Predictive Analytics

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Predictive Analytics – Overview & Roadmap

Agenda

Recognizing and Leveraging Opportunities

- "Nothing is stronger than an idea whose time has come"
- Time for a change in the use of advanced analytics

Predictive Analytics – Demystified and Simplified

- Fundamentals of predictive analytics
- Industrial democratization of advanced analytics

Course Highway

- How to go about Predictive Analytics

Recognizing Opportunities

"Nothing is stronger than an idea whose time has come" – Victor Hugo

Anticipate What Comes Next and Drive Better Decisions... Today!

Structured Data	Automobiles	Click Stream	Social Network	RFID	Smart Meter	Customer Data	Point of Sale	Text Data	Machine Data	Location-based Data	Mobile

IMHO, it's great!

68% of organizations that used predictive analytics realized a competitive advantage

Ventana Research

55% use predictive analytics to create new revenue opportunities

52% use predictive analytics to increase profitability

45% use predictive analytics for customer services

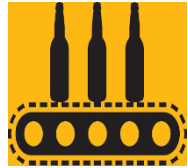**43%** use predictive analytics for product recommendations

Predictive Analytics Delivers Value to Business (ROI vs TCO)

Up to 95% increase in forecasts due to inclusion of extra-predictor variables

70% reduction efforts for generating the predictive models

Reduce e-fraud in over 1b annual transactions and save 100m in lost revenue and cut false alerts to improve customer satisfaction

2x higher response rate for cross-sell campaigns which means 100% more sales

56% more likely to predict a customers next (best) purchase

68% more likely to deliver personalized offers to high-value customers through the right channel

Use Case Examples – Potential for Business Optimization

Brand Sentiment / Marketing Mix / Channel Affinity

Product Recommendation / Market Basket / Cross- & Up-Sell

Network Optimization

Insider Threats

Optimize the action plans for medical visitors

Satisfaction Management / HR Developmet

Predictive Maintenance / Quality Control / Manufacturing Process Optimization

Risk Mitigation / Compliance Mgt

Customer Attrition Mgt / Win Back Strategy / Churn

Real-time Demand/ Supply / Sales Forecast

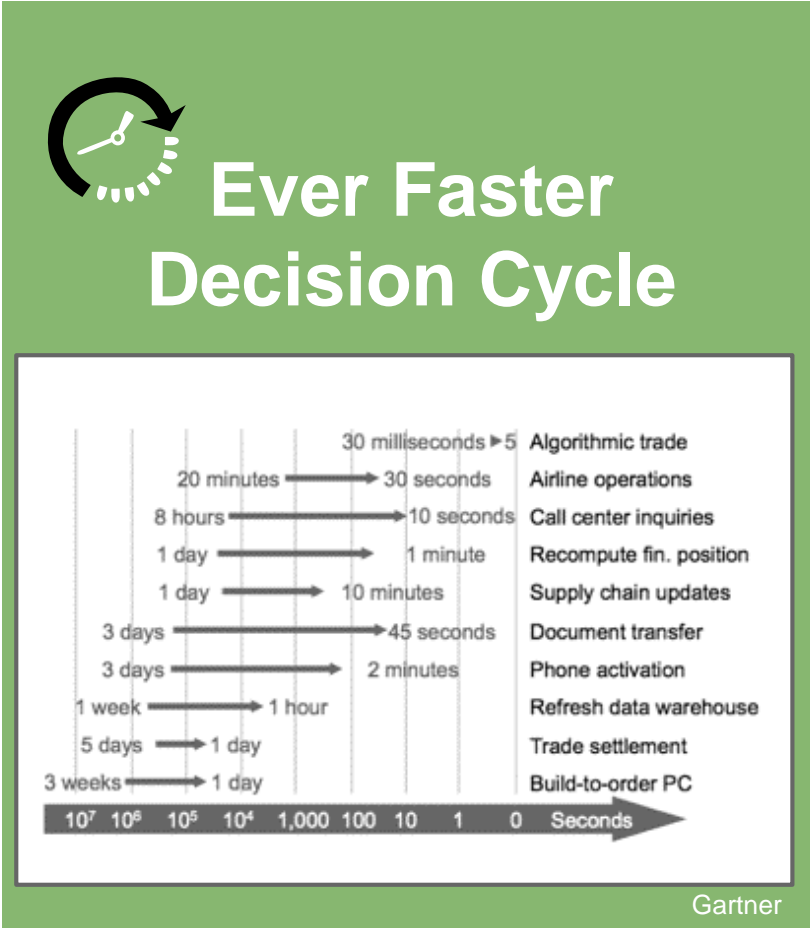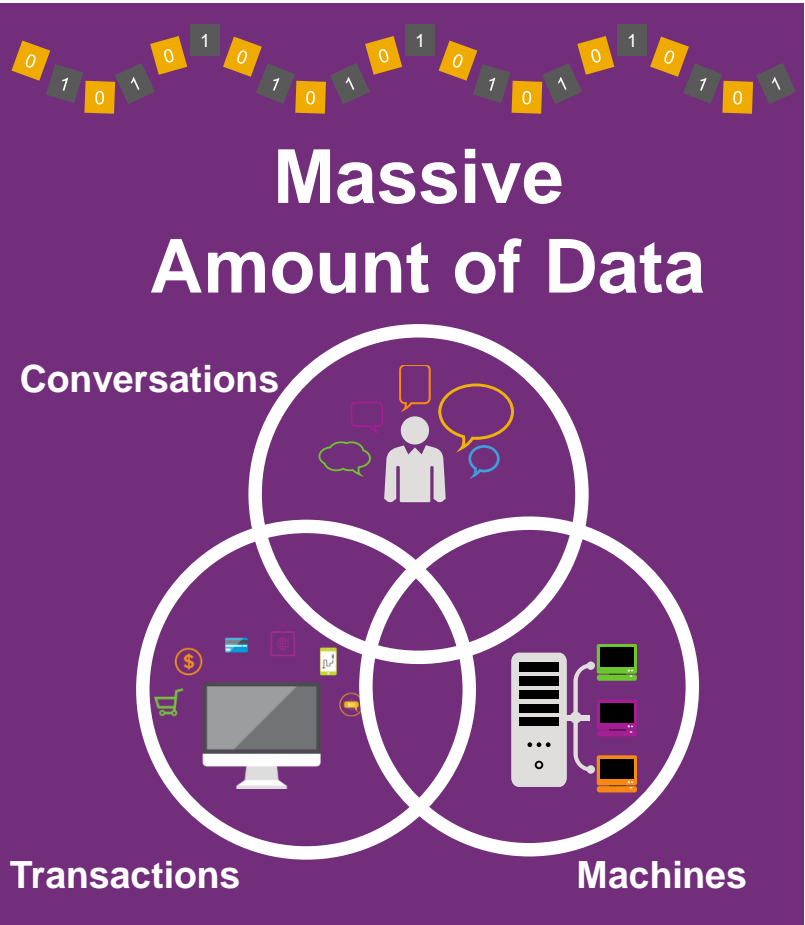Predictive Asset Management / Supply Chain Optimization

Fraud Prevention & Detection / Collection Mgt

The Cost of Neglecting Predictive Analytics

It's No Longer Sense and Respond …

Massive Amount of Data

Conversations

Transactions · Machines

Analytical Skill Gap

"Demand for deep analytical talent in the US could be 50 to 60% greater than its projected supply by 2018"

McKinsey Global Institute

Ever Faster Decision Cycle

30 milliseconds ► 5		Algorithmic trade
20 minutes → 30 seconds		Airline operations
8 hours → 10 seconds		Call center inquiries
1 day → 1 minute		Recompute fin. position
1 day → 10 minutes		Supply chain updates
3 days → 45 seconds		Document transfer
3 days → 2 minutes		Phone activation
1 week → 1 hour		Refresh data warehouse
5 days → 1 day		Trade settlement
3 weeks → 1 day		Build-to-order PC

10^7 10^6 10^5 10^4 1,000 100 10 1 0 Seconds

Gartner

Democratization and Proliferation of Predictive Intelligence
Access and operational integration anywhere, anytime

Data Scientist

"I'm building churn models for every region"

MS Statistics, Berkeley

.01%

Data Analyst

"I need explain to the CEO why sales are down in EMEA"
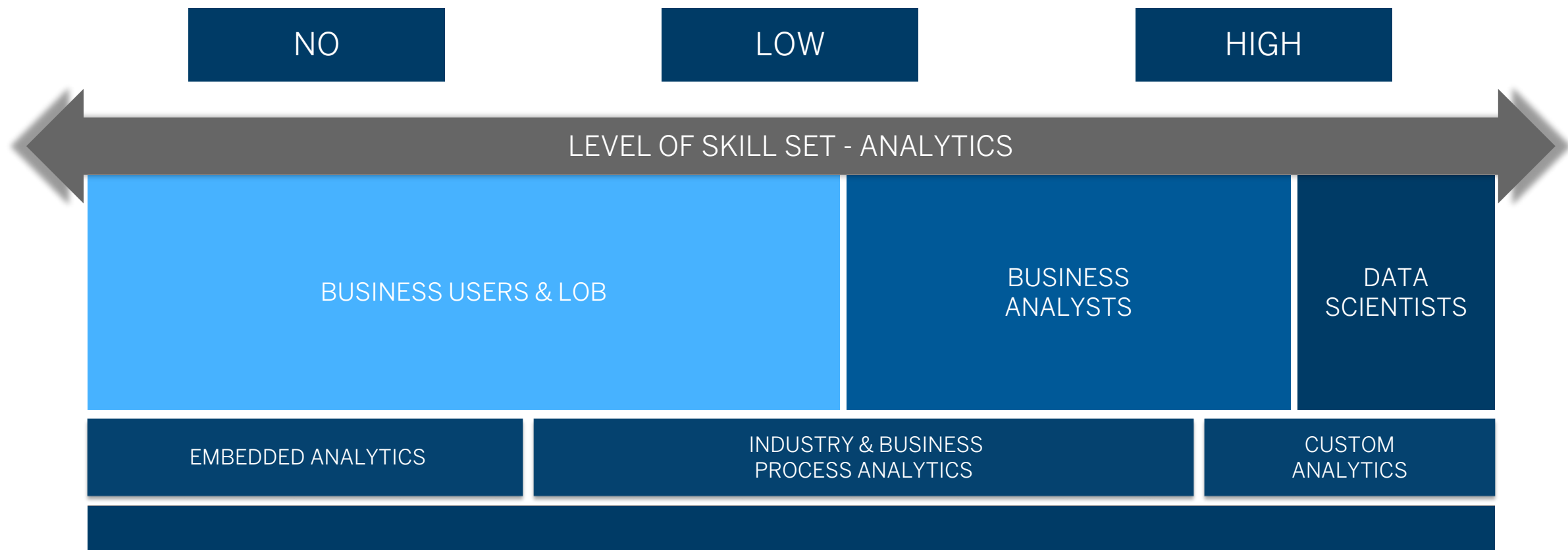
MBA, U of Pennsylvania

~3%

Business User

"The app needs to tell me what offer to make in real time"
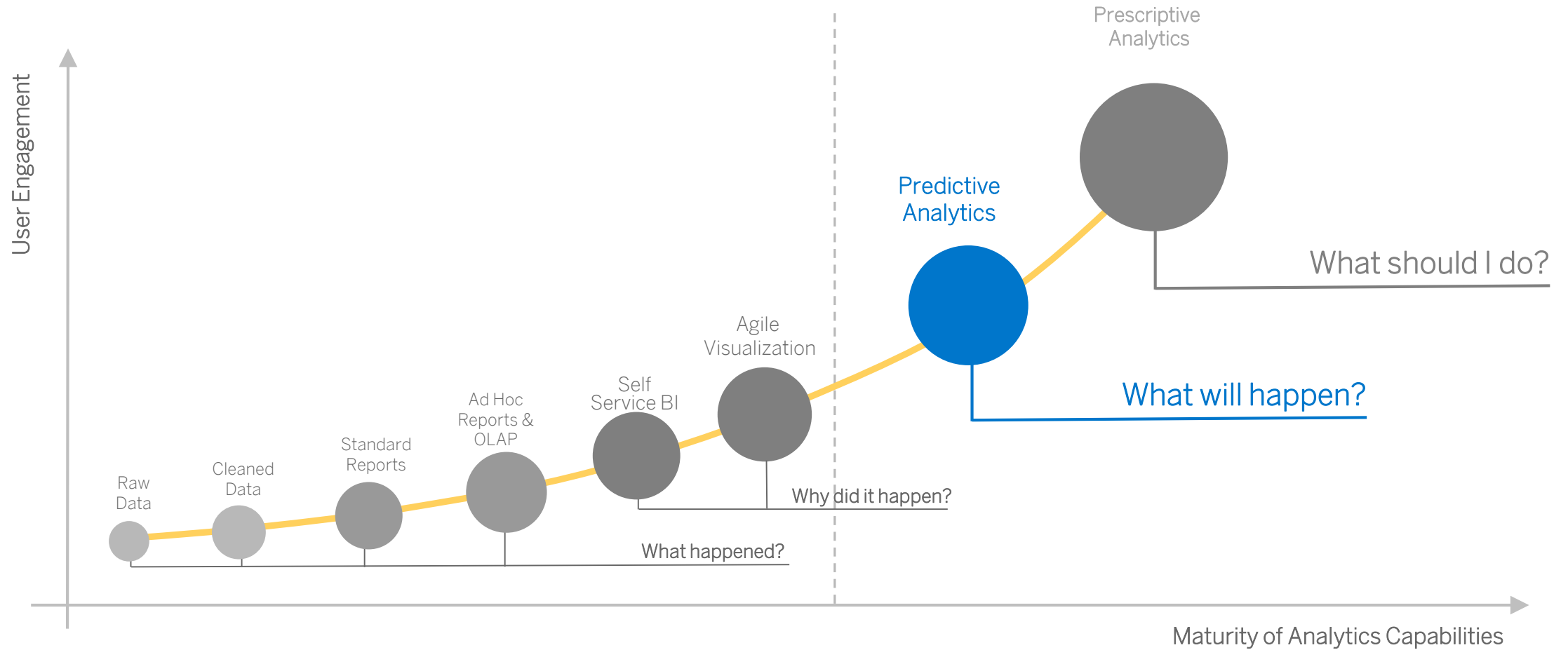
BS French Literature, UC Davis

97%

Predictive Analytics: Not Really One Size Fits All

Predictive is Part of the Business Analytics Continuum
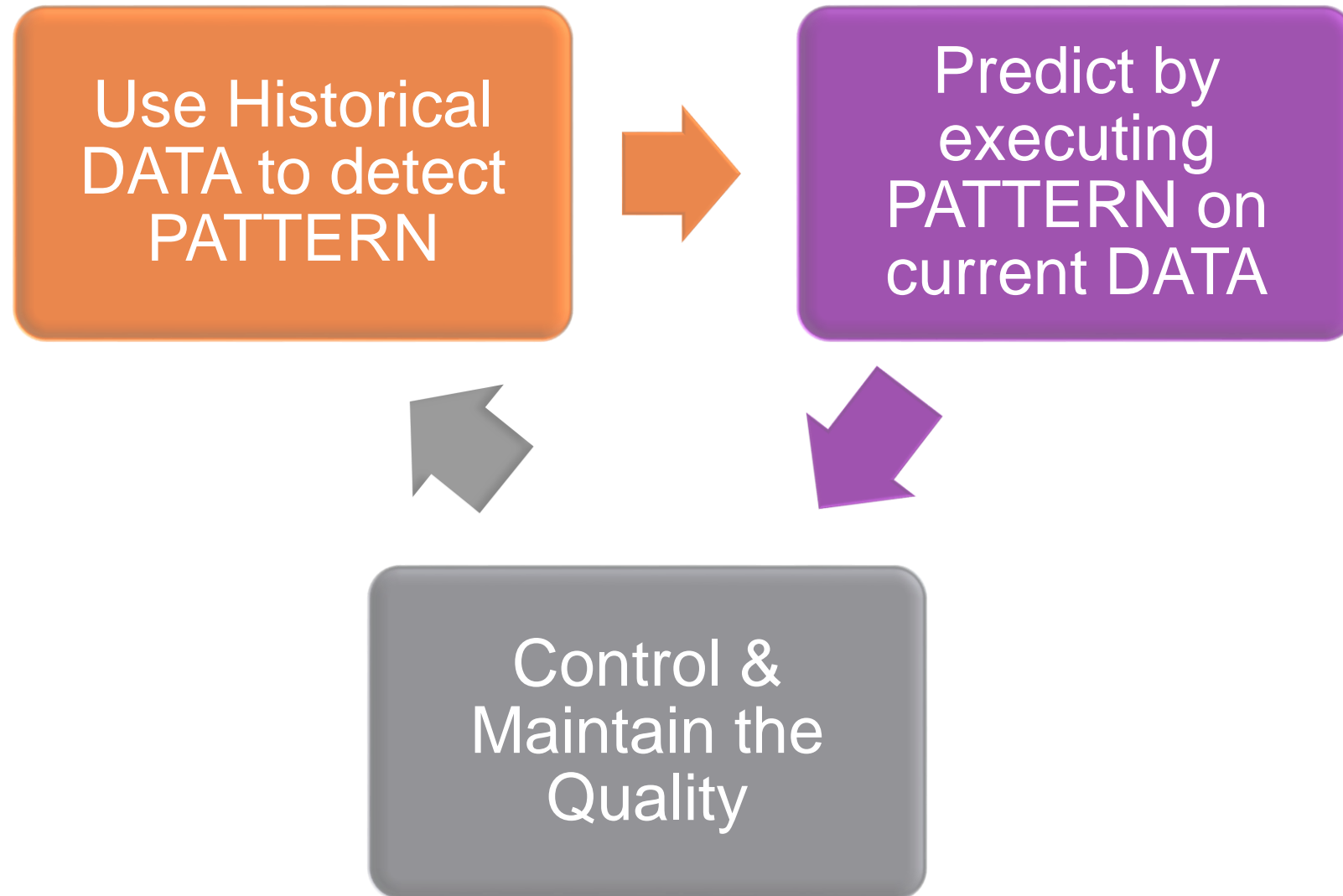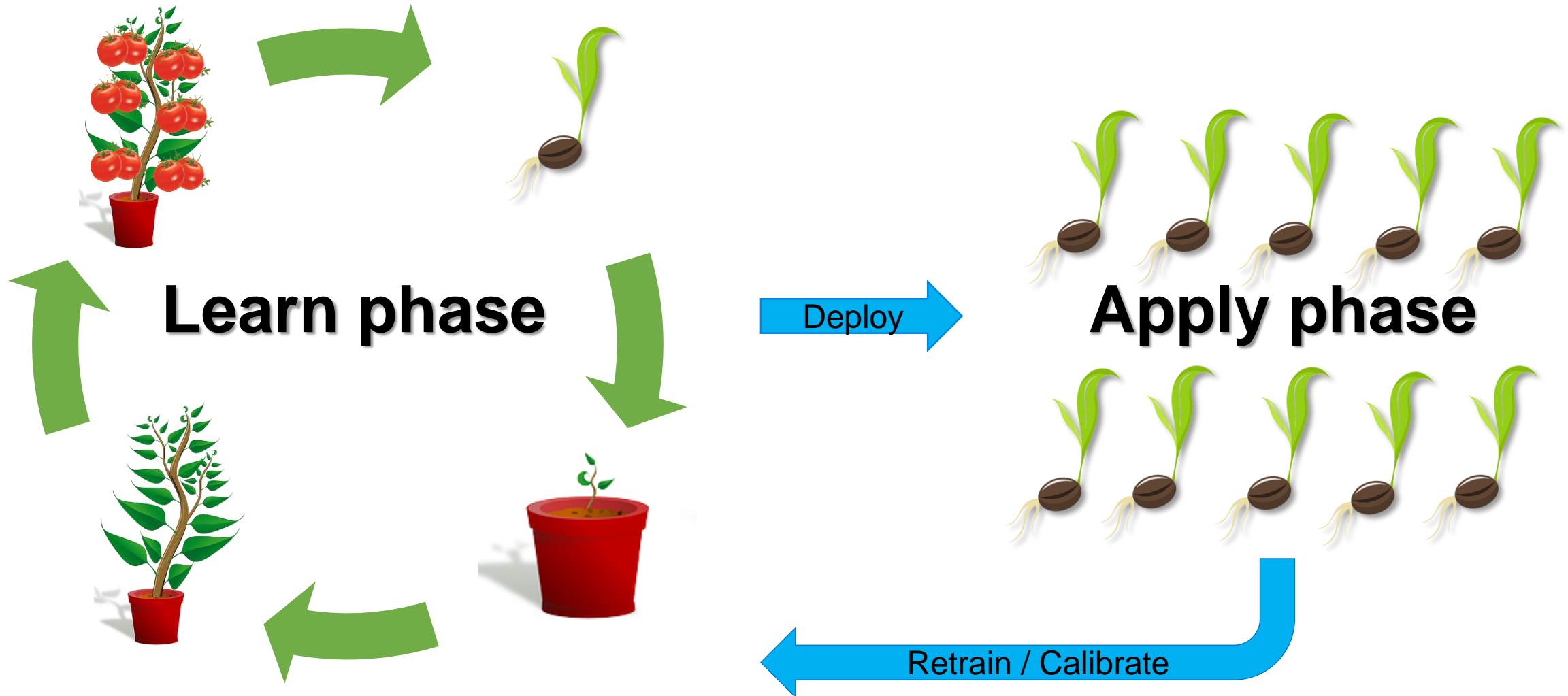## From Sense & Respond to Predict & Act

Predictive Analytics

Demystified and Simplified

What is Predictive Analytics?

Use Historical DATA to detect PATTERN

Predict by executing PATTERN on current DATA

Control & Maintain the Quality

Simplified Predictive Modeling Lifecycle – Accurate & Robust

A few data mining functions for answering various business questions – non-parametric, non-intrusive

Classification / Scoring

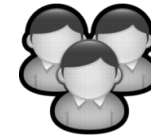Who will churn, fraud or buy next week, next month ?

Regression

How many products will a customer buy next month, next quarter ?

Segmentation / Clustering

What are the groups of customers with similar behavior or profile ?

Forecasting

How much will be the monthly revenue or number of churners next year ?
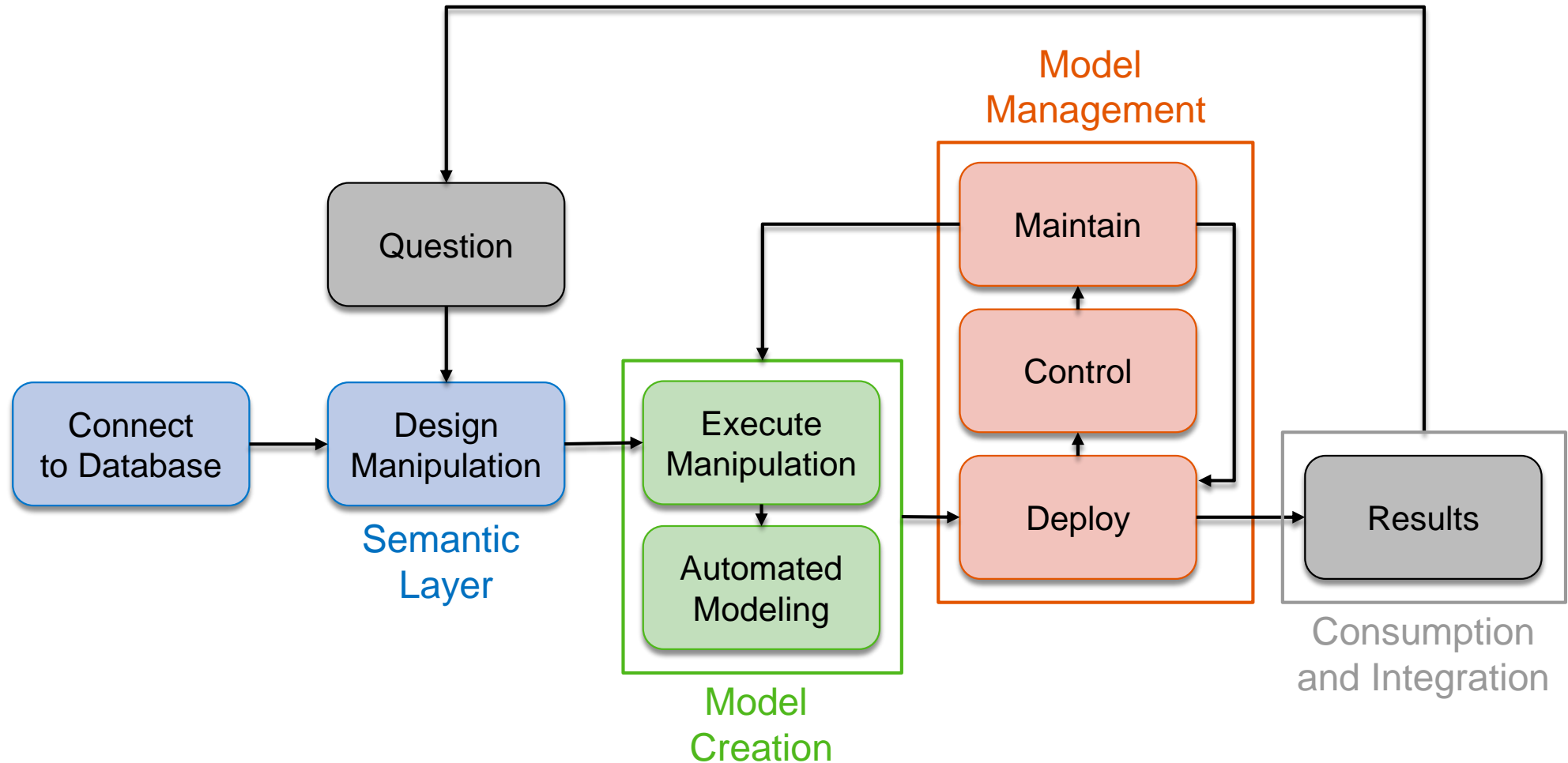
Recommendations

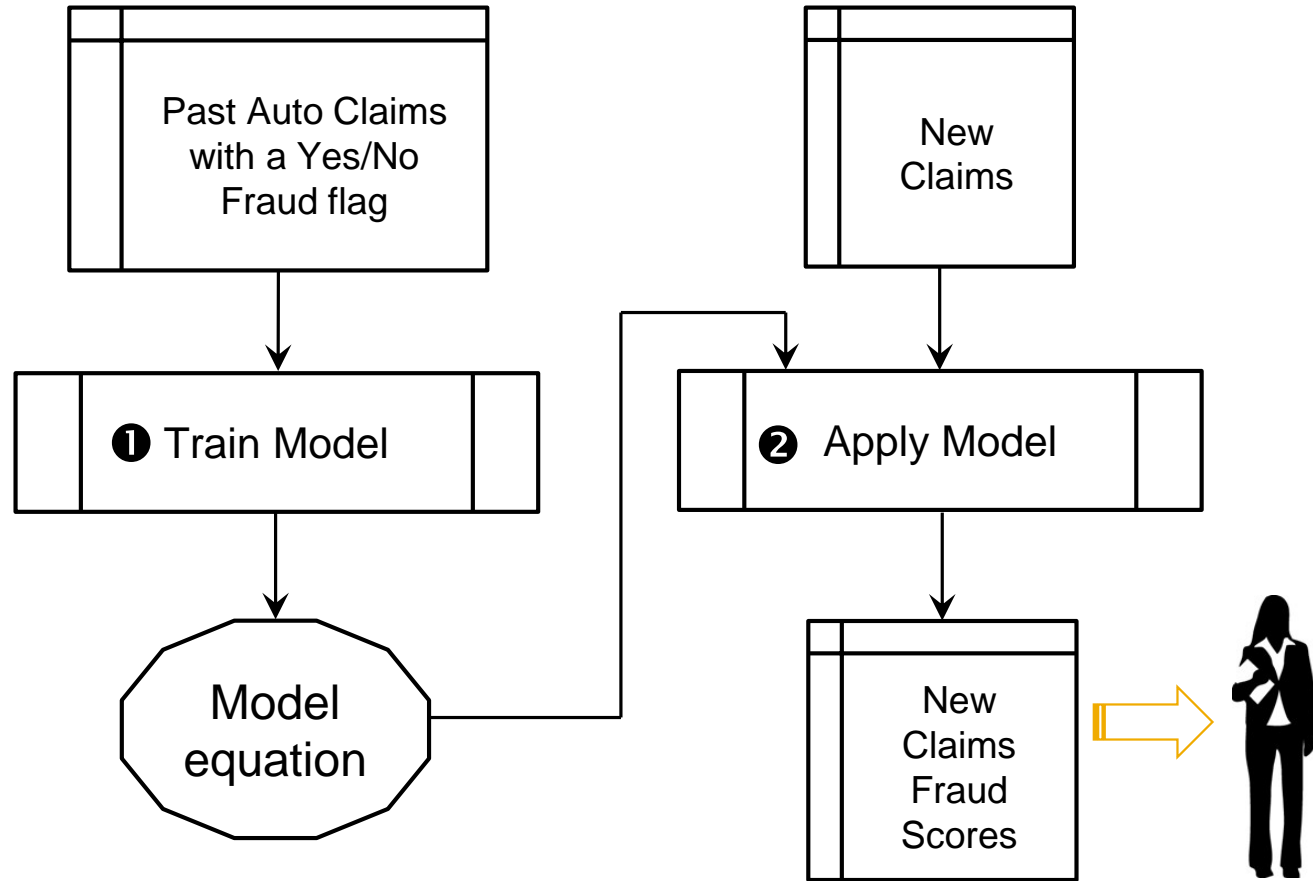What is the best offer or action for a customer or internet user ?

Application Example

Detecting Fraud from Auto Insurance Data

The Predictive Process with Predictive Analytics

Example Process – Fraudulent Claims Detection

Massive Predictive Analytics Embedded in the Digital Enterprise for the Masses

Massive Predictive Factory

Manage massive number of predictive models to improve margins
Automated mining of massive datasets and E2E lifecycle model management

Predictive for the Masses

Democratize predictive through integration in business applications
Operationalized proliferation of Predictive Insights where people interact

Predictive Analytics (PA)
Coming Lectures...

Module 1 – Statistics and Probability

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"There are three types of lies -- lies, damn lies, and statistics."

Module 2- Regressions with ML twist •

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"If she loves you more each and every day, by linear regression she hated you before you met"

Module 3- Time Series Analysis

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A 'Thrilling' Style of Over-fitting

Cloud for Analytics for predictive analytics (1st wave)

Q&A

Launching .....