Digital Transformation & Biomedical Transformation



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Professor of Digital Technologies
Digital Transformation Expert
Blockchain Expert



Your expectations of the program





1.



2



3



4



5.

Definition 2

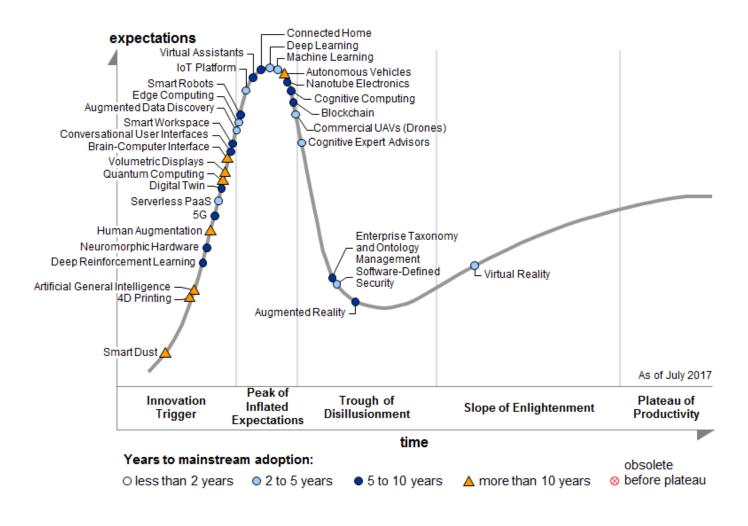
Digital is the convergence of multiple technology innovations enabled by connectivity"

"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









Digital Change

Better version of the past

Vulnerable to disruption

Digital
Transformation

New Business models

New values

Create disruption





Digitization



Digitization = Digital Change



Digitization = Digital Change

Digitalization



Digitization = Digital Change

Digitalization = Digital Transformation



Digitization = Digital Change

Digitalization = Digital Transformation

Digitalization = Digitization + New Digital Business Models

Disruptors & Disrupted



Uber	Airbnb	Alibaba	Amazon	Nokia	Kodak	
Netflix	Spotify	Google	Facebook	Dlackbossu	Motocolo	
Apple	Expert360	RoboAdvisors	Bitcoin	Blackberry	Motorola	
Skype	Linkedin	Dropbox		Toys R us	Debenhams	

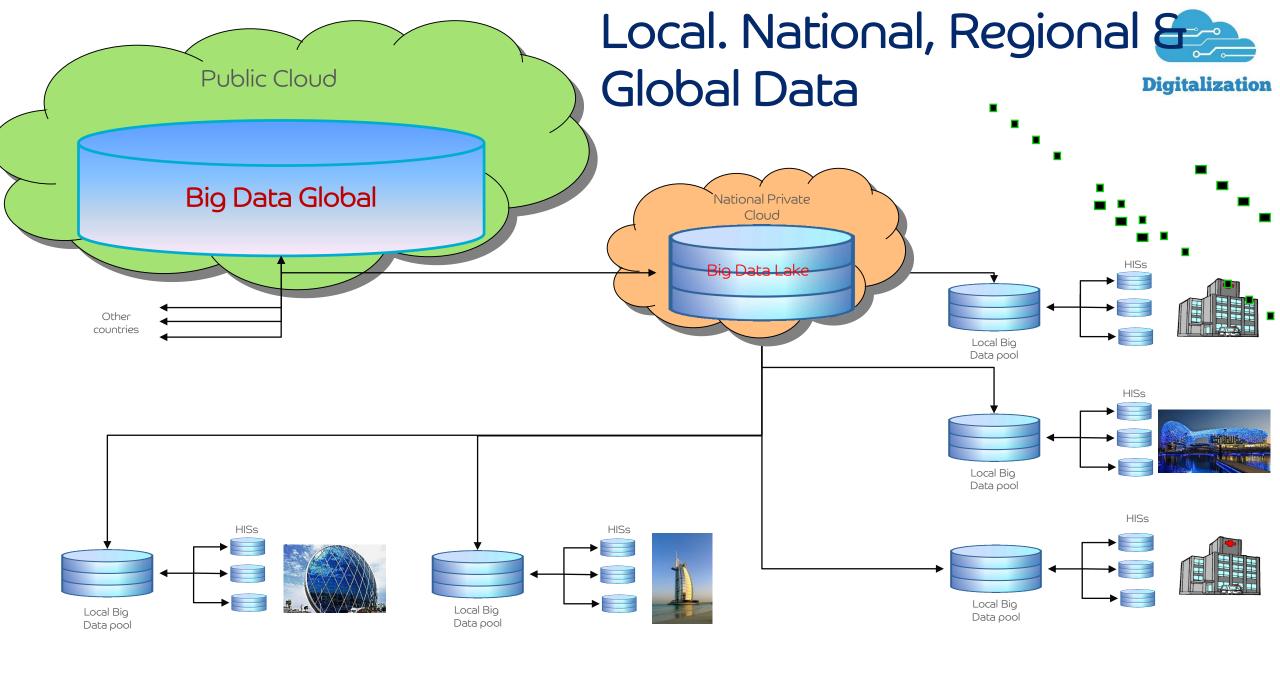
Strategy, Technology & Culture





Culture







MINDSET

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INNOVATION

CUSTOMER



STRATEGY

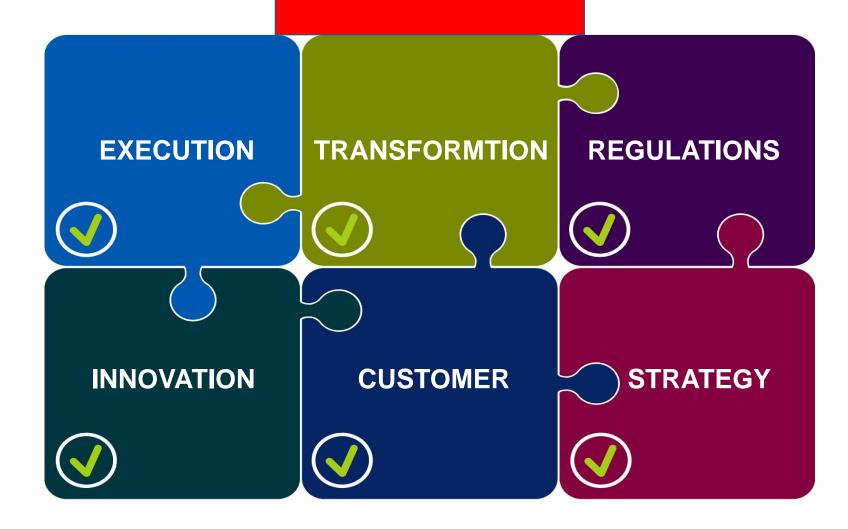


Proposed by: Professor Samir El-Masri









Proposed by:

Professor Samir El-Masri

Roadmap of DT





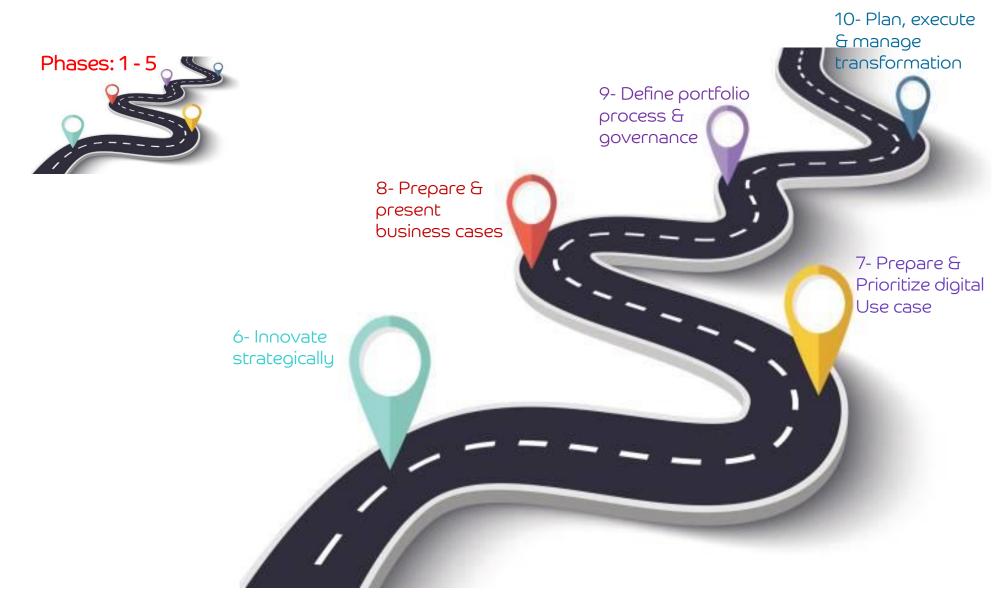
Roadmap 1-6





Roadmap 6-10





Case studies in Biomedical Engineering



Case 1

Case 2

Case 3





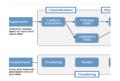


Workshop: Current state, Potentials

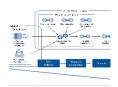




Strategy



Readiness



Innovation



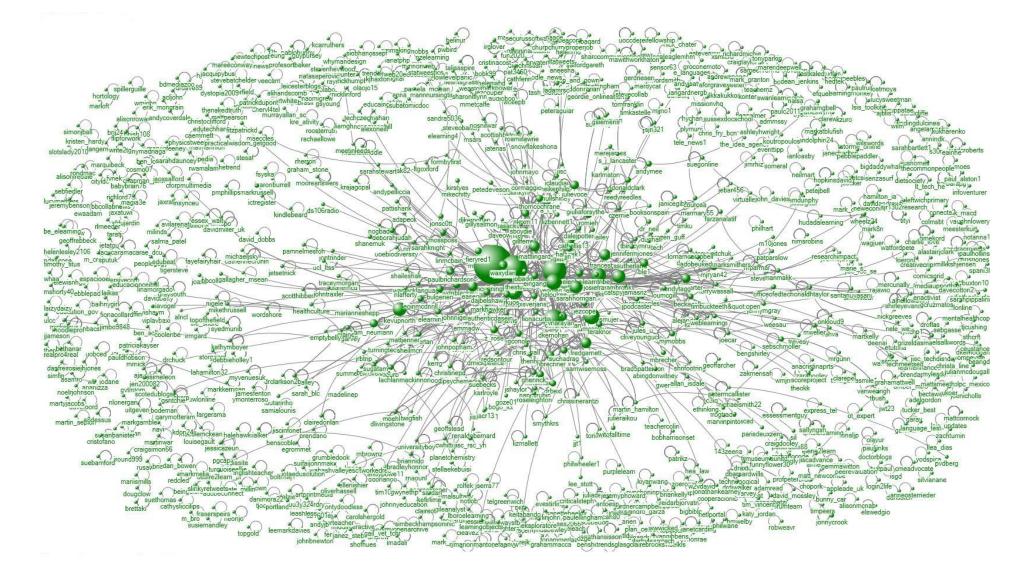
Management & Governance



Data & Technologies







Data Complexity



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Volume: the Internet of Things is dwarfing the consumer internet



THE CONSUMER INTERNET

THE INDUSTRIAL INTERNET



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

The average person consumes:



300 MINUTES / DAY
ONLINE



2–3 HOURS / DAYOF MEDIA STREAMING



100–400 MB / DAYOF DATA



50-100 KB/DAY LCT4 Meter



1MB/DAY
Subsea RM&D



150 MB/DAY
Naxys



300 MB/DAYAeroderivative GT

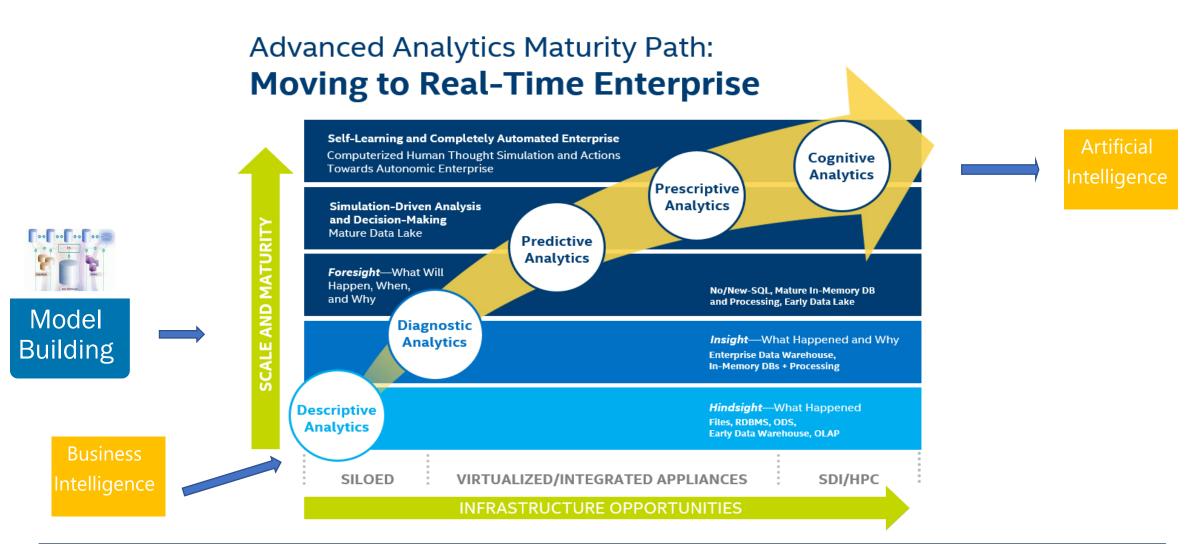


600 MB/DAYGT Combined Cycle

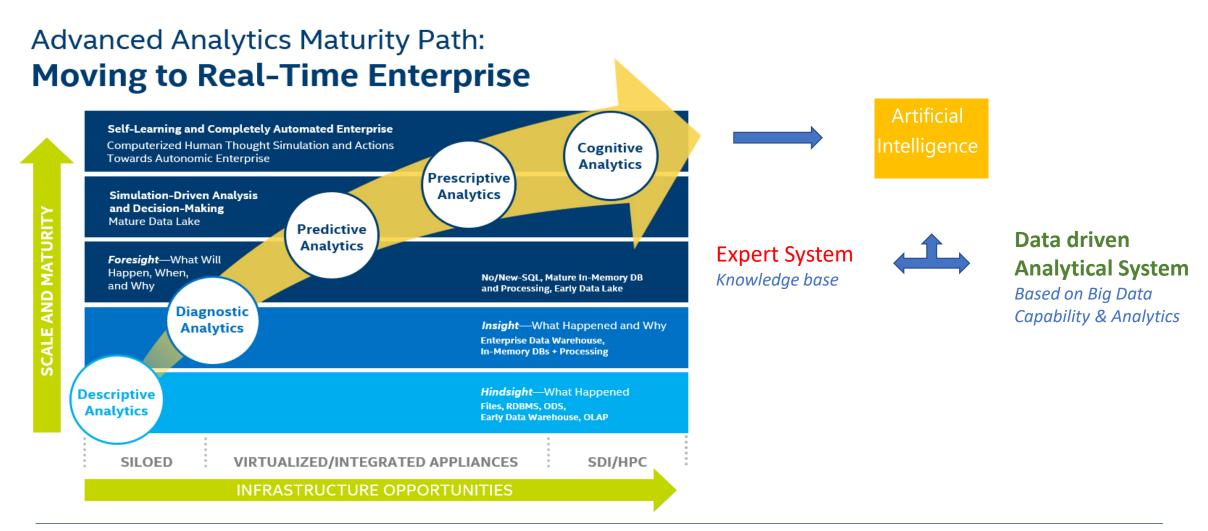


800 MB/DAYHDGT Large Frame

Analytics & maturity level

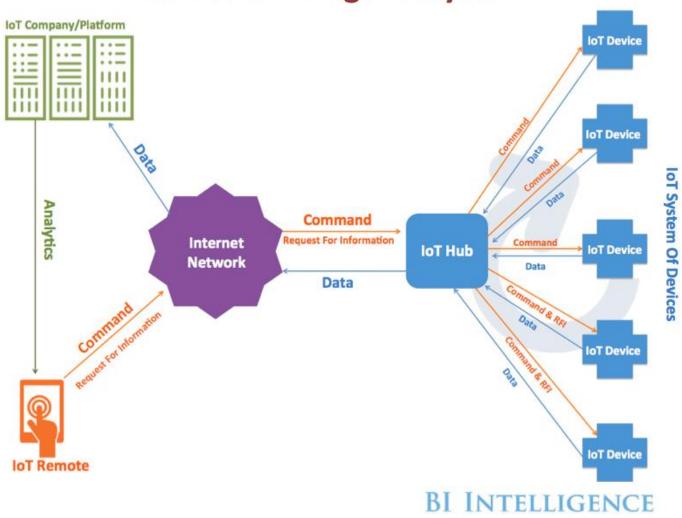


Analytics and Artificial Intelligence



IOT

Internet Of Things Ecosystem



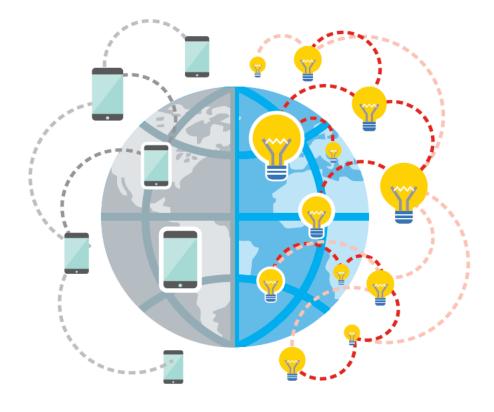
IOT & IIOT

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

In 2015 there were about

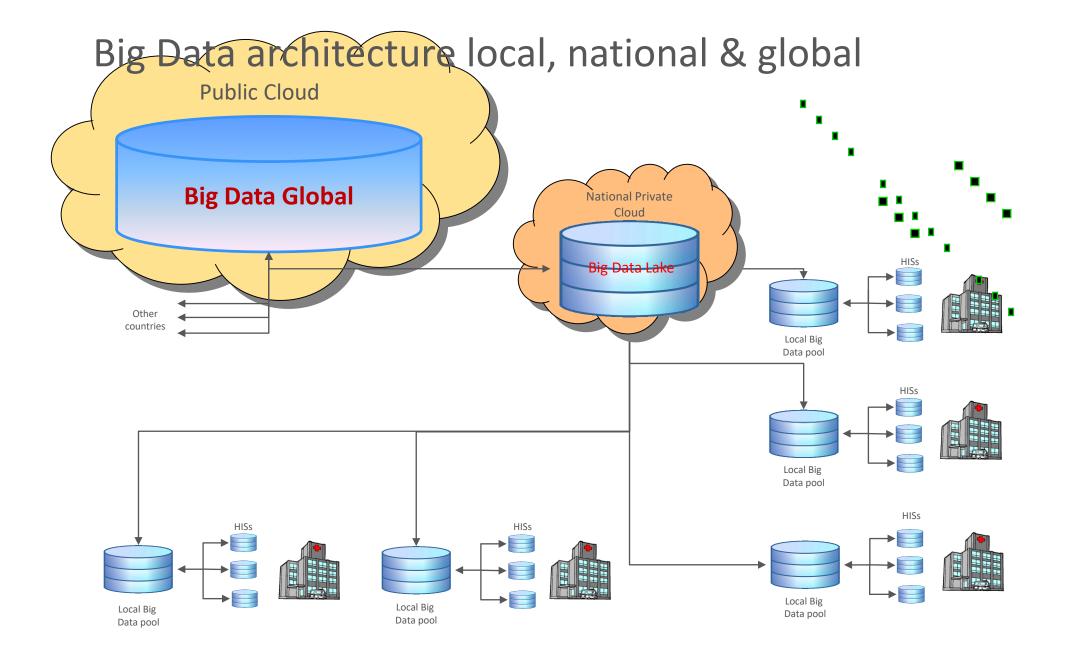
5 billion TOTAL

Internet-connected devices.



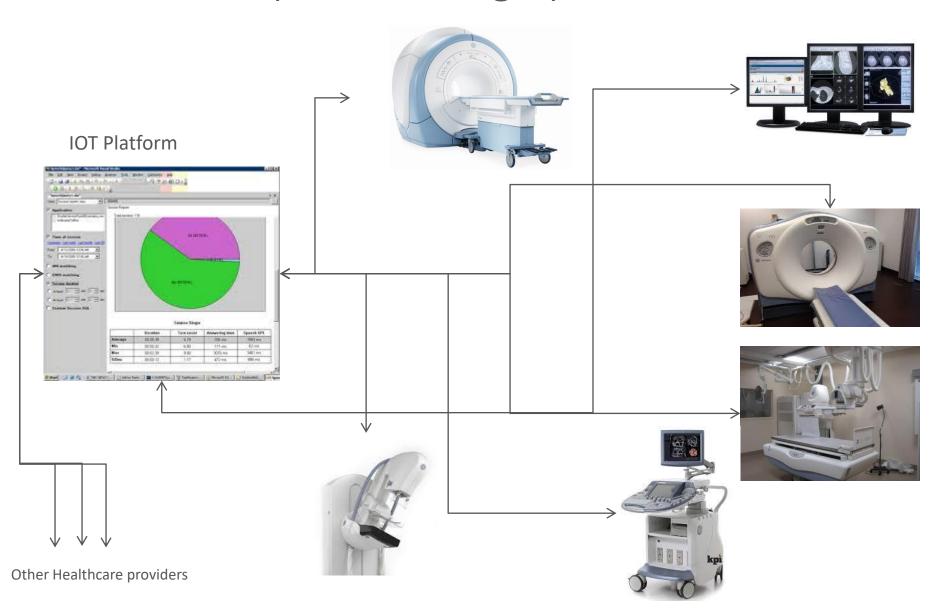
While in 2020, 50 billion machines will be

online.



Industrial IOT (medical images)





Asset Performance Management



Wisdom

Knowledge

Information

Data

Theory

optimized

Insights

Connected

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

RELIABILITY

Increase availability and longer asset life



COST REDUCTION

Lower operating costs with greater efficiencies



RISK MITIGATION

Lower operations and financial risk



PROFITABLE GROWTH

Increase production for market advancement



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



Time-based Maintenance



Condition-based Maintenance



- IOT
- Blockchain
- Al

All your initial questions are answered?





1.



2



3



4



5.



