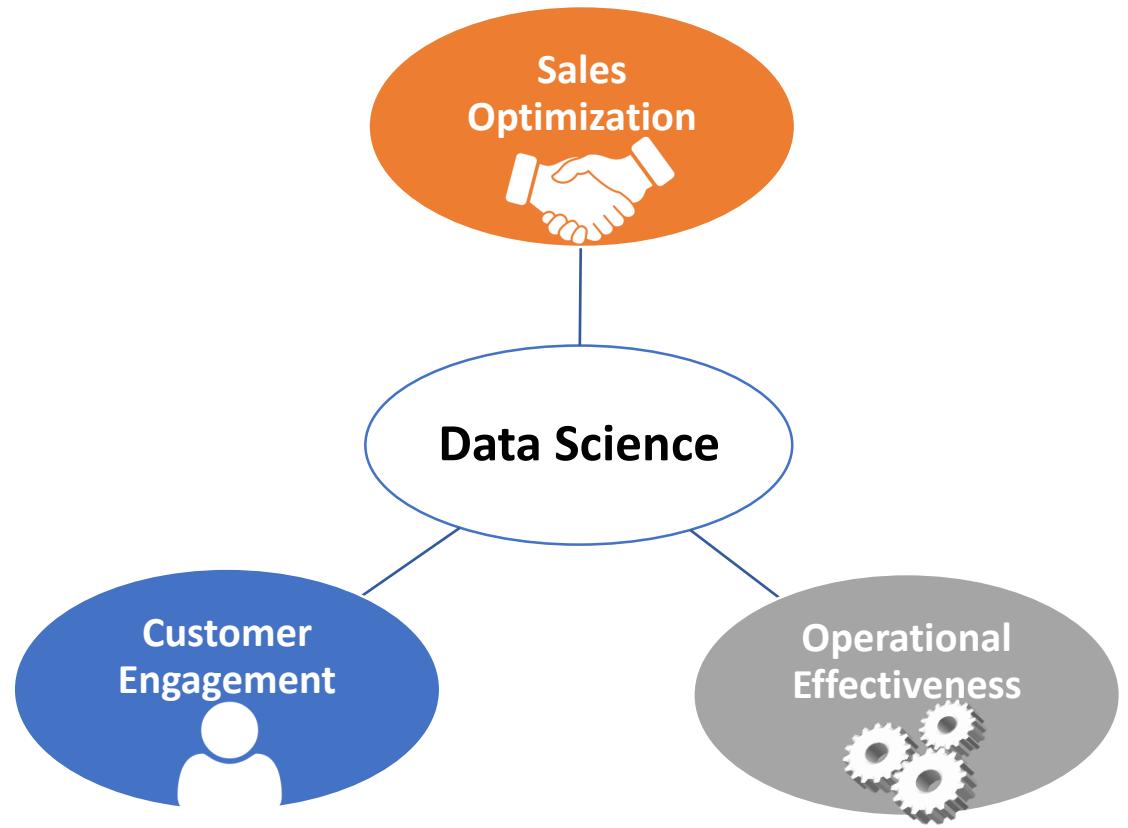
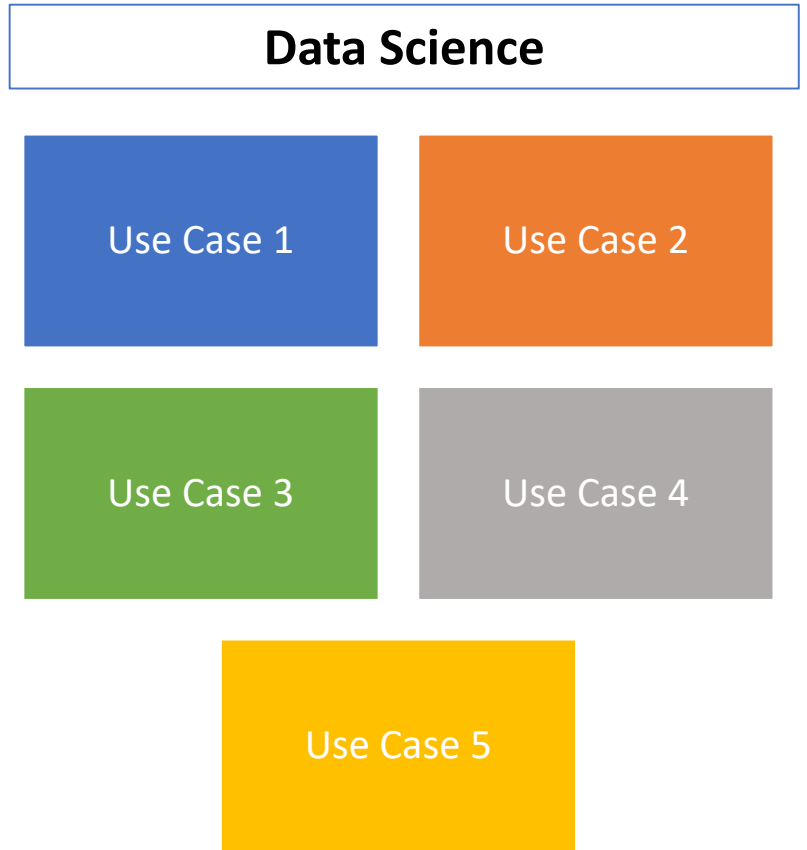
Deliver insights using Excel, Tableau and PowerPoint

# Team Structure is Key to Maximizing Value

## Portfolio of Use Cases

VS.

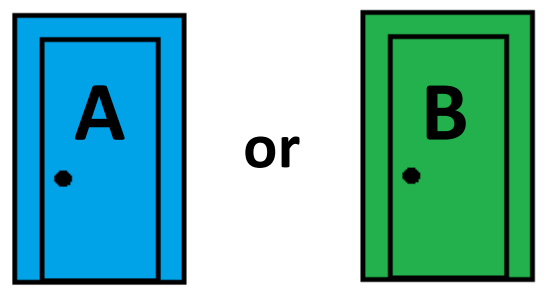
## Capability-Centric



# Keys to Maximizing Business Value

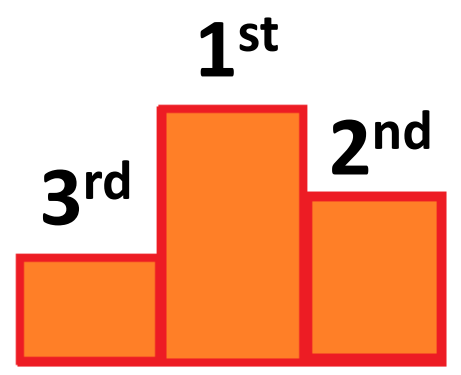


# Match Prediction Styles to Problem Types



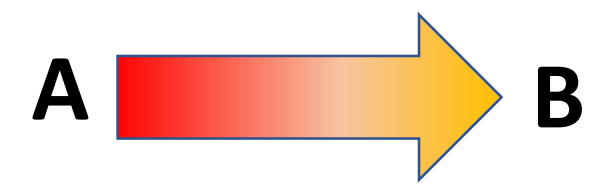
**Selection**  
Given multiple options, identify the best choice

- Determine right criteria: propensity, impact, value
- Context – “the why” – to make explainable or personalize results



**Prioritization**  
Given a list of options, rank by a given attribute

- Understand constraints & key limitations
- Analyze drop-offs and breakpoints to deliver optimal solutions



**Projection**  
Based on prior conditions, identify future conditions

- Match modeling data to projection scenarios
- Understand key drivers and potential for drift

# Matching Problems to Predictions: Three Examples

## **Selection**

Customer Service Messaging:  
What offer to deliver?

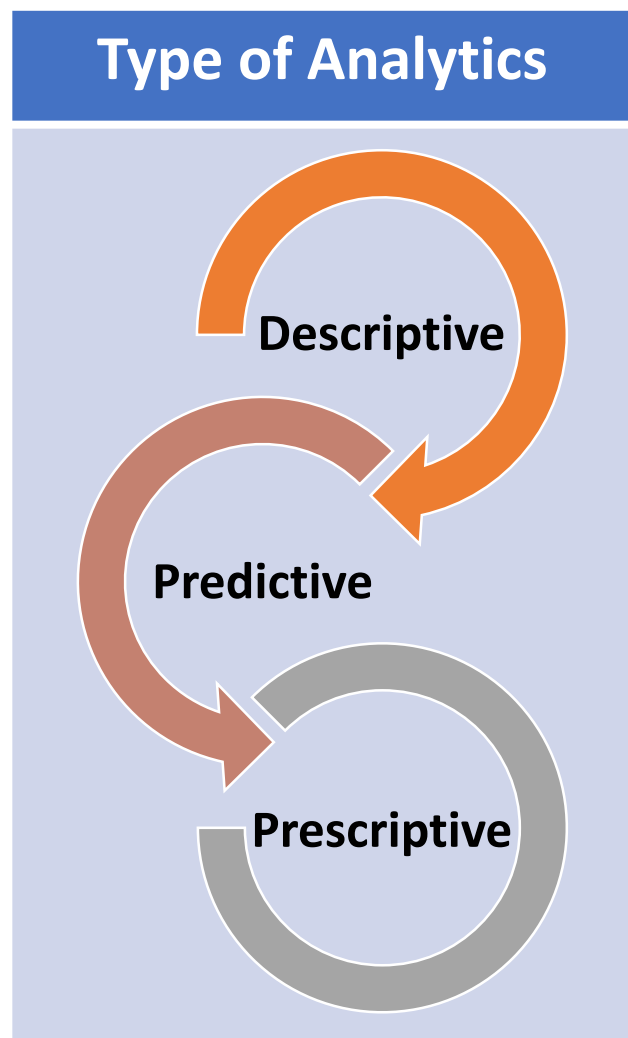
## **Prioritization**

Lead Rating Systems:  
Where to focus?

## **Projection**

Retirement Plan Assets:  
Contribution Flows

# Context Matters



Application	Actionable Analytics Output Example
<b>Prospecting</b>	Darren’s wealth management office has over \$90M in Fixed Income, over 40% is in Multi-Sector and Non-Traditional Bonds
<b>Relationship Management</b>	Carol just turned 59 ½ and is separated from service
<b>Sales Optimization</b>	Kent hasn’t had any sales in the last 12 months but recently called and visited informational web pages
<b>Fraud Detection</b>	The transaction associated with Mike’s account is 22X more likely to be fraudulent
<b>Personalized Messaging</b>	When Sara Jones visits the web site, show a message to “Save More”



# Frequency of Delivery

Considerations for frequency of running the model include...



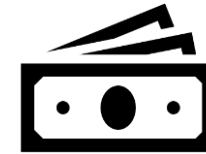
## INTENDED USE

- Business process impacted
- Resource capacity
- End-consumer experience



## SOURCE DATA

- On-premises or 3<sup>rd</sup> party
- Timing of refresh
- Time-sensitivity



## COSTS

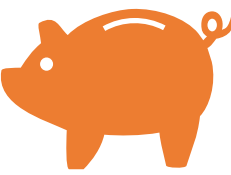
- Computational resources
- Operational support
- External data

# Regulations will Change – Are you Ready?

## Examples of analytics-driven processes that may be impacted

- Customer Segmentation
- Personalized messaging
- Relationship management
- Forecasting

### Anticipated Changes in Customer Behavior



#### CONTRIBUTIONS

401(k) and Healthcare Spending Account annual contribution limits frequently increase from year to year



#### WITHDRAWALS

Required minimum distributions have periodically been waived or delayed and underlying life expectancy tables have changed



#### RETIREMENT

As maximum benefits for social security have increased, the retirement age continues to increase