

# IoT Predictions for 2019 & Beyond Data at the heart of your IoT Strategy

**Guest speaker:** Dr. Paul Miller, Senior Analyst, Forrester, @PaulMiller

Dinesh Chandrasekhar, Director of Product Marketing, Hortonworks, @Applnt4All

**FORRESTER® RESEARCH**

# **Put Data at the Heart of Your IoT Strategy**

**Paul Miller, Senior Analyst**  
**@PaulMiller**



“Any colour you want . . .”

Of 500,000 units rolling off the production line, only two are identical . . .

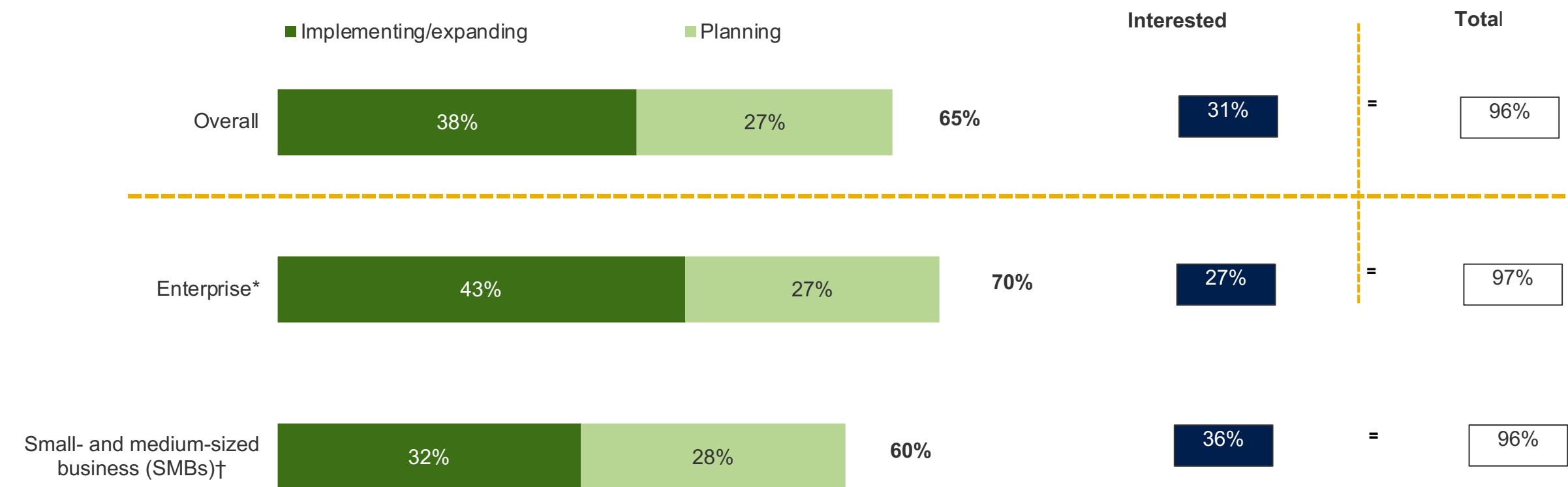


# Internet of things (IoT) connects physical to digital

- › Find data about the state of existing tools and systems in the real world.
  - Not a new idea but getting richer
- › Control existing real-world tools and systems using software.
  - Not a new idea but getting richer
- › Link the state of those tools and plants more closely to business priorities and requirements.
  - Predictive maintenance, lot size of one, augmented reality, cobots, and more
  - Bridge the IT/OT divide. (If there's enough vision and mandate!)

# Enterprises lead SMBs in IoT adoption

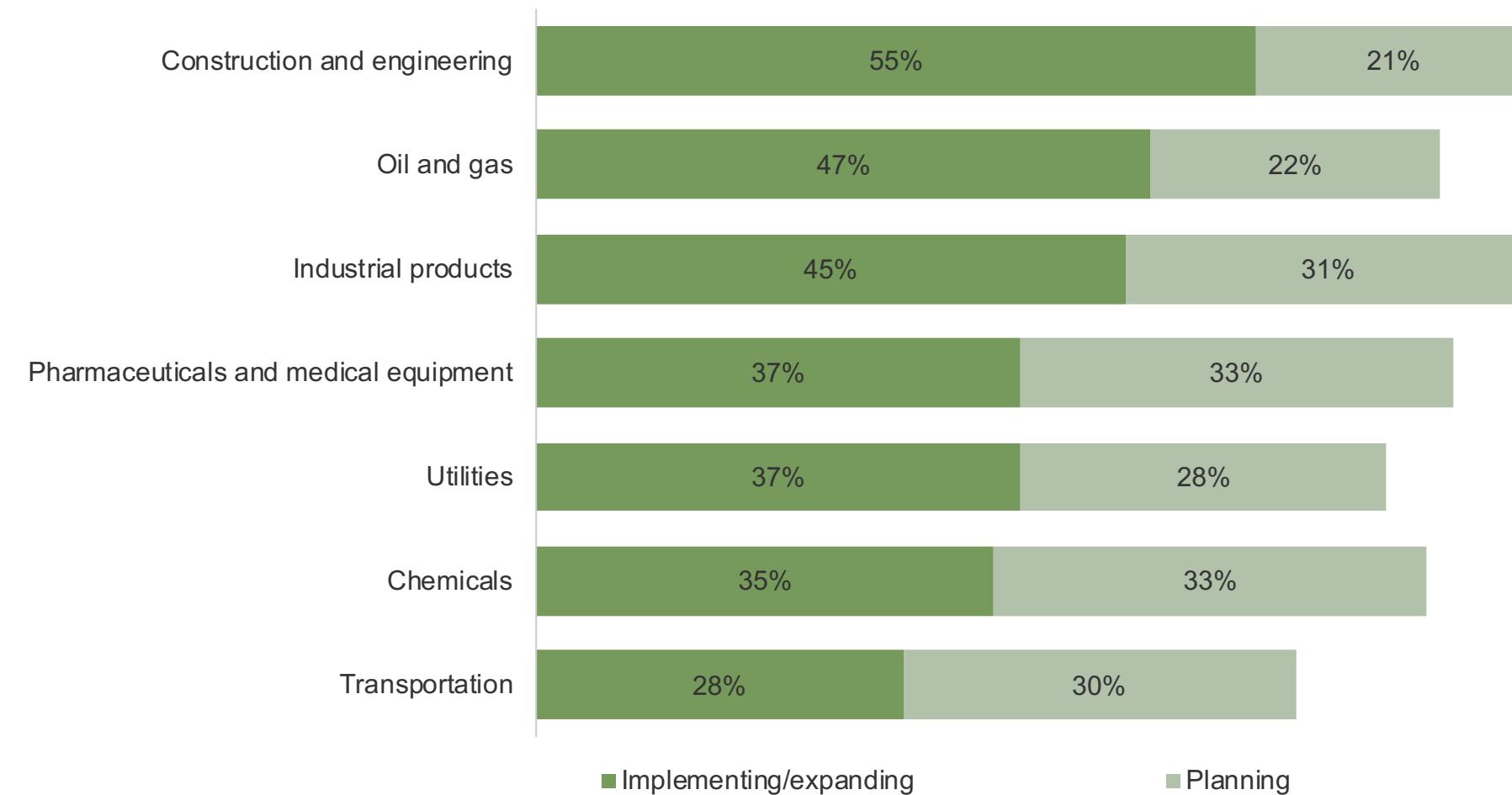
**“What are your firm’s plans to adopt internet-of-things (IoT) solutions or applications?”**



Base: 3,385 global telecommunications decision makers (20+ employees); \*1,791 global telecommunications decision makers (1,000+ employees); and †1,594 global telecommunications decision makers (20 to 999 employees) (Percentages have been rounded up.); Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2018

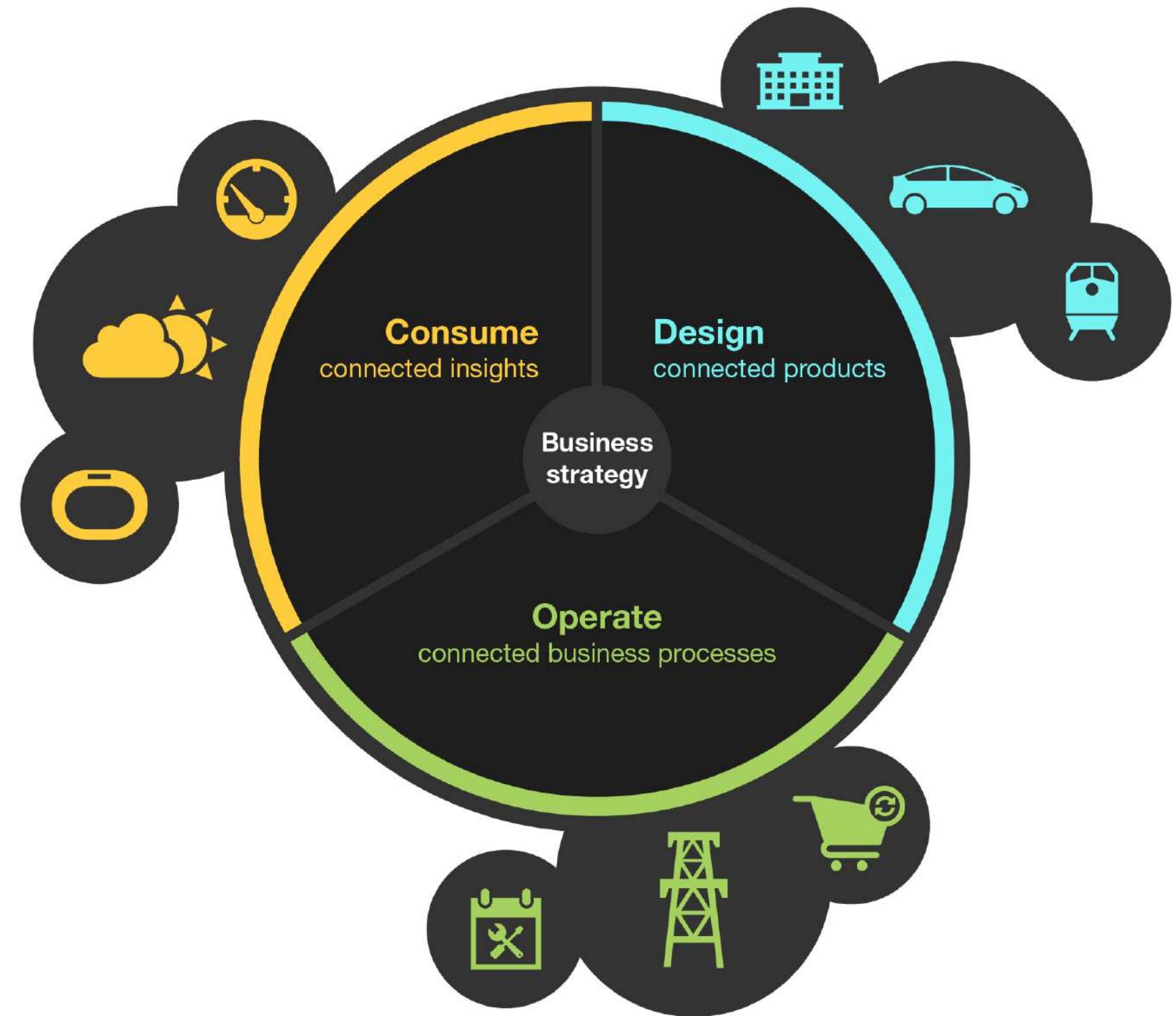
# Industrial IoT deployment plans

**“What are your firm’s plans to adopt internet-of-things (IoT) solutions or applications?”**



Base: 51 to 226 global telecommunications decision makers (20+ employees) (Percentages have been rounded up.); Source: Forrester Analytics Global Business Technographics® Networks And Telecommunications Survey, 2018

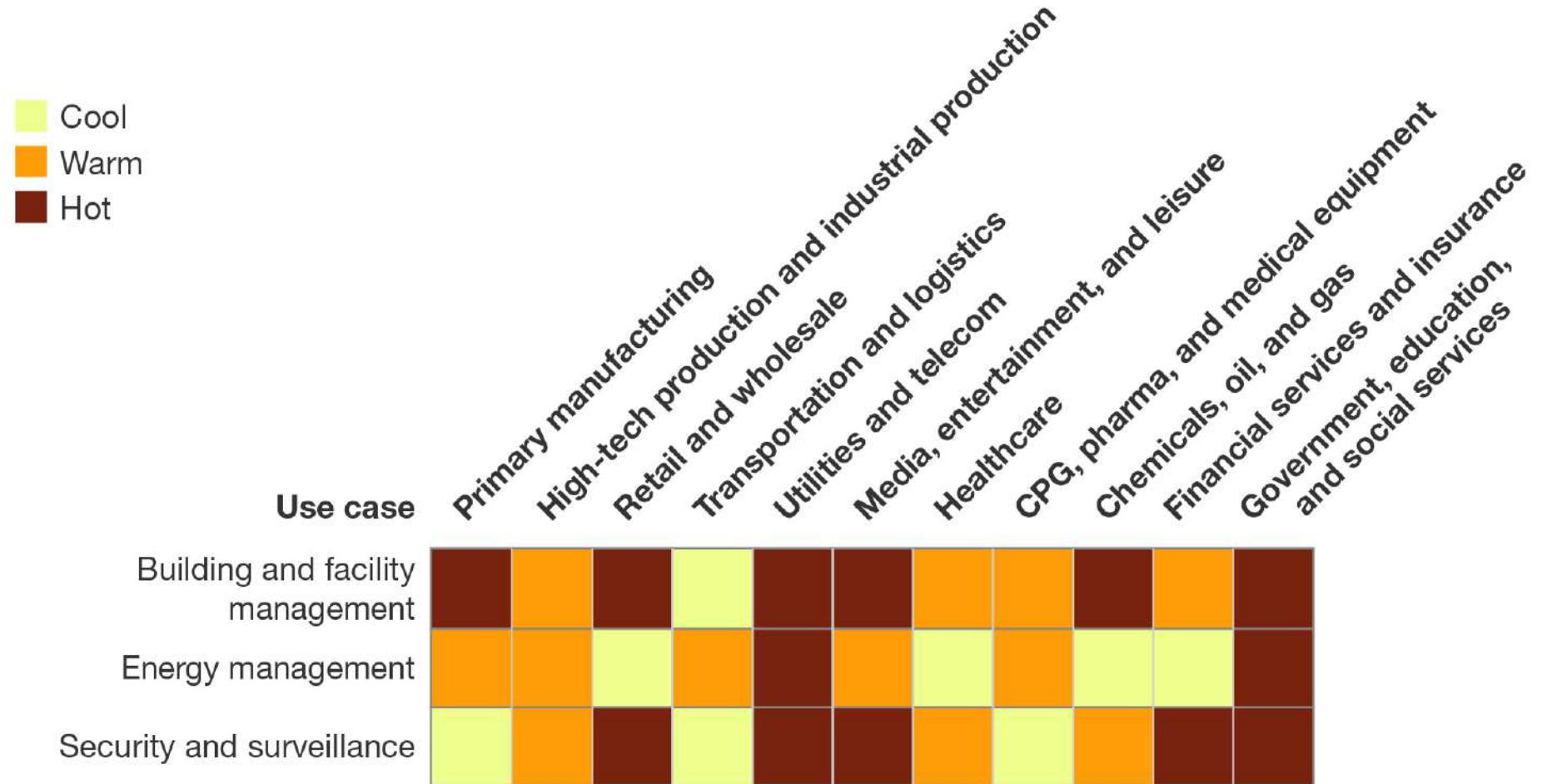
# IoT underpins three core scenarios



Source: [From Grease To Code: Industrial Giants Bet Their Future On Software](#) Forrester report

# IoT addresses a range of use cases...

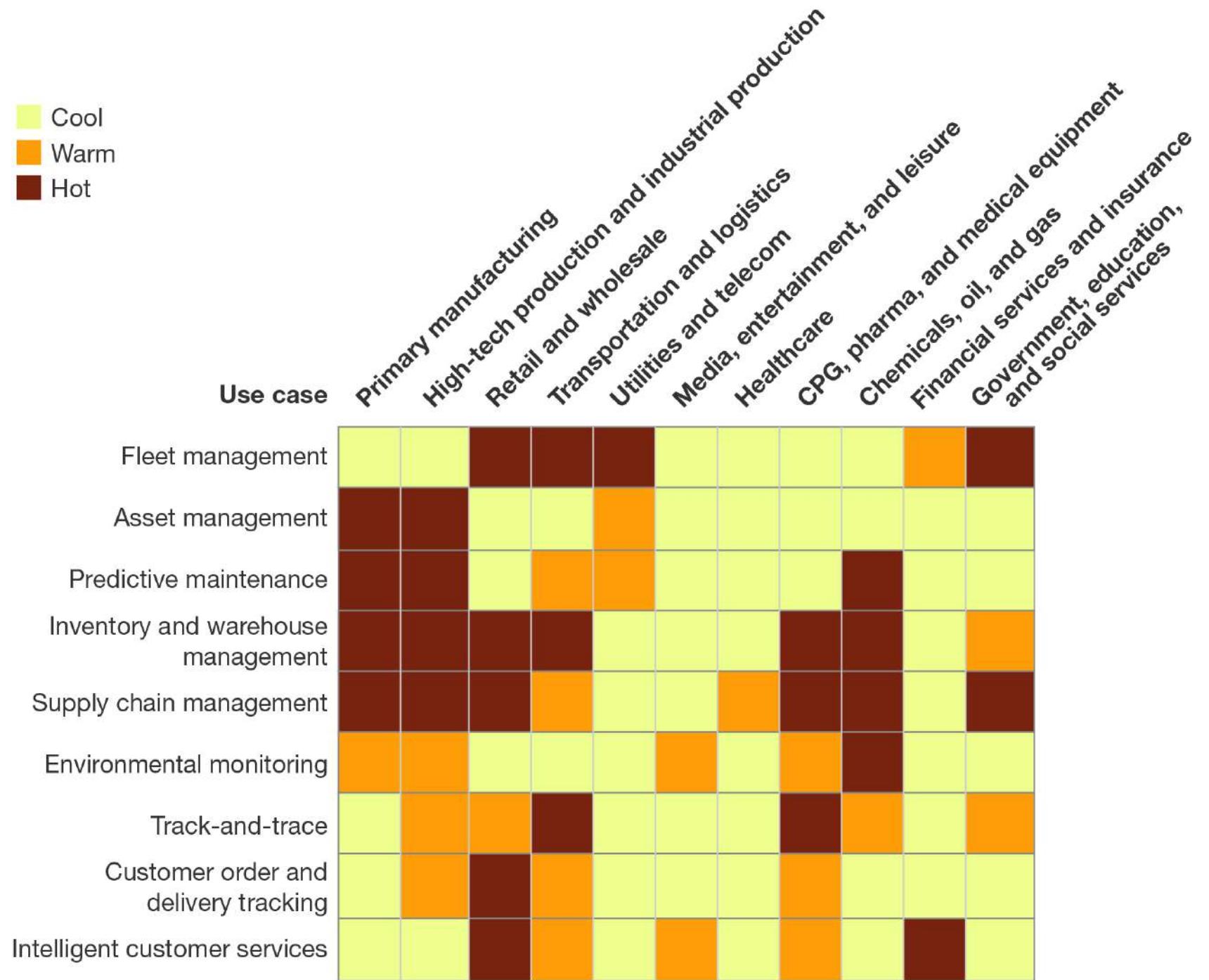
Some apply to most industries...



Source: [Internet Of Things Heat Map 2018](#)  
Forrester report

# IoT addresses a range of use cases...

Others target specific verticals.

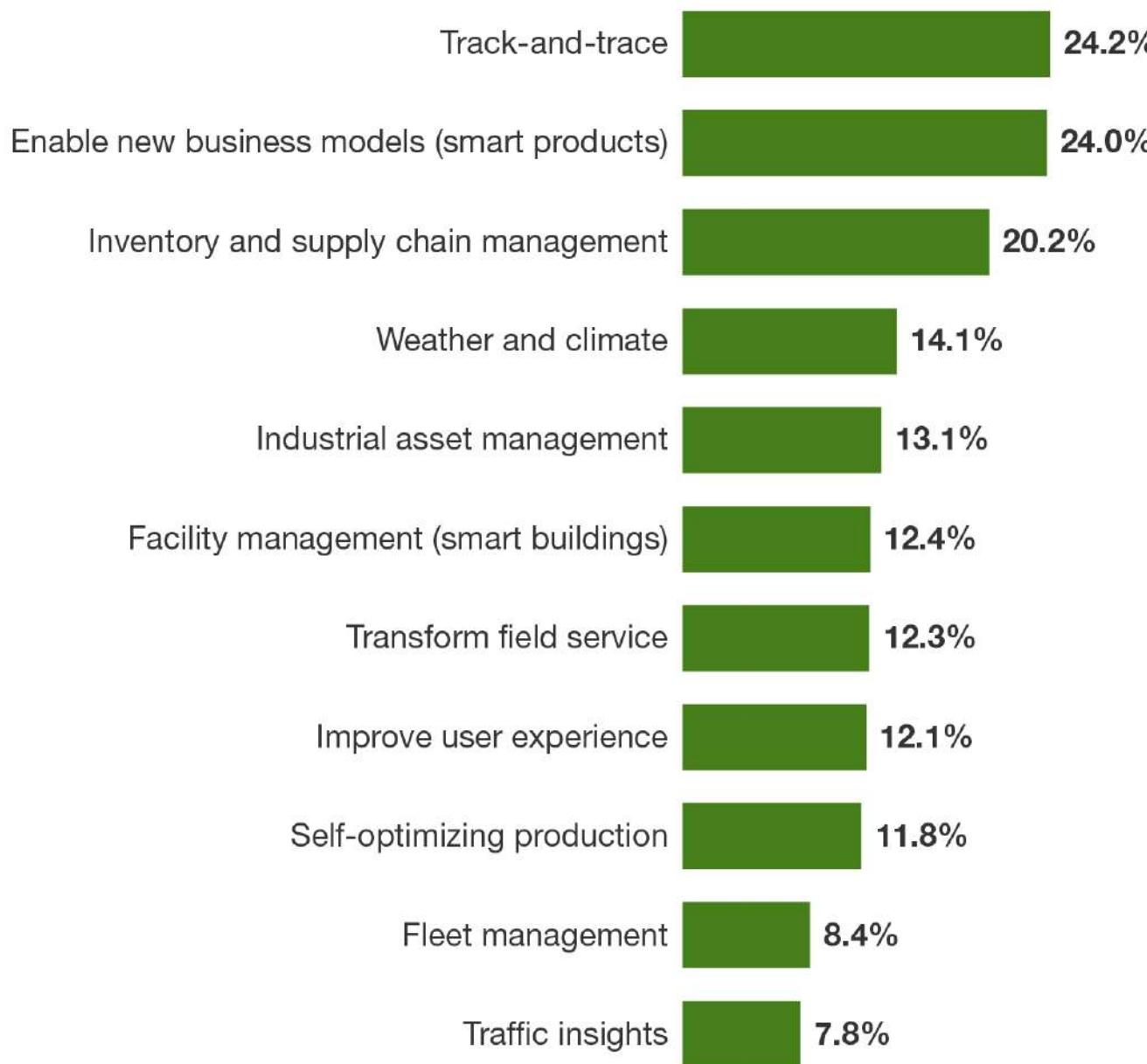


Source: [Internet Of Things Heat Map 2018](#)  
Forrester report

# Some segments will grow faster than others

Inventory/ Supply Chain is the biggest single category, worth \$44bn in 2018 and \$113bn by 2022.

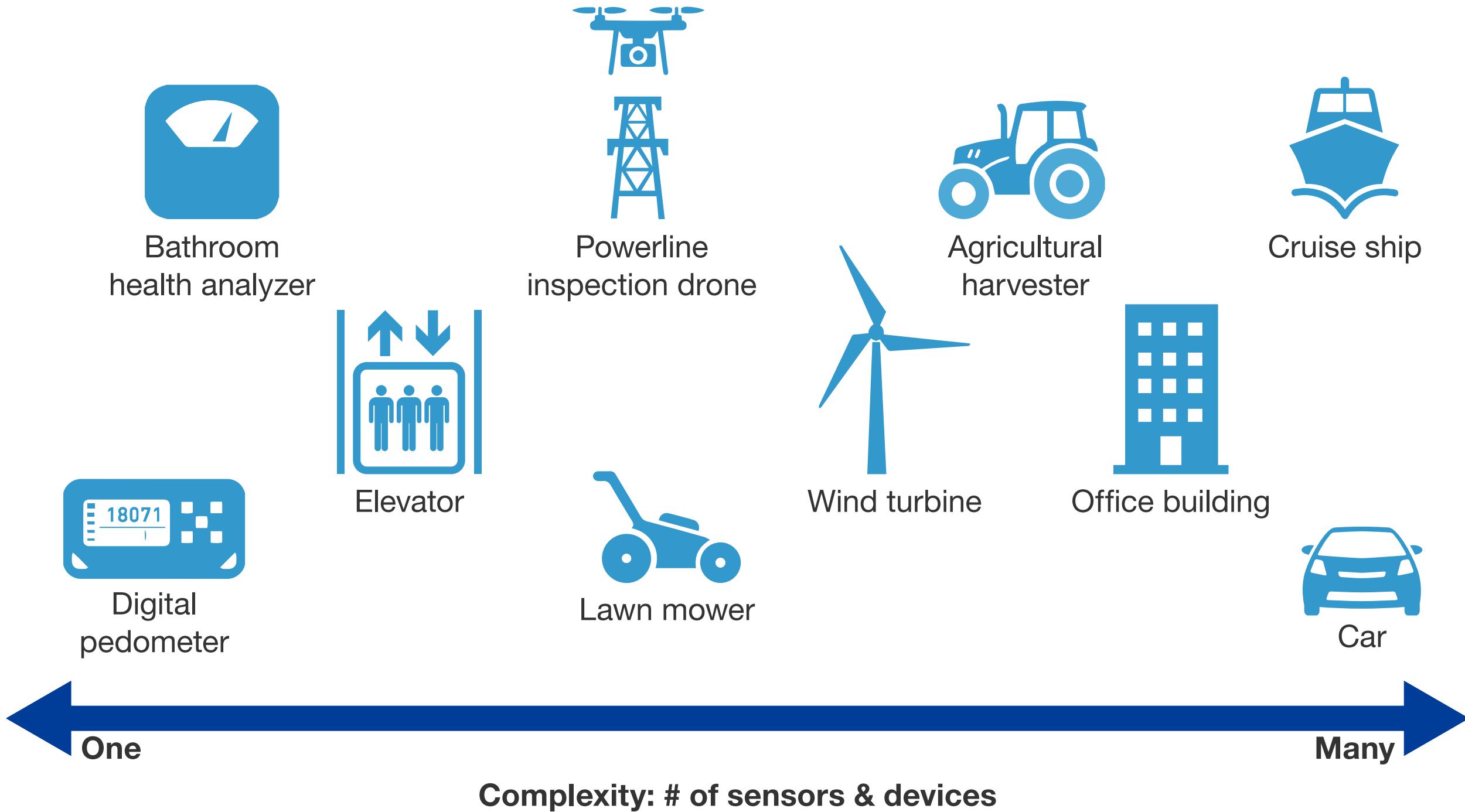
Global internet-of-things spending, growth by use case (2017 to 2023 CAGR)  
(US\$ billions)



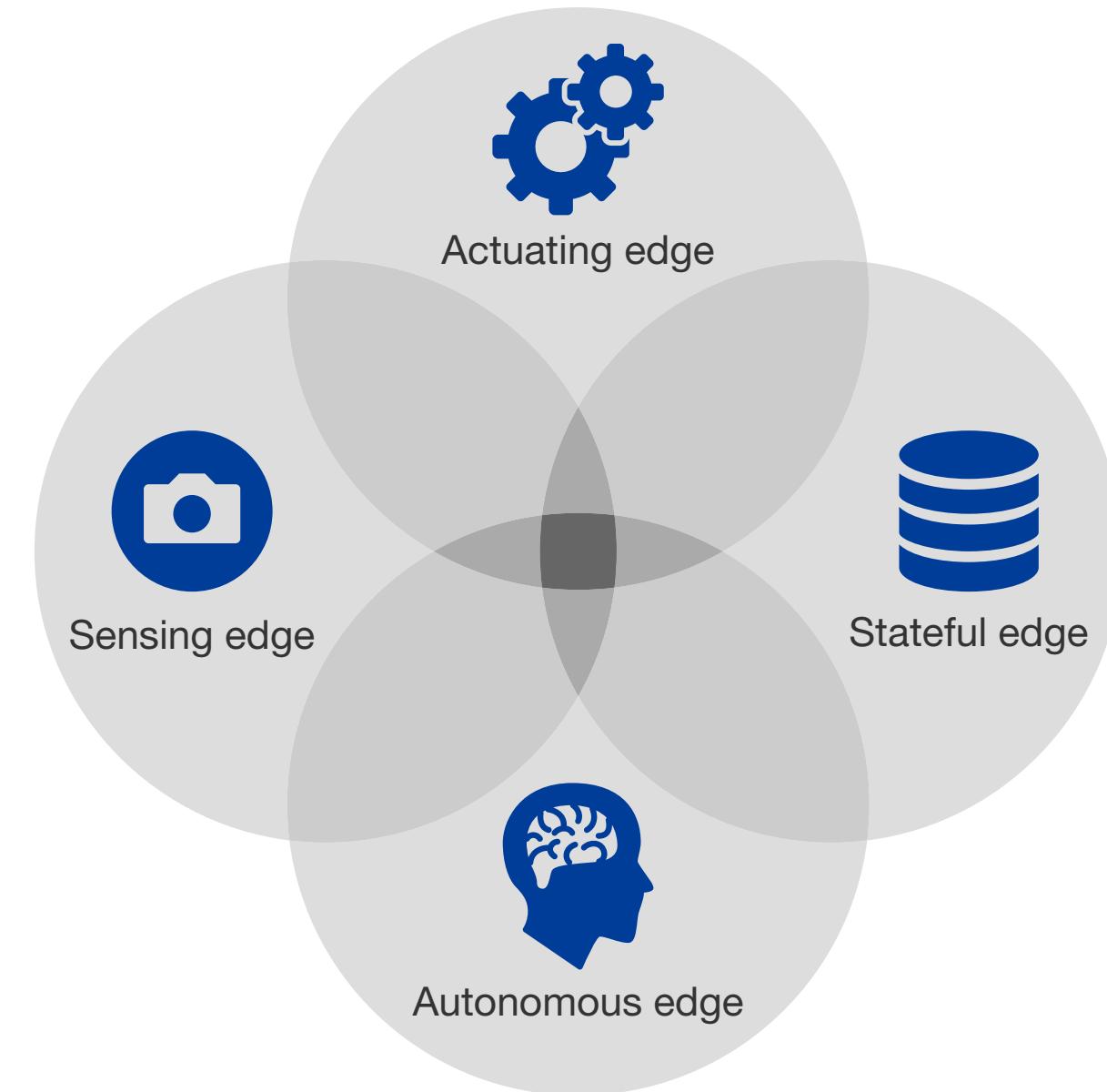
Source: [Forrester Analytics: Internet-Of-Things Spending Forecast, 2017 To 2023 \(Global\)](#)  
Forrester report

Source: Forrester Analytics: Internet-Of-Things Spending Forecast, 2017 To 2023 (Global)

# A modern train can contain 3,500 IoT sensors



# The Edges must be part of your IoT planning



Source: Make Room For The Autonomous Edge In Your IoT Strategy Forrester Report

# Industrial IoT delivers value, using data in three ways

1



**Asset monitoring  
and control**  
Where is it?  
What is it doing?  
Switch it on or off

2



**Prediction  
and action**  
When will the wheel fail?  
When will the train be full?  
When will it be too hot?  
What can I do about it?

3



**Powering new  
business models**  
From product to service  
Data-driven customer  
engagements  
Business reinvention

Source: [Put Data To Work In The Industrial Internet Of Things](#) Forrester report

**Phase 1: Asset monitoring**

**Phase 2: Prediction**

**Phase 3: New business models**

[design, operate?]



IoT tracks ingredients  
and environment, to  
prove compliance or  
accelerate recall

**Phase 1: Asset monitoring**

**Phase 2: Prediction**

**Phase 3: New business models**

[design, operate]

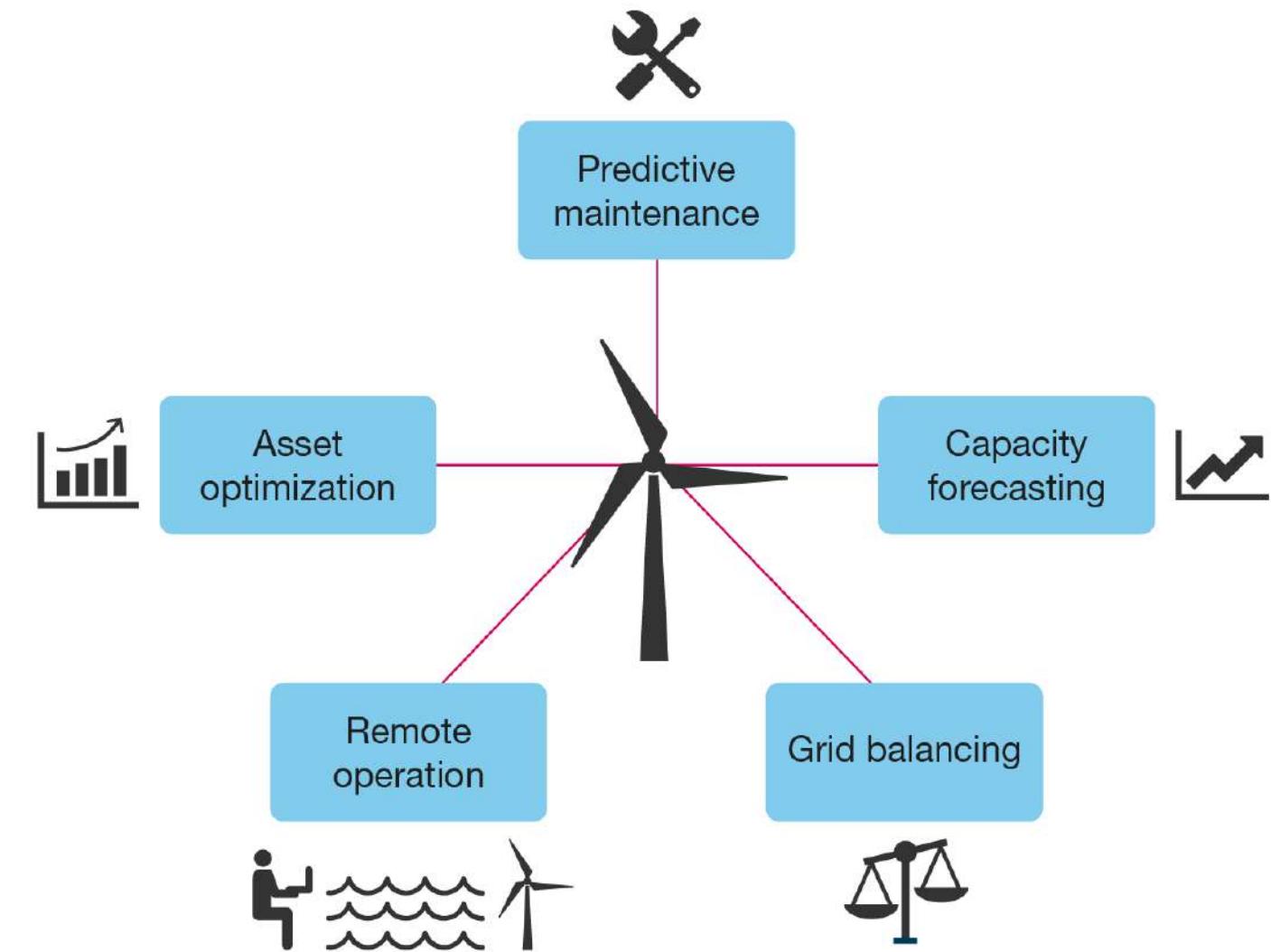


[design, operate, consume]



Beyond the Arctic Circle,  
predictions matter.

# There are different drivers behind connectivity...



Source: [IoT Brings Firms With Remote Assets Closer To Their Customers](#) Forrester report

**Phase 1: Asset monitoring**

**Phase 2: Prediction**

**Phase 3: New business models**

[design, operate, consume]



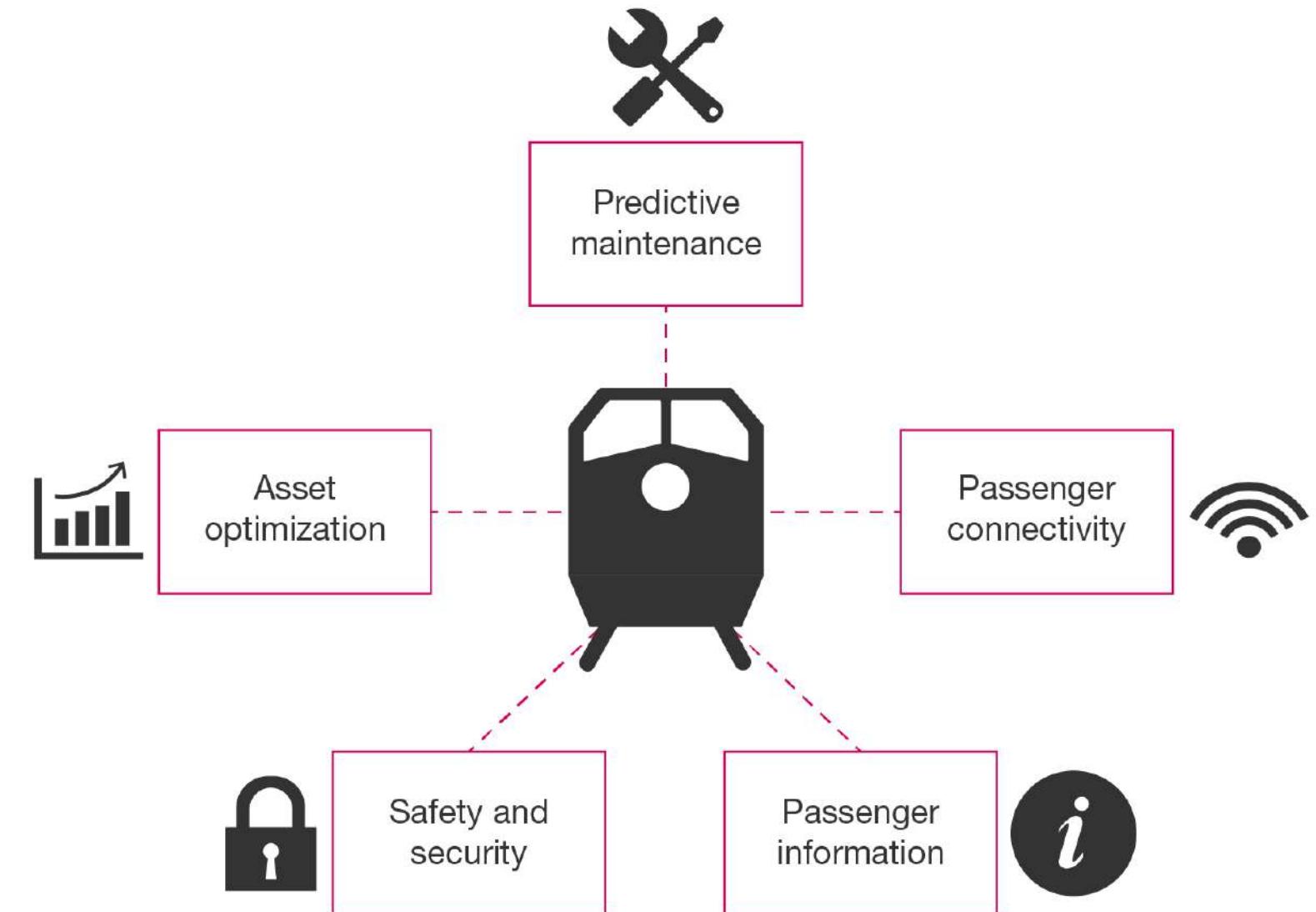
Miles flown-as-a-service

[design, operate, consume]



Train-as-a-service

# There are different drivers behind connectivity...



Source: [IoT Transforms A 200-Year-Old Industry](#) Forrester report

# Wave learnings

- › The public cloud is increasingly the place to be.
  - Industrial players move away from their own data centers, but edge remains a critical piece of the mix.
- › Analytics is a core component of the platform solution.
  - It is no longer “an emerging category” or an edge case.
- › The digital twin has arrived, and augmented reality will follow.
  - It is much more than just a pretty visualization of your machines.
- › Platform vendors are shifting from building blocks to finished results.
  - Customers need apps, not components, and vendors are moving to deliver.

Source: Paul Miller, “Industrial IoT Software Platforms Rise Above Just Connecting Things,” Forrester Blogs, August 9, 2018 (<https://go.forrester.com/blogs/industrial-iot-software-platforms-wave/>)



# Delivering value at the edge

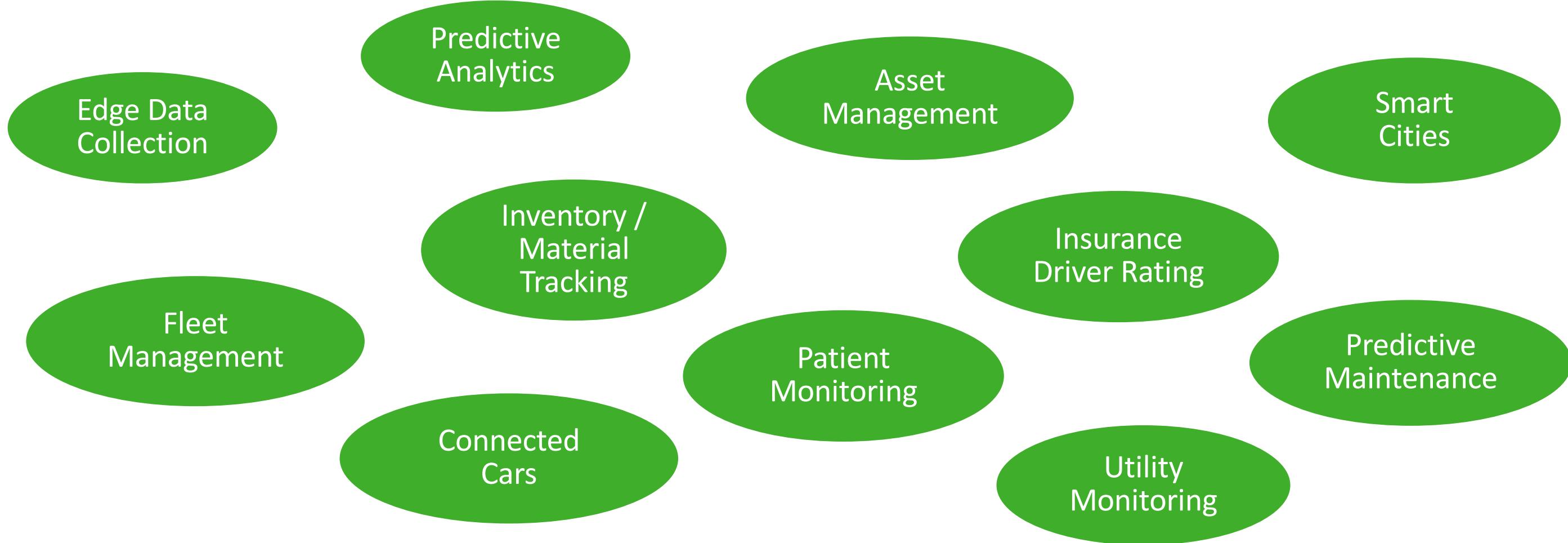
## How Hortonworks enables IoT

Dinesh Chandrasekhar

Director, Product Marketing

@Applnt4All

# IoT Market Segments and Use Cases



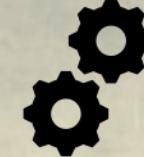
# Key data challenges with IoT

Volume



Velocity

Variety

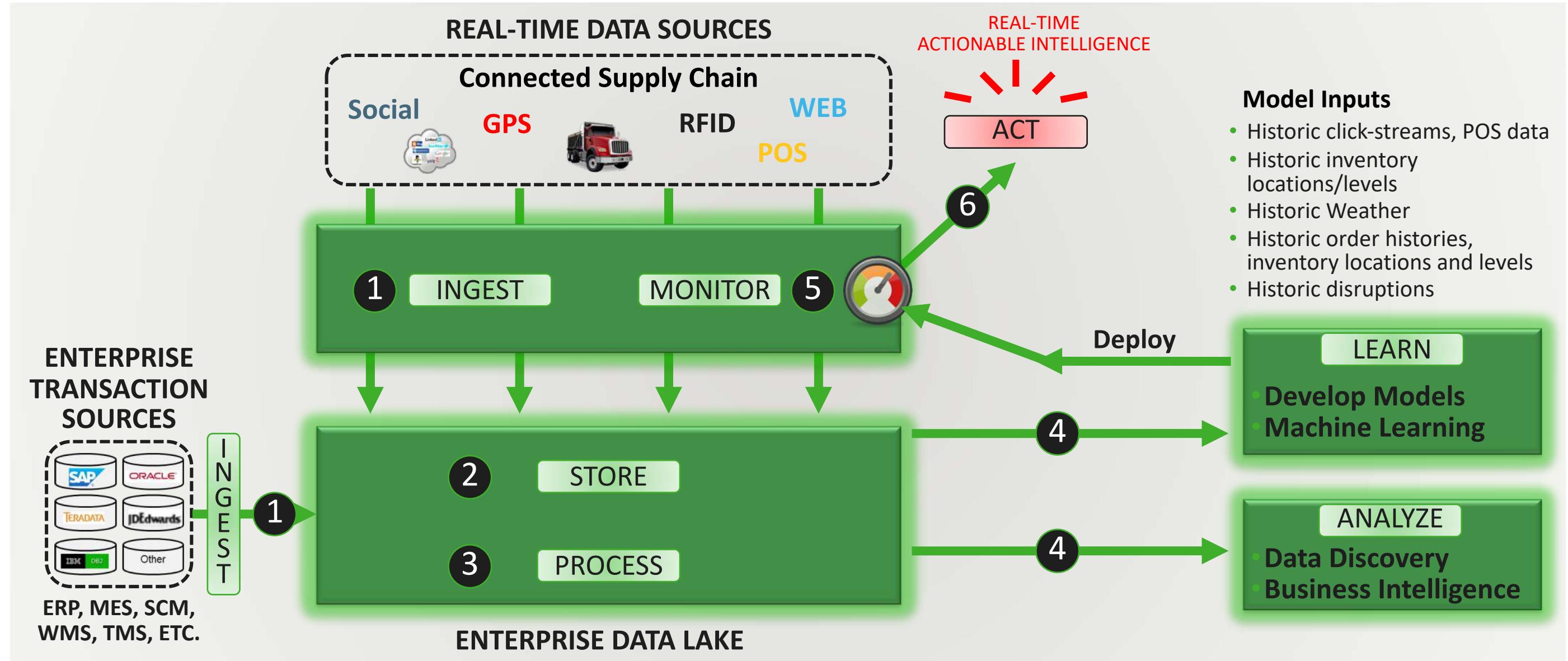


Security

Governance



# Data decay and the need for real-time data value





“Your IoT implementation is only as good as your ability to acquire and analyze the real-time data generated by your IoT devices”



# Hortonworks enables IoT

# HDF Data-In-Motion Platform

## Flow Management

Data acquisition and delivery  
Simple transformation and data routing  
Simple event processing  
Edge to Enterprise data lineage and provenance  
Edge device connectivity and IoT data ingestion



C++  
Agent

Java  
Agent

## Stream Processing

Scalable data broker for streaming apps  
Scale out streaming computation engine



kafka



## Stream Analytics



Pattern Matching  
Prescriptive & Predictive Stream Analytics  
Complex Event Processing  
Continuous Insights

## Enterprise Services

Provisioning, Management, Monitoring,  
Security, Audit, Compliance, Governance,  
Multi-tenancy

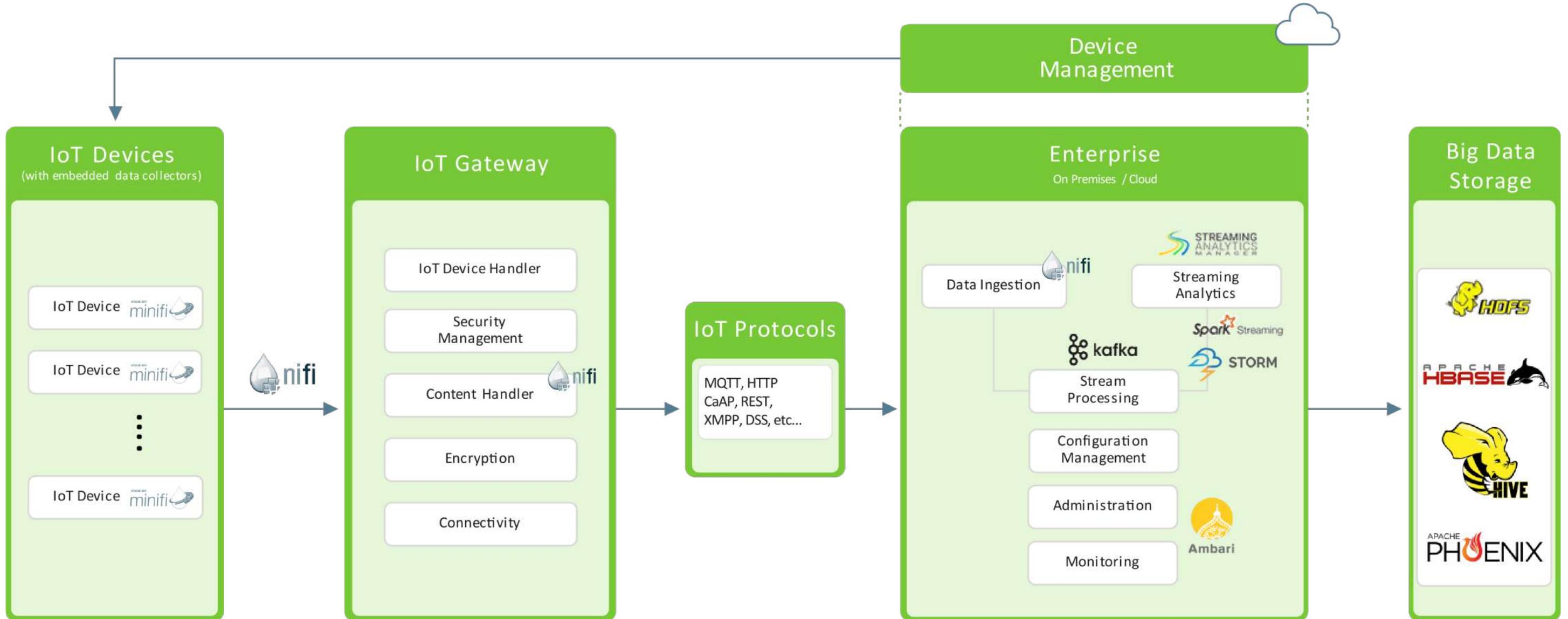


Apache  
Ranger



“IoT is always an ecosystem play”

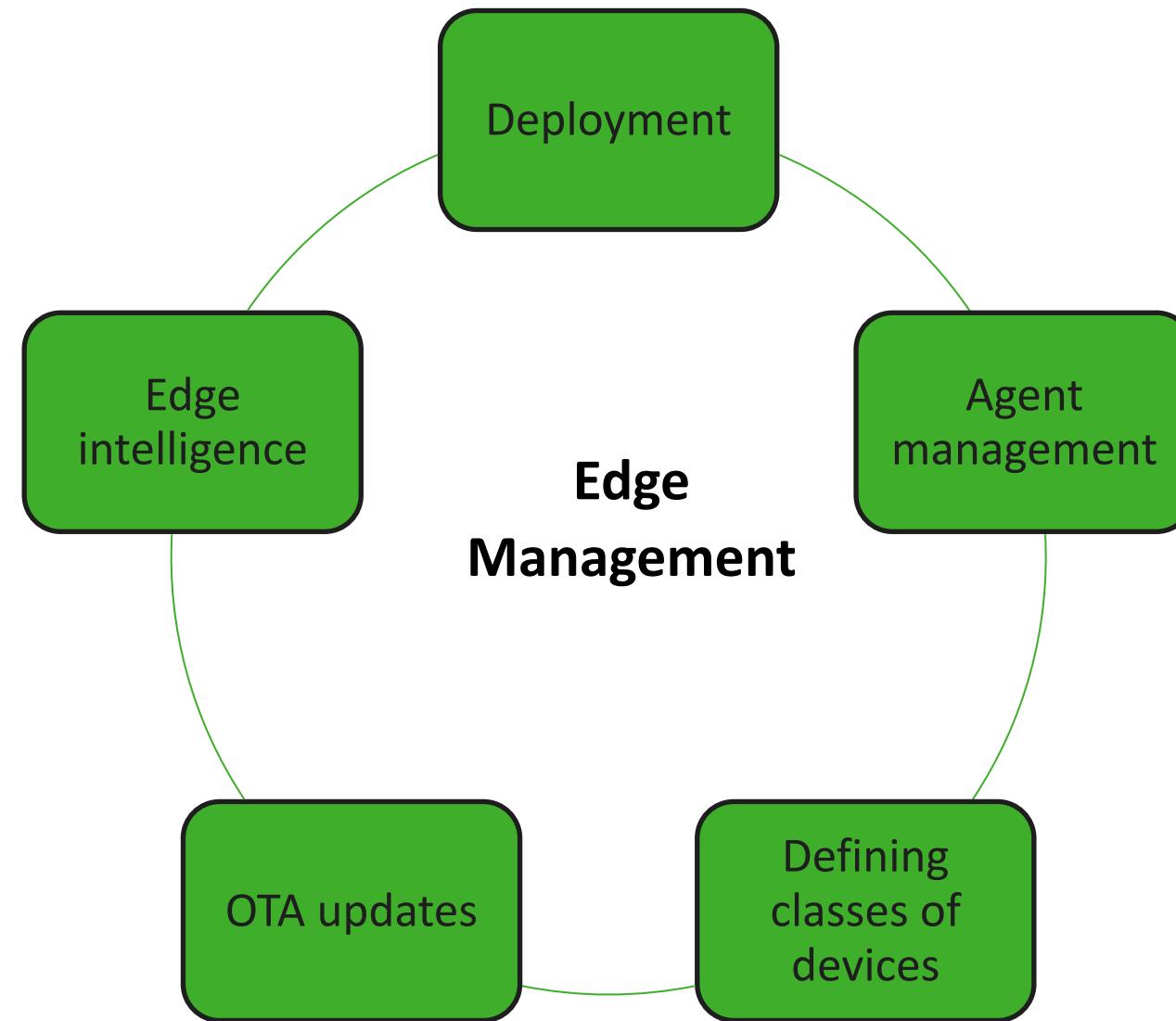
# IoT Reference Architecture





“A data-driven IoT implementation takes advantage of the meaningful insights from the IoT data and uses those insights as actionable intelligence for making the right business decisions, at the right time.”

# Managing the Edge





## Improving Healthcare with SMART data

### CHALLENGE

Combine multi-format data streams, with hundreds of sources, into one platform

- Needed a platform that could combine multi-format data streaming
- Data scarcity & latency problems
- Machine learning & data science

### SOLUTION

Cloud-based systems architected to deliver SMART data, using HDP and HDF

- First to deliver SMART real-time streaming data
- Clearsense's Inception™ product enables fast decisions for clinicians
- Customers have access to all data sources with HDP & HDF

### RESULT

Mission-critical data and relevant insight for 2,000 rural providers

- Mission critical data is now available for doctors to make critical decisions
- Cost efficiencies led to access for 2,000 rural providers
- Real-time data helps prevent "Code Blue"



# Trends to watch out for in 2019

## Vertical-specific growth

- Retail and robotics
- Autonomous cars
- Smart Cities

## Convergence of IoT and Blockchain

- Data provenance and lineage tracking
- Farm-to-table
- Product recalls

## Rise of data marketplaces

- Hyper-growth in data production
- Data monetization
- IoT stream as a service

# Thank you!



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# Questions

