
accenture
SMART MANUFACTURING
A POSSIBLE ROADMAP
FABBRICA FUTURO
Bologna, June 08th 2016
High performance. Delivered.
Strategy | Consulting | Digital | Technology | Operations

Agenda

- Accenture POV on Industrial Internet of Things
- Digital Factory Vision
- The roadmap to a sustainable smart production
- Credentials
- Sizing the Opportunity

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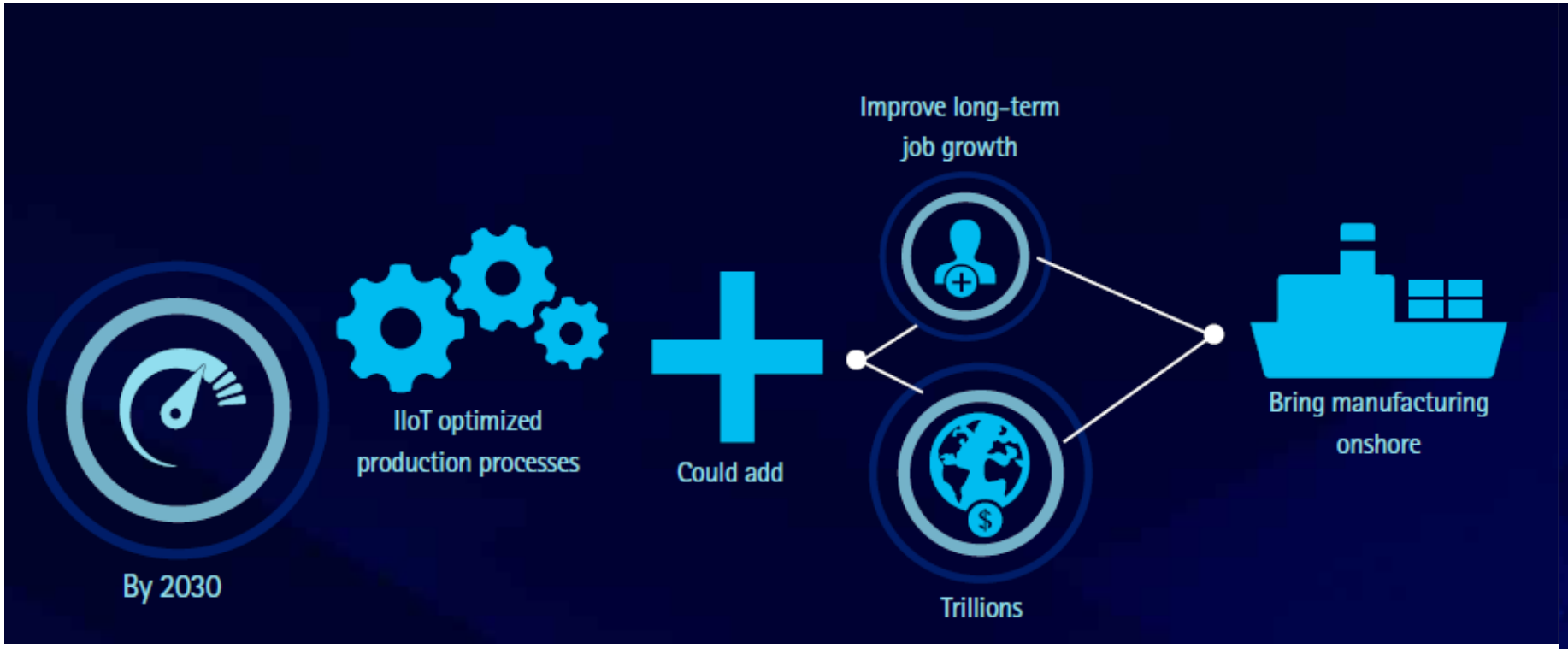
“Accenture POV”

The Promise: Industrial Internet of Things

“A universe of intelligent products, processes and services that communicate with each other and with people over the Internet.”

That’s how Accenture defines the Industrial Internet of Things (IIoT), which promises to be the most transformative industrial revolution yet for manufacturers, changing the way they think about resource allocation, production processes, materials handling, and the workforce

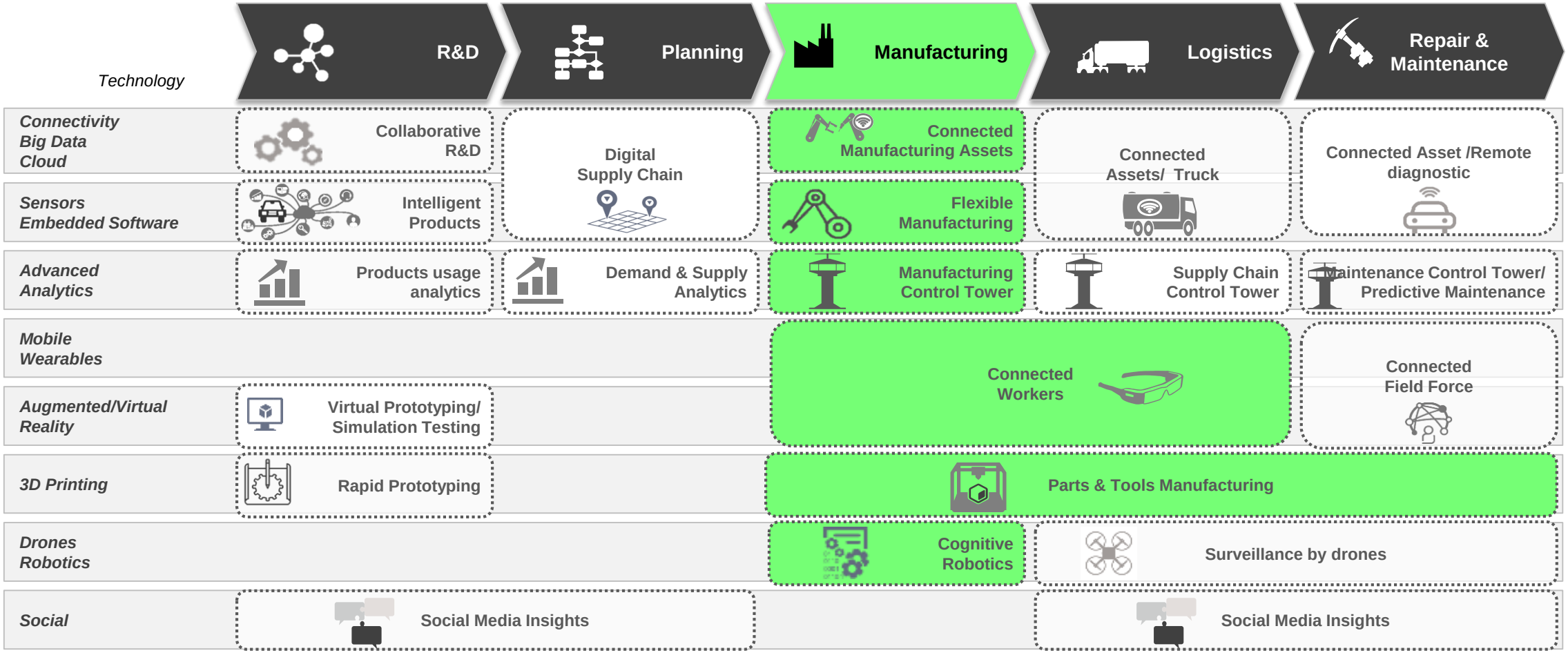
IIOT planned growth



"We believe the IIoT will enable industries that collectively account for almost two thirds of global output to benefit from digital transformation."*

* http://www3.weforum.org/docs/WEFUSA_IndustrialInternet_Report2015.pdf

How will disruptive technologies impact Value Chain



The impact of the industrial internet of things is transformational

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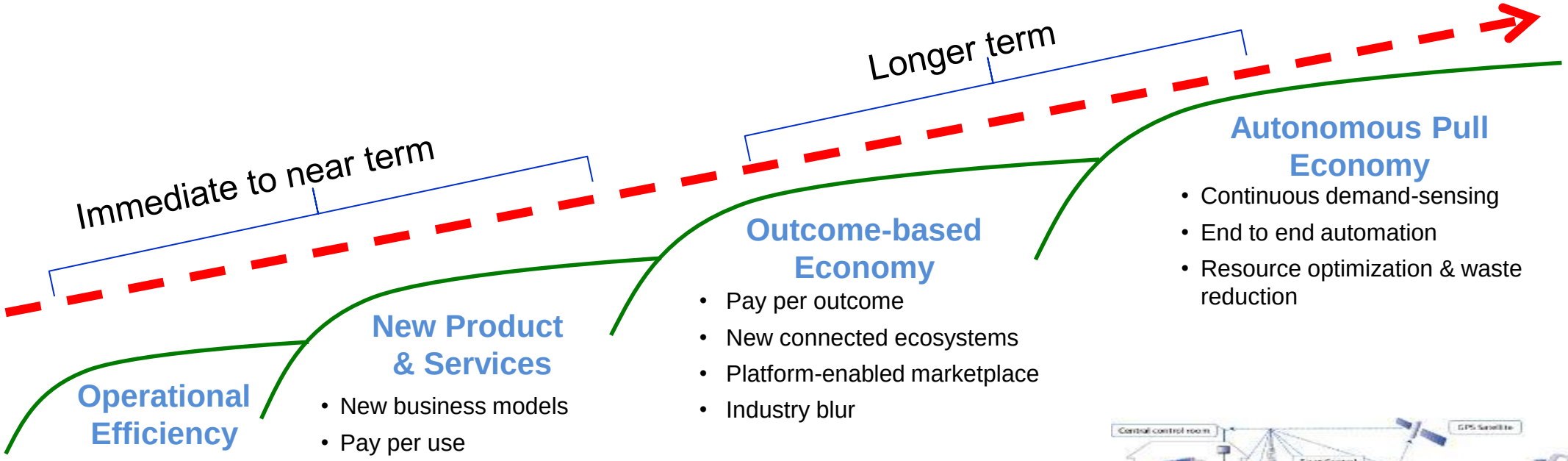
We see a world moving towards an outcomes-based economy where companies compete on their ability to deliver quantified results that matter to their customers



From Product to → **Service** → **Outcome** → **Pull**

Operational Efficiency

“Operational efficiency builds the underlying infrastructure that enables manufacturers to advance in their IIoT journey, adapting their offerings and driving new revenue opportunities.”

Predictive Asset Maintenance Can*

* G. P. Sullivan, R. Pugh, A. P. Melendez and W. D. Hunt, “Operations & Maintenance Best Practices: A Guide to Achieving OperationalEfficiency, Release 3.0

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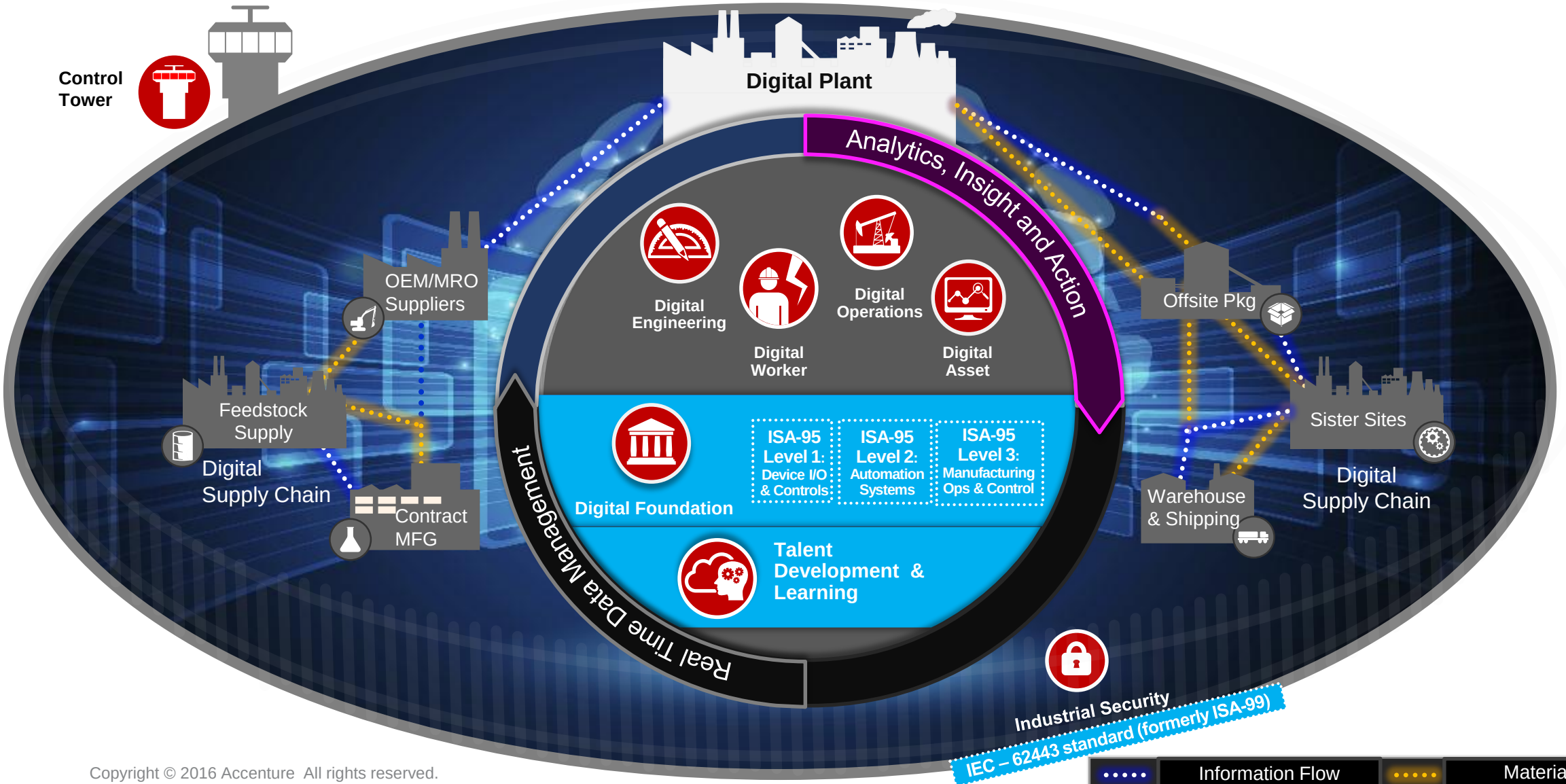
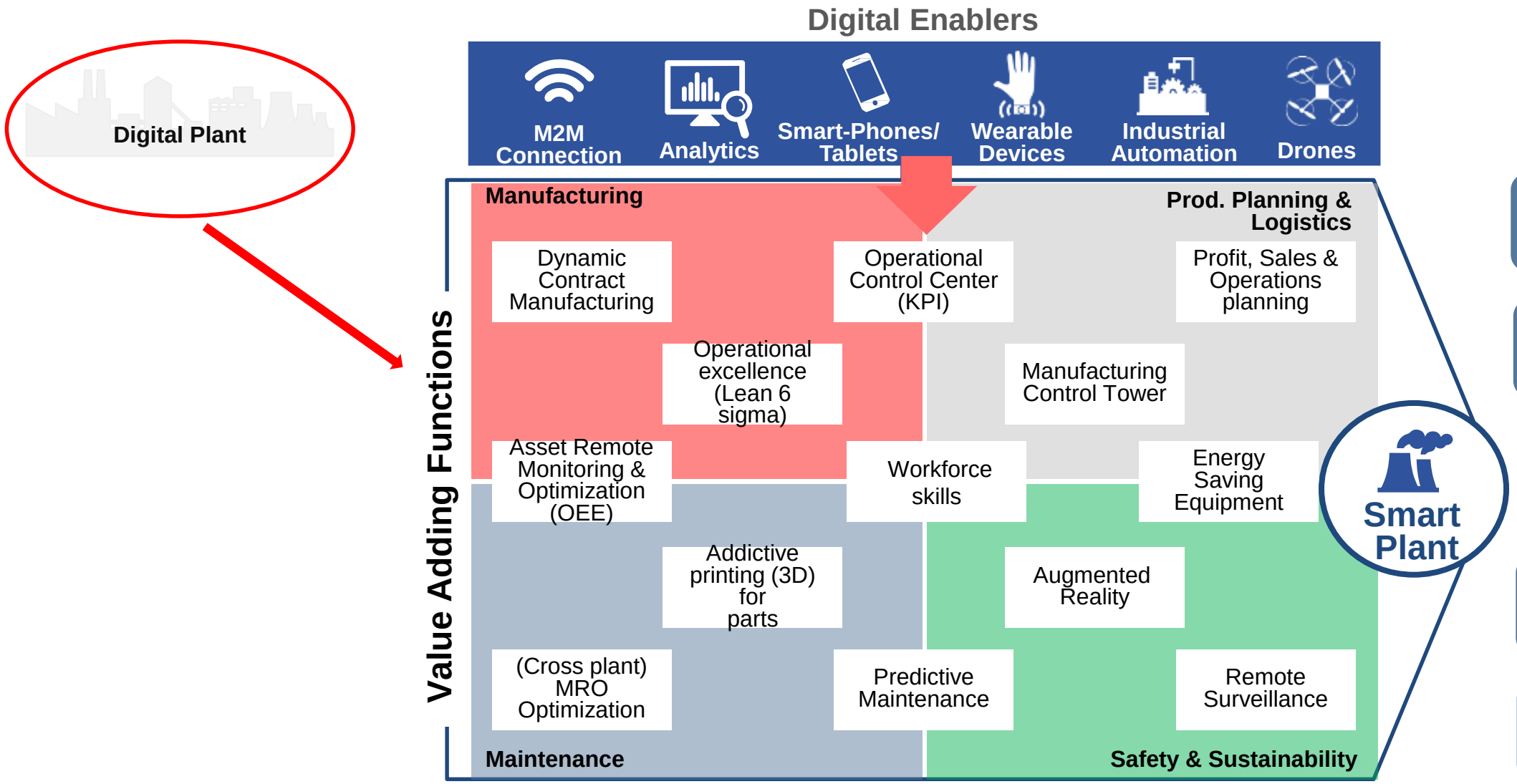
“Digital Factory Vision”

Digital Factory Vision:

Capabilities enabling next generation manufacturing



Exploding the Digital Plant



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“The Roadmap to a sustainable smart production”

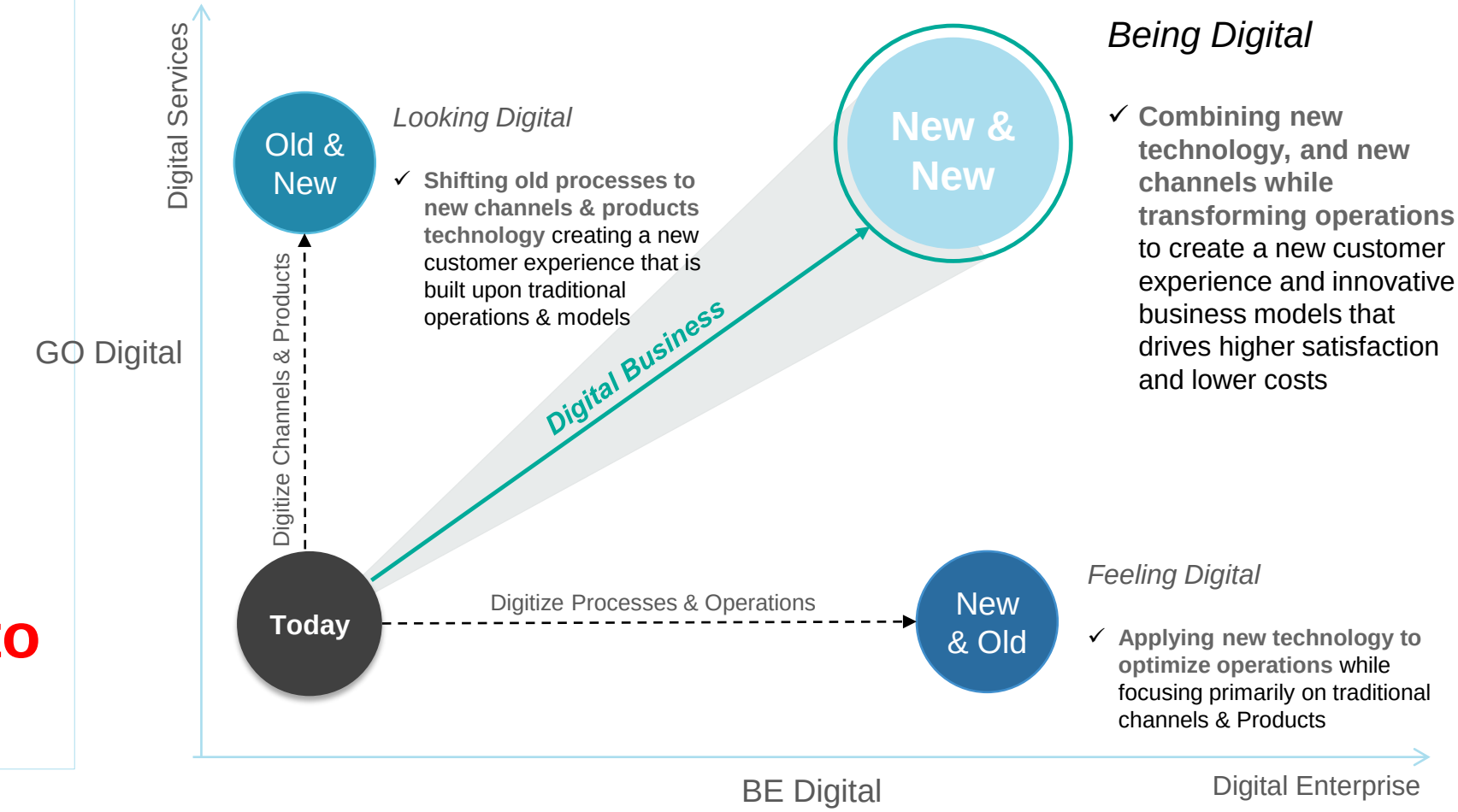
Industrial Internet of Things can accelerate Smart Manufacturing

Key success factors for manufacturers:

- Level of investments
- Ability to align IT&OT
- Affinity to technology changes
- Agility in deploying industrial security solutions
- Speed to reskill workforces

Digital Company Transformation

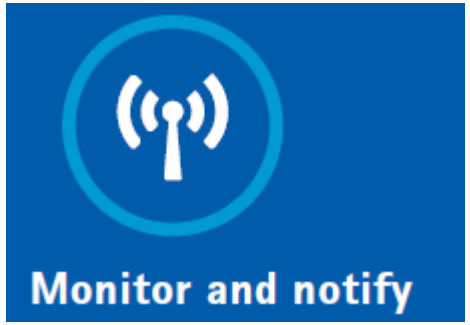
“As many leading organizations develop digital capabilities, the critical success factor will be to combine digital technology with new approaches to operations”



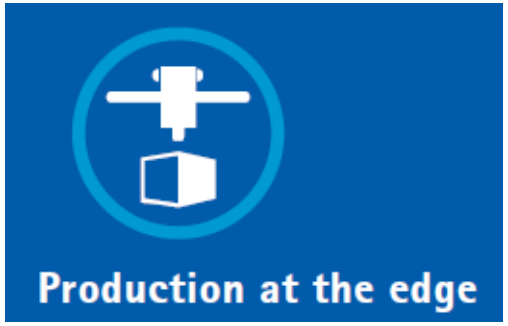
Building a "Smart Production" Roadmap

Root #1 : Equipments

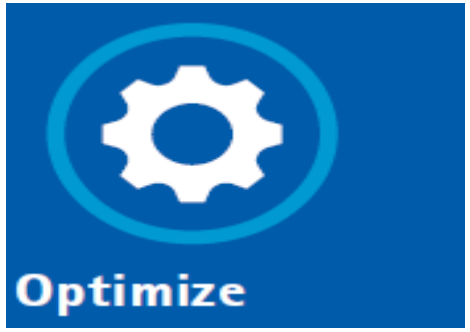
“By making equipment intelligent enough to self-manage and collaborate with the rest of the manufacturing system, manufacturers can drive overall reliability, predictability and optimization.”



Retrofitting existing equipment with sensors to increase visibility



3D printing helps eliminate both outages and the need to maintain a spare parts inventory. i.e. Ford MC & GE Gas & Oil Division*



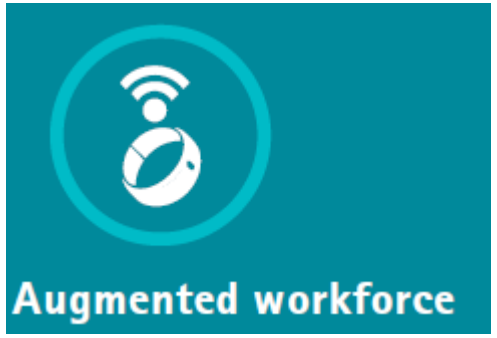
Integrate Predicitve Data in ERP i.e. Taleris*

The baselines created by condition monitoring, combined with analytical techniques

- http://www.taleris.com http://www.reuters.com/article/2014/01/23/ge- 3dprinting-idUSL5N0KW2OA20140123 http://www.forbes.com/sites/ amitchowdhry/2013/10/08/what-can-3dprinting-do-here-are-6-creative-examples/

Root #2: Workforce

“Creating a blended workforce that comprises humans and machines working collaboratively and dynamically can deliver outcomes that neither could produce alone “



Mobile & wearable technologies, JIT Training Video Collaboration

Integrating the human and machine workforce with the rest of the enterprise

Designed to be easily trained (i.e. to learn by observation)

i.e. Amazon*

* https://www.amazonrobotics.com/#/ or https://vimeo.com/113374910

Root #3: Material Supply Chain

“By leveraging the IIoT to enhance materials management, not only across the factory floor but also between supply chain partners, they can gain additional efficiencies.”

RFID used on the factory floor to track work-in-progress materials, route those materials efficiently

Integrating the data obtained by real-time visibility into the availability of materials on ERP

identify and predict
what materials manufacters need
at the right time, based on the
anticipated production run

Root #4: Business Process

“The smart factory extends well beyond its floor. Intelligent products can tell designers how customers are using them and thus enable improvements.”

By enabling cross-correlation of multiple data streams
i.e. SPC Sight Machines *

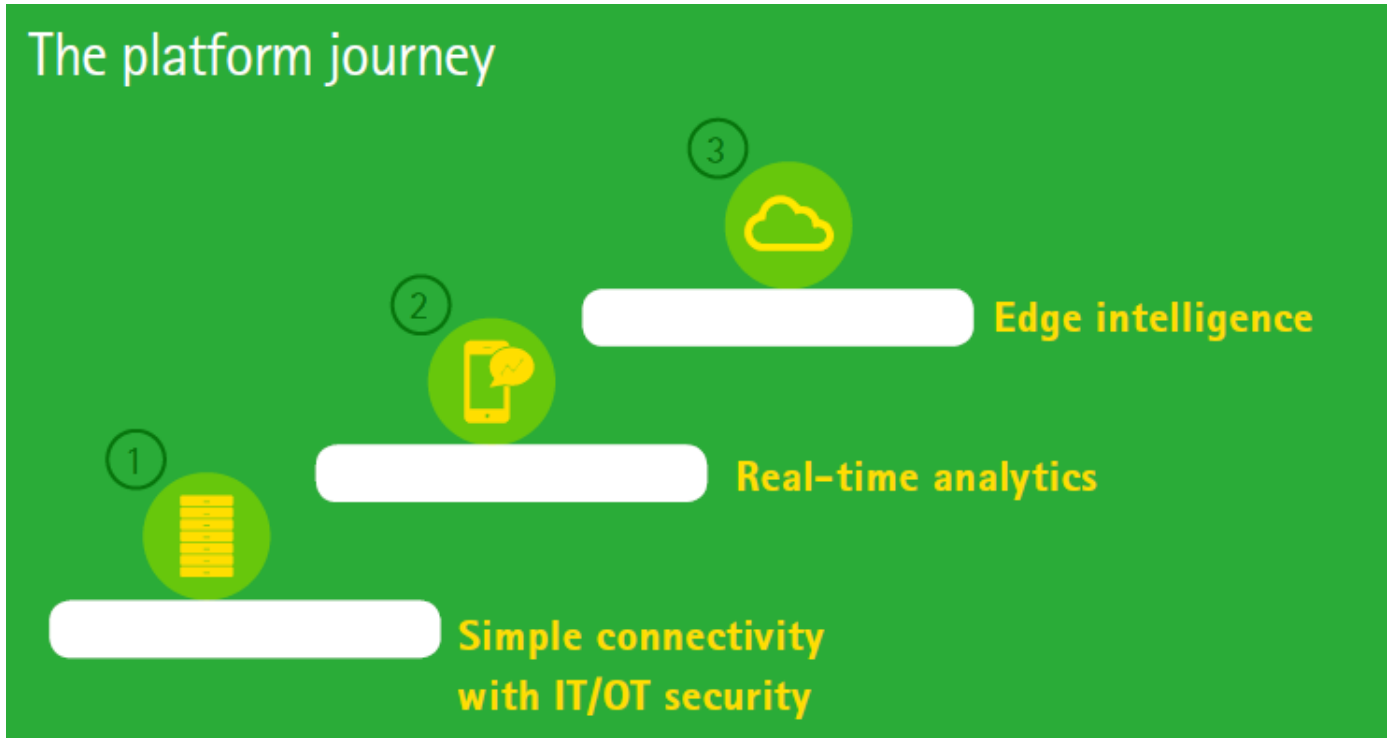
Automated design software promises to accelerate this product development process
i.e. Autocad Dreamcatcher*

Real-time automation and process integration across the supply chain enables the necessary responsiveness

* http://cdn.thomasnet.com/ ccp/30722610/182890.pdf http://autodeskresearch.com/projects/dreamcatcher

Root #5: Platform

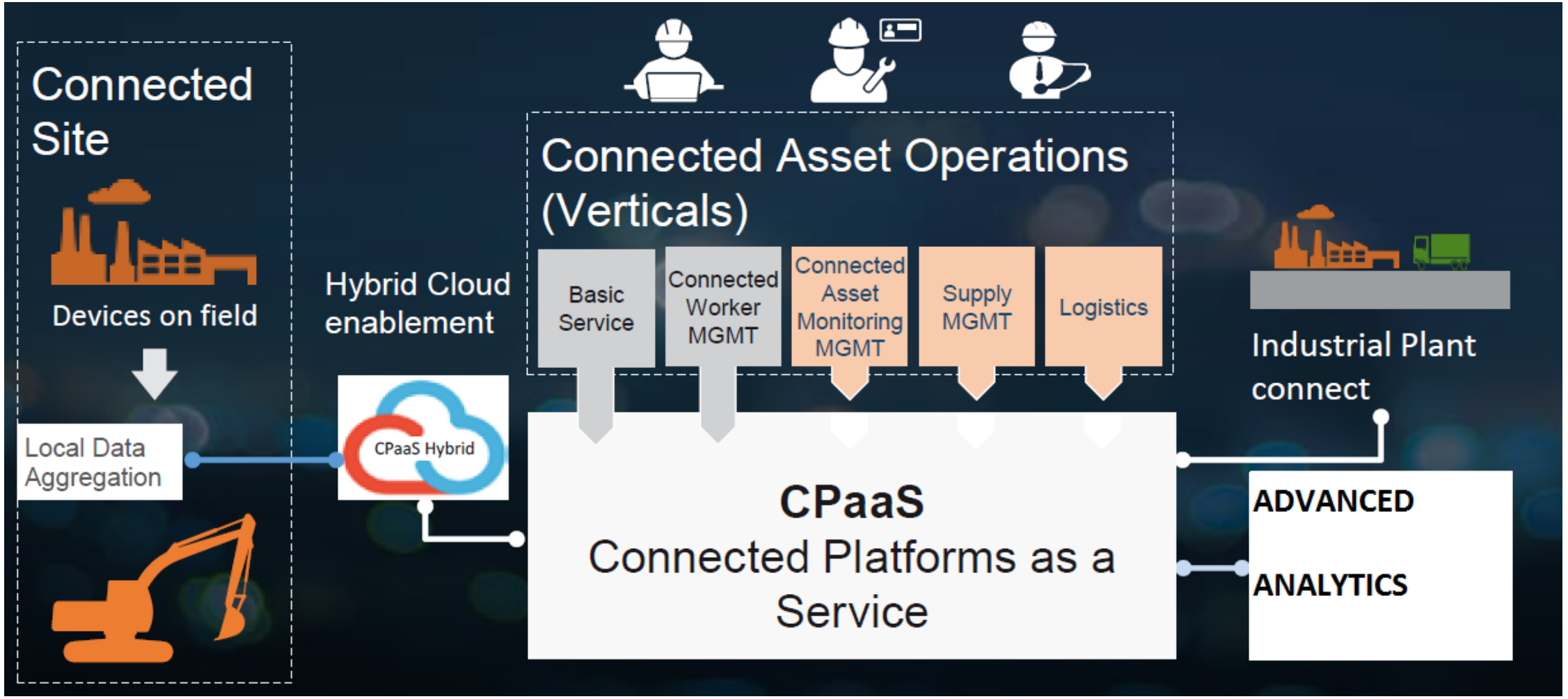
”The platform will facilitate the transfer of IIoT data from sensors and devices for centralized data analysis, decision-making and use by enterprise applications in the cloud.”



Retrofitting existing equipment with sensors to increase visibility

Root #5: CPAAS @ Work

The Connected Platform as a Service of Accenture



Root #6: Environment & Facilities

“Environmentally conscious manufacturing facilities strive to make the most efficient and productive use of raw materials and natural resources, as well as to minimize the adverse impacts on workers and the natural environment.”

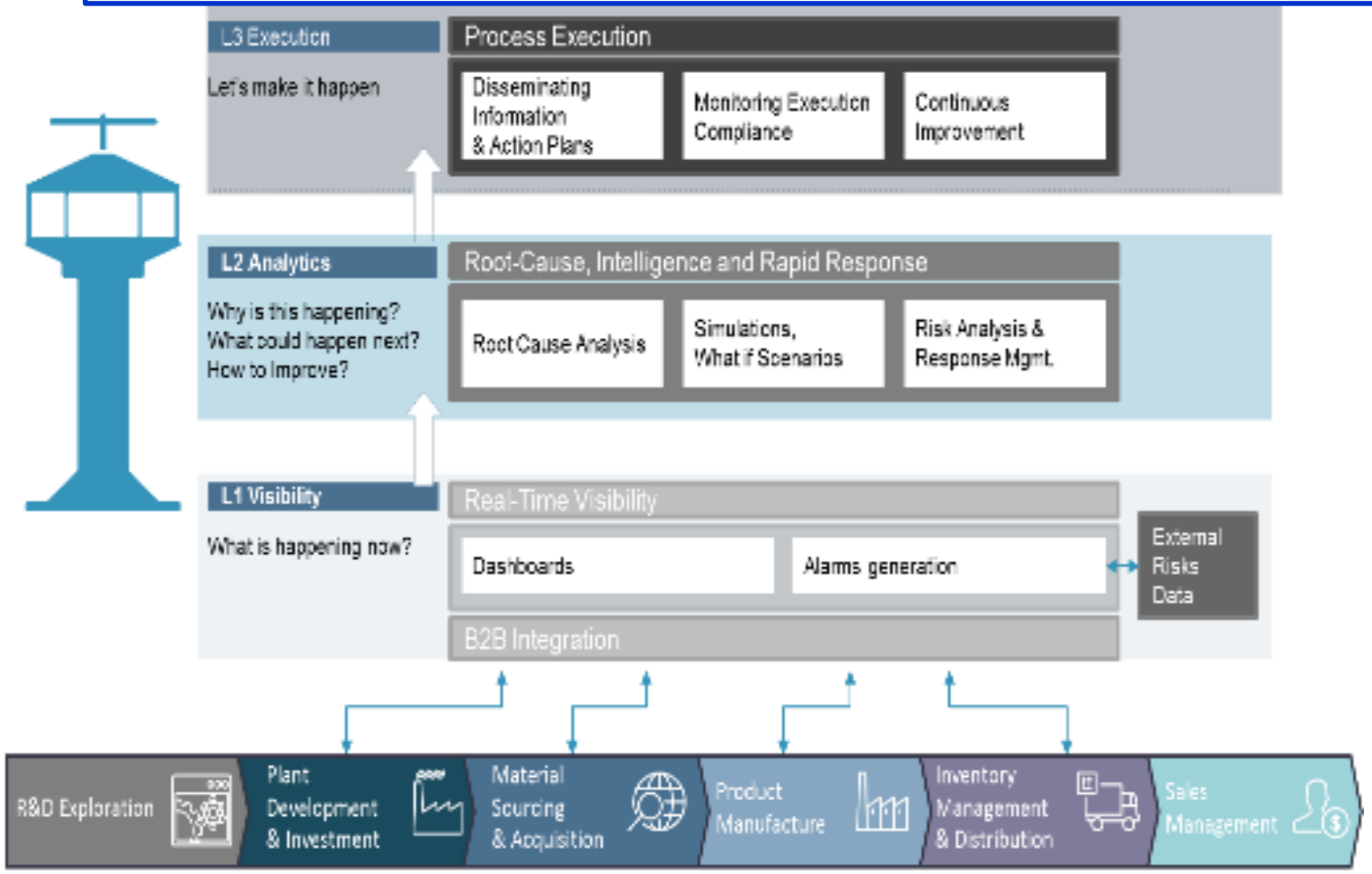
Deliver efficient response to emergencies are critical components of plant solutions

Visibility into plant-level energy consumption, water usage,waste production and the associated costs

By integrating energy use into the resource supply value chain a manufacturer can even become a “prosumer” of energy

IIoT – Manufacturing Control Tower as a shared service center (network-level centered)

Control Tower is a set of capabilities that helps each manufacturing plant to be connected and monitored about performances in real time



Key Topics

- Reduce volatility, complexity and uncertainty
- Deliver specific business outcomes (e.g., cost, quality, customer service, asset utilization)
- Monitor the execution of Facilities activities, perform "what if" analysis, and dynamically respond to changes

Business Outcomes

- Real time visibility
- Root cause analysis
- Rapid response through the interaction between supply chain processes and tools
- Response to business issue simple and fast

Assets

- Dashboards, Alarms Generators and Action Plans
- KPIs and utility Management
- Management Reserves
- MRP and MRO Management
- Supplier and Transportation management

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“CREDENTIALS”

Wearable Credential: Airbus

Help Airbus operators reduce the complexity of assembling cabin seats and decrease the time required to complete the task

- Delivered with Airbus a proof-of-concept, using Vuzix M100 for A330 cabin furnishing
- Expected to ultimately enable lesser skilled people to step up to jobs without having to read a training manual, instead relying on the data from the glasses in real time
- Accenture is looking to build on this proof of concept with Airbus by making it widely used in commercial aerospace and defense manufacturing.

100% quality (no more error)

Improved teams flexibility by almost removing training needs

Improved ergonomics

Duration of task divided by 6

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“Sizing the Opportunity”

Sizing the Opportunity

We have suggested six key dimensions for consideration, and identified the factors that can accelerate progress.

Now it’s time to move,

Are you connected enough ?

THANK YOU !

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