run()

SAP Global Data Science Hub

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Data Science HANA GCoE

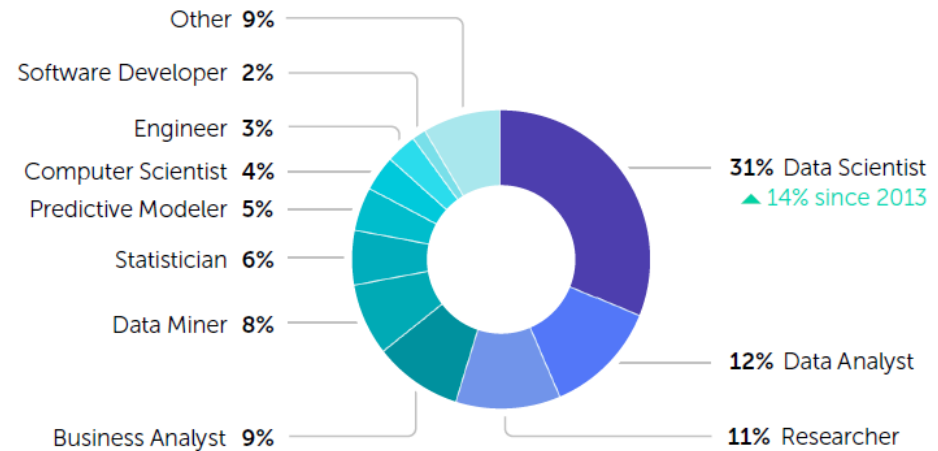SAP — Customer Innovation & Enterprise Platform

Agenda

- Data Science: what is the hype all about?

- SAP's PoV on Data Science

- The Global Data Science Hub – Mission and Global Experience

- Q&A

DATA SCIENTIST

Sexiest Job of the 21st Century

Harvard Business Review: "Data Scientist: The Sexiest Job of the 21st Century" by Thomas H. Davenport and D.J. Patil

**HOW ANALYTICS PROFESSIONALS DESCRIBE THEMSELVES**

- Other **9%**
- Software Developer **2%**
- Engineer **3%**
- Computer Scientist **4%**
- Predictive Modeler **5%**
- Statistician **6%**
- Data Miner **8%**
- Business Analyst **9%**
- **31% Data Scientist** ▲ 14% since 2013
- **12% Data Analyst**
- **11% Researcher**

Transforming data into business value using math & algorithms

BIGGEST CHALLENGES

Deployment
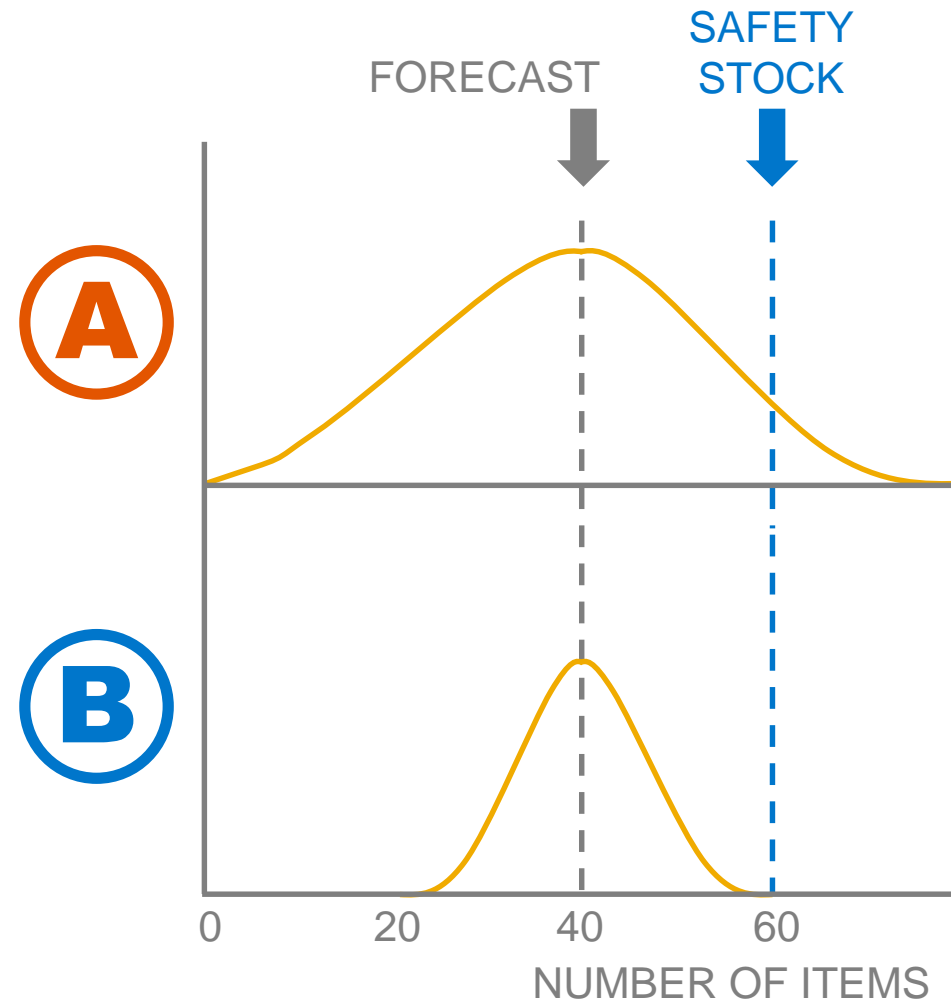
Explaining Analytics

Dirty Data

DATA SCIENCE LOOKS DEEPER

Sales of two new products six weeks after market introduction

Repeat purchases

A   B
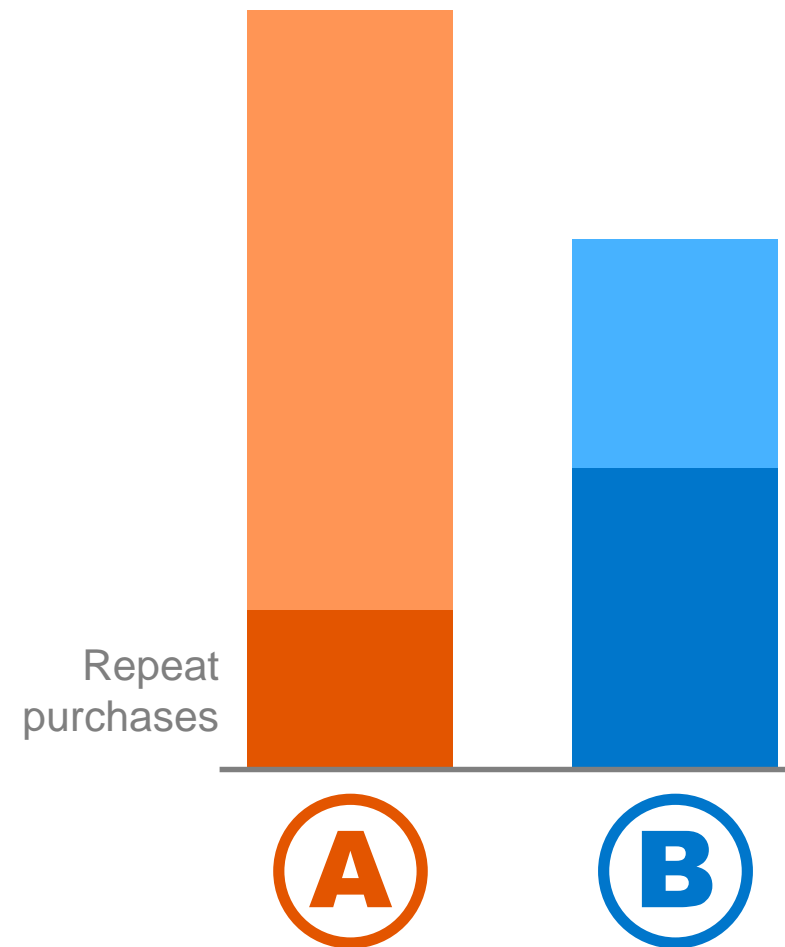
Product sales at two stores

Solving Real World Problems

By Optimizing Resources and Improving Margins

SALES & MARKETING

- Churn Reduction
- Customer Acquisition
- Lead Scoring
- Product Recommendation
- Campaign Optimization
- Customer Segmentation
- Next Best Offer/Action

OPERATIONS

- Predictive Maintenance
- Load Forecasting
- Inventory/Demand Optimization
- Product Recommendation
- Price Optimization
- Manufacturing Process Opt.
- Quality Management
- Yield Management

FRAUD AND RISK

- Fraud and Abuse Detection
- Claim Analysis
- Collection and Delinquency
- Credit Scoring
- Operational Risk Modeling
- Crime Threat
- Revenue and Loss Analysis

FINANCE AND HR

- Cash Flow and Forecasting
- Budgeting Simulation
- Profitability and Margin Analysis
- Financial Risk Modeling
- Employee Retention Modeling
- Succession Planning

OTHER SECTORS

- Life Sciences
- Health Care
- Media
- High Education
- Public Sector / Social Sciences
- Construction and Mining
- Travel and Hospitality
- Big Data and IoT

Worldwide Market Sizes…

$10B

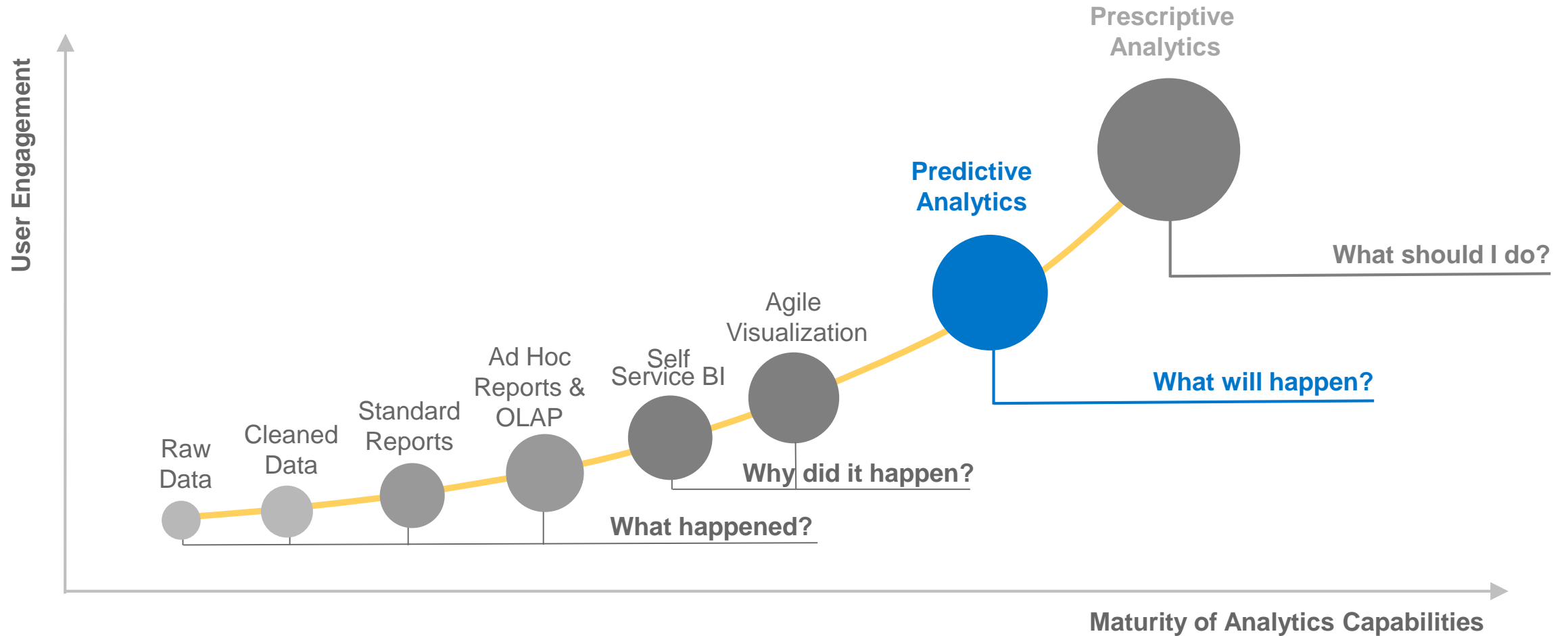Query
Reporting
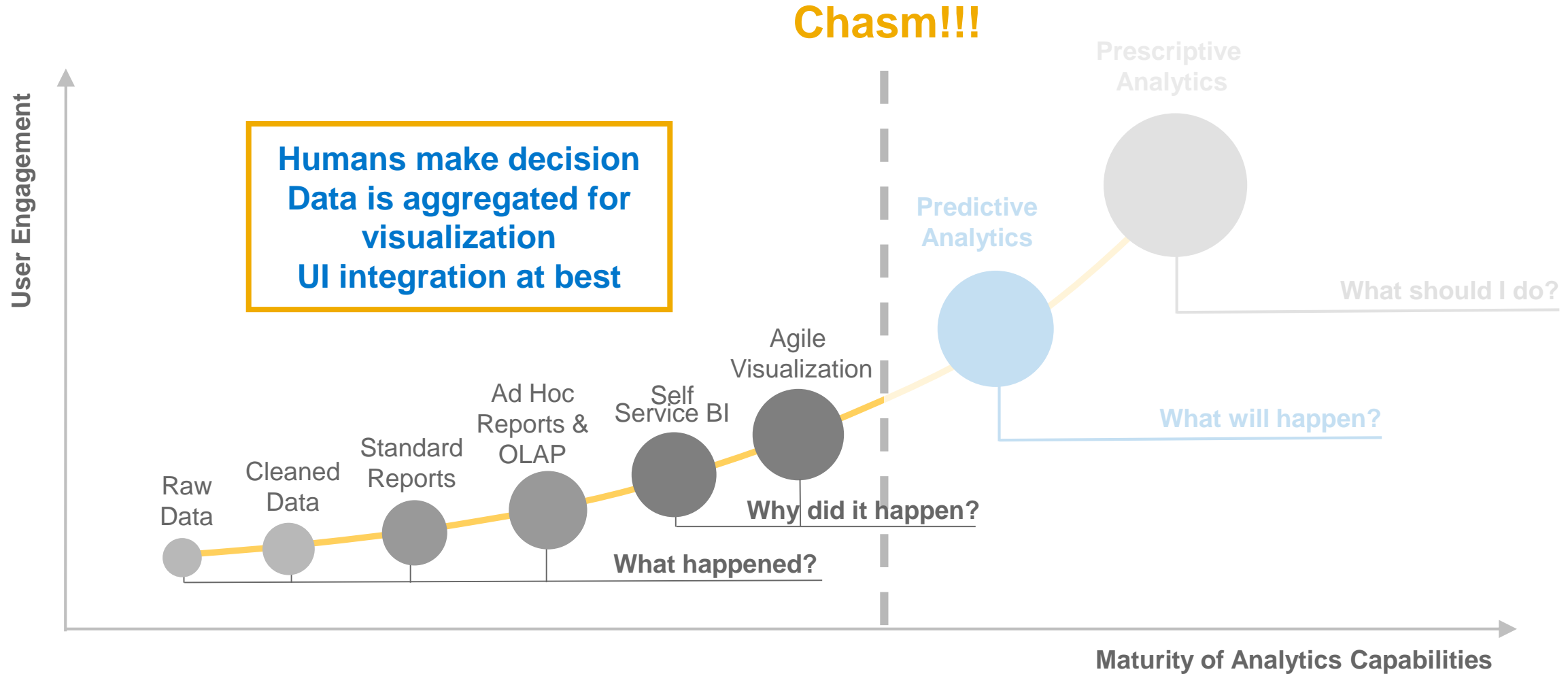Agile Viz
Analytics

$3B

Advanced/
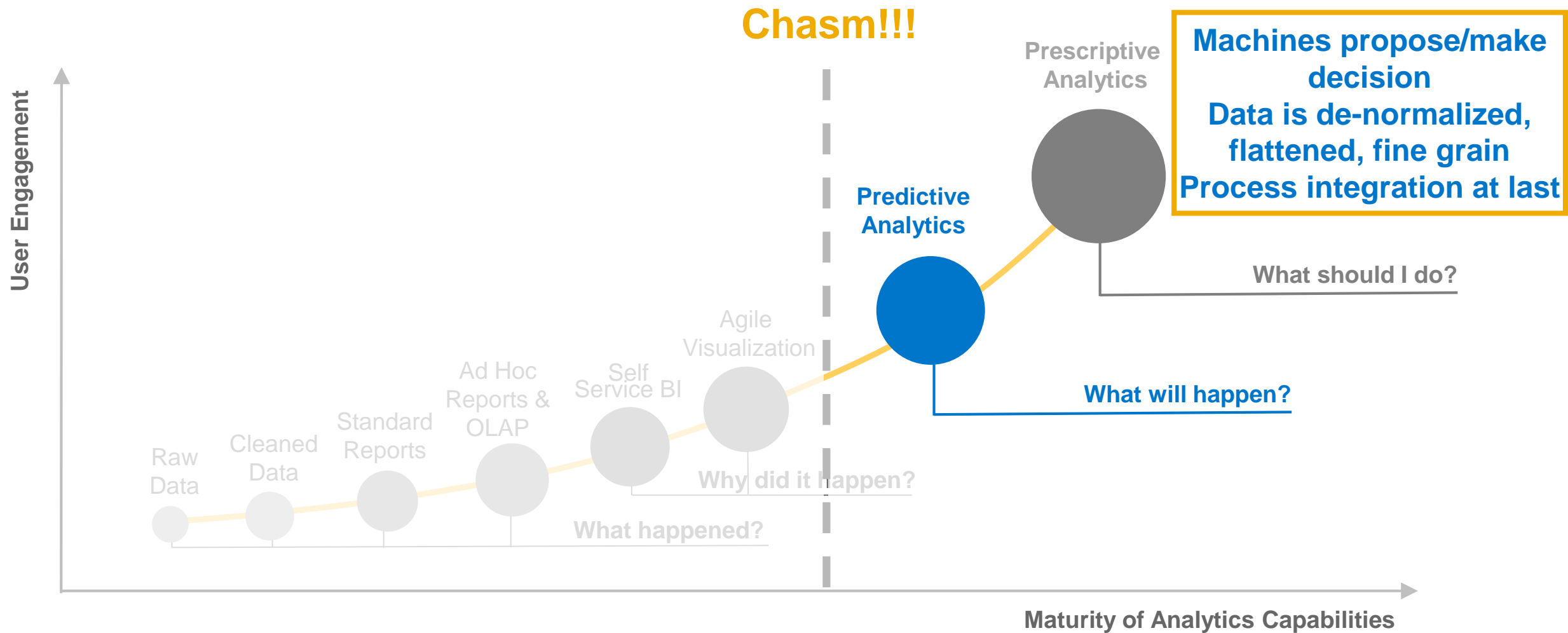Predictive Analytics

$1B

Content/
Unstructured
Analytics c

BI centric PoV: Analytics Maturity curve

SAP's PoV: There is no such thing as an analytics continuum!

Chasm!!!

User Engagement

**Humans make decision
Data is aggregated for
visualization
UI integration at best**

Prescriptive
Analytics

Predictive
Analytics

What should I do?

Agile
Visualization

What will happen?

Ad Hoc
Reports &
OLAP

Self
Service BI

Standard
Reports

Why did it happen?

Raw
Data

Cleaned
Data

What happened?

Maturity of Analytics Capabilities

There is no such thing as an analytics continuum!

Chasm!!!

Machines propose/make decision
Data is de-normalized, flattened, fine grain
Process integration at last

Prescriptive Analytics

Predictive Analytics

What should I do?

What will happen?

Agile Visualization

Self Service BI

Ad Hoc Reports & OLAP

Standard Reports

Cleaned Data

Raw Data

Why did it happen?

What happened?

User Engagement

Maturity of Analytics Capabilities

SAP: not the ERP/ bluescreen company anymore

MASSIVE
PREDICTIVE ANALYTICS

PREDICTIVE FOR
THE MASSES!

Major Investment Areas

The Predictive Factory

High and Low Touch UX's

Predictive IP

Cloud

Big Data

On Premise

Embedded in Processes and Apps
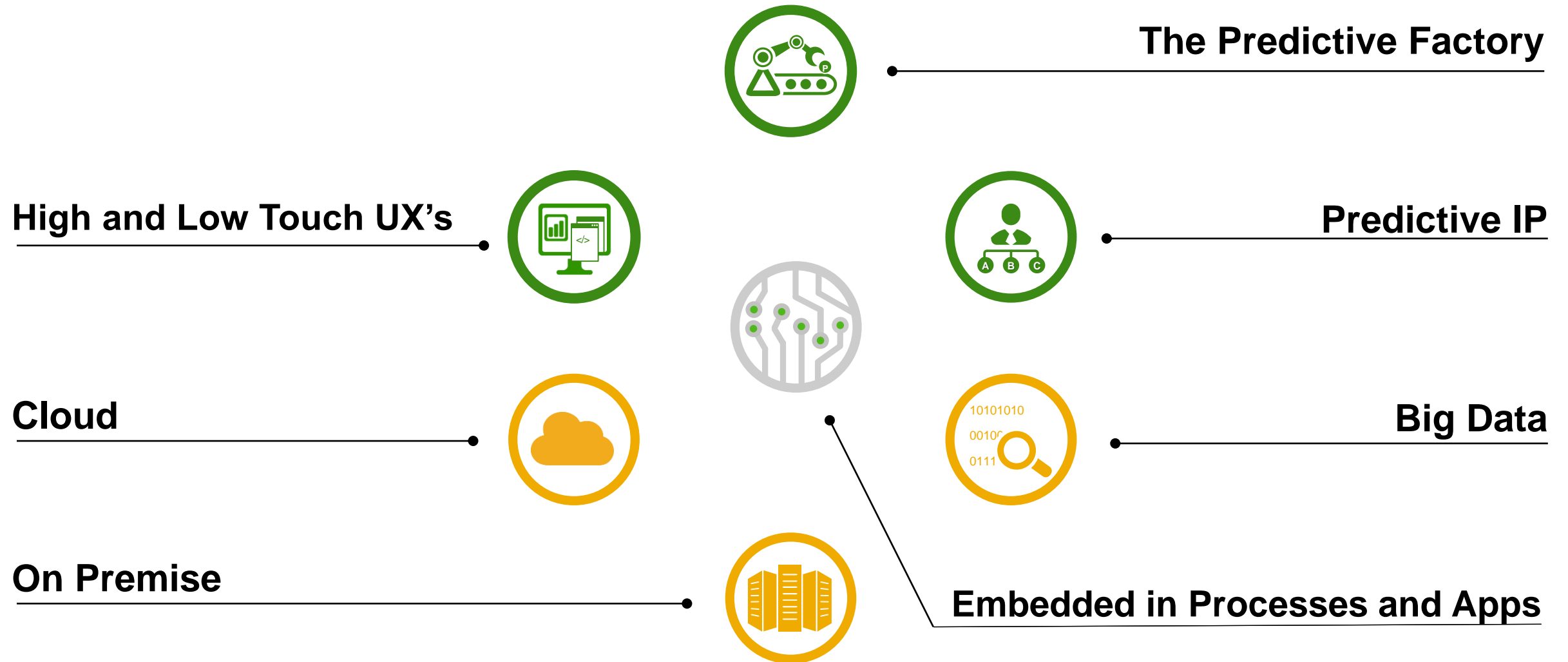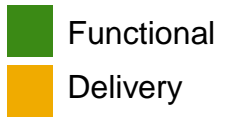
How is SAP Predictive Analytics materializing the vision

"We want people to do Data Mining without knowing they do Data Mining"

Machines can now do things that were not possible before

What is Machine Learning?

- Computers **learn from data** without being explicitly programmed
- Machines can see, read, listen, understand and interact
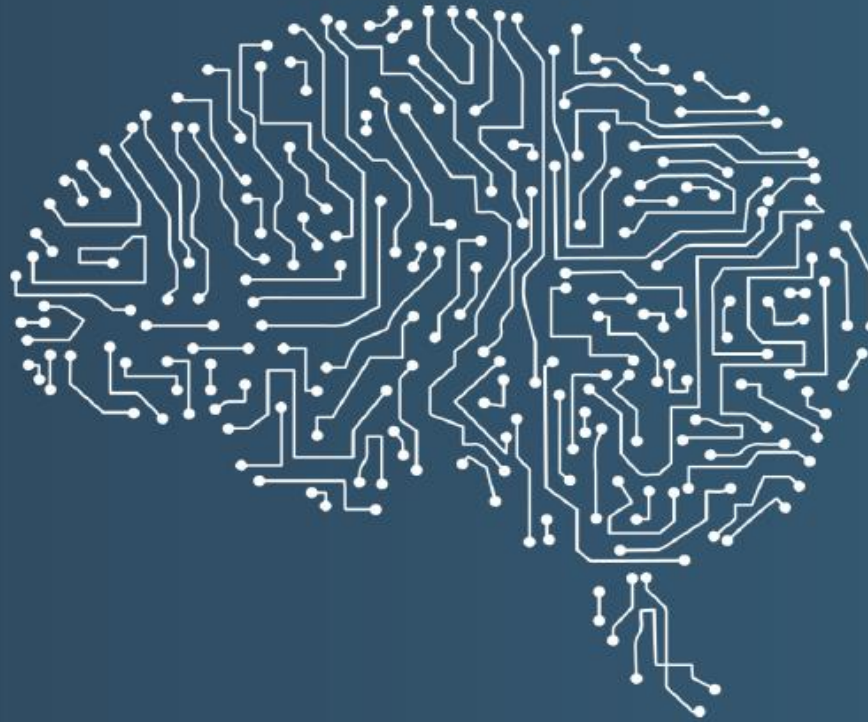
Why now?

- **Big data** (e.g. business networks, cloud applications, IoT and S/4HANA)
- Massive improvements in **hardware** (GPU, multicore)
- **Deep Learning** algorithms

Computer vision is approaching human abilities

Automated Labeling

A dog with ball in its mouth

A skier is jumping over snow covered hill

Group of six people

Late 19th century architecture

ImageNet performance

Error Rate in %

25

20

15

10

5

Human Performance

2012   2013   2014   2015   year

Experience the first wave of intelligent applications

Focus today

CV Matching

Cash Application Intelligence

Sponsor's Insight

Automated Ticket Handling

Automated Sales Forecast

Real-Time Recommenders

DATA SCIENTIST

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The role of the Global Data Science Hub
Transforming data into business value using math and algorithms

Leading experts in 26 industries, 12 lines of business

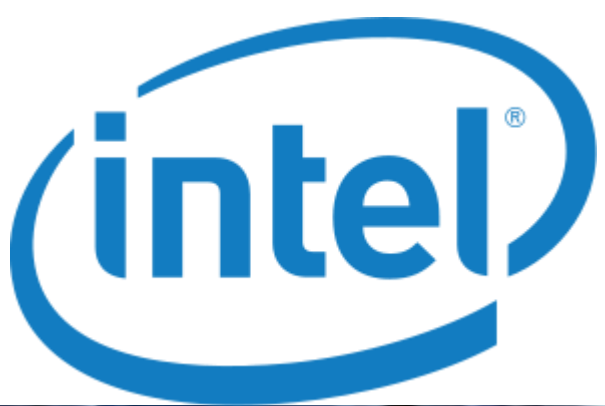Global data science team who know how to turn data into relevant insights

Help customer adoption of SAP technology

Customer focus with the experience to make innovation programs successful

Centralize global innovation knowledge produced

Provide input for next generation of SAP applications

Analyze Petabytes of Data to Predict thousands of manufacturing signals in real time in order to:
- Identify defective products earlier in the production cycle
- Improve product yield
- Reduce time to ramp-up new manufacturing processes
- Deliver > 10X Return on Investment

"Talk about finding the needle in the haystack. We culled through the trillion records in 14 seconds!"

-- Pat Buddenbaum, head of Intel's Data Center/Server group, speaking on Jeff Word's "The HANA Effect" podcast on November 5, 2015

Many Thanks!