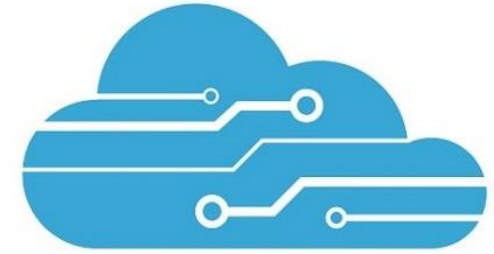


# Digital Transformation & Biomedical Transformation



## Digitalization



**Prof. Samir El-Masri, PhD**

CEO at Digitalization

Professor of Digital Technologies

Digital Transformation Expert

Blockchain Expert

# Your expectations of the program



1.



2.



3.



4.



5.

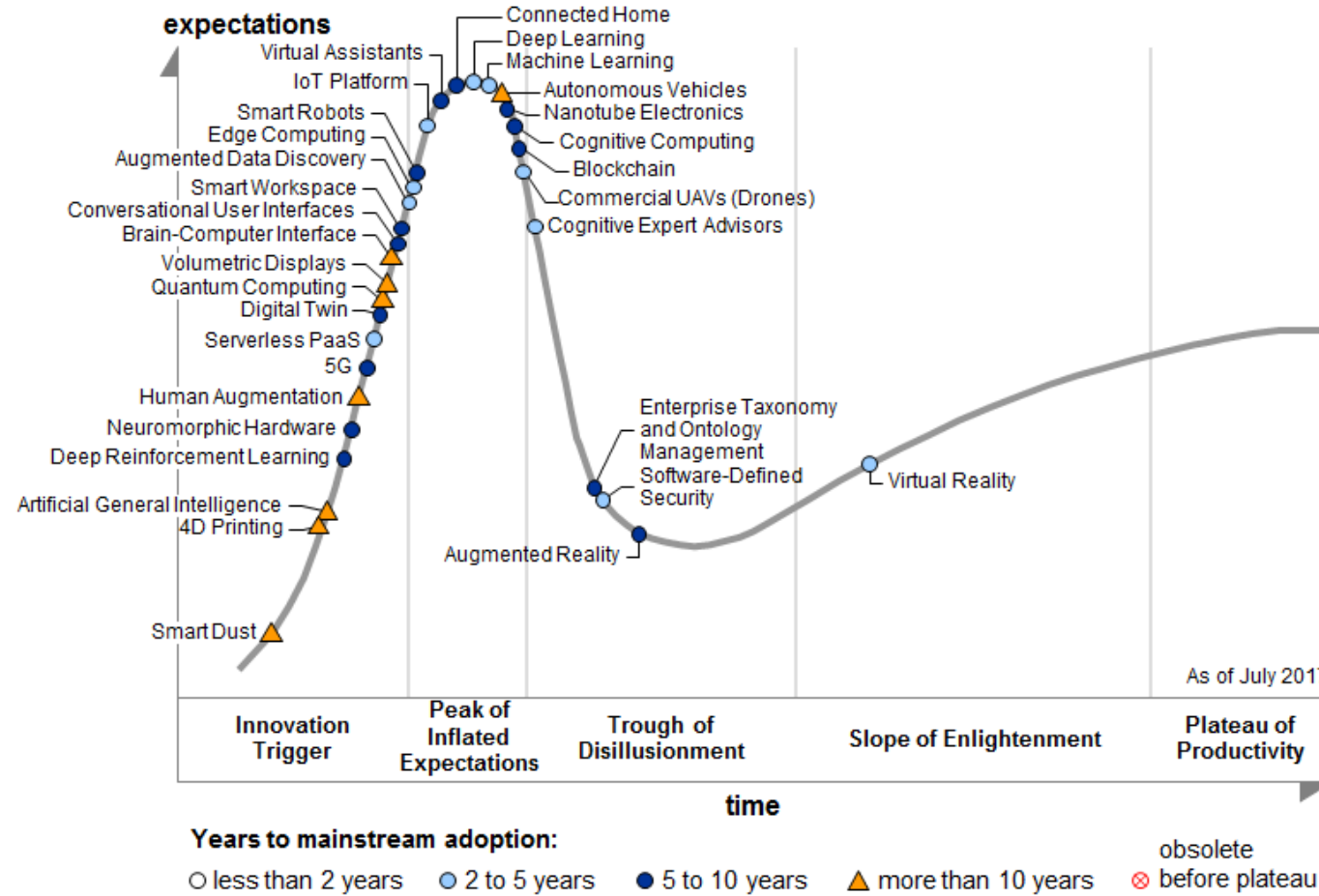
# Definition 2

**Digital** is the convergence of multiple technology innovations enabled by connectivity”

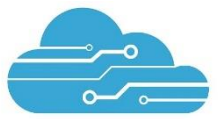
“**Digital transformation** is the organizational change through the use of digital technologies and business models to improve performance”

- Global Center for Digital Business Transformation

# Gartner Hype Cycle for Emerging Technologies



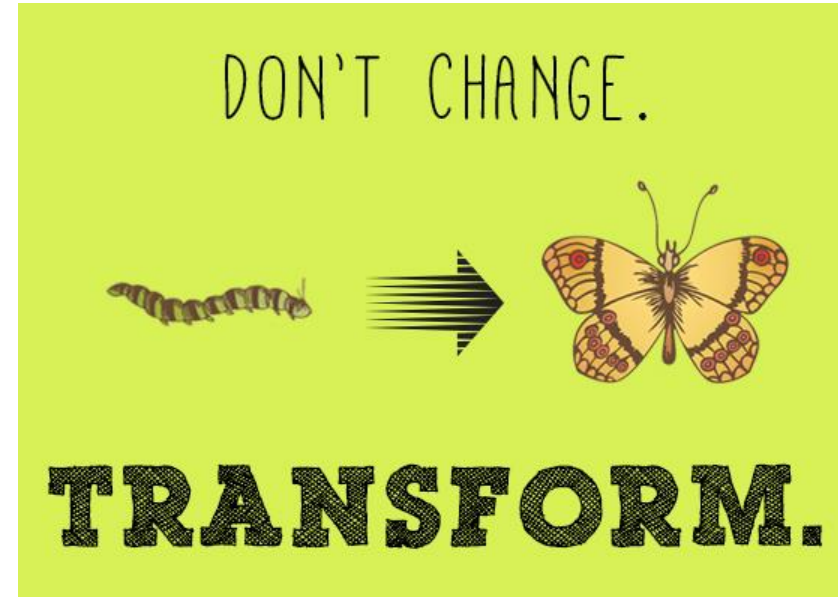
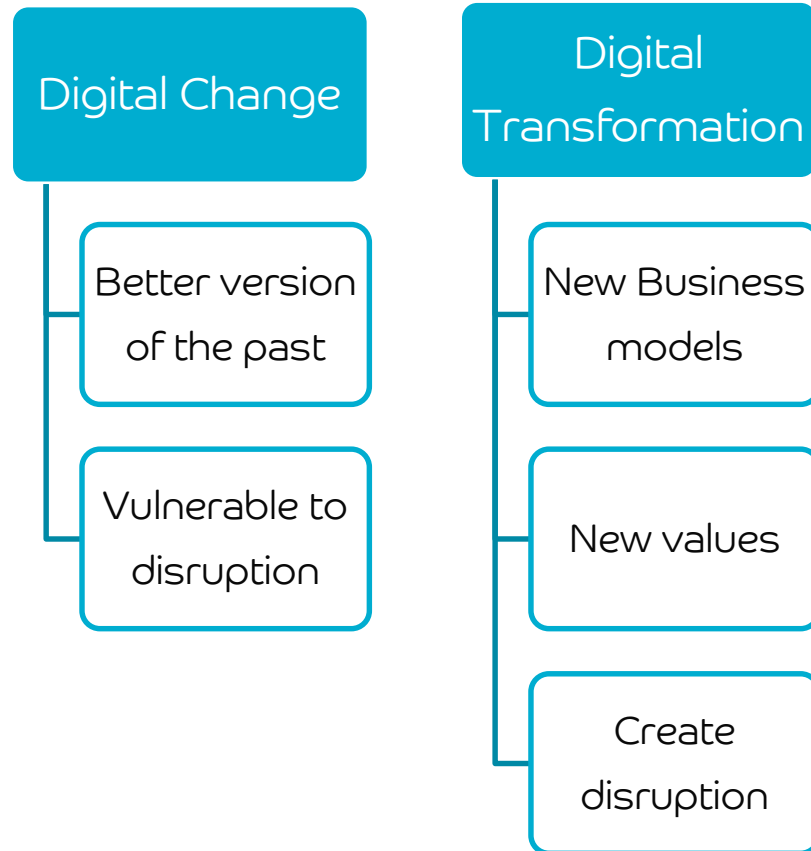
# DIGITAL TRANSFORMATION



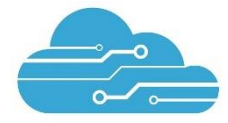
Digitalization



# Digital Transformation & Digital Change



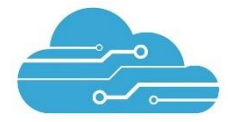
# Digitization & Digitalization



**Digitalization**

**Digitization**

# Digitization & Digitalization



Digitalization

**Digitization = Digital Change**



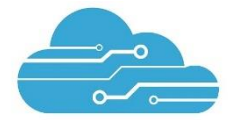
# Digitization & Digitalization



**Digitization = Digital Change**

**Digitalization**

# Digitization & Digitalization



**Digitalization**

**Digitization = Digital Change**

**Digitalization = Digital Transformation**

# Digitization & Digitalization

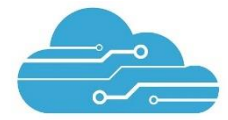


**Digitization = Digital Change**

**Digitalization = Digital Transformation**

**Digitalization = Digitization + New Digital Business Models**

# Disruptors & Disrupted



Digitalization

Uber	Airbnb	Alibaba	Amazon
Netflix	Spotify	Google	Facebook
Apple	Expert360	RoboAdvisors	Bitcoin
Skype	LinkedIn	Dropbox	...

Nokia	Kodak
Blackberry	Motorola
Toys R us	Debenhams

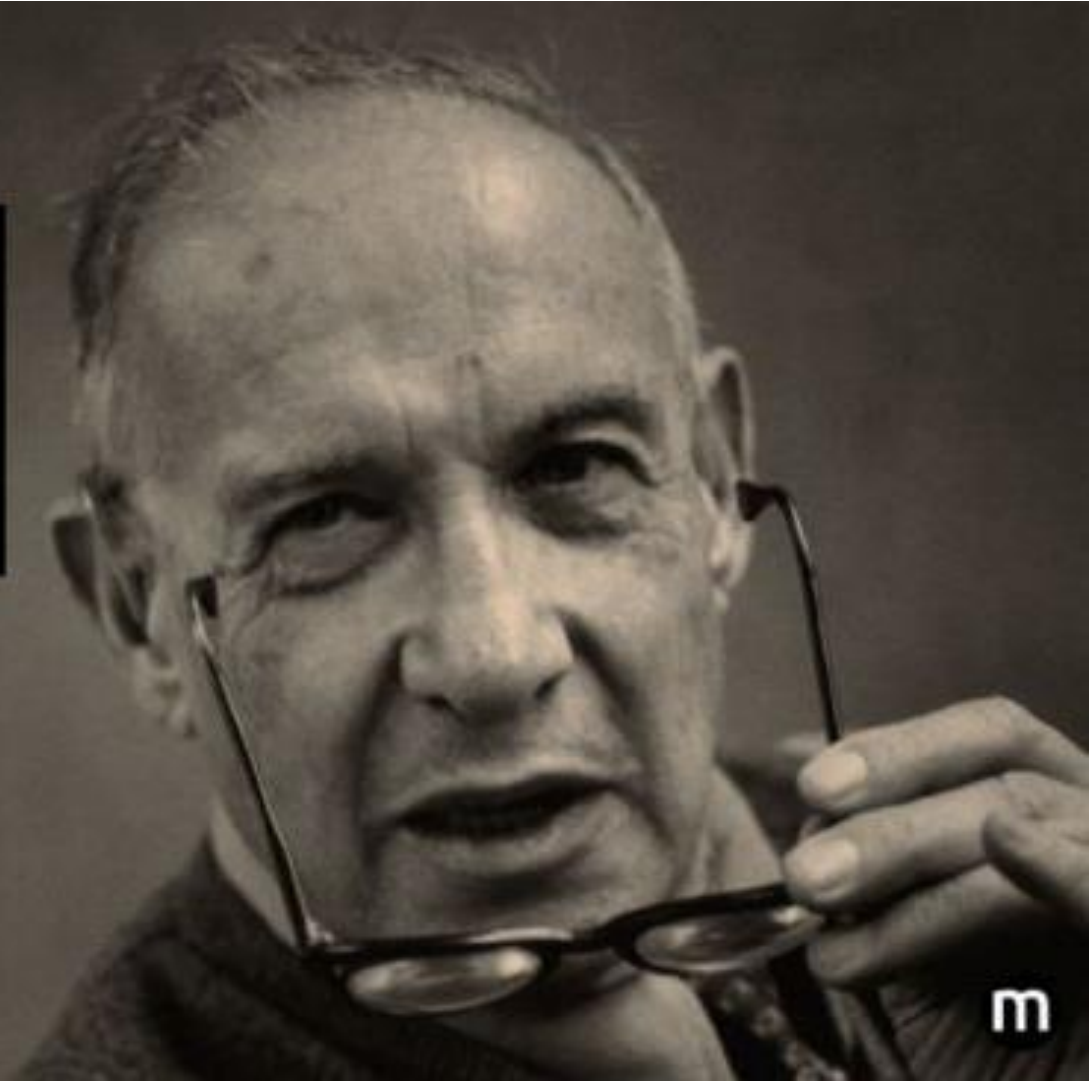
# Strategy, Technology & Culture



# Culture

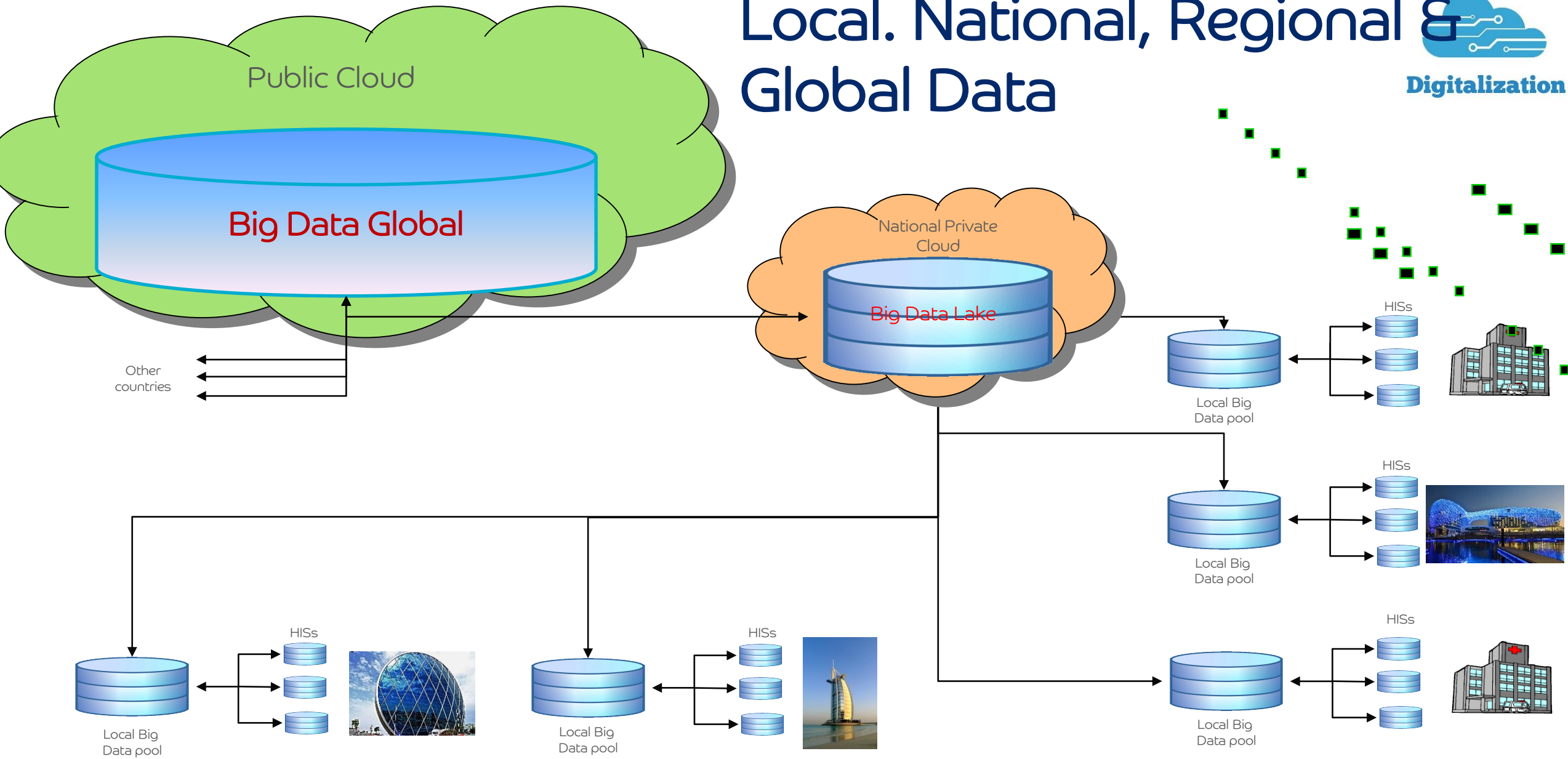
## CULTURE EATS STRATEGY FOR BREAKFAST

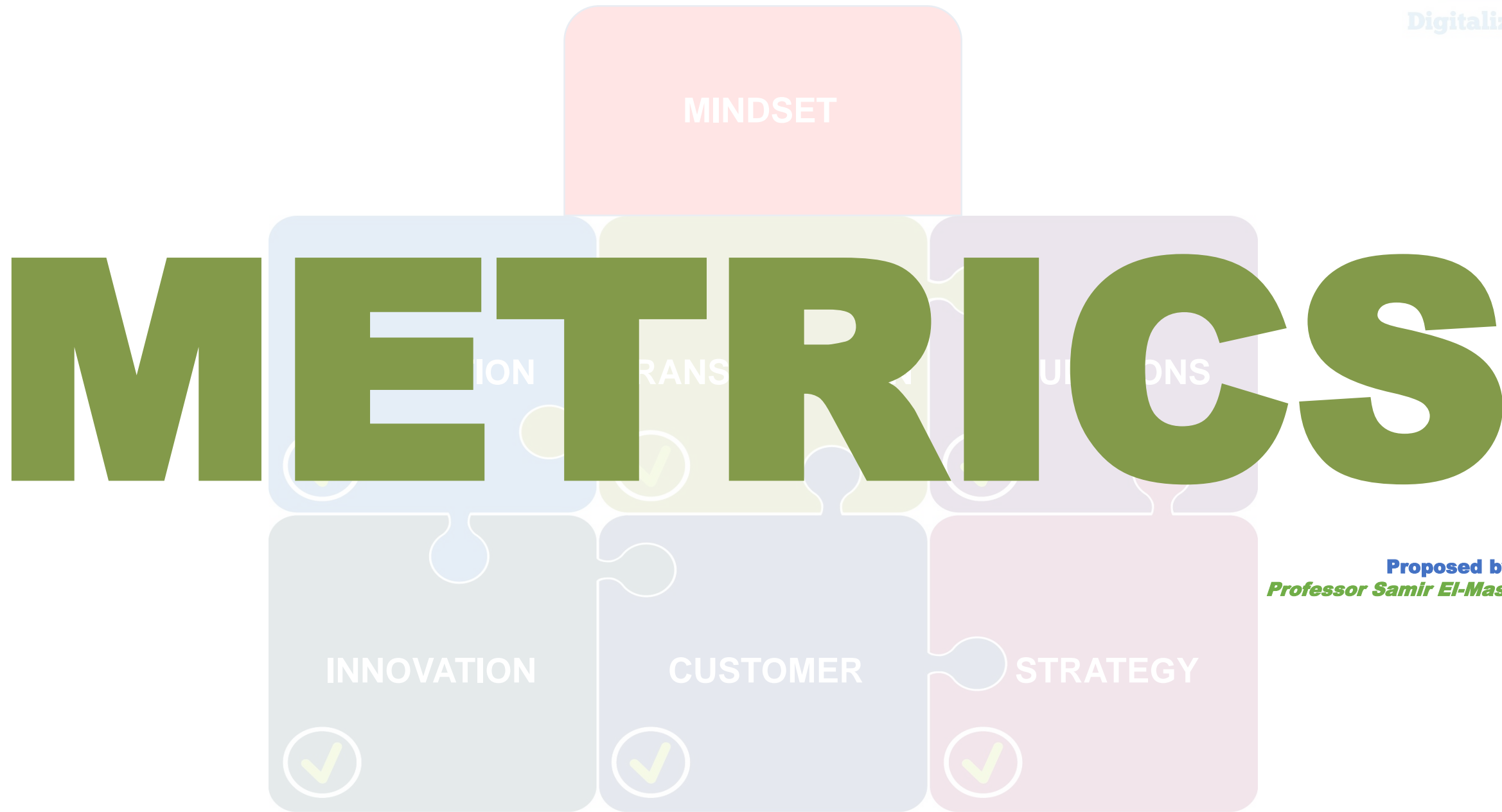
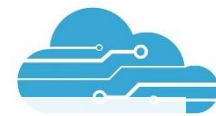
Peter DRUCKER



m

# Local. National, Regional & Global Data





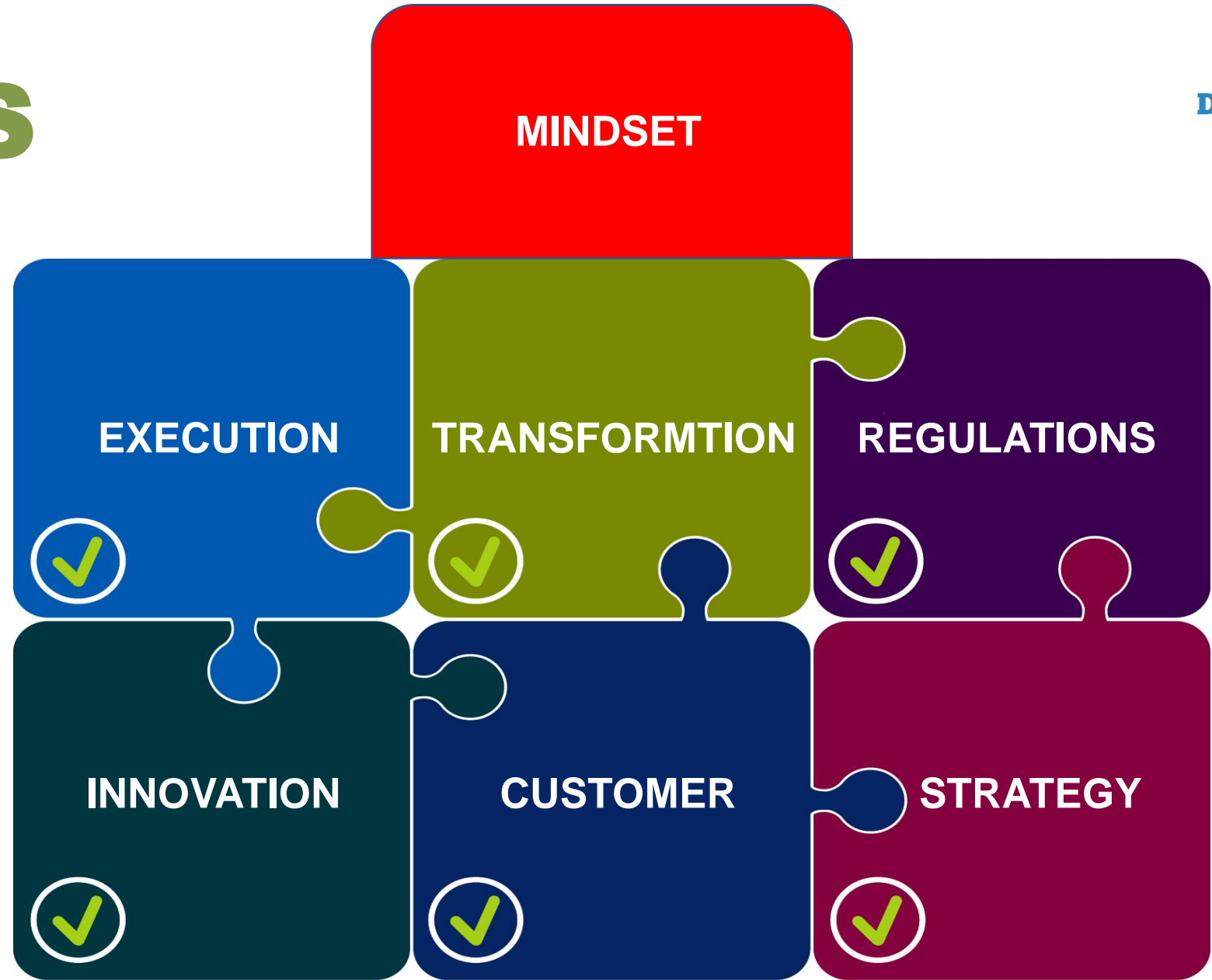
**Proposed by:**  
*Professor Samir El-Masri*



# METRICS

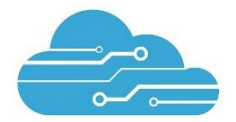


Digitalization



Proposed by:  
*Professor Samir El-Masri*

# Roadmap of DT



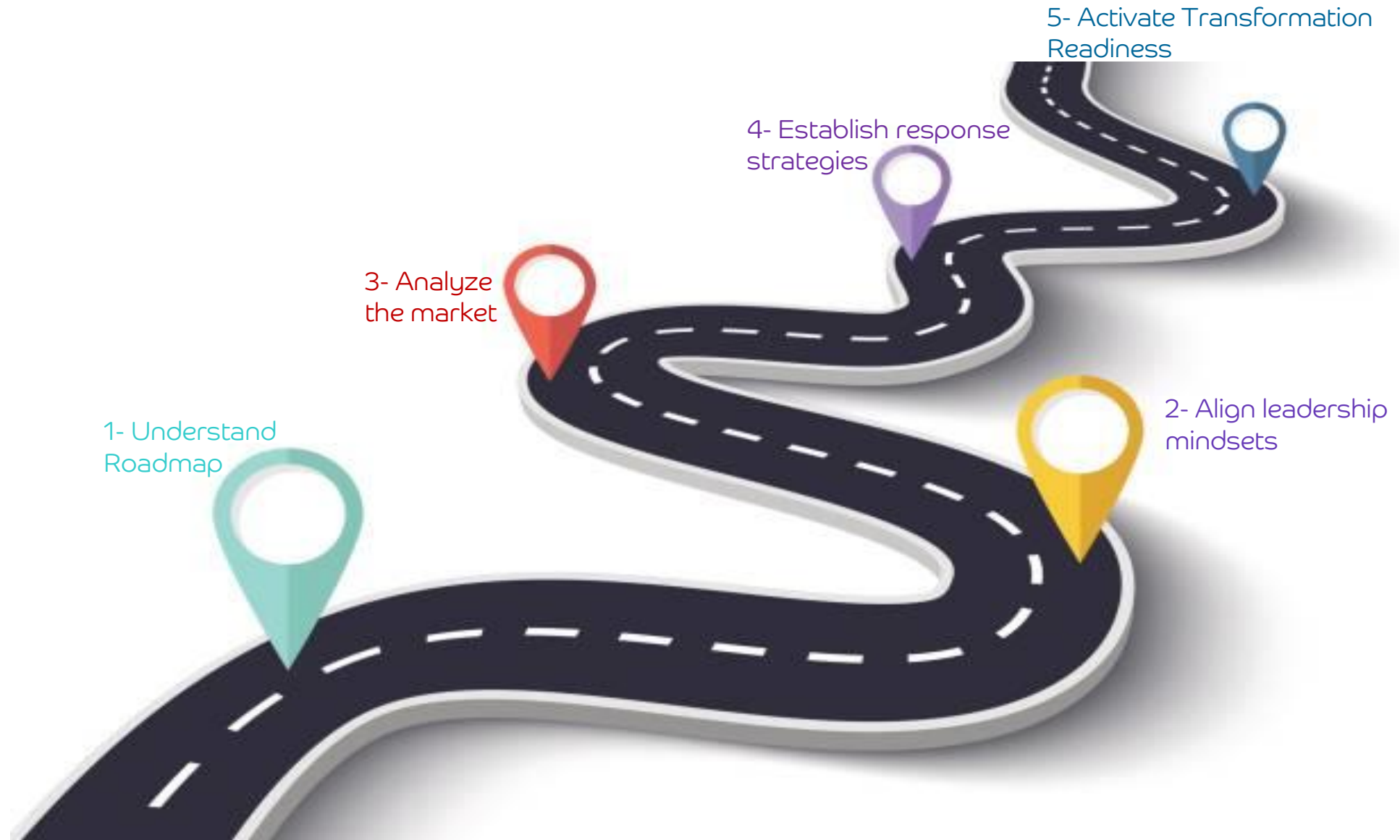
Digitalization



# Roadmap 1-6



**Digitalization**



# Roadmap 6-10



Digitalization



Phases: 1 - 5



# Case studies in Biomedical Engineering

Case 1



Case 2



Case 3



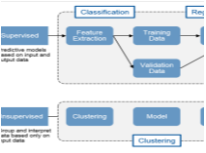
# Workshop: Current state, Potentials



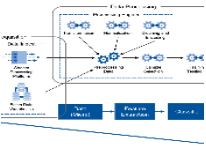
Digitalization



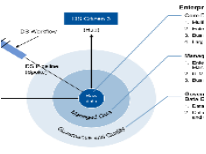
Strategy



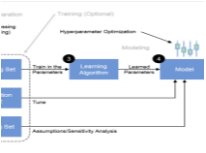
Readiness



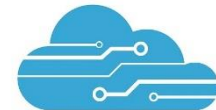
Innovation



Management & Governance

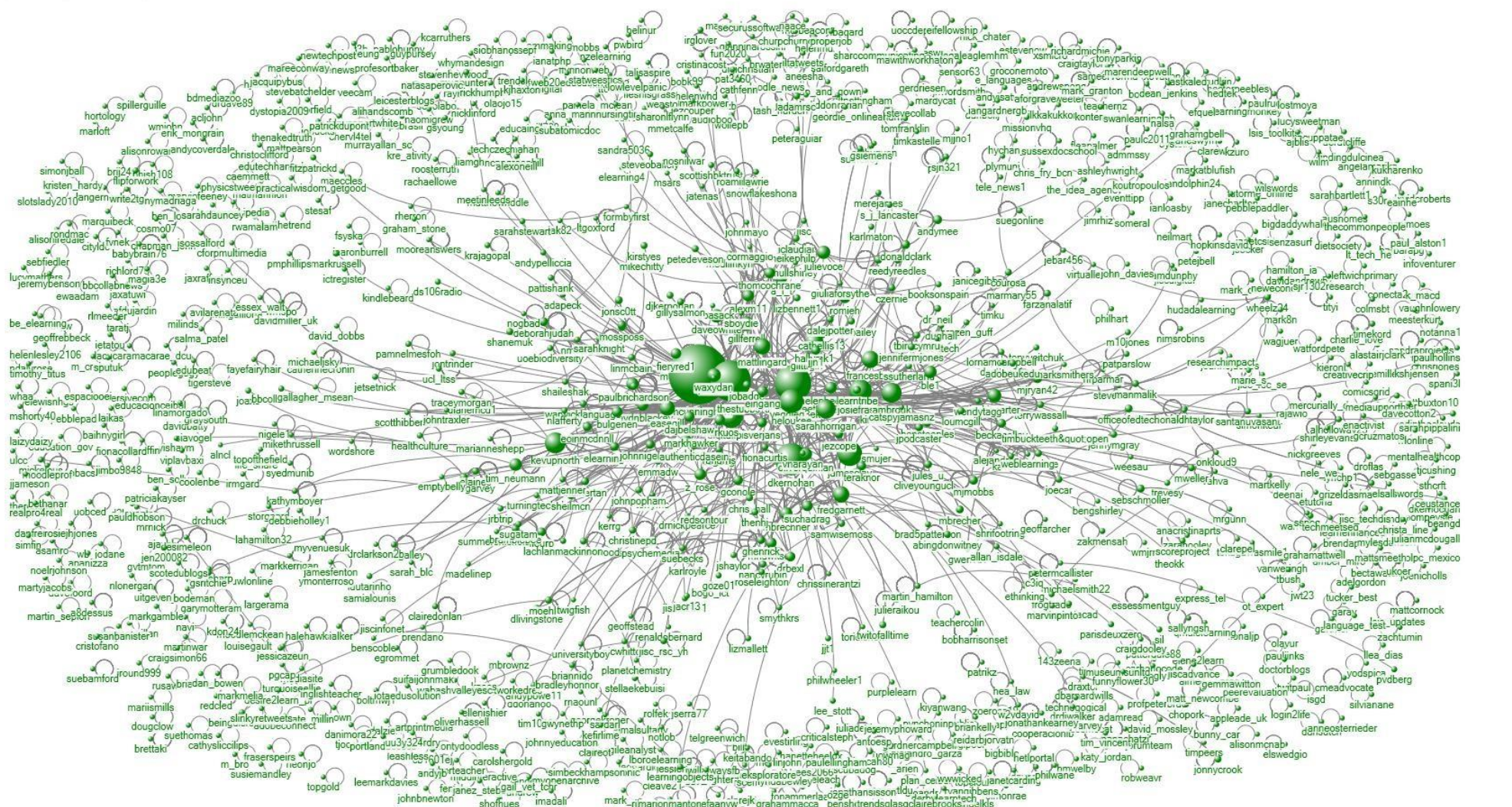


Data & Technologies



Digitalization

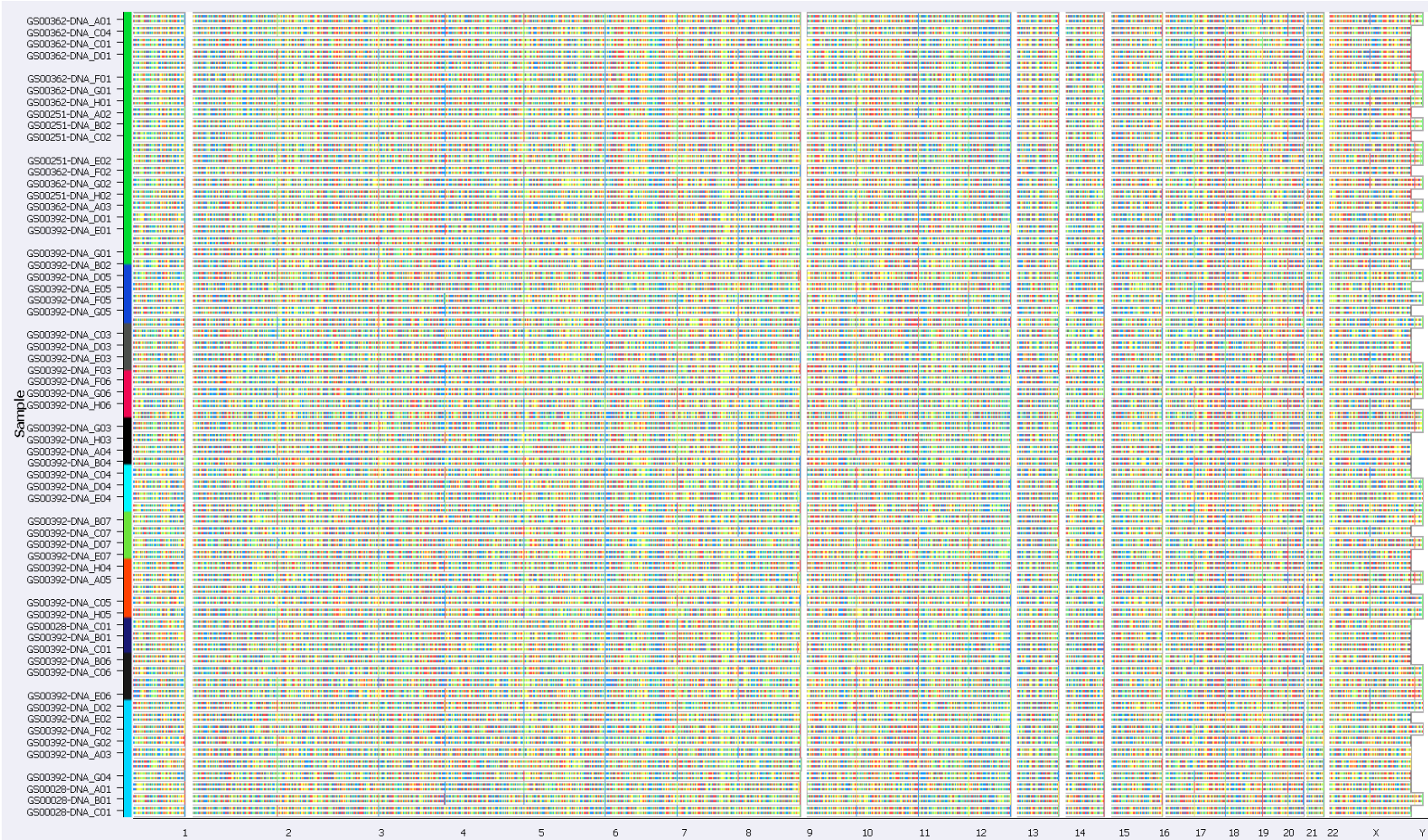
# Data Complexity



# Data Complexity



Digitalization





# Volume: the Internet of Things is dwarfing the consumer internet



## THE CONSUMER INTERNET

The average person consumes:



**300 MINUTES / DAY**  
ONLINE



**2-3 HOURS / DAY**  
OF MEDIA STREAMING



**100-400 MB / DAY**  
OF DATA



An office worker generates  
**5-10 MB/DAY**

## THE INDUSTRIAL INTERNET



**50-100 KB/DAY**  
LCT4 Meter



**1MB/DAY**  
Subsea RM&D



**150 MB/DAY**  
Naxys



**300 MB/DAY**  
Aeroderivative GT



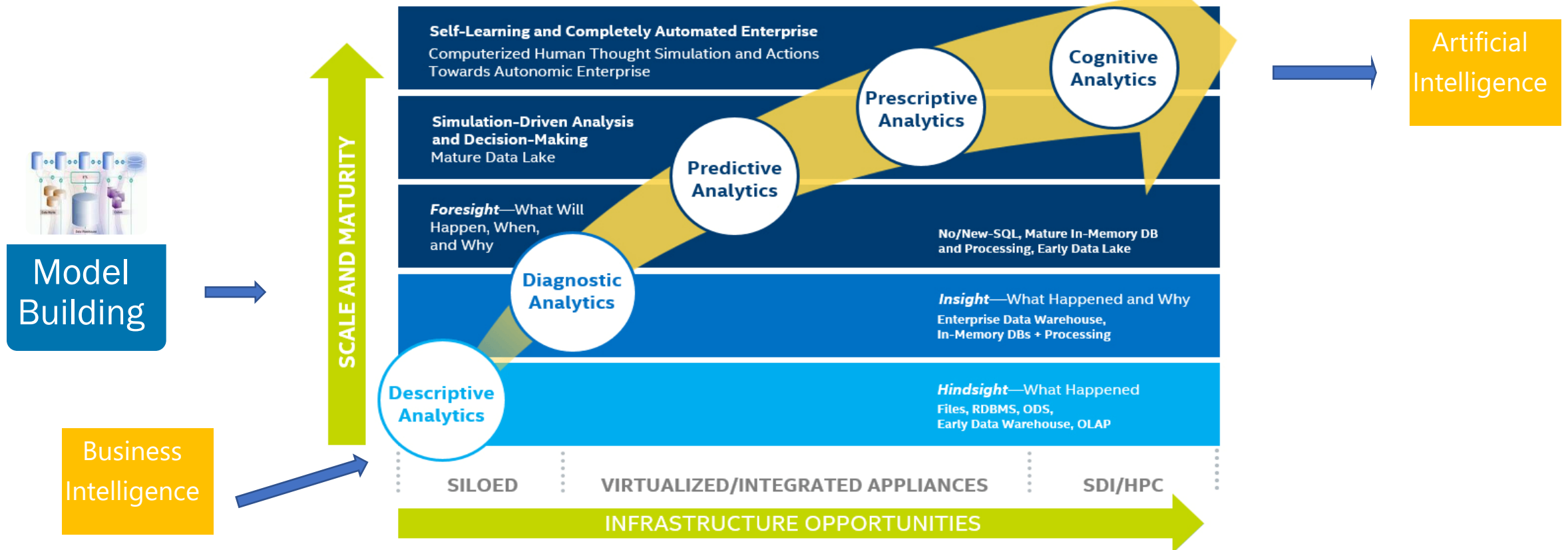
**600 MB/DAY**  
GT Combined Cycle



**800 MB/DAY**  
HDGT Large Frame

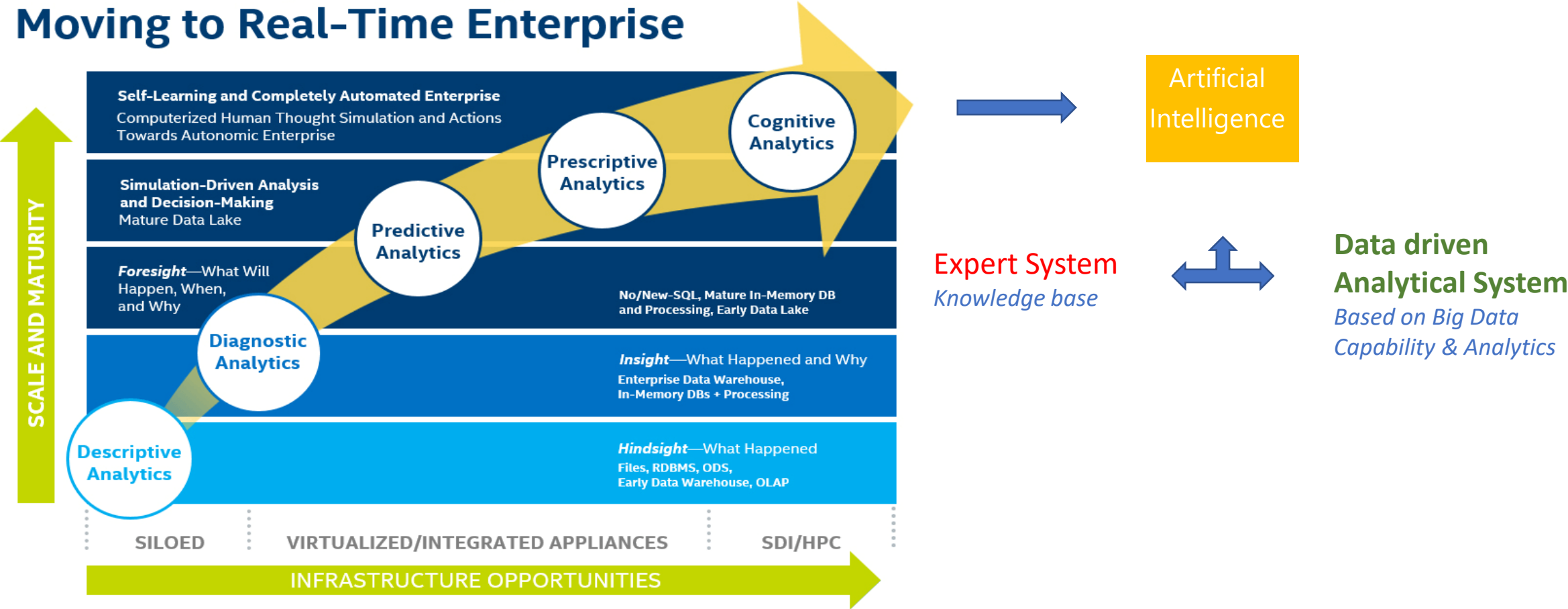
# Analytics & maturity level

## Advanced Analytics Maturity Path: Moving to Real-Time Enterprise



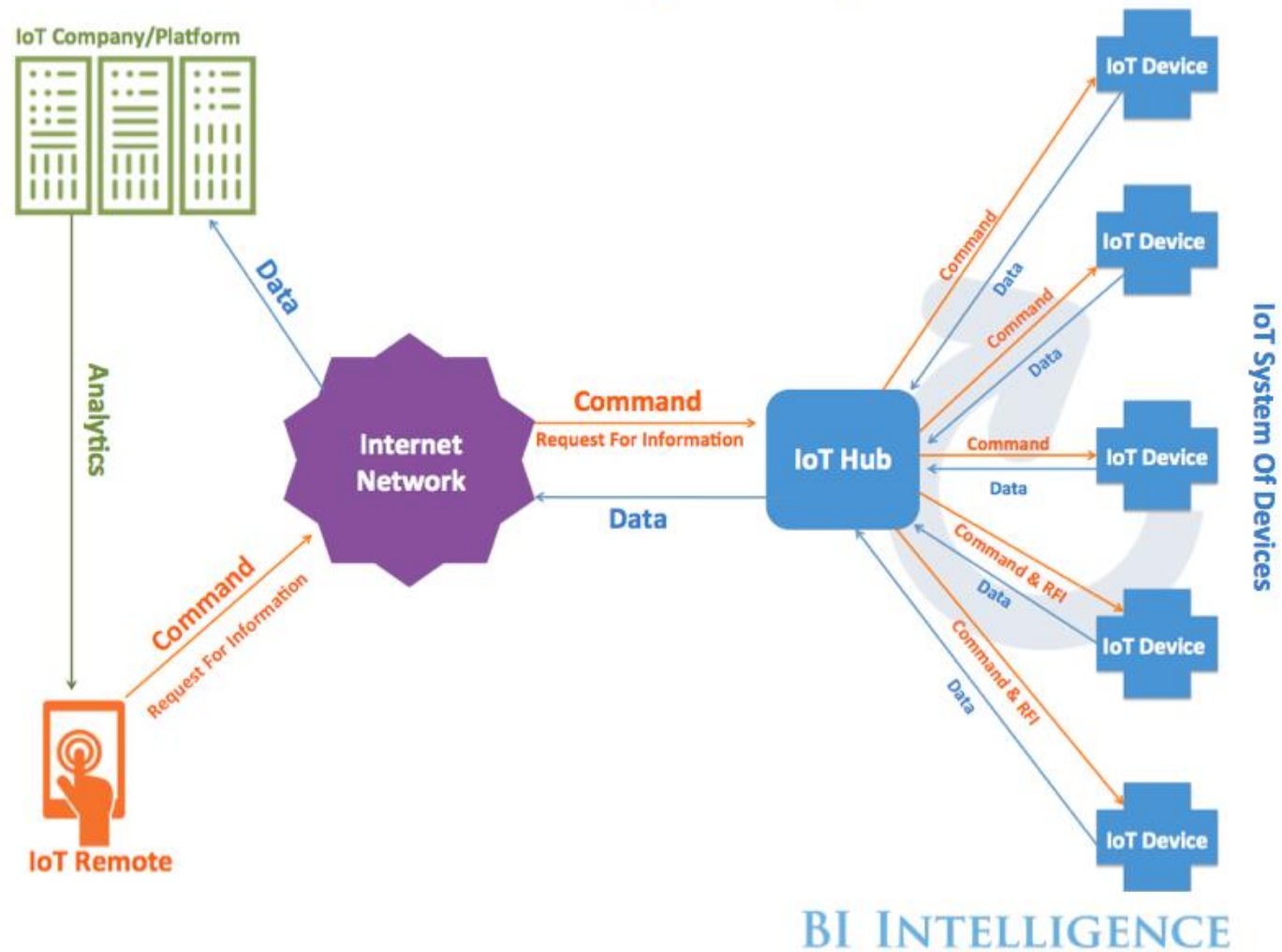
# Analytics and Artificial Intelligence

## Advanced Analytics Maturity Path: Moving to Real-Time Enterprise



# IOT

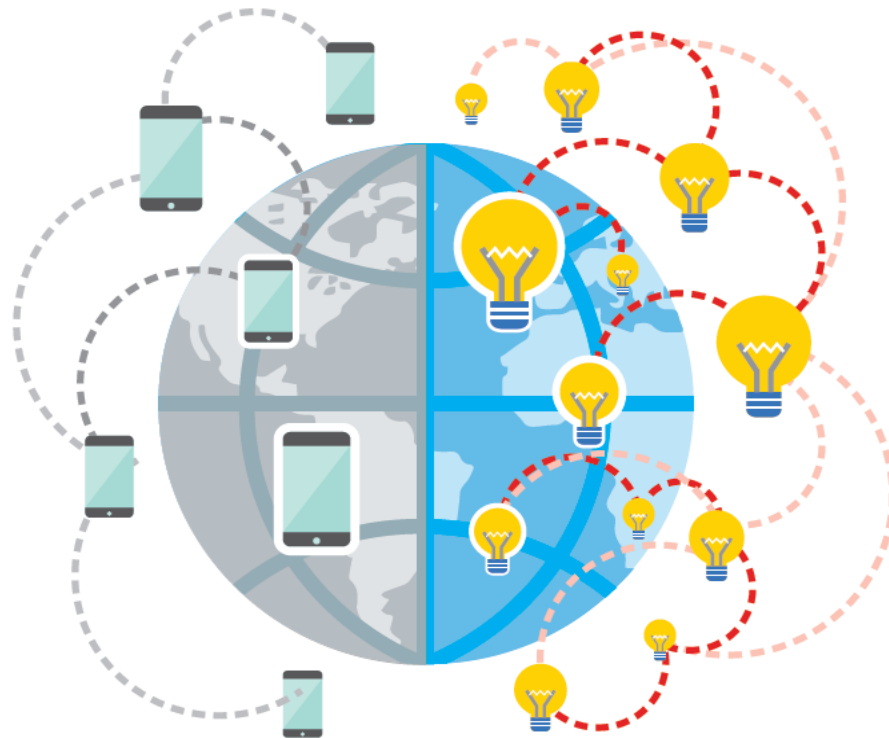
## Internet Of Things Ecosystem



## IOT & IIOT

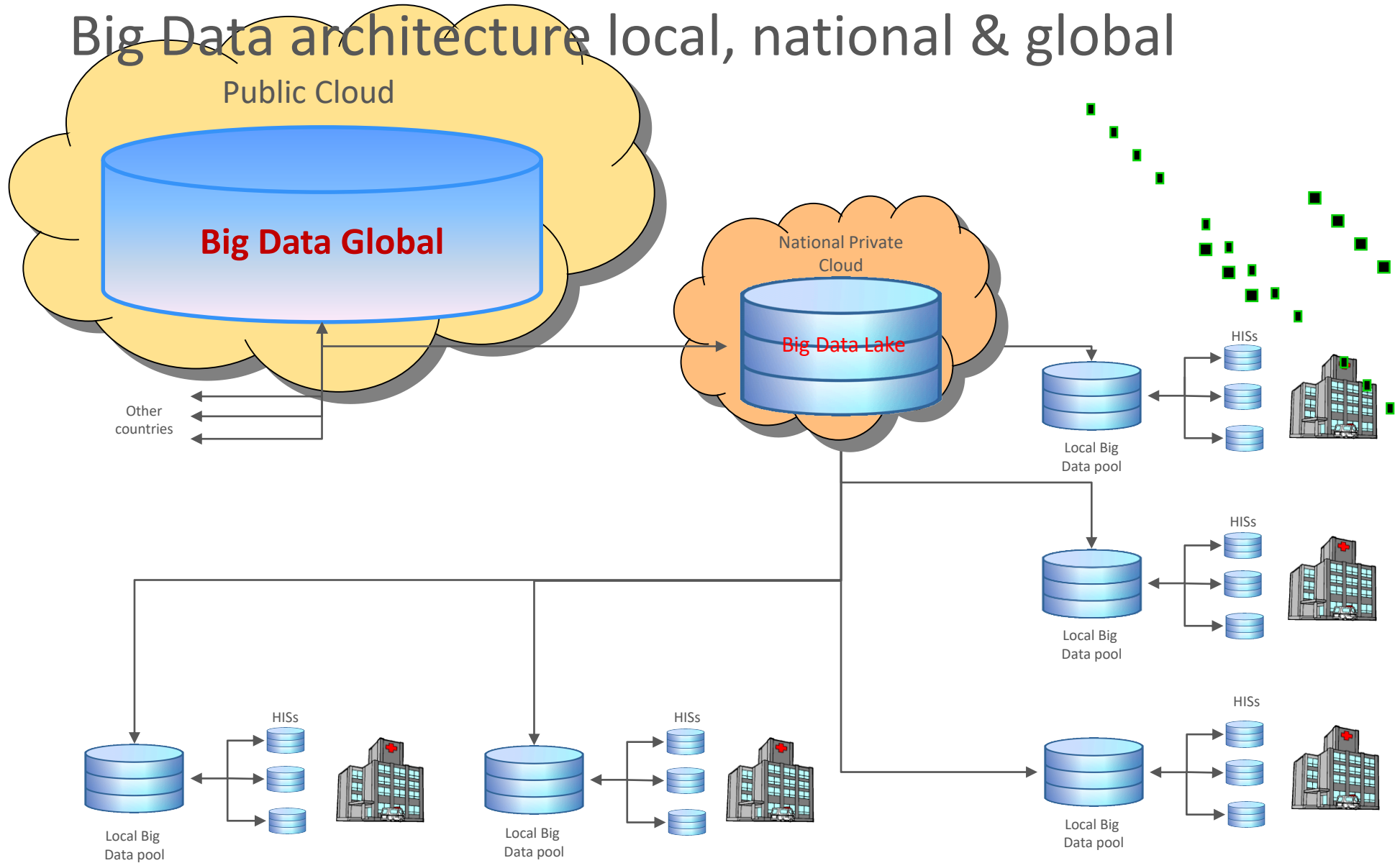
Industrial Internet will bring \$17 Trillion to the world economy  
by 2030

In 2015  
there were about  
**5 billion**  
**TOTAL**  
Internet-connected  
devices.

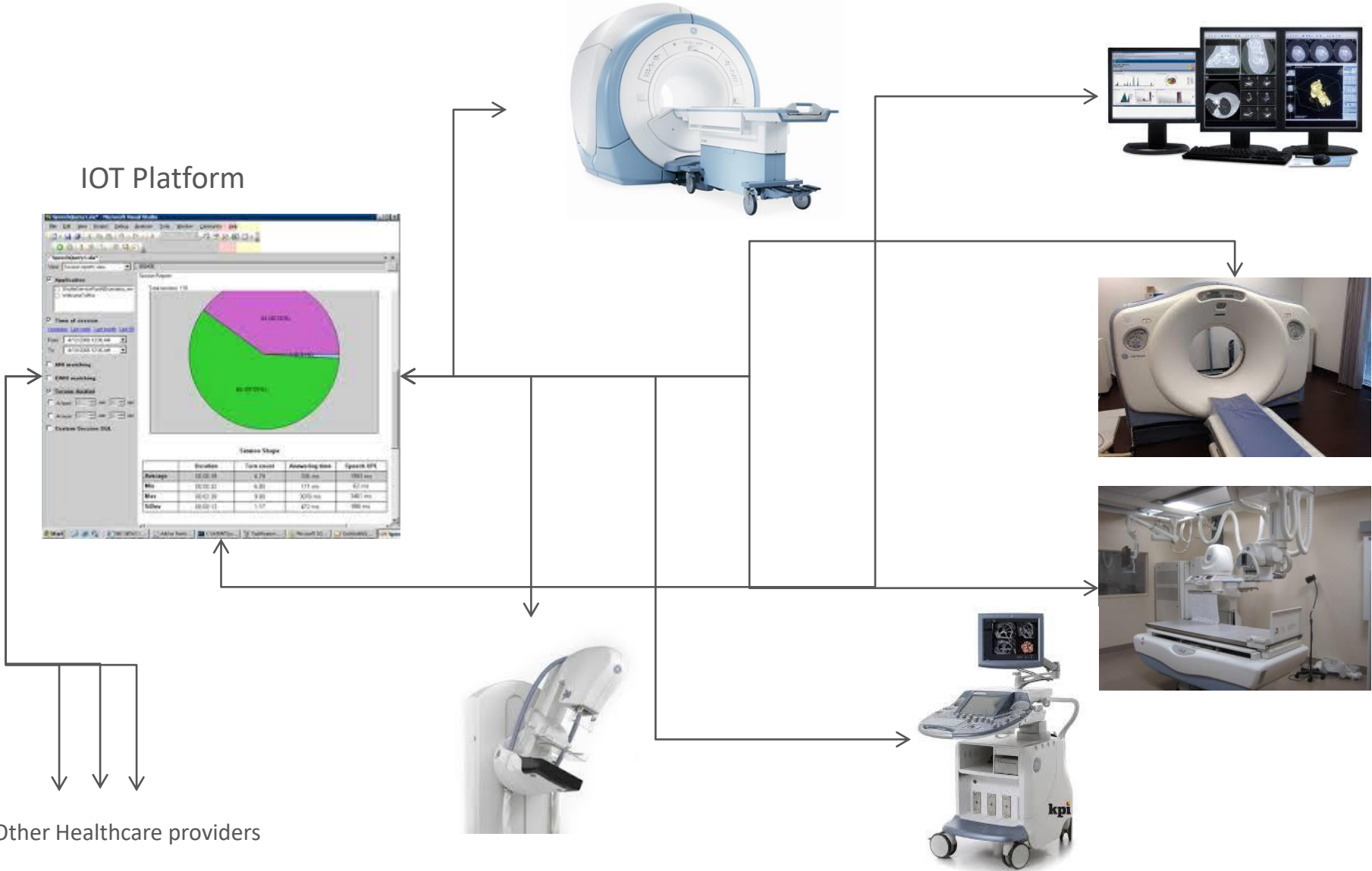


**While in 2020,**  
**50 billion**  
machines will be  
online.

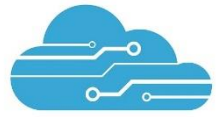
# Big Data architecture local, national & global



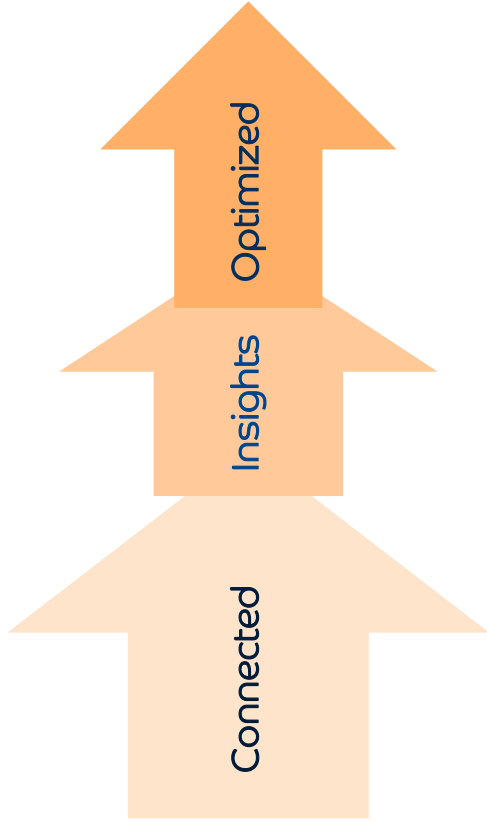
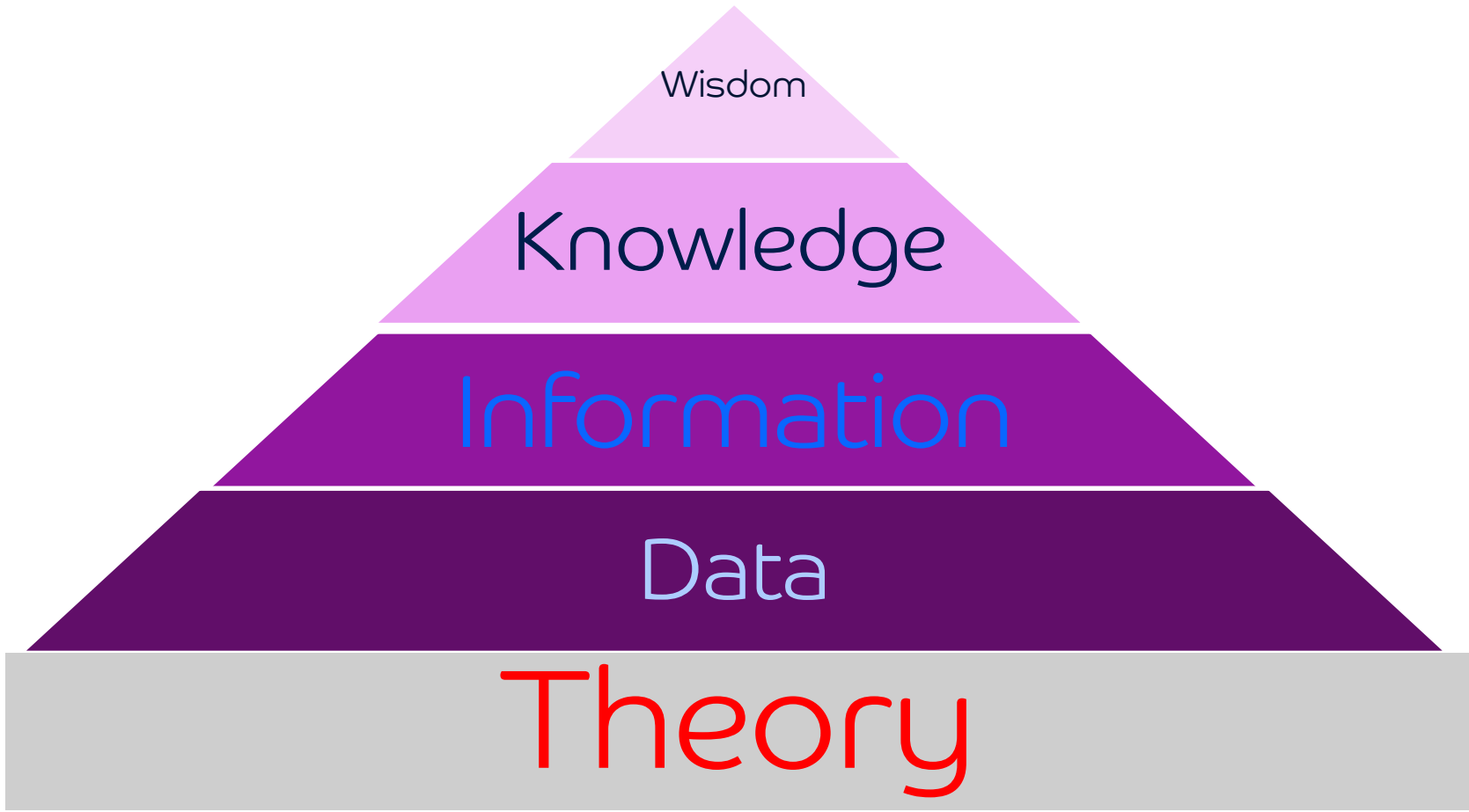
# Industrial IOT (medical images)



# Asset Performance Management



Digitalization





# The APM Journey for Biomedical Engineering

All Assets: Static & Rotating

## Get Connected

### MACHINE & EQUIPMENT HEALTH

- Connectivity
- Data Management
- Condition Monitoring
- Data Analysis
- Configurable Dashboards



Securely Connect Equipment



High Probability of Detection and Low False Positive Rate



Data-Rich Actionable Insights

## Get Insights

### RELIABILITY MANAGEMENT

*Machine & Equipment Health Plus:*

- Analytics Orchestration
- Analytics Catalog
- Configurable Workflows
- Event Management
- Case & Collaboration Management
- Knowledge Management



Confidence Around the Best Possible Outcomes



Identify Emerging Problems, Highest Risk Assets



Collaboration for Relevant Action

## Get Optimized

### MAINTENANCE OPTIMIZATION\*

*Reliability Management Plus:*

- Performance Benchmarking
- Asset Maintenance Strategy/Scenarios
- Financially Optimized Asset Strategy
- Work Scoping, Prioritization, & Scheduler
- Inventory Optimization



Balance Performance and Reliability

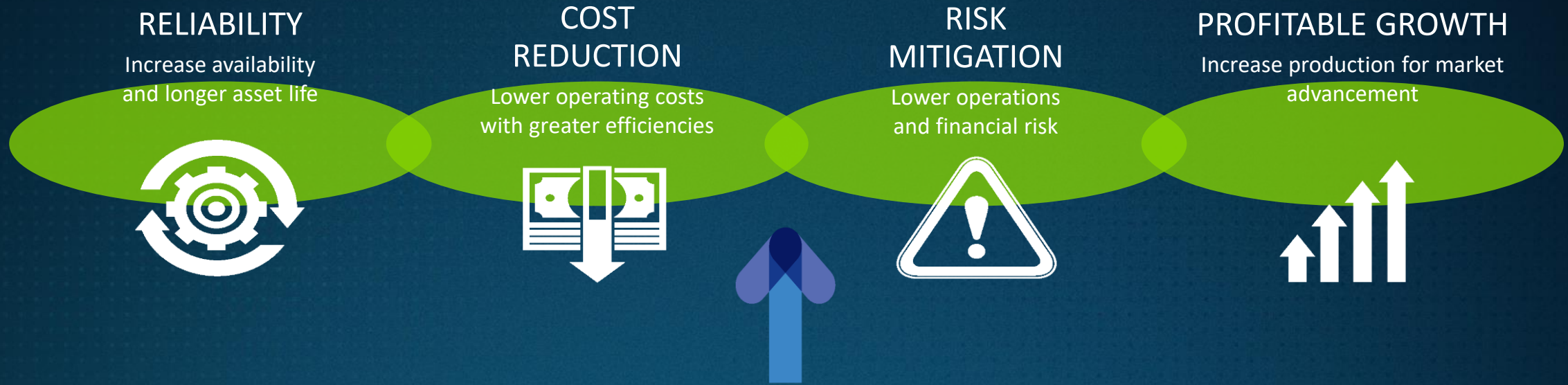


Optimize Maintenance with Less Risk



Maintenance Strategy and Outage Planning

# APM Outcomes



## APM Capabilities for Industrial Companies

Monitoring and Diagnostics

Asset Lifecycle Management

Predictive Maintenance

Operations Intelligence

ANALYTIC INSIGHTS

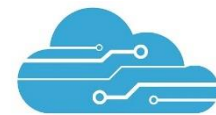
## The Industrial Internet Platform

Secure Connected Assets

Industrial Data Management

Industrial Data Science

Mobility and Cloud

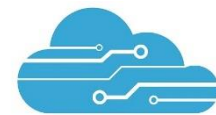


**Digitalization**

**Time-based Maintenance**

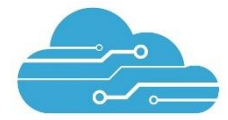


**Condition-based Maintenance**



- IOT
- Blockchain
- AI

# All your initial questions are answered?



Digitalization



1.



2.



3.



4.



5.



**Digitalization**

