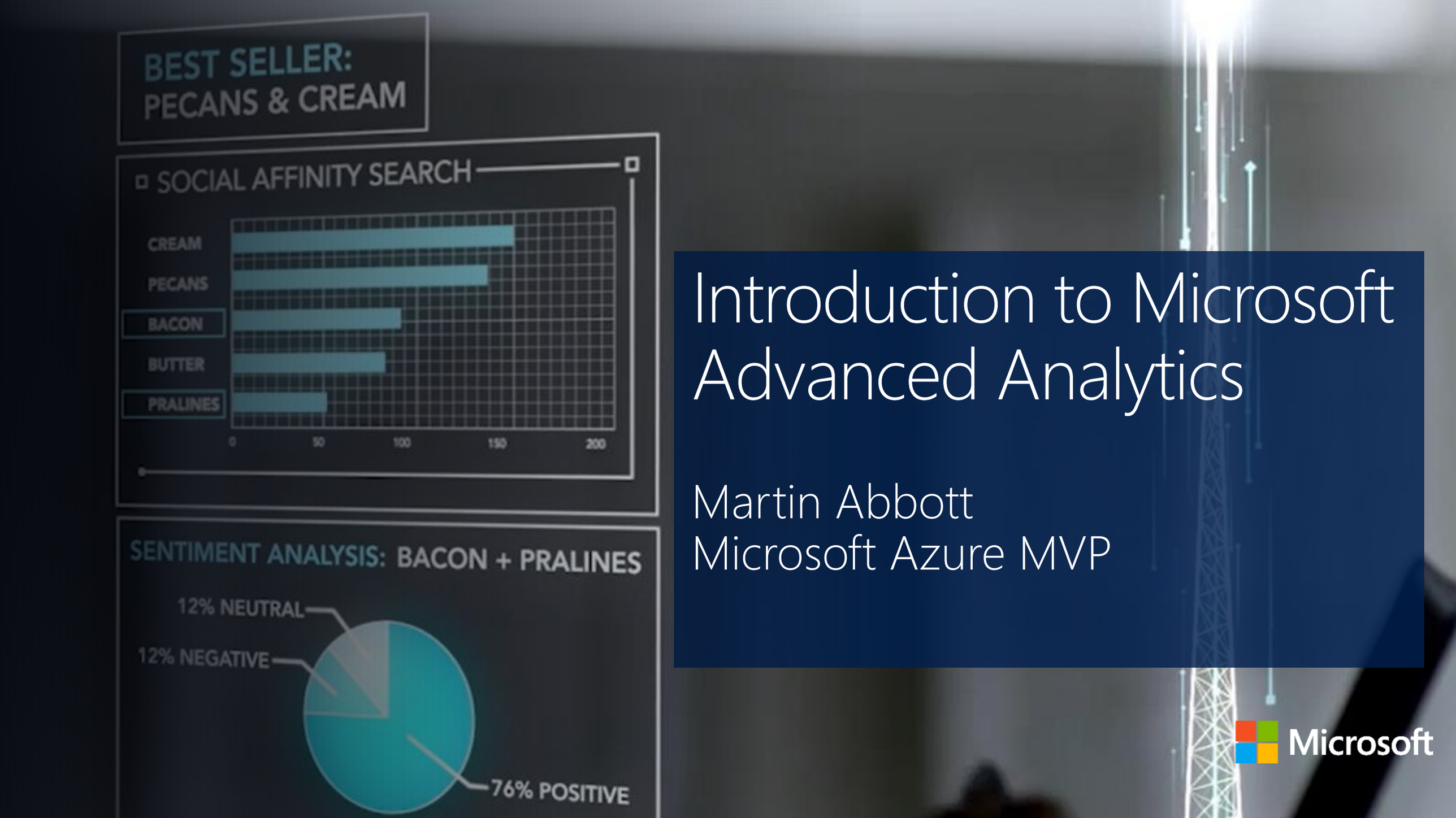


Introduction to Microsoft Advanced Analytics

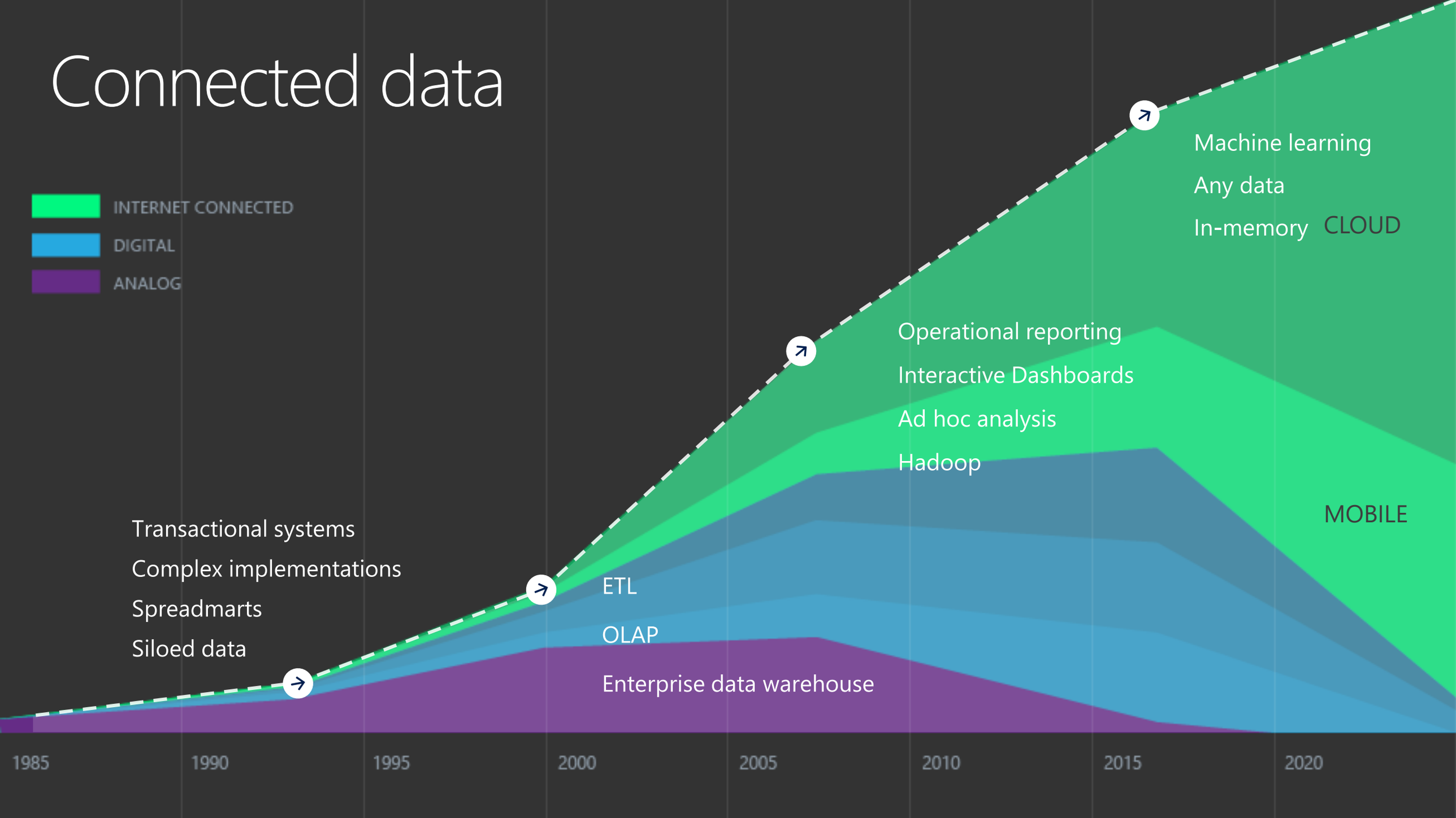
Martin Abbott
Microsoft Azure MVP

Microsoft

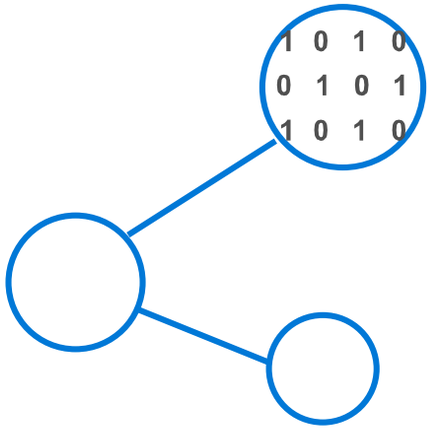
Agenda

- Trends
- Opportunities
- Solutions
- Directions

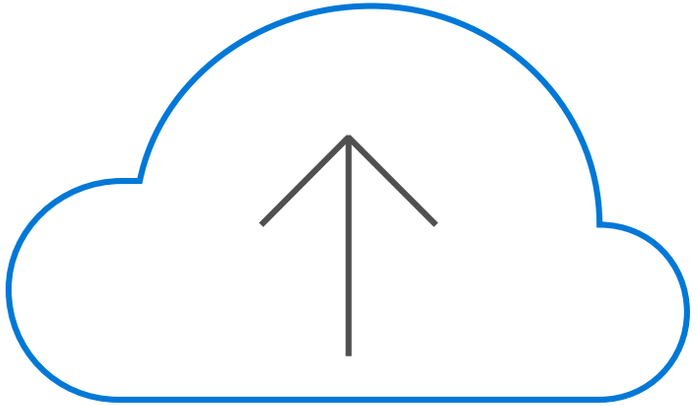
Connected data



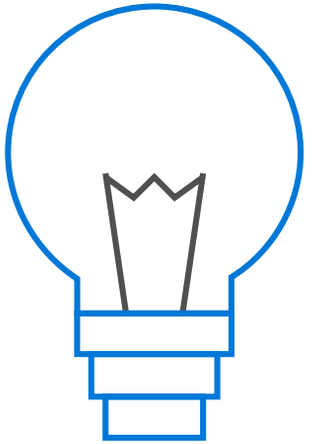
Three major trends converging



Data

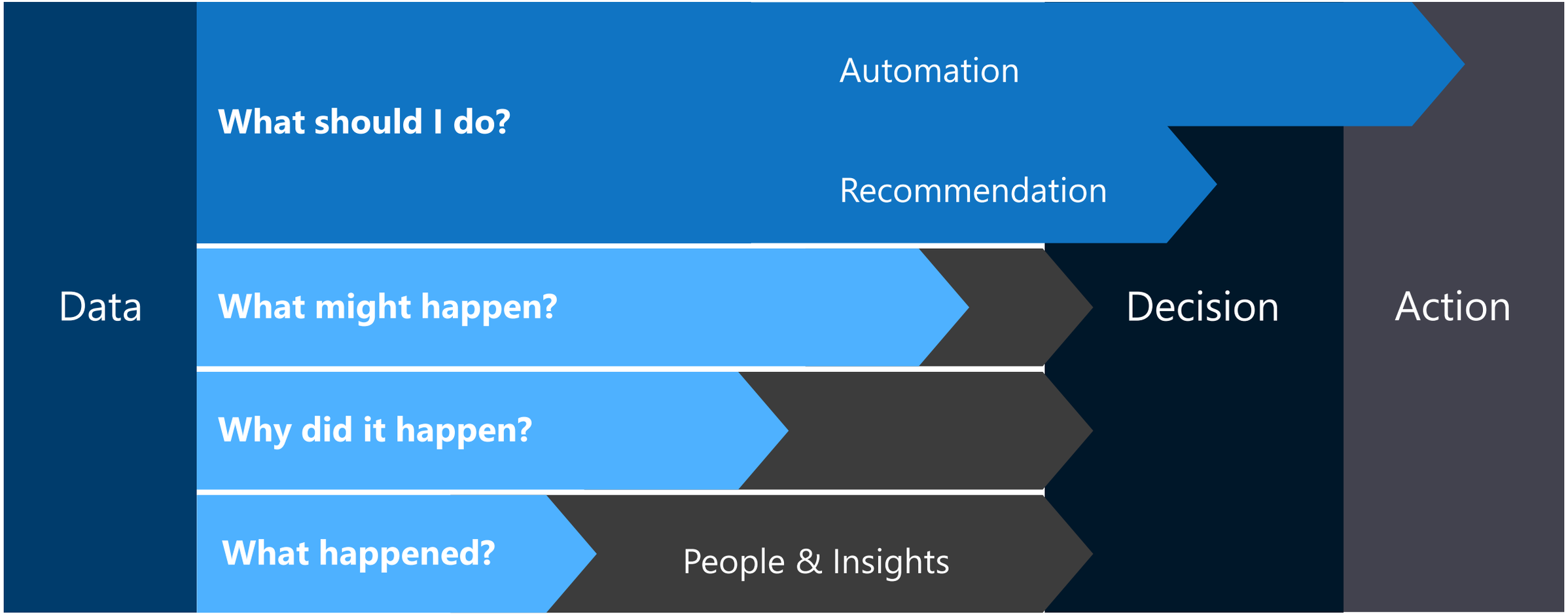


Cloud

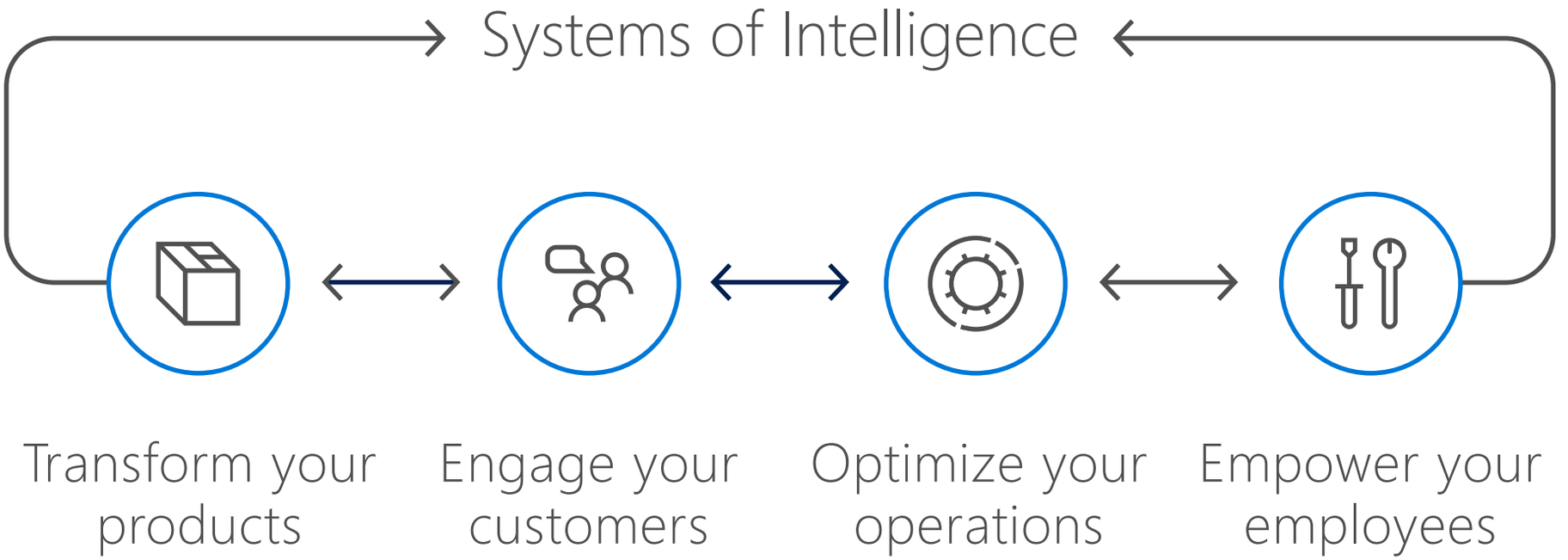


Intelligence

Big Data + Predictive Analytics = Business Value



Transforming key aspects of business



Data is a key strategic asset

$1.6T

Additional business value captured by companies that are leaders in using data assets to their advantage

Source: IDC, 2014

10%

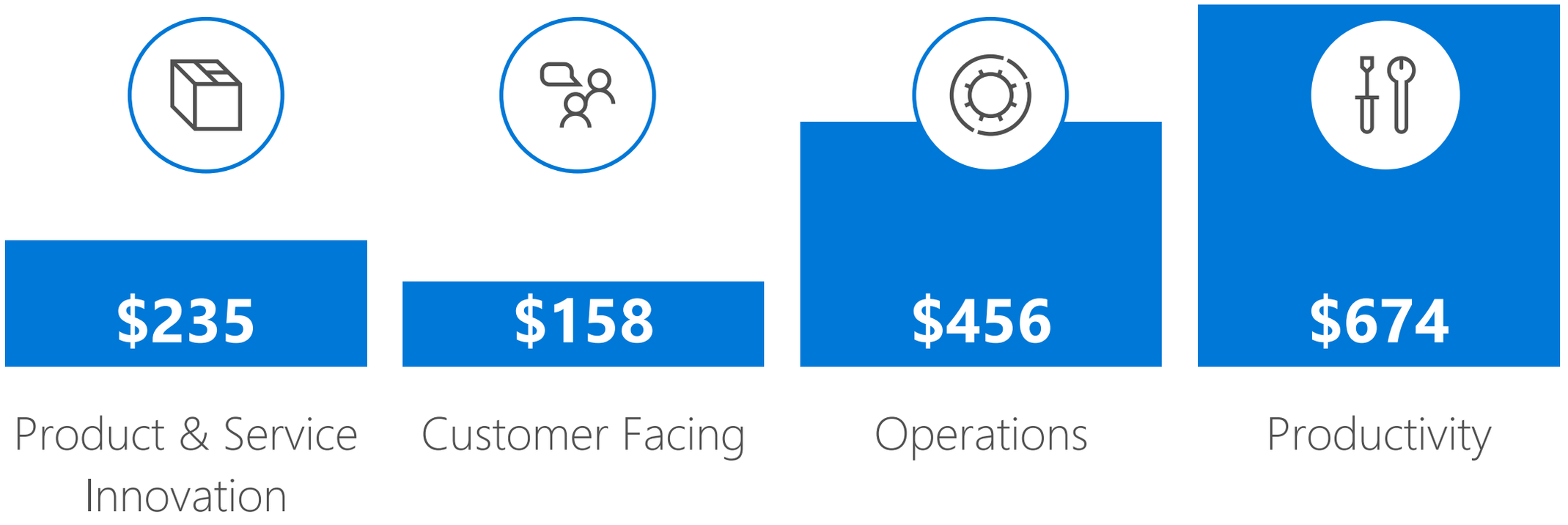
Percent of organizations expected to have a highly profitable business unit specifically for productizing and commercializing their data by 2020

Source: Gartner, 2016

Capitalizing on a 1.6 trillion $ data dividend

Data Dividend

Incremental Gains Made by Leaders in Data and Analytics



IDC Data Dividend Study and Survey, N=2,020, April 2014

Advanced Analytics scenarios

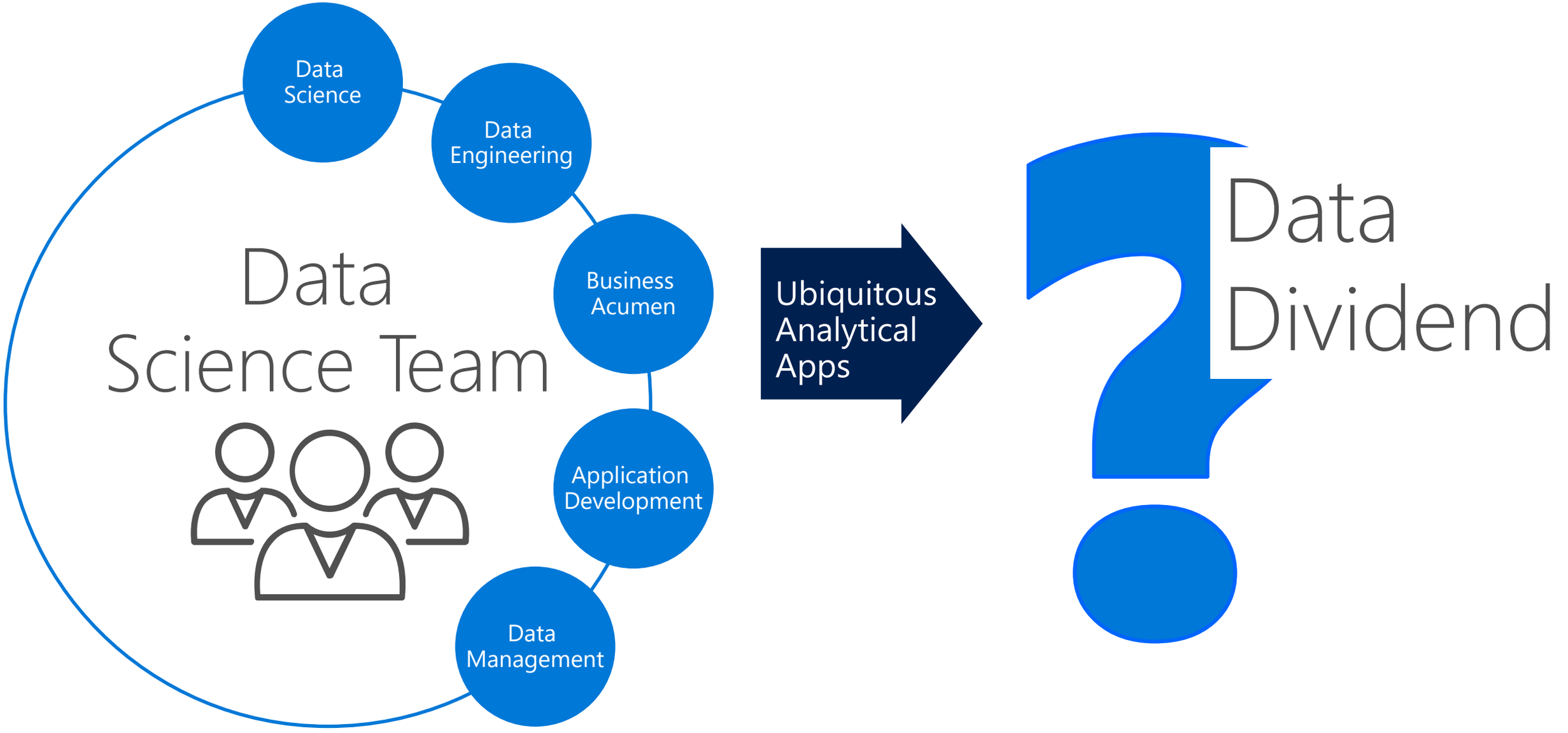
EXAMPLE SOLUTIONS

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

Success requires convergence of skills



Barriers to analytics adoption

Talent Scarcity	• Academic Rigor • Talent Competition
Low Productivity	• Integration Complexity • Tool, Skill & Culture Gaps
Complex Infrastructure	• Data Volume, Diversity • Security & Governance Constraints • Rapid Platform Evolution
Slow Innovation	• Low Experimentation Rate • Complex Operationalization
High Cost	• Legacy Products • Irregular Workload

Earning our credibility

We needed to leverage data and analytics to grow our products.

Key Innovation…

More experiments by more people!

So we…

Built an Exabyte-scale data lake for everyone to put their data.

Built tools approachable by any developer.

Built machine learning tools for collaborating across large experiment models.

Using vastly accelerated experimentation cycles:

bing™

MICROSOFT DOUBLES SEARCH SHARE

XBOX

30% BETTER IN SPEECH AND GESTURE RECOGNITION

Office 365

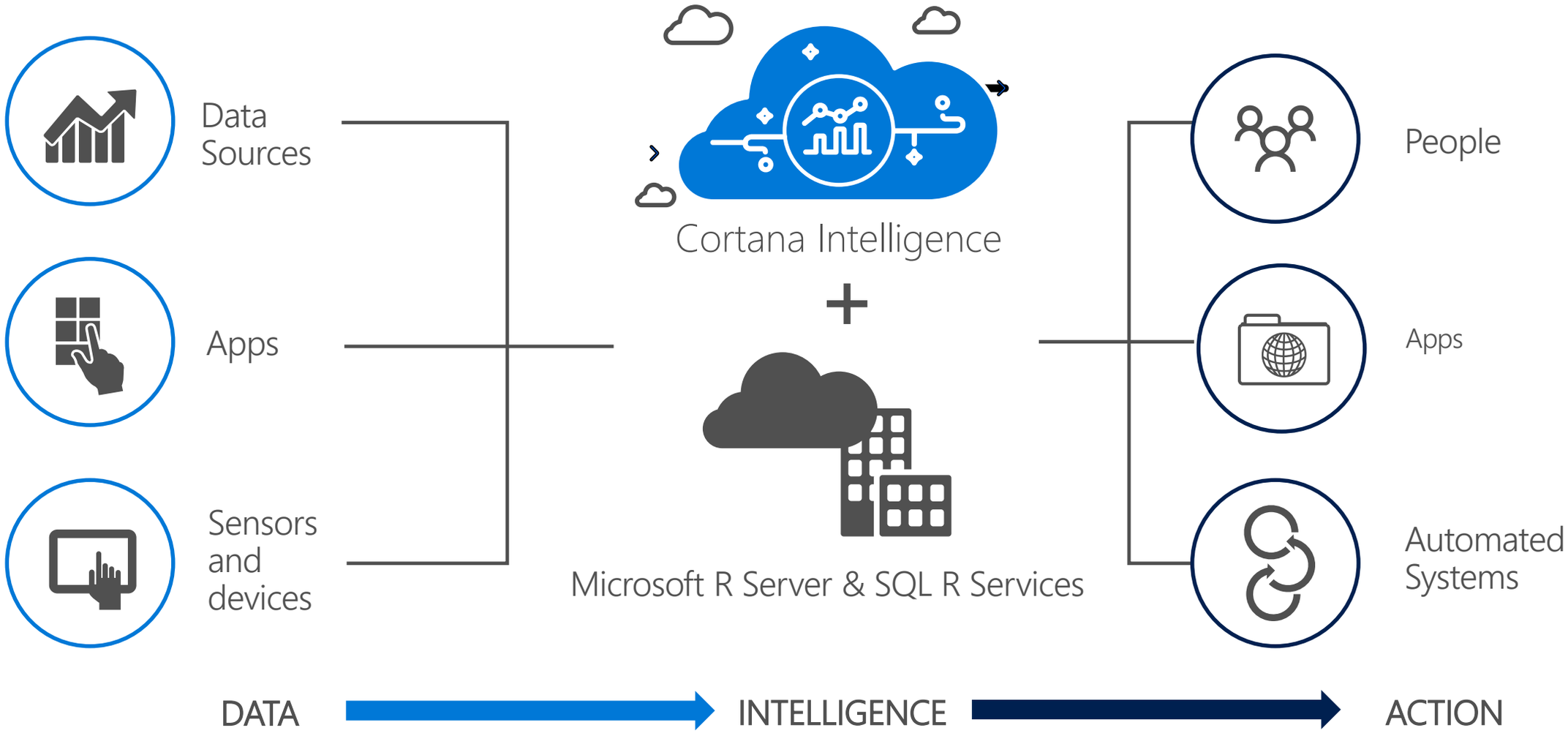
NEW CAPABILITIES LIKE OFFICE GRAPH & CLUTTER

skype™

SKYPE TRANSLATE INTRODUCTION

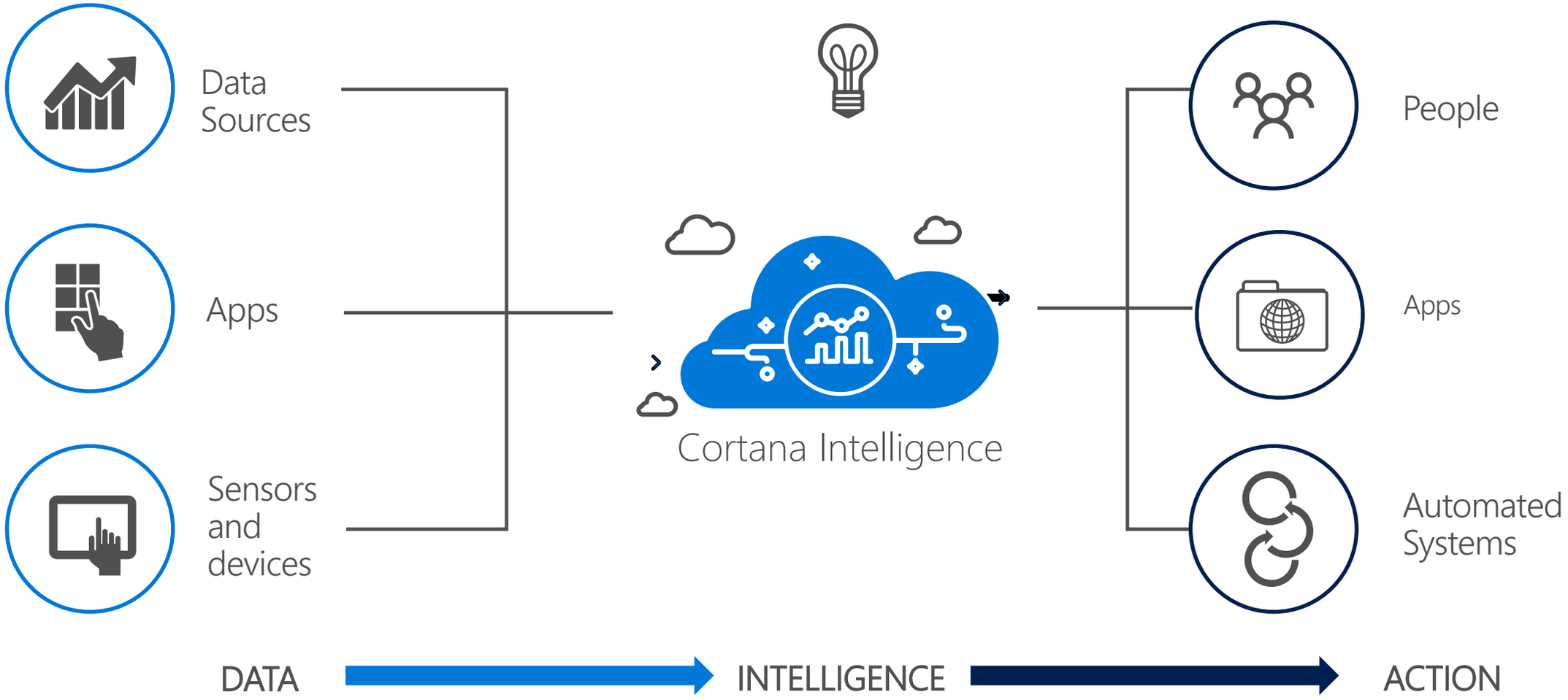
From data to intelligence to action

On Prem or in the Cloud



Cortana Intelligence Suite

Transform data into intelligent action in the cloud



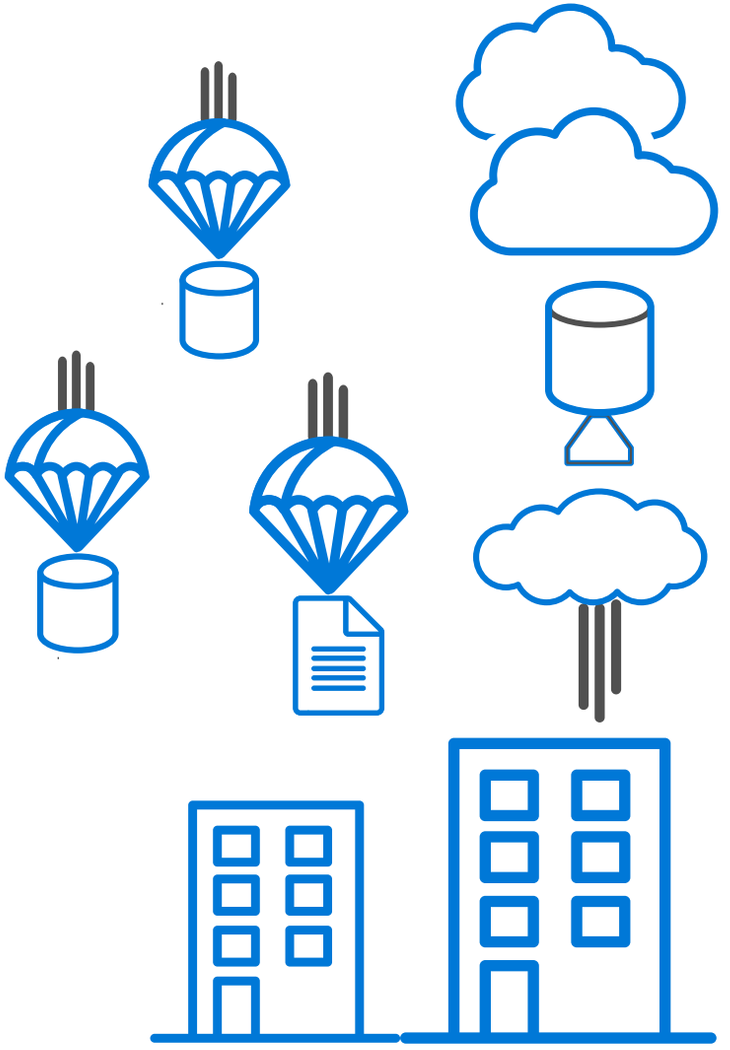
It combines relevant data from anywhere

Reduce costs by collecting, storing, and processing data in the cloud

Scale infinitely and manage planned or unexpected events with elastic data stores

Aggregate any type of data and connect information to wherever you need it

Aggregate any type of data and connect information to wherever you need it

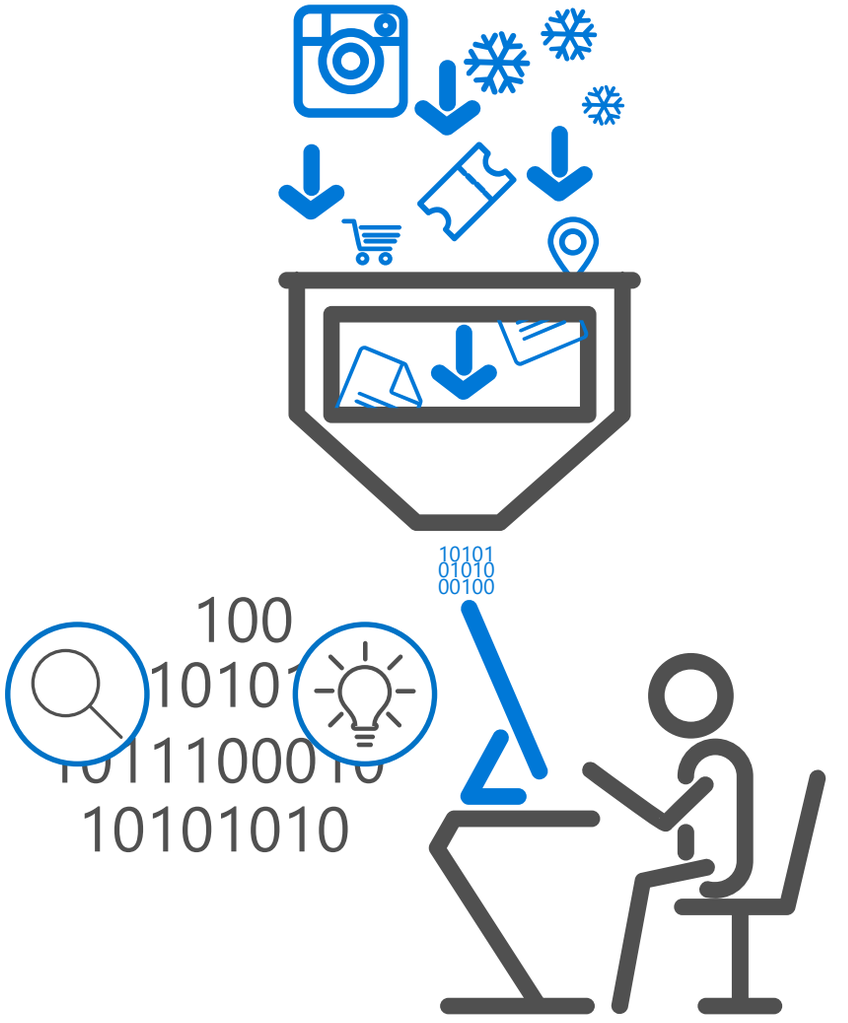


And leverages advanced analytics

Detect subtle patterns and insights by analyzing massive amounts of data from many sources

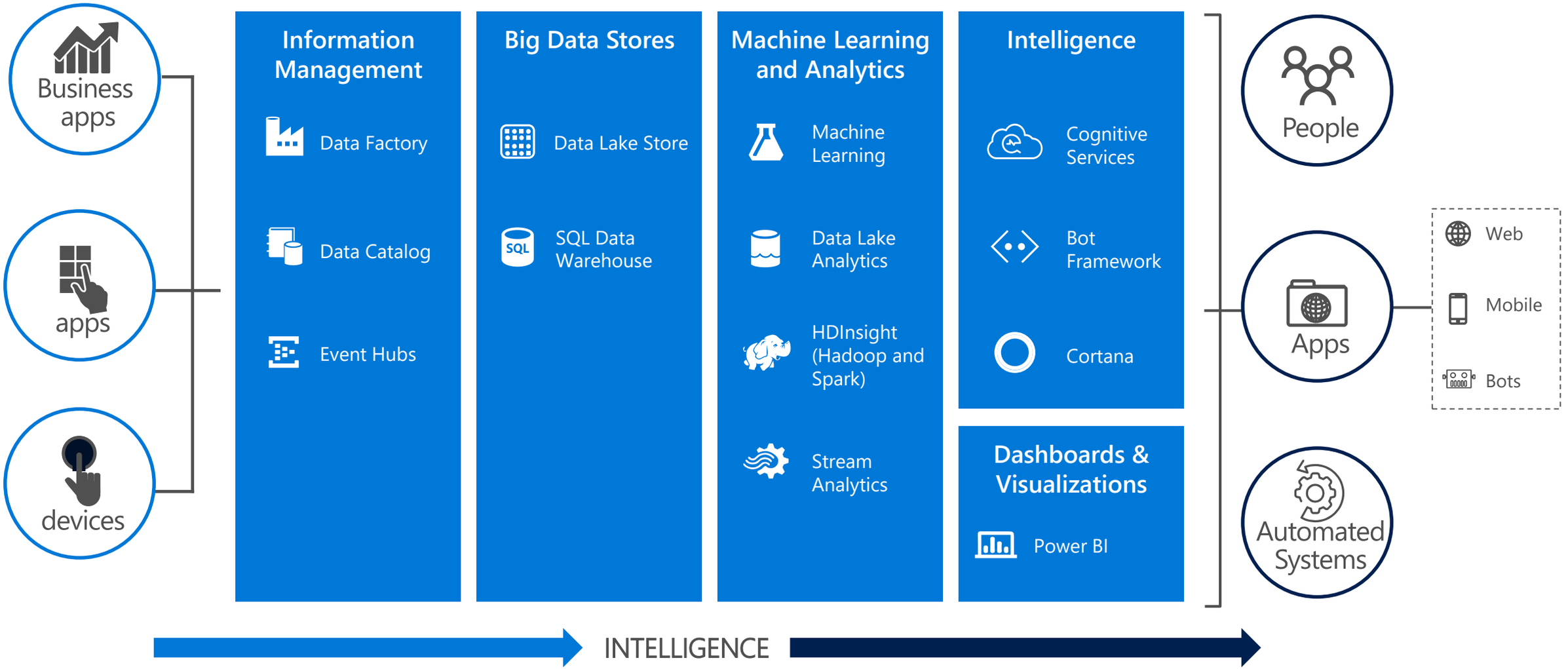
Shape new business outcomes by predicting what may happen in the future

Automate decision-making to accelerate business and aid competitive advantage



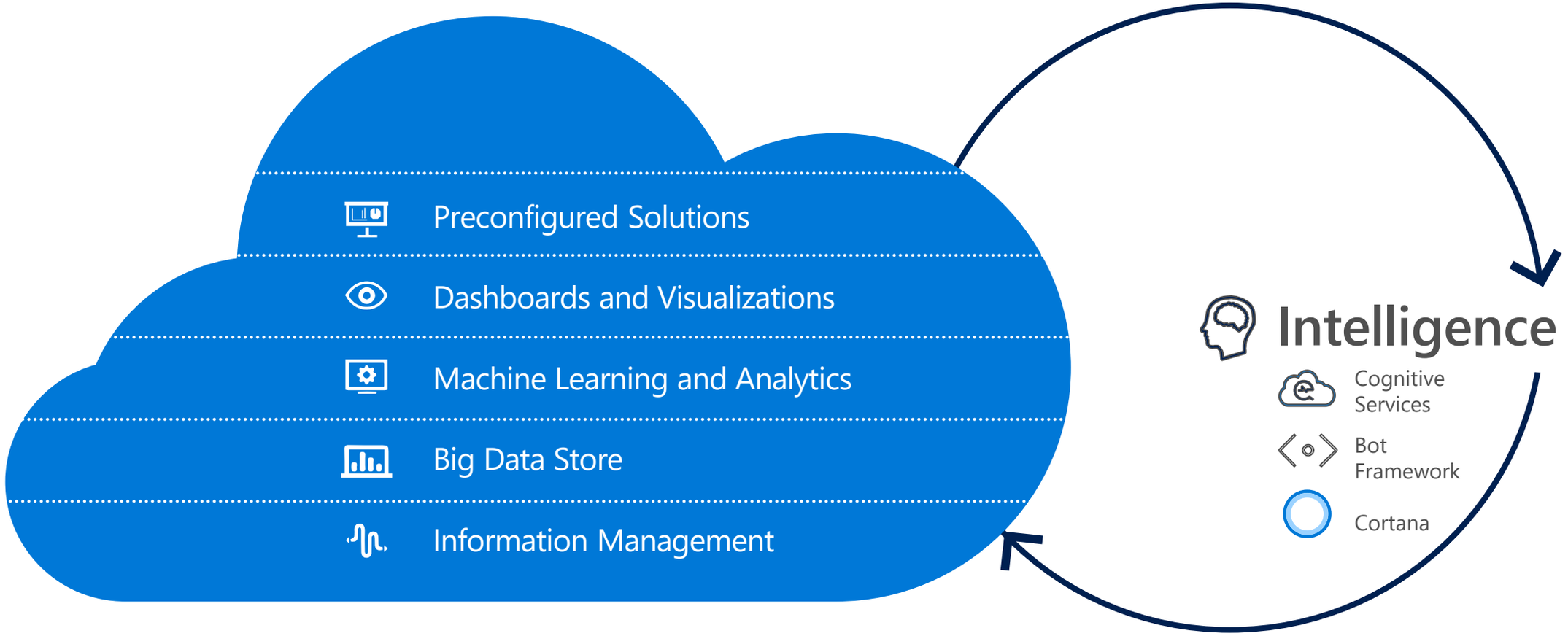
Cortana Intelligence Suite

Transform data into intelligent action



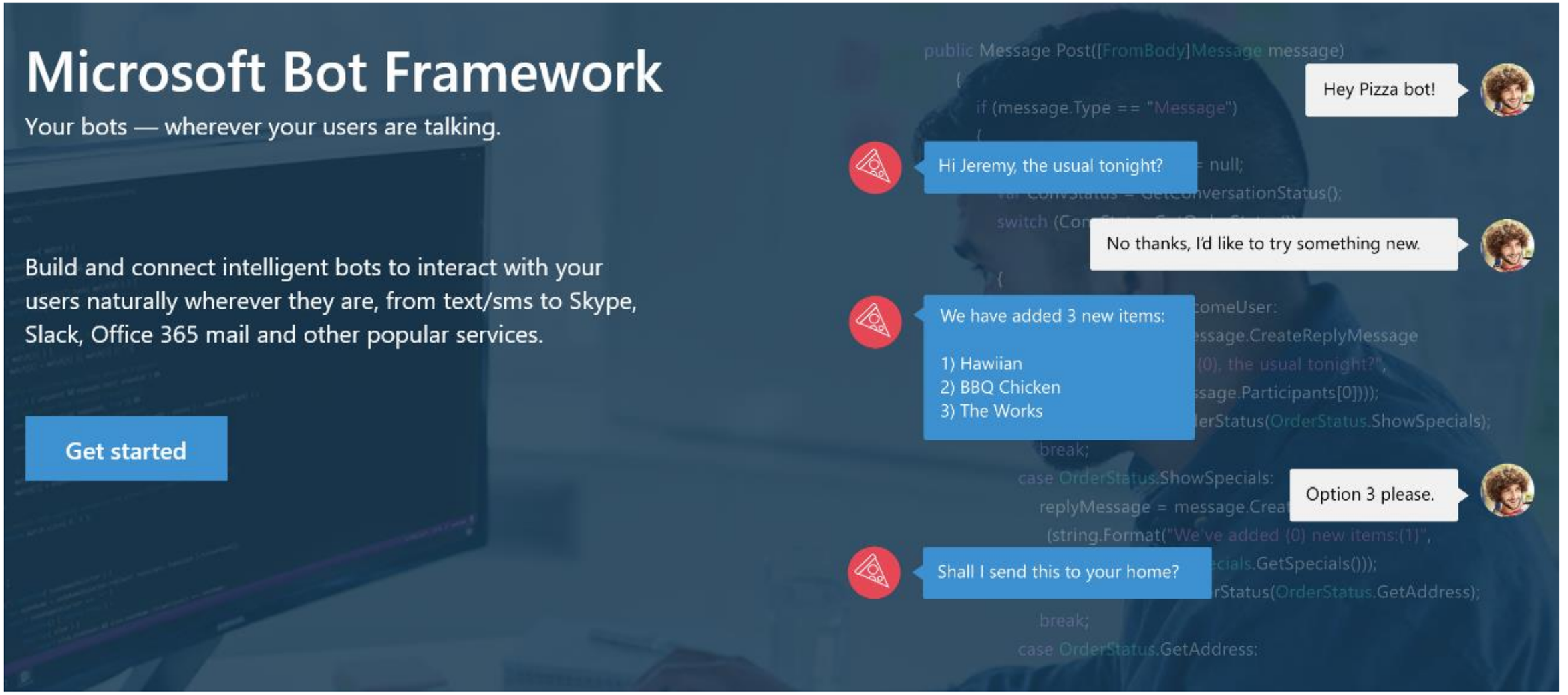
Cortana Intelligence Suite

Transform data into intelligent action



Bot Framework

www.botframework.com



Cognitive Services

Vision

- Computer vision
- Face
- Emotion
- Video

Speech

- Speaker recognition
- Speech
- Custom Recognition

Language

- Text analysis
- Bing speller
- Web language model
- Linguistic analysis
- Language understanding
- Translator

Knowledge

- Academic knowledge
- Entity linking services
- Knowledge exploration service
- Recommendations

Search

- Bing search API
- Bing image search API
- Bing video search API
- Bing news search API
- Bing auto suggestions API

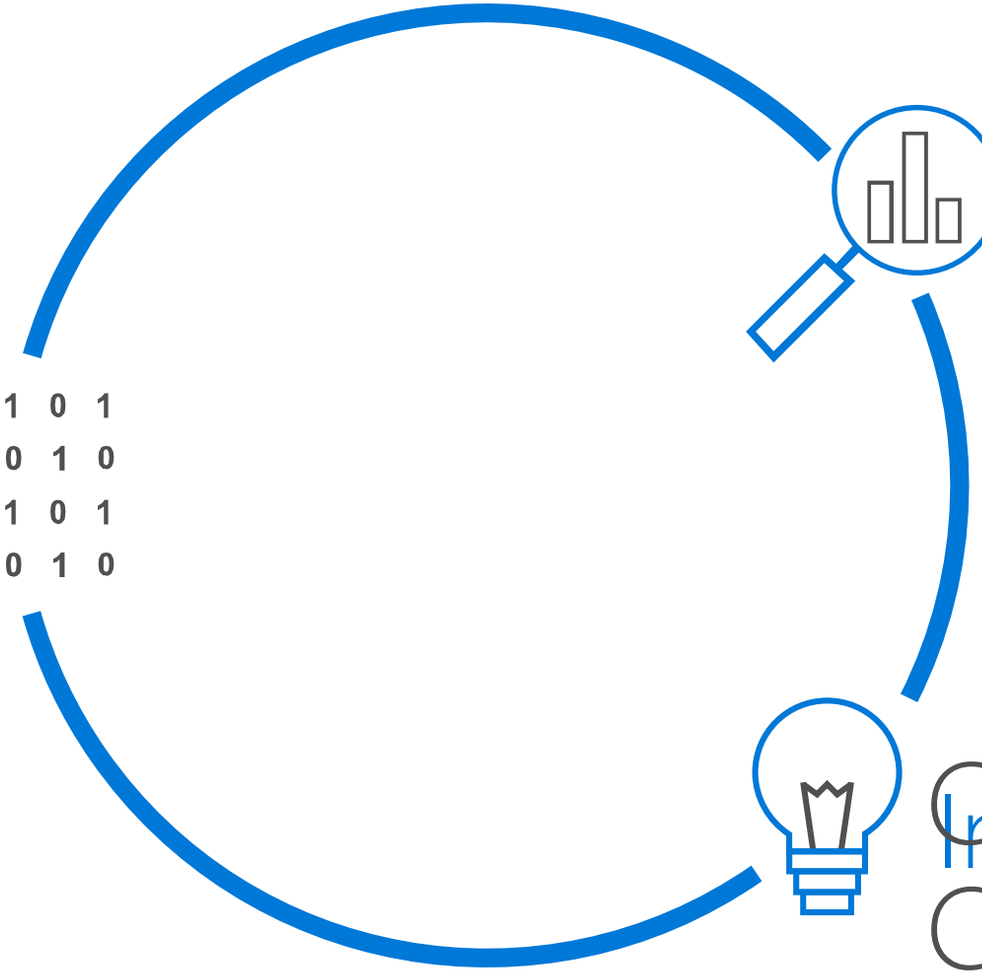
Along with innovative intelligence capabilities

Learn more about your customers 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

Transform data into intelligent action with Cortana Intelligence



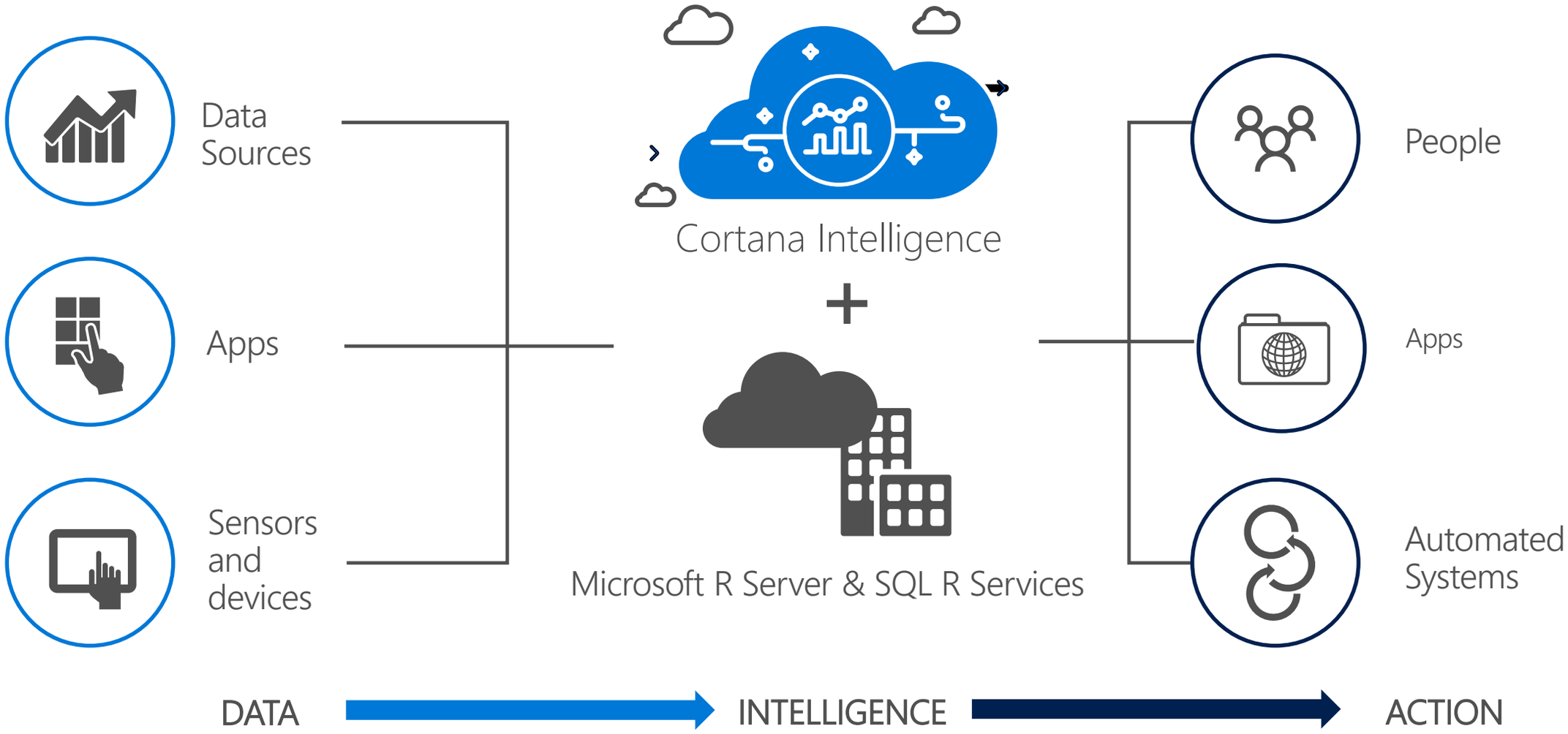
Secure
& Scalable
Big Data

Easy
& Actionable
Analytics

Cognitive &
Contextual
Intelligence

Microsoft R Server family

From Data To Action On Premises



What is

Language Platform

- A statistics programming language
- A data visualization tool
- Open source

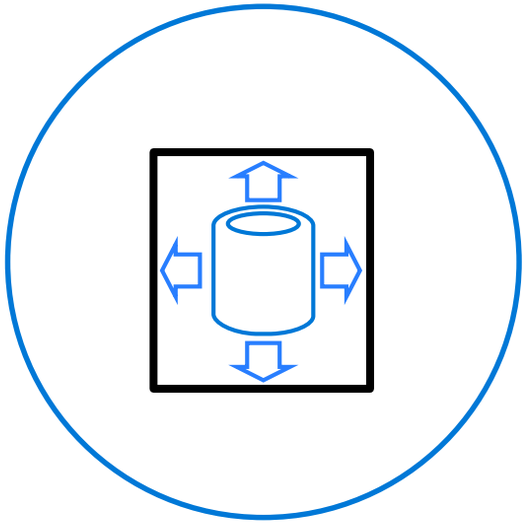
Community

- 2.5+M users
- Taught in most universities
- New and recent grad's use it
- Thriving user groups worldwide

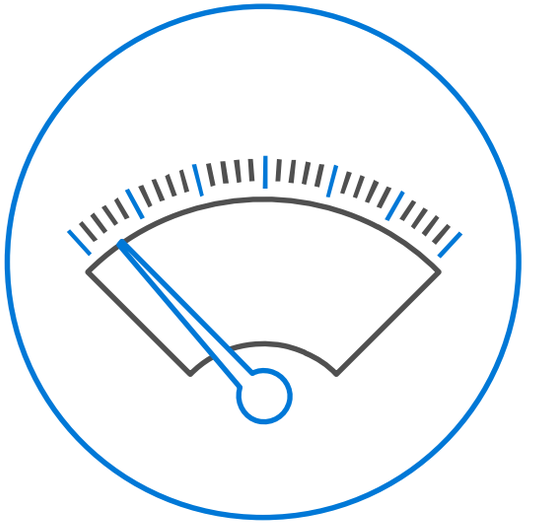
Ecosystem

- 7000+ free algorithms in CRAN
- Scalable to big data
- Rich application & platform integration

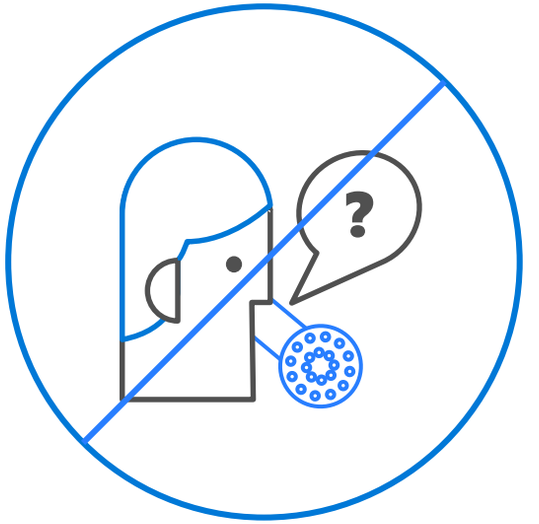
Challenges posed by open source R



Limited
Data
Scale



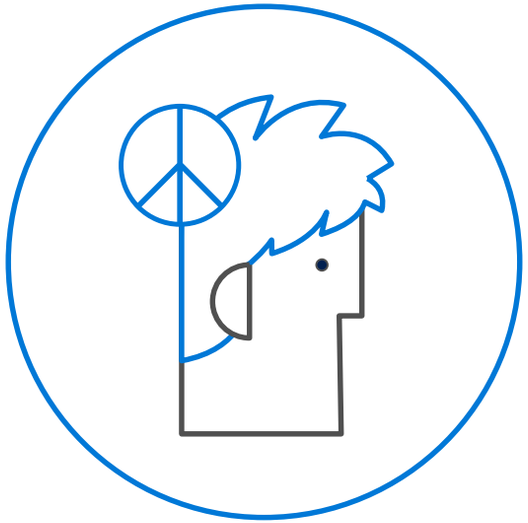
Inadequate
Modeling
Performance



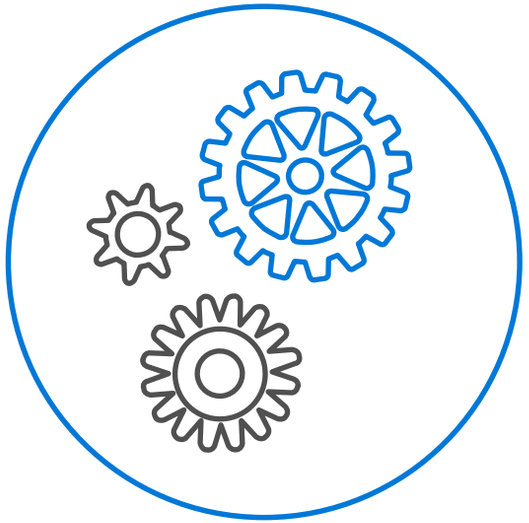
Lack of
Commercial
Support

Complex
Deployment
Processes

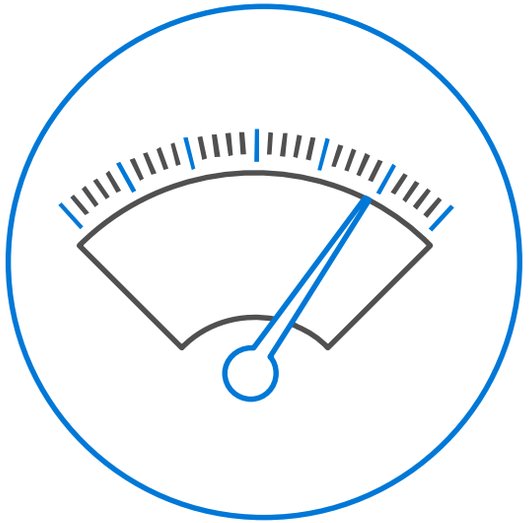
R from Microsoft brings



Peace of mind



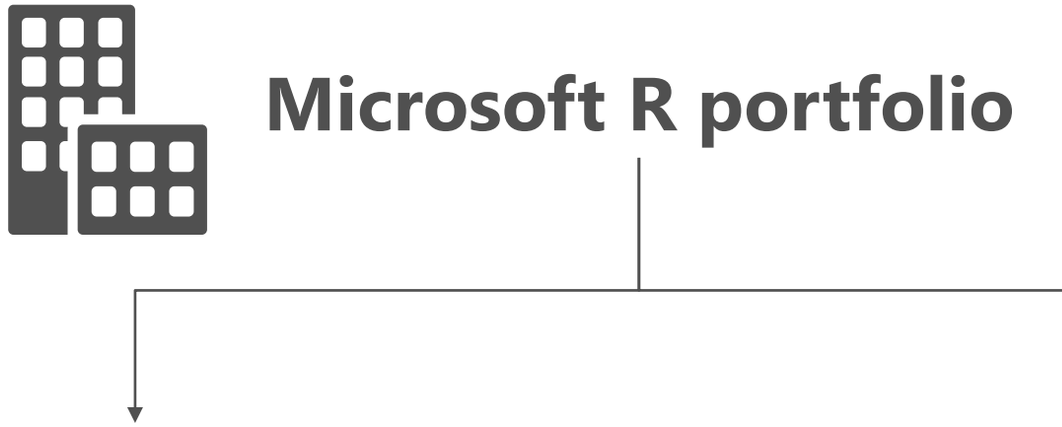
Efficiency



Speed and scalability

Flexibility and agility

Microsoft R portfolio



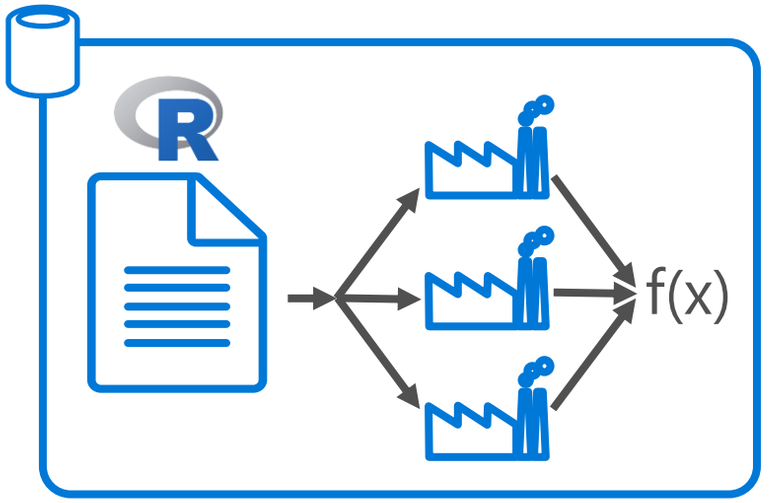
Microsoft R Scales to Big Data for Enterprises

Escapes R's traditional memory limits

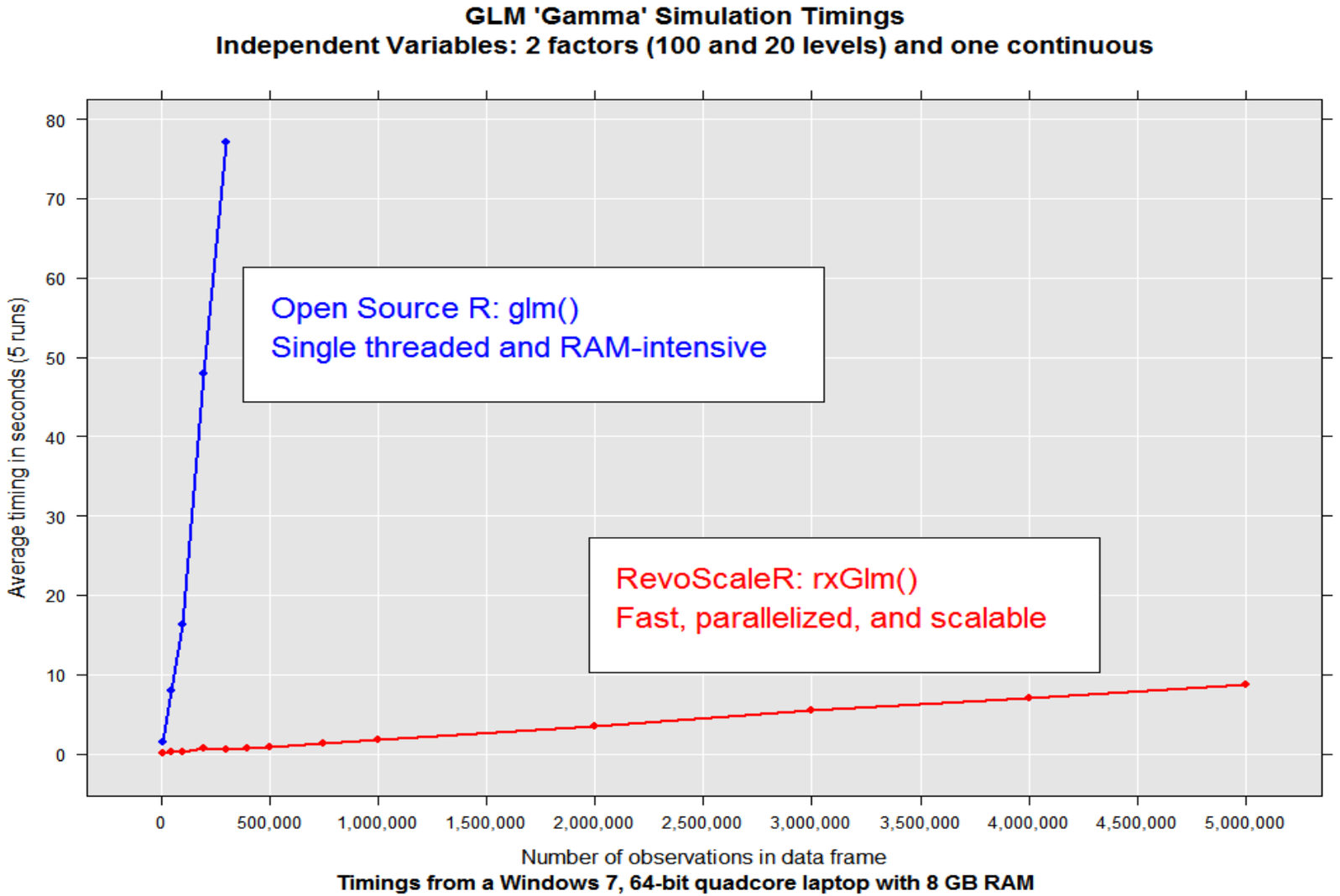
Scales predictive modeling using parallelization

Distributes computation cores & nodes

Minimizes data movement using in-database, in-MapReduce and in-Apache Spark execution



Scalable algorithms

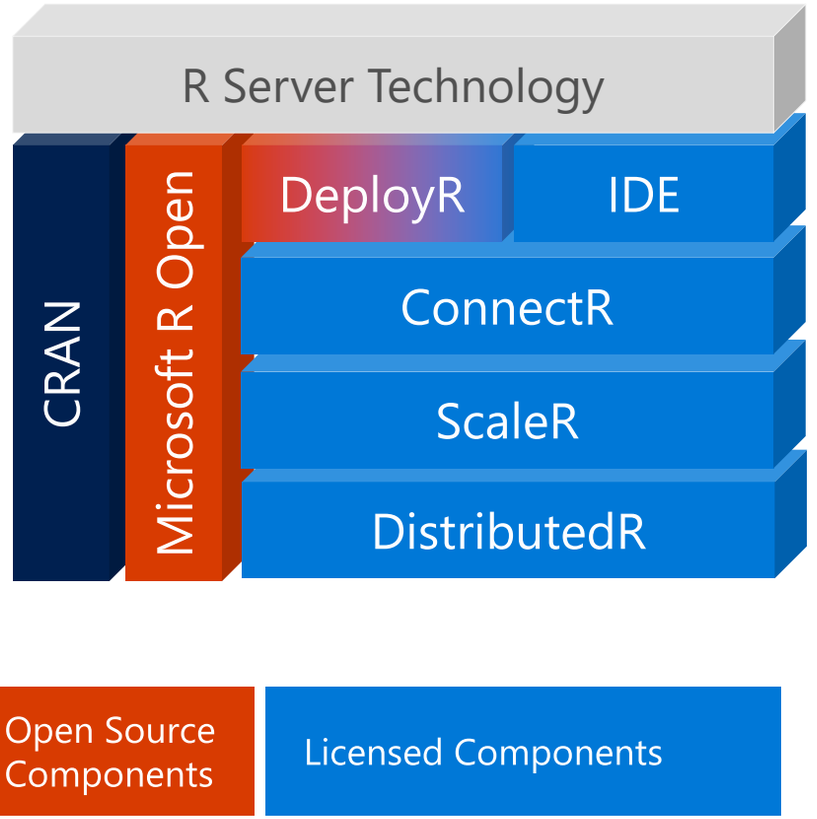


Introducing Microsoft R Server

Linux, Windows, Hadoop & Teradata

High-performance, Scalable R

100% open source R
CRAN, Bioconductor, MRAN, GitHub compatibility
Big-data connectivity
Scalable analytics
Multi-platform
In-database, in-cluster scalability
Choice of IDE



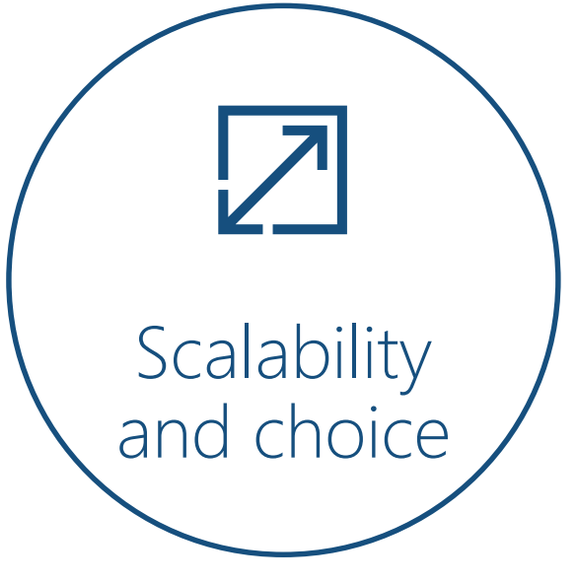
Introducing SQL Server 2016 R services

Enterprise speed and scale

Near-DB analytics

Parallel threading and processing

Reuse SQL skills for data engineering



In-database deployment

Memory and disk scalability

No R memory limits

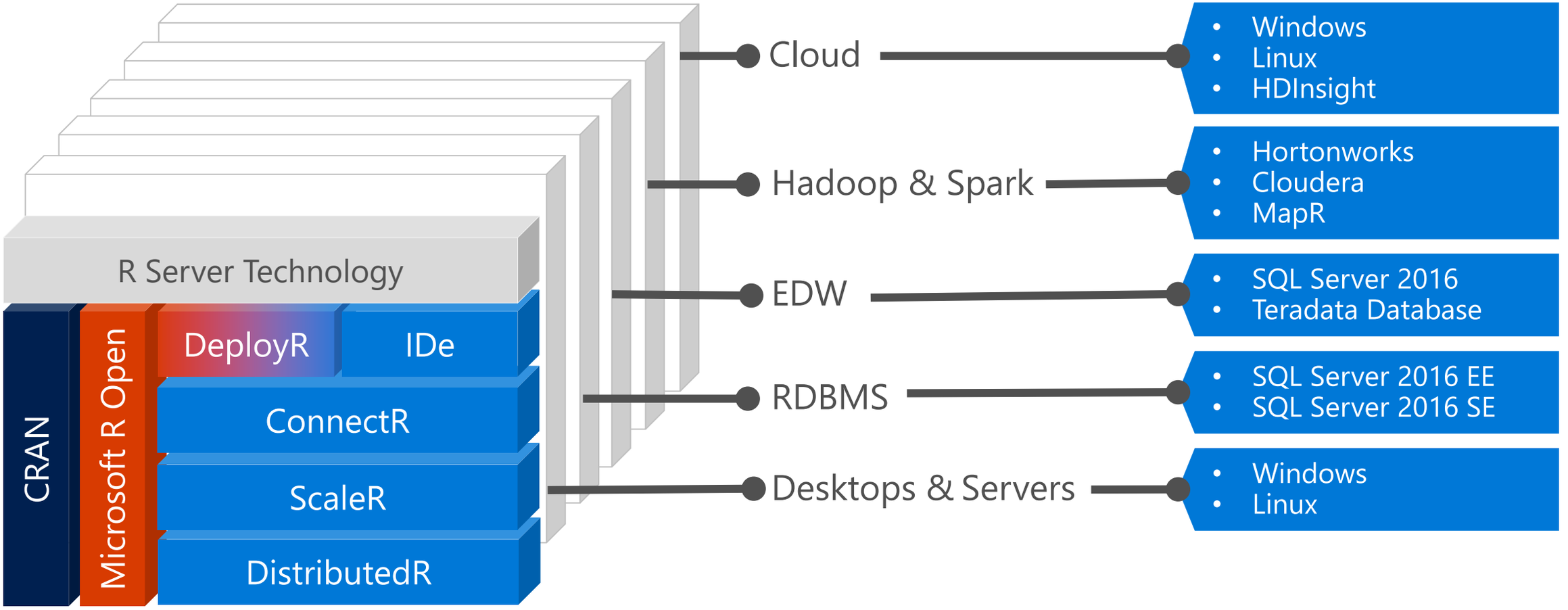
Write once, deploy anywhere

Included in SQL Server 2016

Reuse and optimize existing R code

Eliminate data movement

Portability & investment assurance

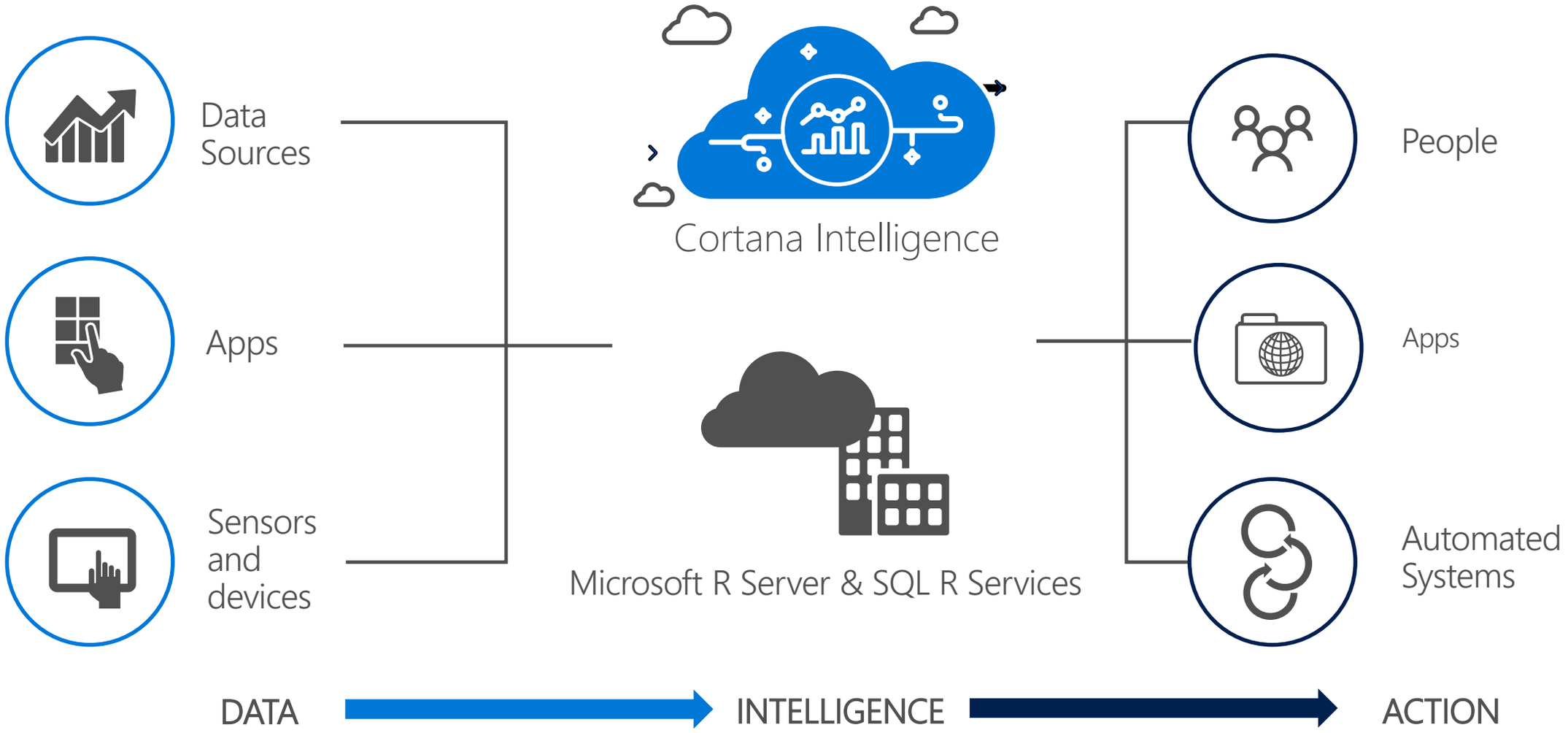


Write Once – Deploy Anywhere

Microsoft R Server delivers

- The industry's broadest R-based platform
- Enterprise scale atop spark, hadoop, RDBMSs & EDWs
- Freedom from memory limits
- Choice of Windows and Linux IDEs
- Stable deployment
- Write-once-deploy-anywhere portability
- Investment protection
- Hybrid cloud evolution

From data to decisions to action with Microsoft



Hybrid analytics platform

Convergence with Flexibility

Cortana Intelligence

Scalable Algorithms

Templates & Samples

R: Write Once Deploy Anywhere

R & Python to AML Interop.

Microsoft R Server Family

Microsoft Advanced Analytics address barriers

Broaden The Talent Pool	• Democratize Data Science • Skill Re-Use
Increase Productivity	• Transparent Scaling • Facilitate Collaboration
Modernize Infrastructure	• Decouple Data Science from Platforms • Leverage Hybrid Cloud Architecture
Maximize Innovation	• Accelerate Experimentation • Streamline Deployment
Drive Down TCO	• Embrace Open Source • Evolutionary Path to Cloud

Microsoft's roadmap for analytics

In 3 Years, we will help you achieve:

- Analytics-driven decision making
- Accelerated analytics lifecycle
- Dramatically lower analytics TCO
- Innovative uses of machine learning
- Continuity across cloud / on-prem environments