# Making Artificial Intelligence real for your business and customers

Pratima Amonkar
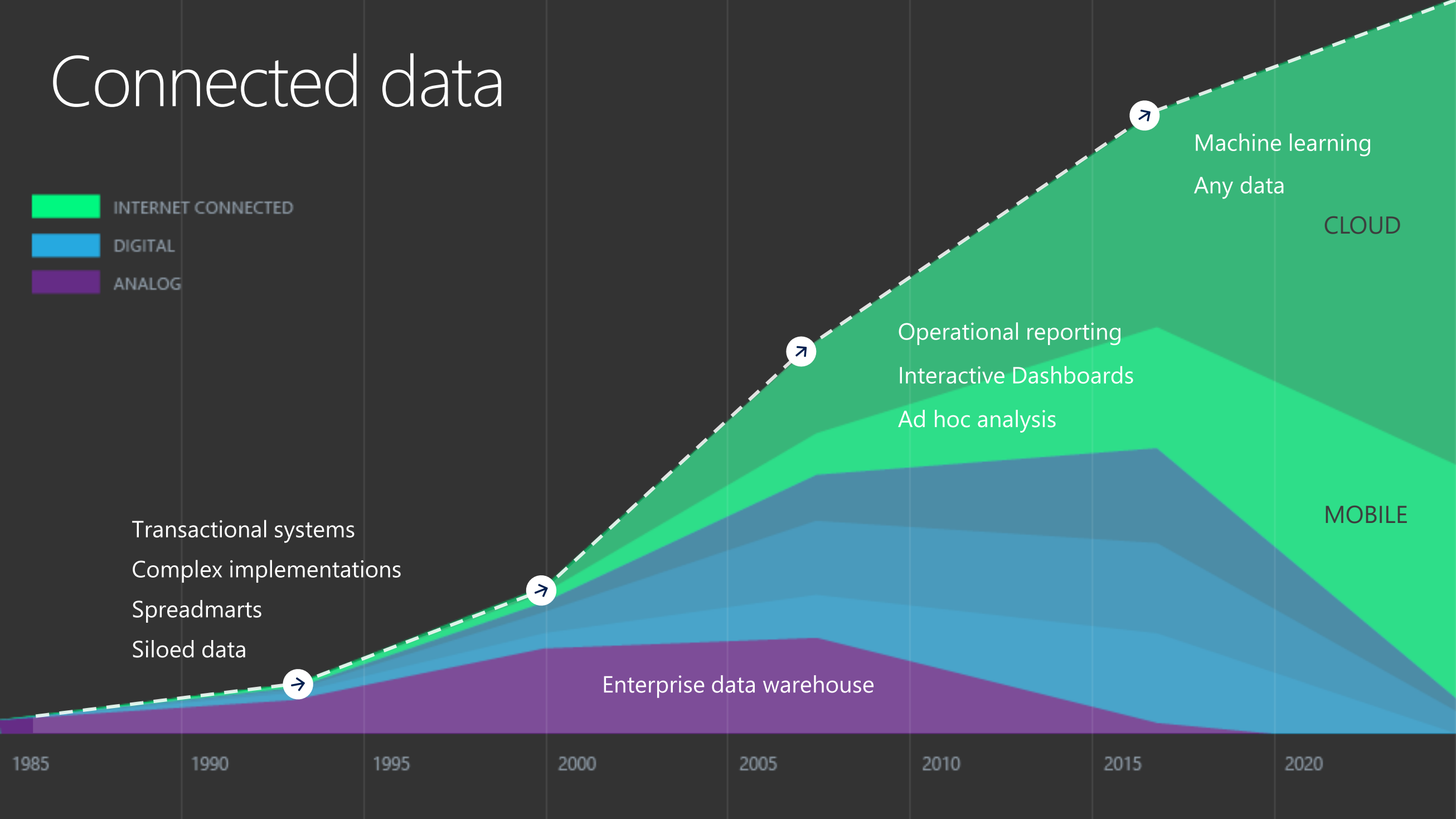APAC Director ISV Business
March 2017

Microsoft

"The world and technology are once again transforming."

"Computers may win at games, but imagine what's possible when human and machine work together to solve society's greatest challenges like beating disease, ignorance, and poverty."
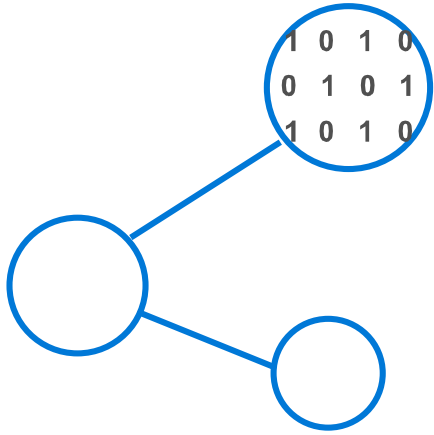
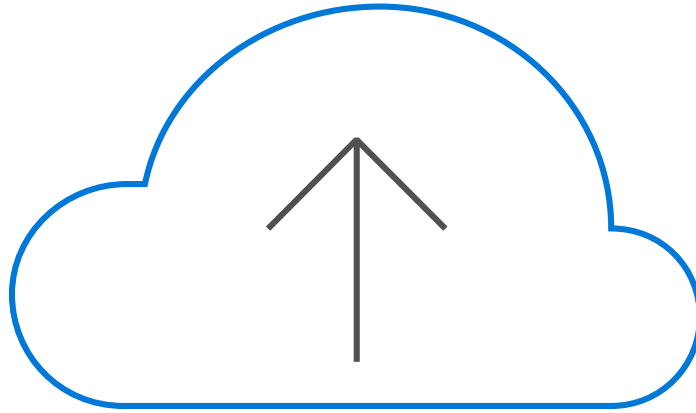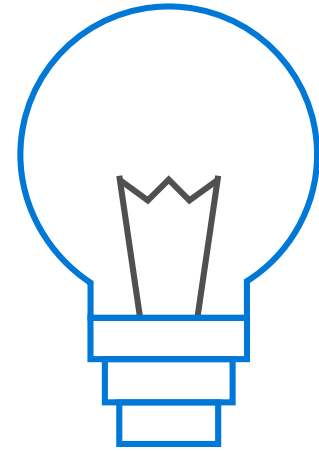SATYA NADELLA, CEO MICROSOFT
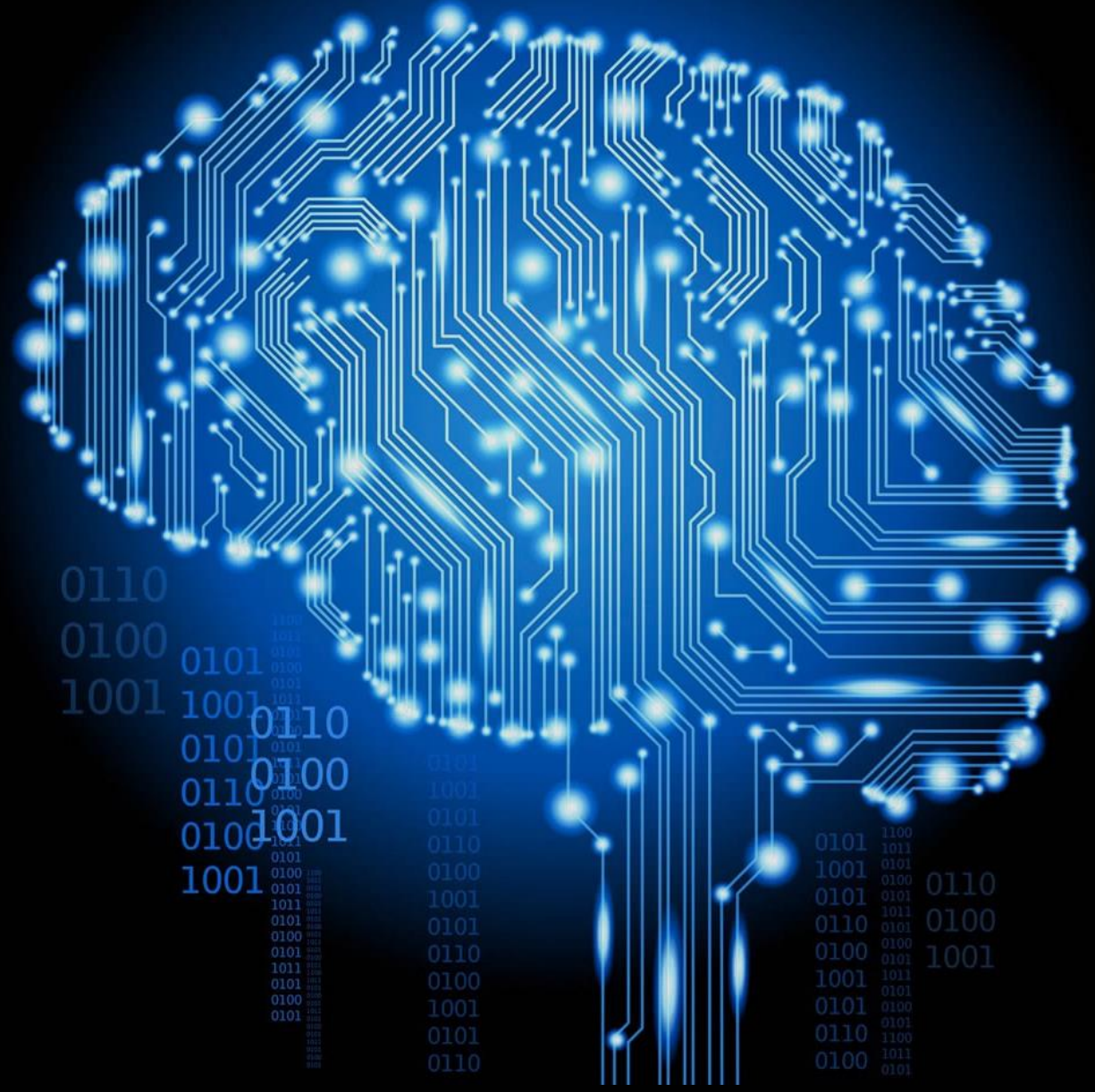
Three major trends converging

Data

Cloud

Intelligence

Transforming key aspects of business

Systems of Intelligence

Transform your products

Engage your customers

Optimize your operations

Empower your employees
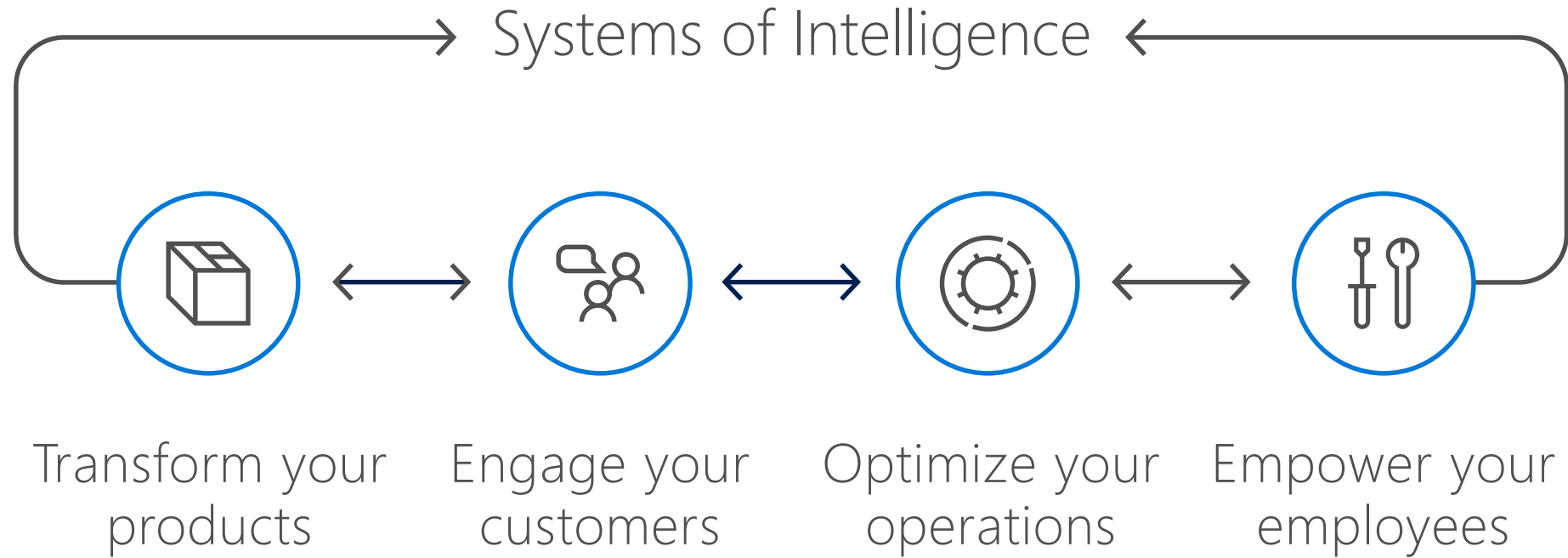
Big Data definition

"

Big data is **high-volume**, **high-velocity** and/or **high-variety** information assets that demand **cost-effective**, innovative forms of information processing that enable **enhanced insight**, **decision making**, and **process automation**.

"

– Gartner, Big Data Definition*

Microsoft
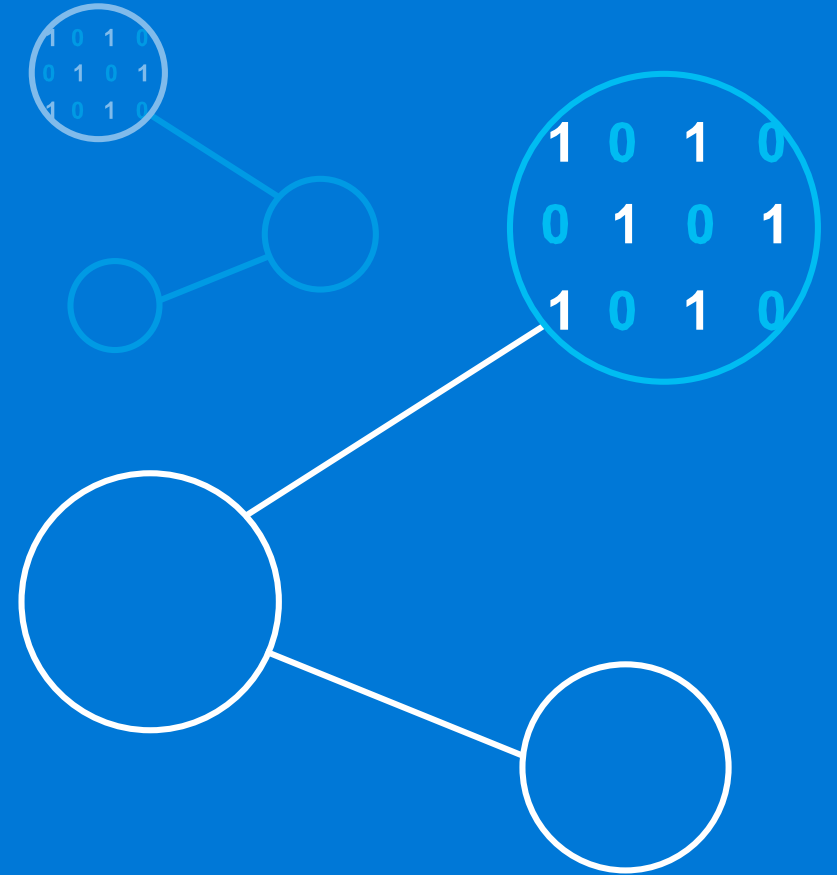
Big Data + Predictive Analytics = Business Value

Automation

What should I do?

Recommendation

Data

What might happen?

Decision

Action

Why did it happen?

What happened?

People & Insights
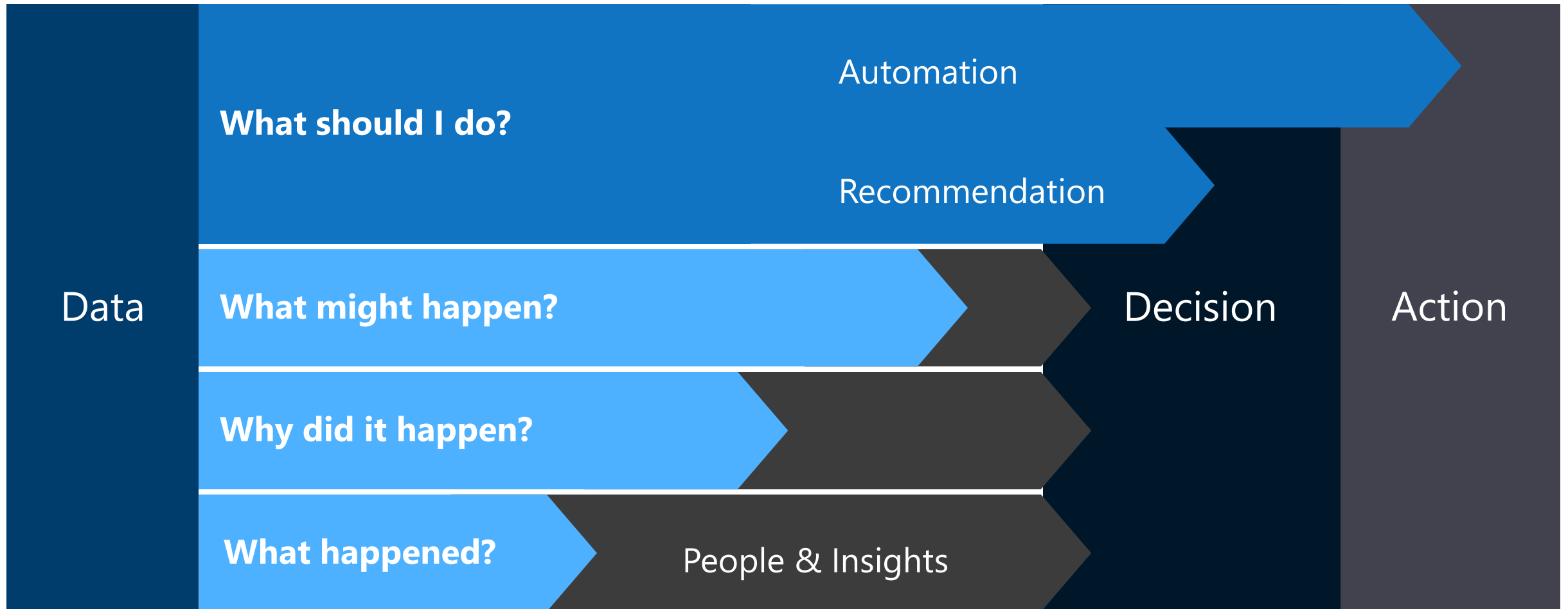
Big Data introduces new culture of experimentation

Sales and marketing
Historical campaign effectiveness → Understand customer patterns to uncover cross-sell opportunities

Finance and risk
Generate year-end financial reports → Financial monitoring with real-time recommendations to increase revenue

Customer and channel
Generate year-end financial reports → Real-time product offers and promotions based on behavior

Operations
Collect historical data on equipment performance → Real-time monitoring to identify proactive maintenance

Engineering
Shipping features without understanding success → Building successful features correlating user action with product experience

Microsoft

Advanced Analytics scenarios

EXAMPLE SOLUTIONS

Sales and marketing	Finance and risk	Customer and channel	Operations and workforce
Customer Acquisition	Fraud detection	Lifetime customer value	Remote Monitoring
Cross-sell and upsell	Credit risk management	Personalized offers	Operational efficiency
Loyalty programs		Product recommendation	Smart buildings
Marketing mix optimization		Customer Service improvement	Predictive maintenance
Demand forecasting			Supply chain optimization

Industries applying advanced analytics

- Retail & Consumer Products
- Financial Services & Insurance
- Government
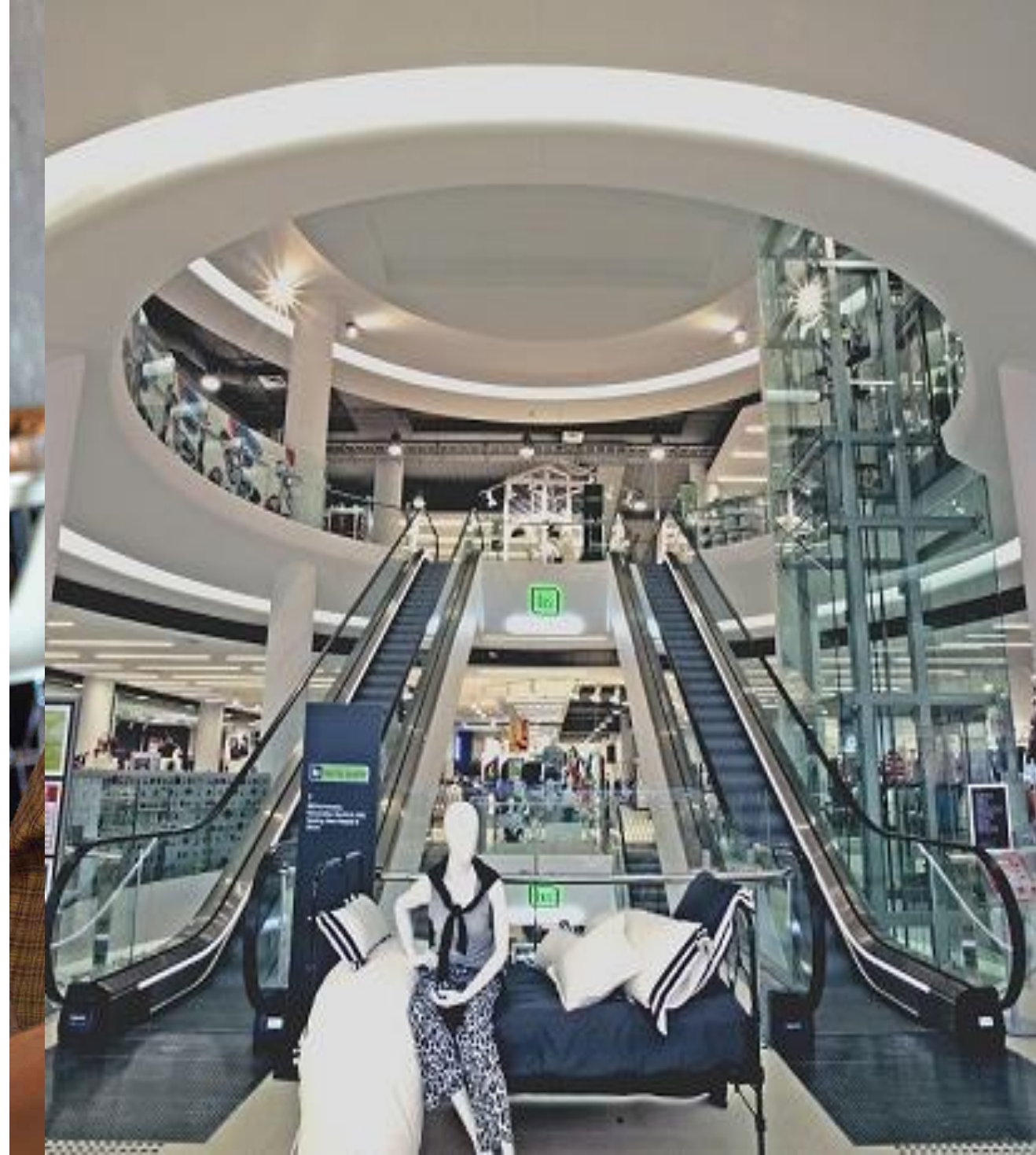- Manufacturing
- Healthcare

Retail

⬀ Execution Optimization

⬈ Shrinkage & Loss Prevention

360 Customer 360 Experience

Example: Big Data improves shopping experience

Jet.com is redefining ecommerce by providing consumes complete transparency on actual costs of transaction
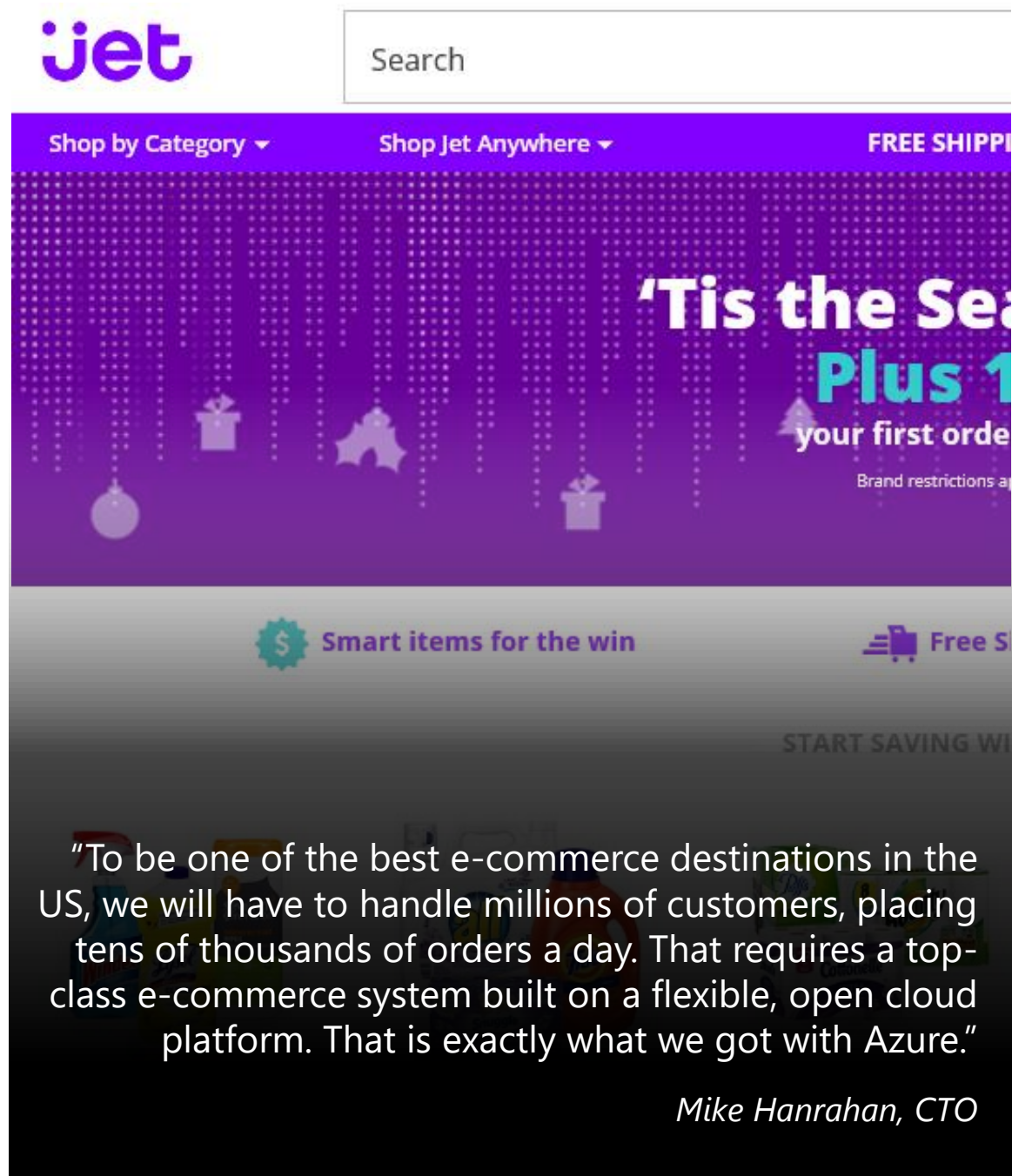
Scenario
The founder of Diapers.com/Soap.com created a new online marketplace, Jet.com to redefine ecommerce showing transparency on the actual costs of the transaction – warehouse location, payment method, and number of items shipped.

Solution
Web application done in .NET with Visual Studio IDE using Node. They also use App Service, Web roles, and VMs. SQL Server and HDInsight are used to handle any amount of data from Terabytes to Petabytes.

Result
• Aspirations are now to grow jet.com to be the best e-commerce destination in the US to handle millions of customers placing tens of thousands of orders a day.

"To be one of the best e-commerce destinations in the US, we will have to handle millions of customers, placing tens of thousands of orders a day. That requires a top-class e-commerce system built on a flexible, open cloud platform. That is exactly what we got with Azure."

Mike Hanrahan, CTO

Example: Big Data drives personalized experiences

Pier 1 is redefining their 50-year old brick and mortar retail business with personal, engaging shopping experiences

Scenario

Pier 1 is committed to an "omni-channel retailing" approach that needed to integrate data from every source to customize its marketing message to different customers

Solution

Azure HDInsight (Hadoop-as-a-service) and Azure Machine Learning used to combine ecommerce and in-store transactional and behavioral data to predict customer purchase intent. This allows Pier 1 to deliver a targeted and relevant message at the best possible time.

Result

- Pier 1 can now personalize their website and merchandise their stores with robust data driven decision making.
- More effective marketing campaigns can be run based on customer behaviors and purchases to create a better relationship with customers

"The retail industry is going through a paradigm shift. Customers are shopping more online and they have more choices. In response, our goal is to ensure wherever she engages with the brand, whether in the store, on her home computer, on her mobile device – it's a very personal and consistent message."

Andrew Laudato, Senior Vice President and CIO

Pier 1 imports

Microsoft

Example: Big Data improves diner's experiences

Chili's Restaurants using Ziosk Tablets and big data for IoT scenario and give customers customized offers in real-time

Scenario
Ziosk Tablets on every restaurant. Chili's Restaurants wanted to improve guest satisfaction, customer insights, and restaurant efficiency.

Solution
Azure HDInsight (Hadoop-as-a-service), Azure Machine Learning, Power BI to aggregate data in real-time and establish relationships between customer behavior and purchases.

Result
- Optimize guest experience on the tablets by giving them customized offers in real-time.
- Understand restaurant metrics such as customer wait times, wait staff efficiencies, restaurant sales, etc.
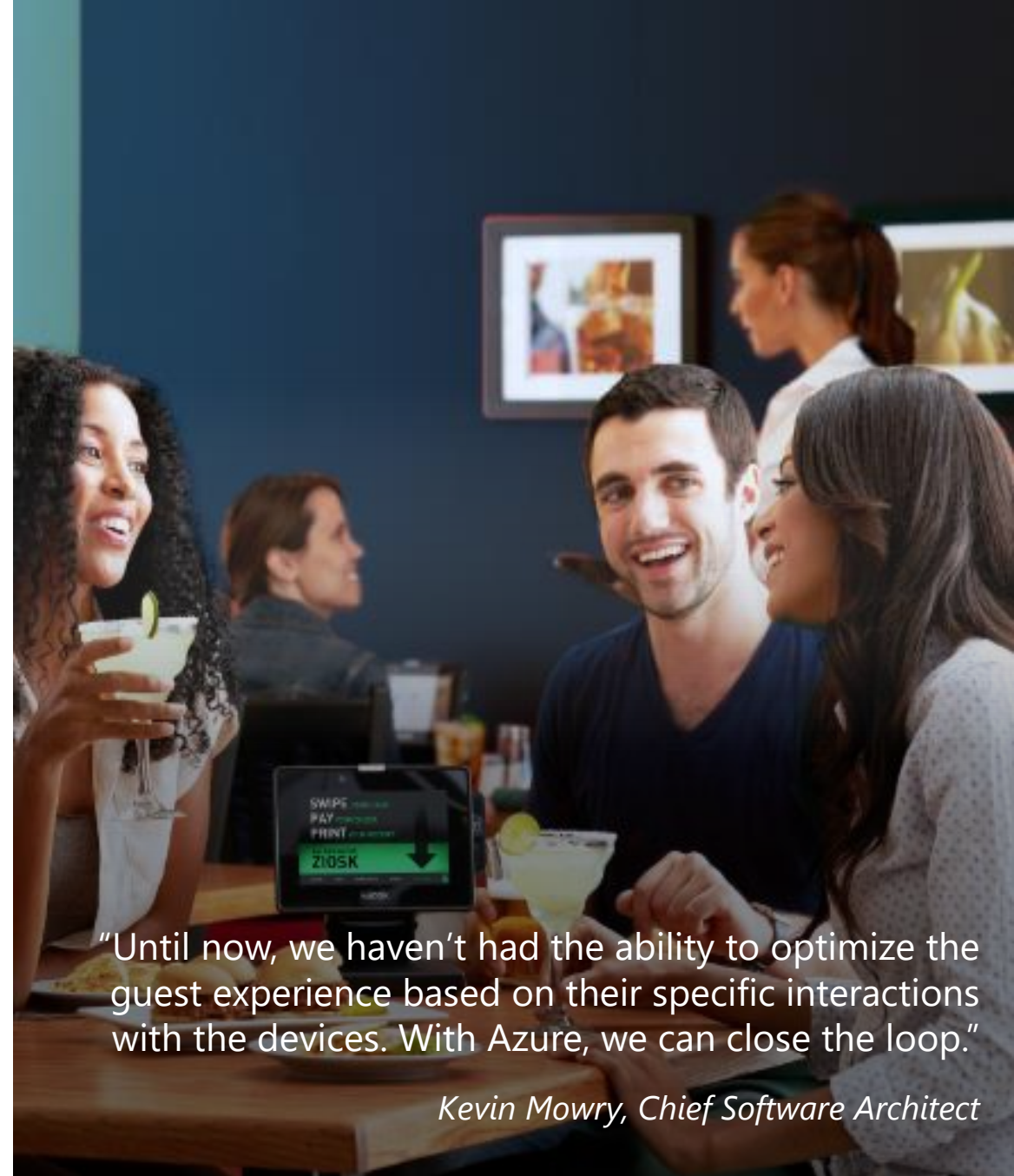
"Until now, we haven't had the ability to optimize the guest experience based on their specific interactions with the devices. With Azure, we can close the loop."

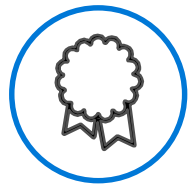*Kevin Mowry, Chief Software Architect*

Ziosk   chili's

Microsoft

Manufacturing

- Predictive Maintenance
- Supply Chain Optimization
- Quality

Financial Services

- Risk Analytics
- Fraud Prevention
- Customer Experience

# Example: Big Data introduces culture of experimentation

Tangerine instantly adapts to customer feedback to offer customers what they want, when they want it

Scenario
Lack of insight for targeted campaigns
Inability to support data growth

Solution
Azure HDInsight (Hadoop-as-a-service) with the Analytics Platform System enables instant analysis of social sentiment and customer feedback across digital, face-to-face and phone interactions.

Result
- Reduced time to customer insight
- Ability to make changes to campaigns or adjust product rollouts based on real-time customer reactions
- Ability to offer incentives and new services to retain—and grow—its customer base

Tangerine
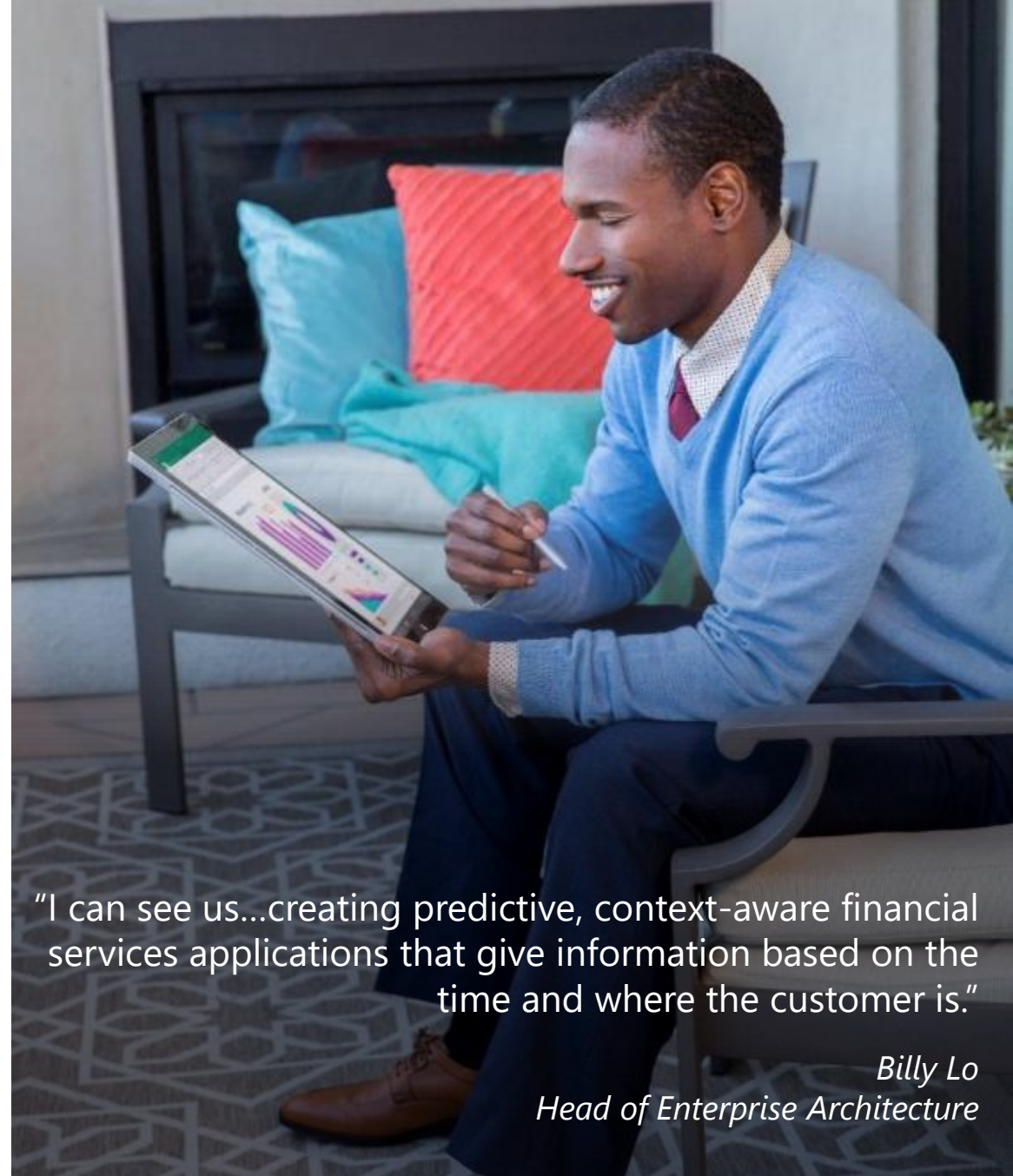
"I can see us...creating predictive, context-aware financial services applications that give information based on the time and where the customer is."

Billy Lo
Head of Enterprise Architecture

Microsoft

Government

- ♡ Public Health

- ✈ Transportation Optimization

- € Revenue Assurance

Example: Big Data improves quality of life

City of Barcelona can react instantly to heavy congestion to distribute bicycles to different stations based on real-time data

Scenario
Collect near-real-time data from social media feeds, GPS signals, and data from government systems. Needed to meet BI needs of their city departments as well as to their citizens.

Solution
Azure HDInsight (Hadoop-as-a-service) with SQL Server to collect data, analyze and generate near real-time BI.

Result
- Identify the transportation needs of the people based on records in government systems, social media, GPS
- Improve public bike rental stations and distribution to different stations to accommodate heavy times of congestion

"We can gain the insight needed to distribute bicycles in different ways so that people can use them to connect with other forms of transportation such as busses and trains...(creating) a more sustainable model."

Lluis Sanz Marco
Director of Information Municiple

Microsoft

Example: Big Data helps grow tourism

Tourism Australia uses big data to drive tourists to Australia

Scenario
Tourism Australia has an ambitious goal: Grow tourist spending to between $115 and $140 billion by 2020.

Solution
Tourism Australia turned to partner BizData to create a BI solution powered by Power BI and HDInsight with Storm for HDInsight for real-time big data (eg: government data on immigration, visitor arrivals and departures, and social media feeds). Now marketing staff can get real-time insights on the spend and ROI on multiple campaigns.

Result
• Tourism Australia has seen a 20% uplift in overnight tourist expenditures and more than 8% in international arrivals. They now feel better equipped to market Australia to the world.

"The discussions and questions that the various business units are asking about their data are on a much different level than they were just a couple of years ago. The tools facilitate global collaboration via the cloud among teams in offices around the world.."

Dave Rumsey, Chief Information Officer

TOURISM AUSTRALIA

Microsoft

Example: Big Data helps drive fan engagement

Real Madrid uses big data to engage with their fans

Scenario

Real Madrid is the leading sports franchise in the world with 450 million global supporters and more than 100 championships. They needed to engage with each fan.

Solution

They use the Microsoft Cloud platform – Office 365, Dynamics CRM Online, Power BI, Azure Media Services, Azure DocumentDB, Azure SQL Database, Azure Data Factory and Azure HDInsight to give fans a better overall experience by analyzing social media data and generating custom marketing campaigns to boost revenues. HDInsight is used to collect and analyze all user behavior within their app including actions, check-ins, profile updates, fan challenges, etc. They use this information to see how the user interacts with the app, how they open it, if they click on advertisement, etc. In the future, Machine Learning will be used to predict seat prices.

Result

- Connect with all of their global fans around the world to make possible what used to be impossible.

"We wanted to connect with all the people who support Real Madrid in the world. It is critical for us to understand and learn from them, because in the end, the club belongs to them."

José Ángel Sánchez, CEO

HealthCare

- Fraud Prevention
- Care Optimization
- Bioinformatics

Example: Big Data used to improve patient care

Leeds Teaching Hospital (NHS UK) help clinicians diagnose problems faster

Scenario

Leeds Teaching Hospital, one of the biggest National Health Service (NHS) trusts in the UK generate half a million structured records and 1 million unstructured records per year in its emergency department.

Solution

SQL Server was used to store repository of clinical data and HDInsight alongside Two10Degrees and Ascribe to map natural language text to a clinical taxonomy and process 6 years worth of unstructured data.

Result

- Identified that the larger number of emergency room attendees due to alcohol related admissions were from former inmates of a local prison. This lets them inform the community for more alcohol-awareness interventions.
- Found 30 different areas to improve operations and reduce costs (eg. accurately charging for diagnostic tests - CT scans)
- Also monitor potential infectious disease outbreaks

NHS

"We quickly spun up the Azure HDInsight cluster and processed six years' worth of data in just a few hours.... This type of analysis is beyond most organizations' ability because of the costs required for on-premises infrastructure. However, processing the data in the cloud made it very affordable."

Paul Henderson, Business Intelligence Division

Innovative intelligence capabilities

Know the customer by using speech, text, face and emotion analysis

Personalize customer interactions with intelligent agents that converse in contextual, natural ways

Build models that understand natural language and recognize what users want

Microsoft Cognitive Services

Giving apps
a human side

Vision
From faces to feelings, allow your apps to understand images and video

Speech
Hear and speak to your users by filtering noise, identifying speakers, and understanding intent

Language
Process text and learn how to recognize what users want

Knowledge
Tap into rich knowledge amassed from the web, academia, or your own data

Search
Access billions of web pages, images, videos, and news with the power of Bing APIs

Cognitive Services

Vision	Speech	Language	Knowledge	Search
Computer vision	Speaker recognition	Text analysis	Academic knowledge	Bing search API
Face	Speech	Bing speller	Entity linking services	Bing image search API
Emotion	Custom Recognition	Web language model	Knowledge exploration service	Bing video search API
Video		Linguistic analysis	Recommendations	Bing news search API
		Language understanding		Bing auto suggestions API
		Translator		

Bringing it all together

The Seeing AI App

Computer Vision, Image, Speech Recognition, NLP, and ML from Microsoft Cognitive Services

Read Blog Here

Watch Video Here

Intelligent solutions will enable differentiation

Cognitive Understanding

- Identify objects, people and actions
- Hear and recognize language

- Infer emotions and reactions
- Develop deeper context & understanding over time

Conversation as a platform

- Natural language conversational UI

- On any canvas e.g. Skype, Slack, Facebook, etc.

- Powered by Intelligent Bots

- Accessible through personal digital assistants

Microsoft
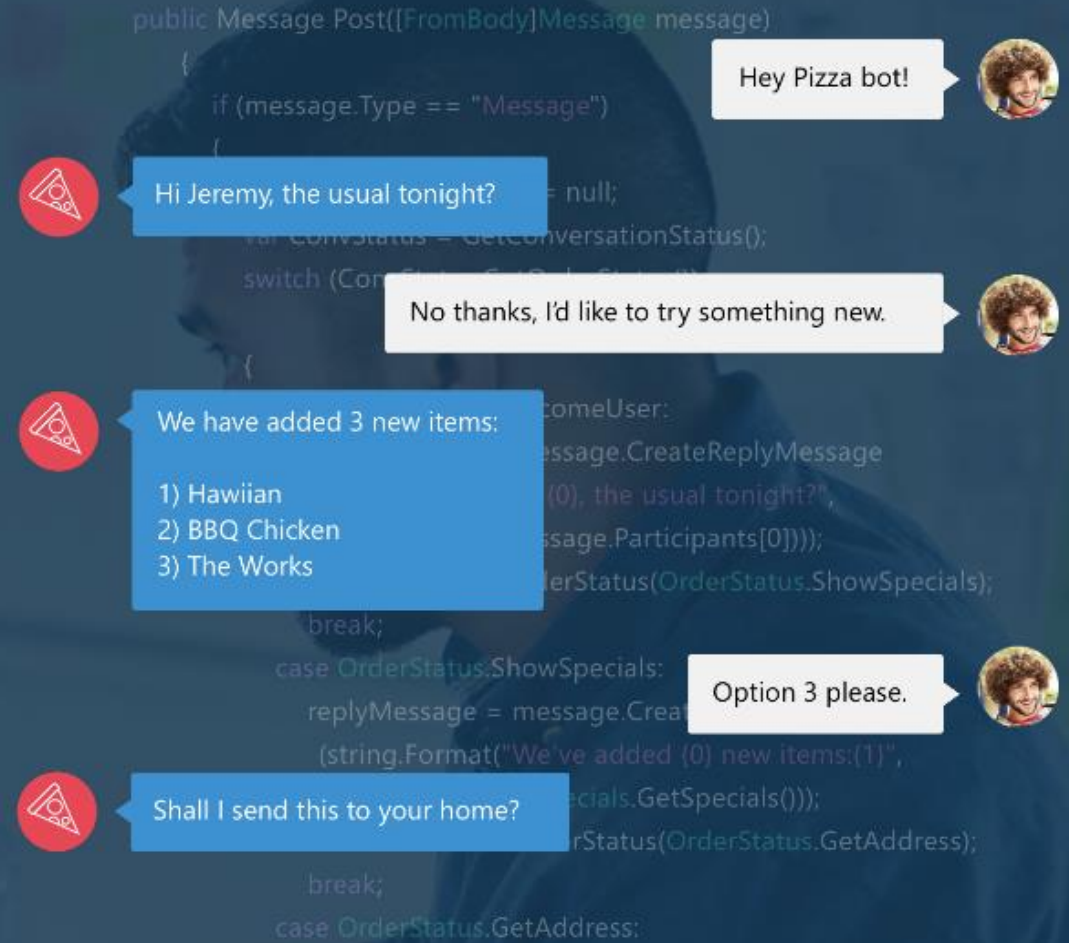
Bot Framework

www.botframework.com

Bot Framework
Your bots – wherever your users converse

Intelligent Solutions

Preconfigured Solutions

Dashboards and Visualizations

Machine Learning and Analytics

Big Data Store

Information Management

Apps

Web

Mobile

Bots

BOTs at Singapore

Government Technology Agency – (GovTech) BOTFest

SPRING SG – Entrepreneurs with investors
MOH – Info on fees
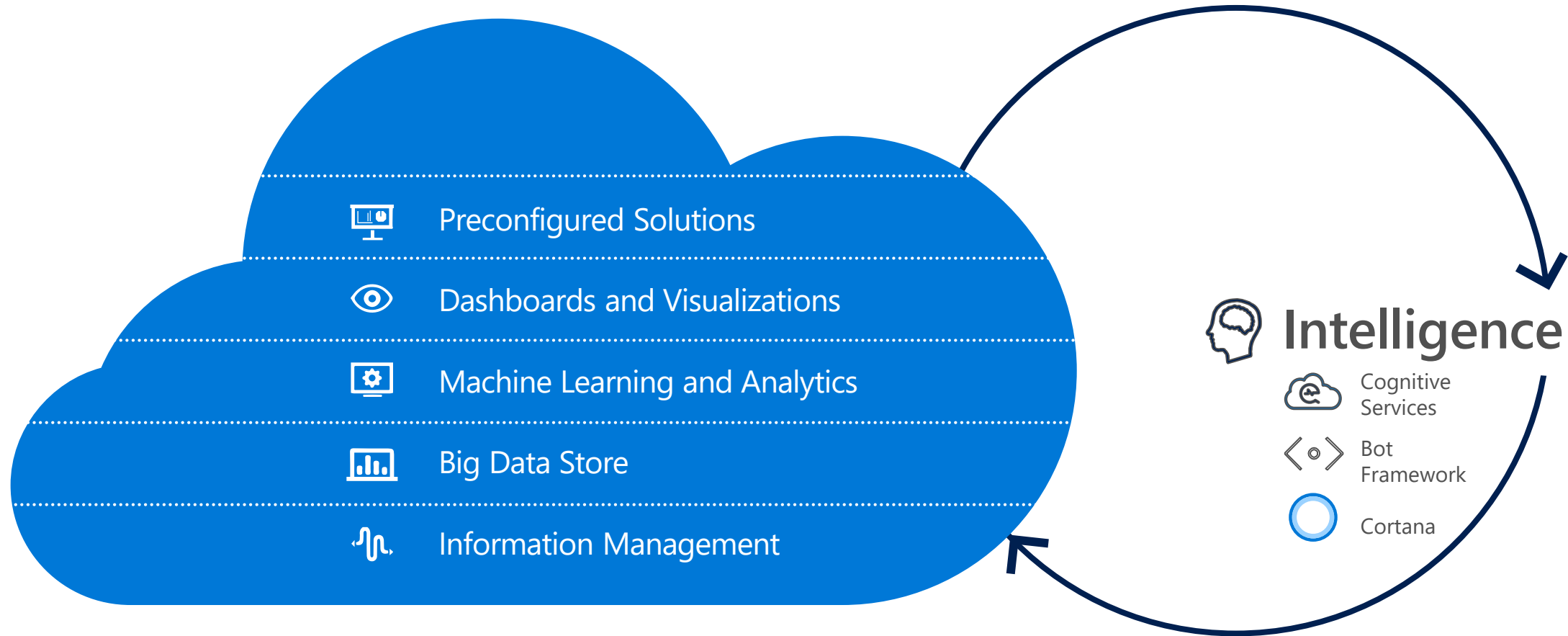SEAB – Exam dates, syllabi, distances
Parking Auntie

IDA BOT – ASK JAMIE

Ask Jamie @ IDA
Type your question

Cortana Intelligence Suite
Transform data into intelligent action

Preconfigured Solutions

Dashboards and Visualizations

Machine Learning and Analytics

Big Data Store

Information Management

Intelligence

Cognitive Services

Bot Framework

Cortana

Cortana Intelligence Suite

Transform data into intelligent action in the cloud

Data Sources

Apps

Sensors and devices

Cortana Intelligence

People

Apps

Automated Systems

DATA ➔ INTELLIGENCE ➔ ACTION
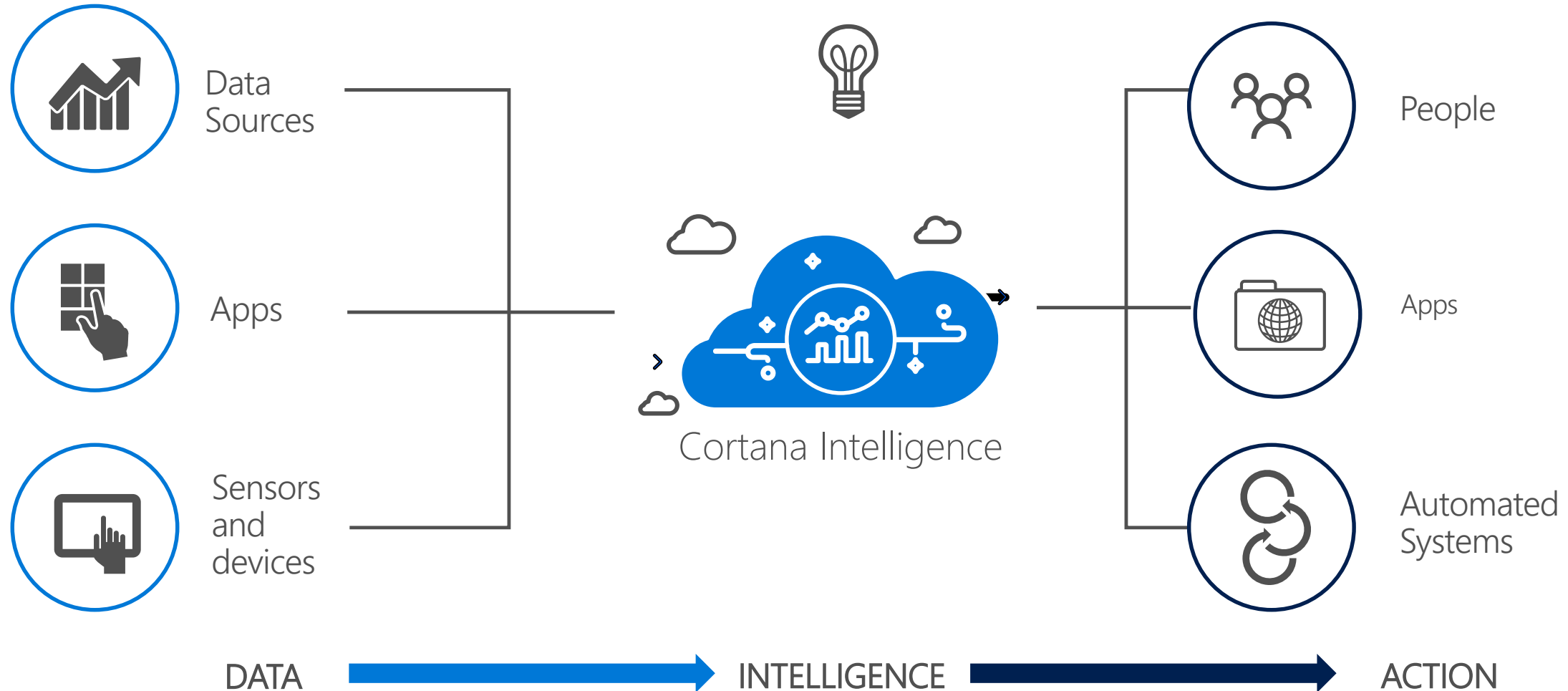
Here are some examples of how our customers are staying ahead
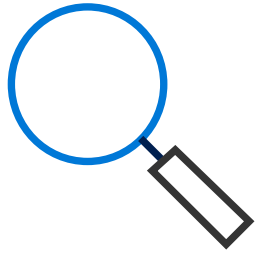
Improving visibility and making accurate predictions

- Remote monitoring
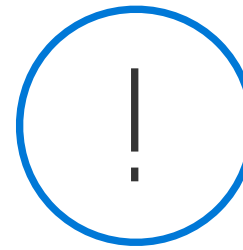- Demand forecasting
- Risk and compliance management

Getting the right products to the right places

- Inventory management
- Supply chain optimization
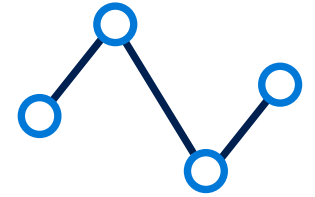- Marketing mix optimization

Offering customers exactly what they want, when they want it

- Personalized offers
- Product recommendations
- New product introduction

Fixing problems proactively before they start

- Predictive maintenance
- Operational efficiency
- Customer service improvement

Exploring new business opportunities

- Cross-sell and upsell
- Product-as-a-service
- New data-driven services

UBER

"Thousands of partners sign in to our platform every hour. The response time from the Face API is incredible, enabling us to verify our drivers without slowing them down."

Dima Kovalev, Product Manager, Uber

Face API

Read Case Study Here

See Video Here

Resources

Sign up for a free Azure Trial   https://azure.microsoft.com/en-us/free/

Cortana Intelligence   : www.microsoft.com/en-us/cloud-platform/cortana-intelligence-suite

Cognitive Services   : www.microsoft.com/cognitive-services/en-us/

Microsoft Bot Framework : https://dev.botframework.com/

Join the community   : https://cognitive.uservoice.com/
https://stackoverflow.com/questions/tagged/microsoft-cognitive

www.how-old.net   https://gallery.cortanaintelligence.com/

pratima@microsoft.com