

Setting a Roadmap for Manufacturers on the Journey to a Smart Manufacturing Future



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Advancing. Manufacturing. IT.

What if you would leave in a disconnected world??

- Are we able to continue working as we do today?
- What means Industry 4.0 / Smart Mfct. for your company today?
- How many companies do have a vision?
- Vision → Strategy → Roadmap
- How do you get visibility and thoughts in your company about Industry 4.0 / Smart Mfct?
- What are the main challenges you have today?
- Who is using the data you already have today and for what?

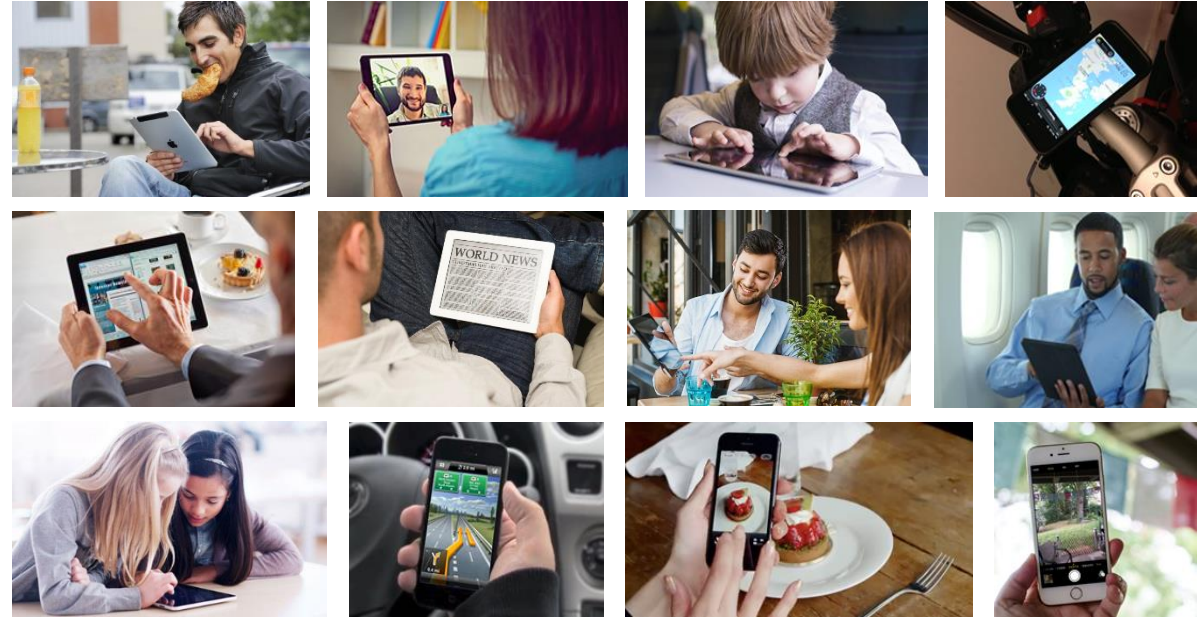
We live in a **connected** world...

“We are in major turning point in human history”

Brian Kranich



...



“We will make machines that can reason, think and do things better than we can” Sergei Brin

“It is urgent to put microprocessors in our brain” Elon Musk

Smart Industry Dutch Industry for the future view

Industrial is changing faster

1600 Saw Mill

180 years, 6 generations

1780 Steam Engine

110 years, 4 generations

1890 Conveyor belt Mass prod.

70 years, 3 generations

1960 Mainframe, PLC, Robots

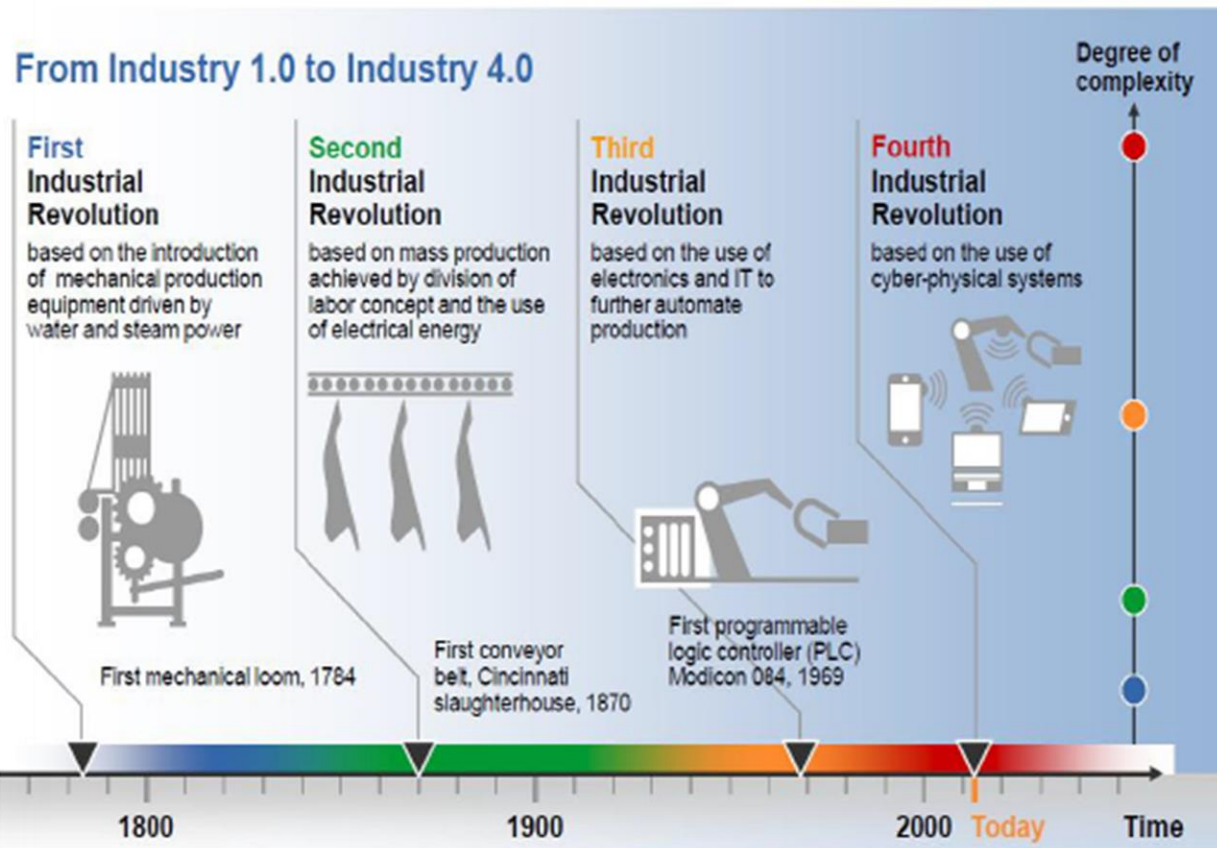
40 years, 1 generation

2000 Internet (of Things)

?? 25 years, < 1 generation

2025 Servitization/Sustainability

Agile/Metropolitan Manuf.



Source: DFKI (2011)

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Time to Impact Industries' business model

Impact felt already



- Rising Geopolitical volatility
- Mobile Internet and cloud technology
- Processing power , Big Data
- Sharing economy , crowdsourcing
- Young demographics in emerging markets
- Rapid urbanization
- Changing nature of work, flexible work
- Climate change, natural resources

2015-2017



- The Internet of Things
- Advanced manufacturing and 3D printing
- New energy supplies and technologies
- Longevity and ageing societies
- New consumer ethics, privacy issues
- Women's economic power , aspiration

2018-2020



- Artificial Intelligence
- Robotics , autonomous transport
- Adv. Materials', biotechnology

Use the digital Tailwind !

Value Creation...

\$4T value driven by manufacturing IIoT by 2025

40%

Operating income improvement from digital transformations

2x

Stock performance improvement

12%

EU economy currently operates only at 12% of its digital potential

50%





Of companies expect IIoT to increase competitiveness

Digital Tailwinds...




Why IoT is Important to Manufacturing?

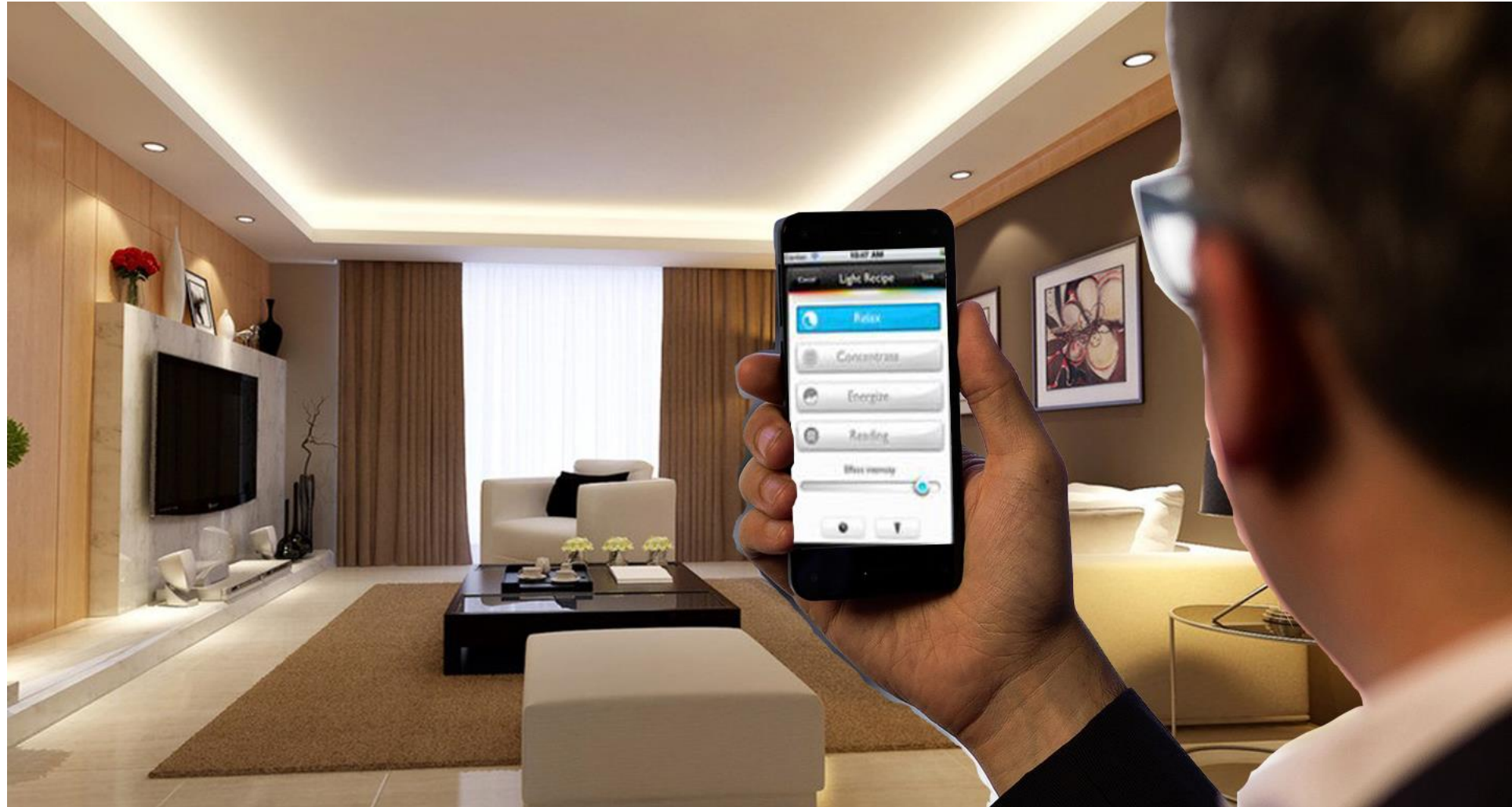
Technologies fueling new Smart Manufacturing paradigms

-  Mobile Internet
-  Automation of knowledge work
-  The Internet of Things
-  Cloud technologies

Smart Manufacturing is fueled by a convergence of technologies and process improvement initiatives

-  Advanced robotics
- Next-generation genomics
- Energy storage
- 3D printing

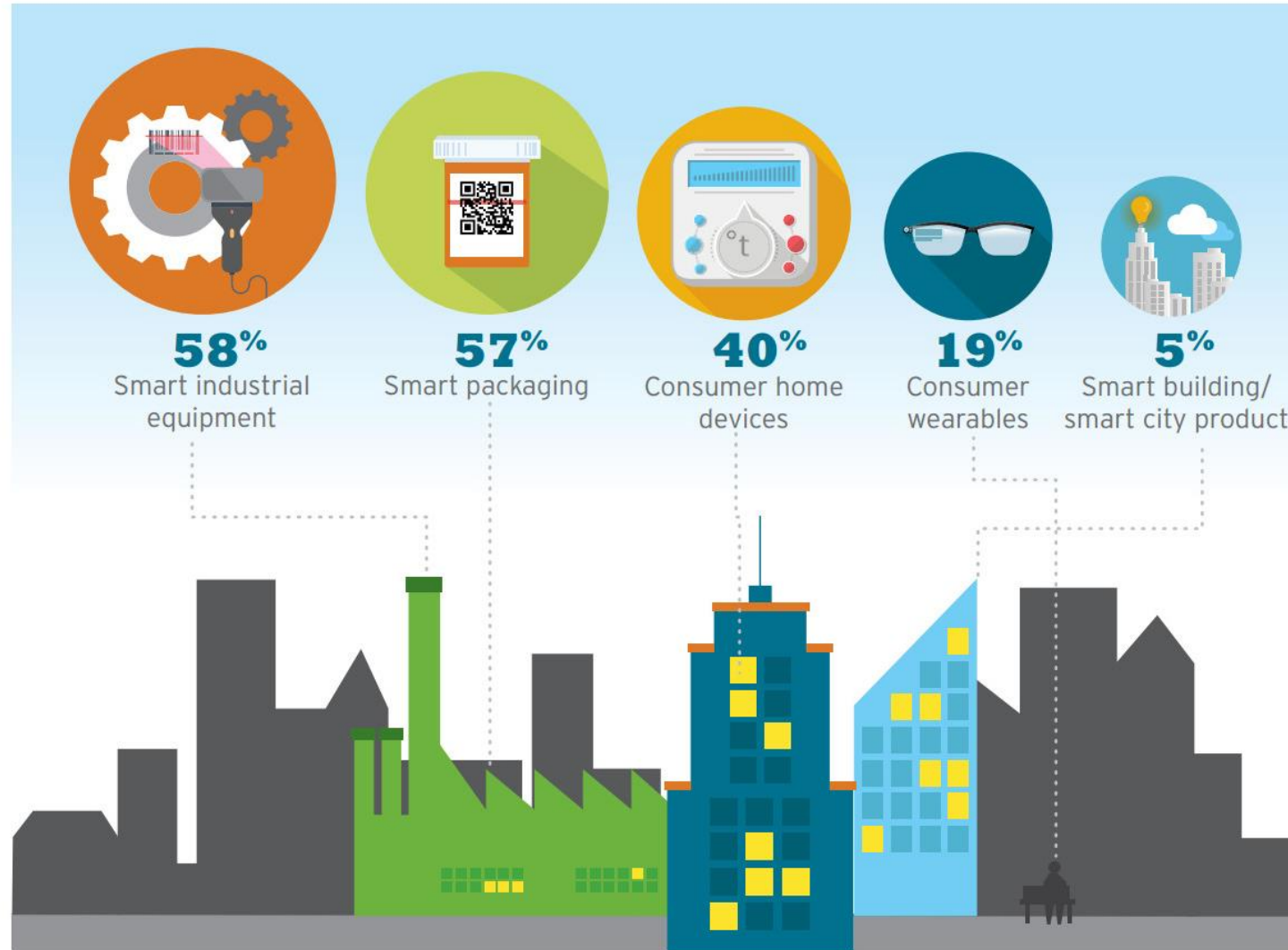
Smart at Home...



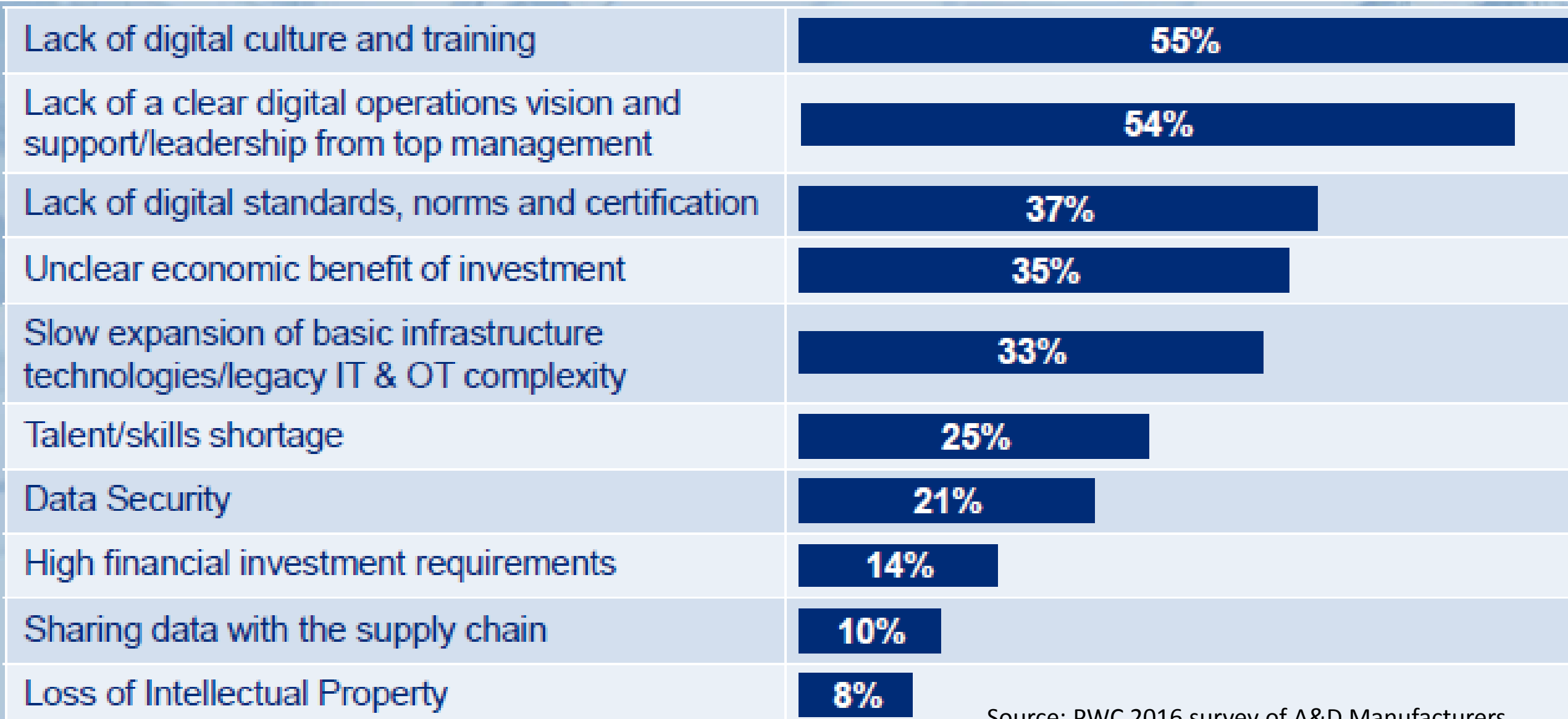
We want Smart at work too!



IoT applications advancing faster in Industry than Consumer market



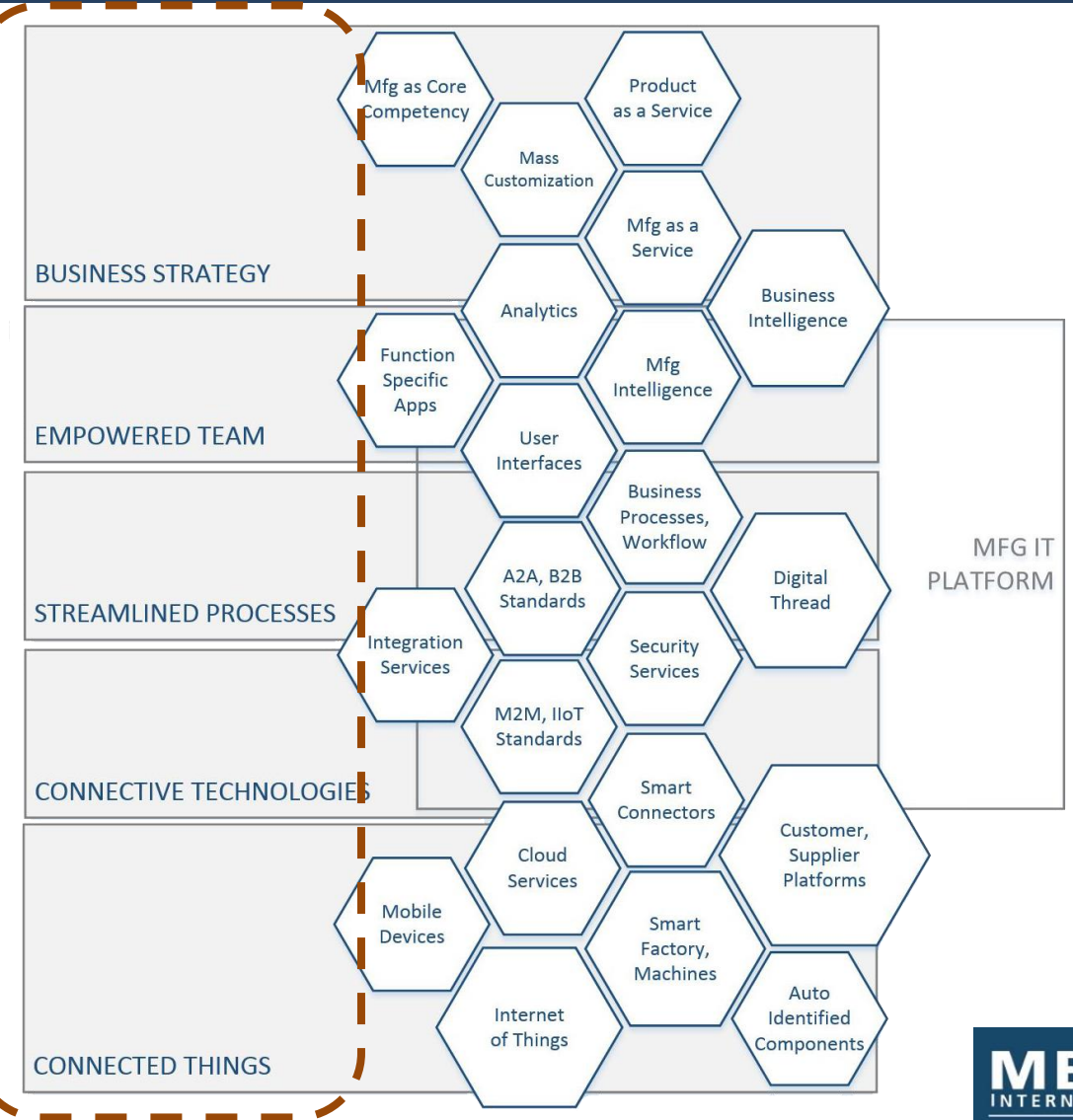
What stops us to move faster ?



Source: BWC 2016 survey of A&D Manufacturers

The Smart Manufacturing Roadmap...

The five layers of the Smart Manufacturing roadmap



Potential influence in the organization and in the performance of my supply chain

Required alignment:



People



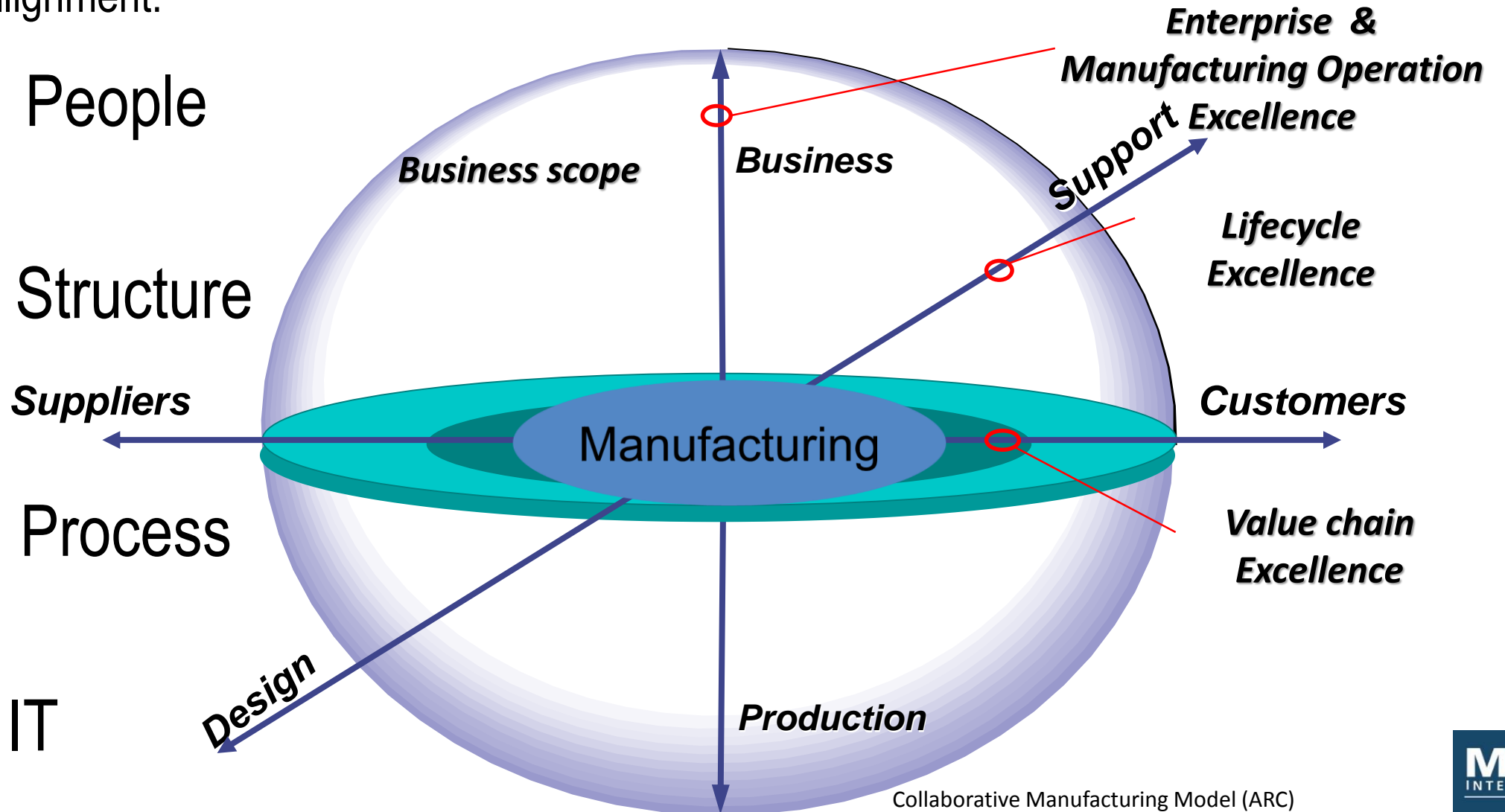
Structure



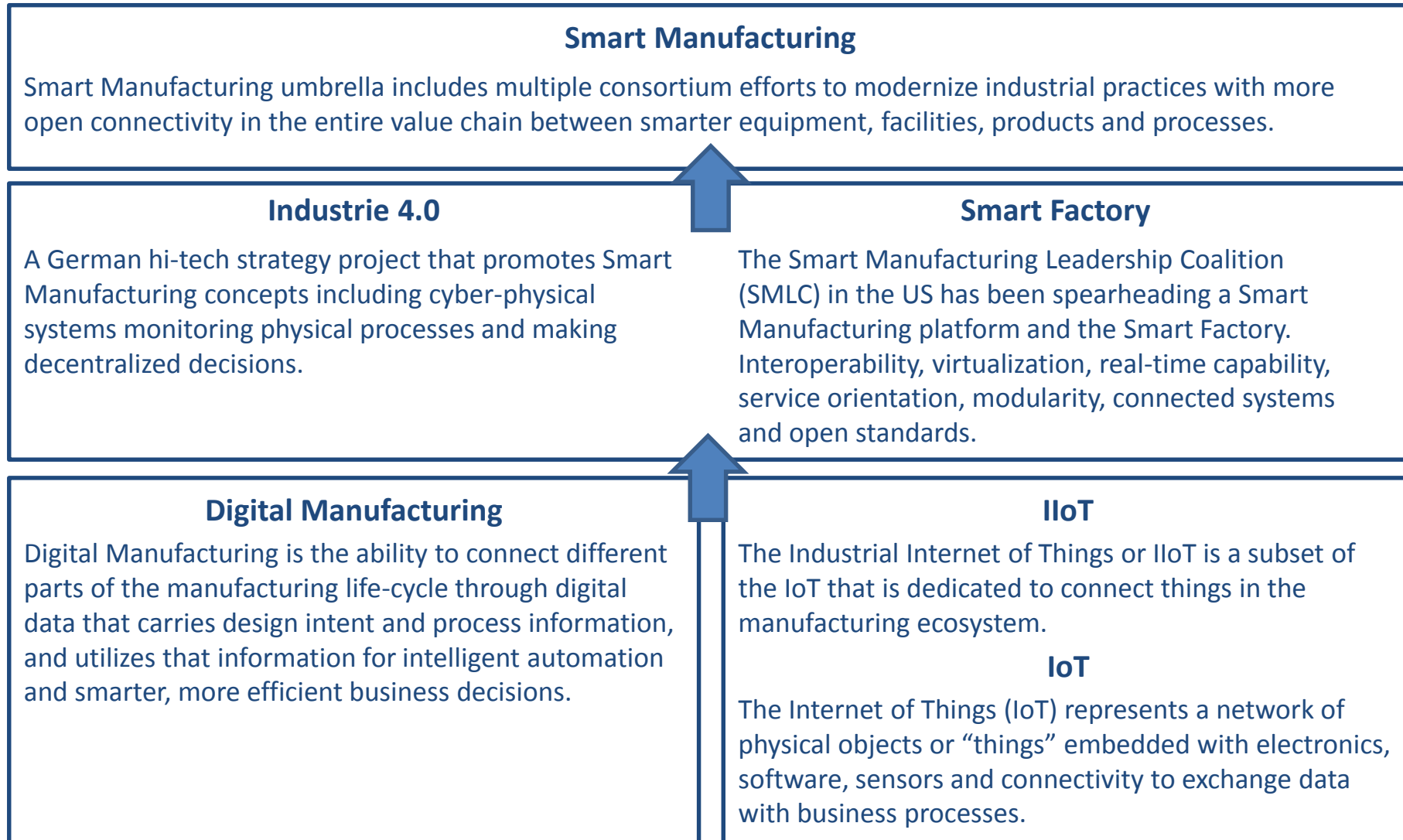
Process



IT



The IIoT is an enabler for Smart Manufacturing



Six key highlights and takeaways from this year's study (Metrics that Matter)

1 Major progress has been made around IoT awareness

While 44% of survey respondents indicated that they didn't understand IoT in 2015, in 2016 this number dropped to 19%.

Do not understand IoT:

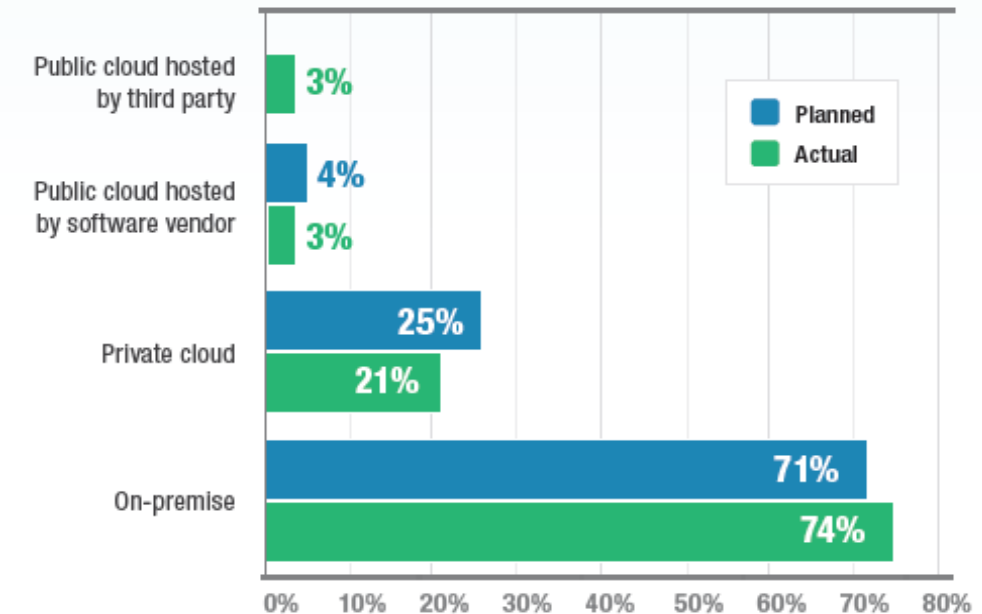
2016: **19%**

2015: **44%**

2 Movements in MOM

On-premise deployments still dominate industry, but the move toward Software as a Service (SaaS) is underway with 26% of respondents already operating MOM functionality from the cloud. 29% of respondents planning a MOM software deployment also listed cloud as their preferred model.

Actual and Planned MOM Deployment



Six key highlights and takeaways from this year's study

3 When it comes to performance measurements "cash is still king"

Which manufacturing metrics does your company rely on for managing your operations?

Financial, Quality, and Efficiency metrics dominate operational concerns.



Financial: **47%**



Quality: **38%**



Efficiency: **34%**

Followed by Customer Responsiveness, Asset & Maintenance, and Inventory Focused metrics.



Customer Responsiveness: **24%**

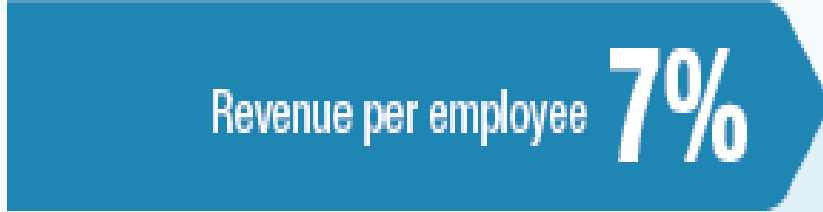


Asset & Maintenance: **19%**



Inventory Focused: **18%**

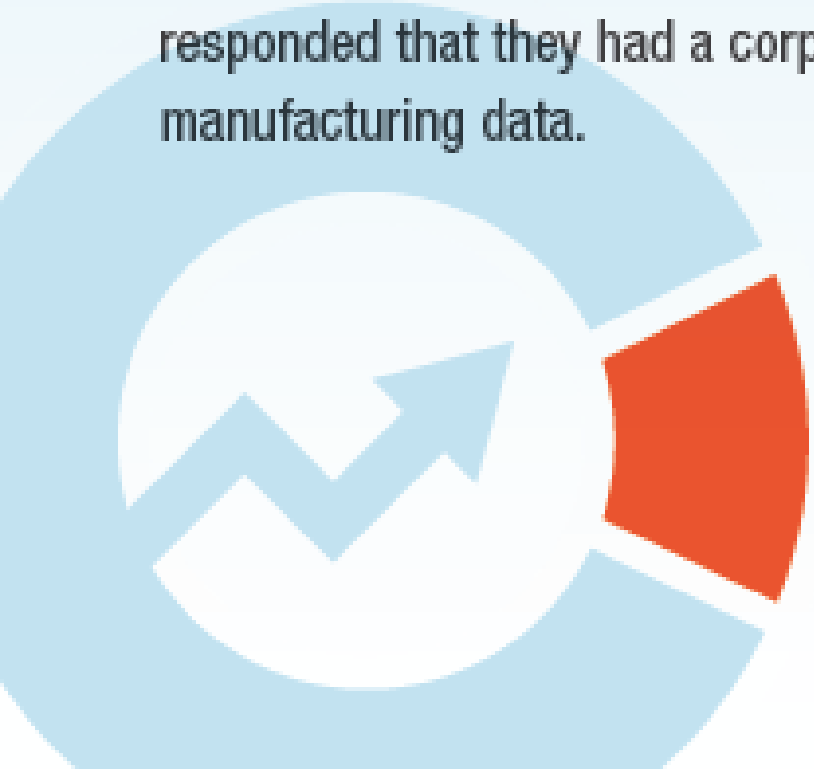
4 Improvements in Financial Metrics



Six key highlights and takeaways from this year's study

5 Data Analytics Maturity Lagging

Manufacturers have work to do to catch up to current capabilities—only 14% responded that they had a corporate analytics program in place that uses manufacturing data.

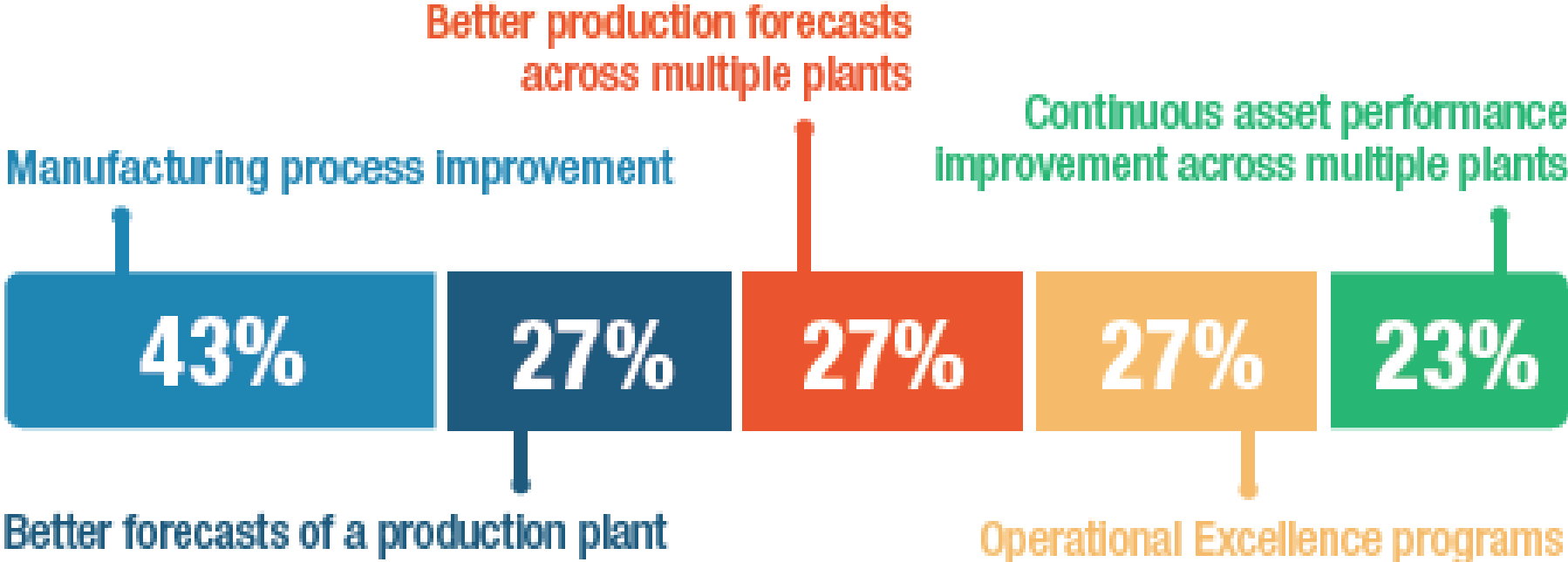


14% Only use manufacturing data in analytics

Six key highlights and takeaways from this year's study

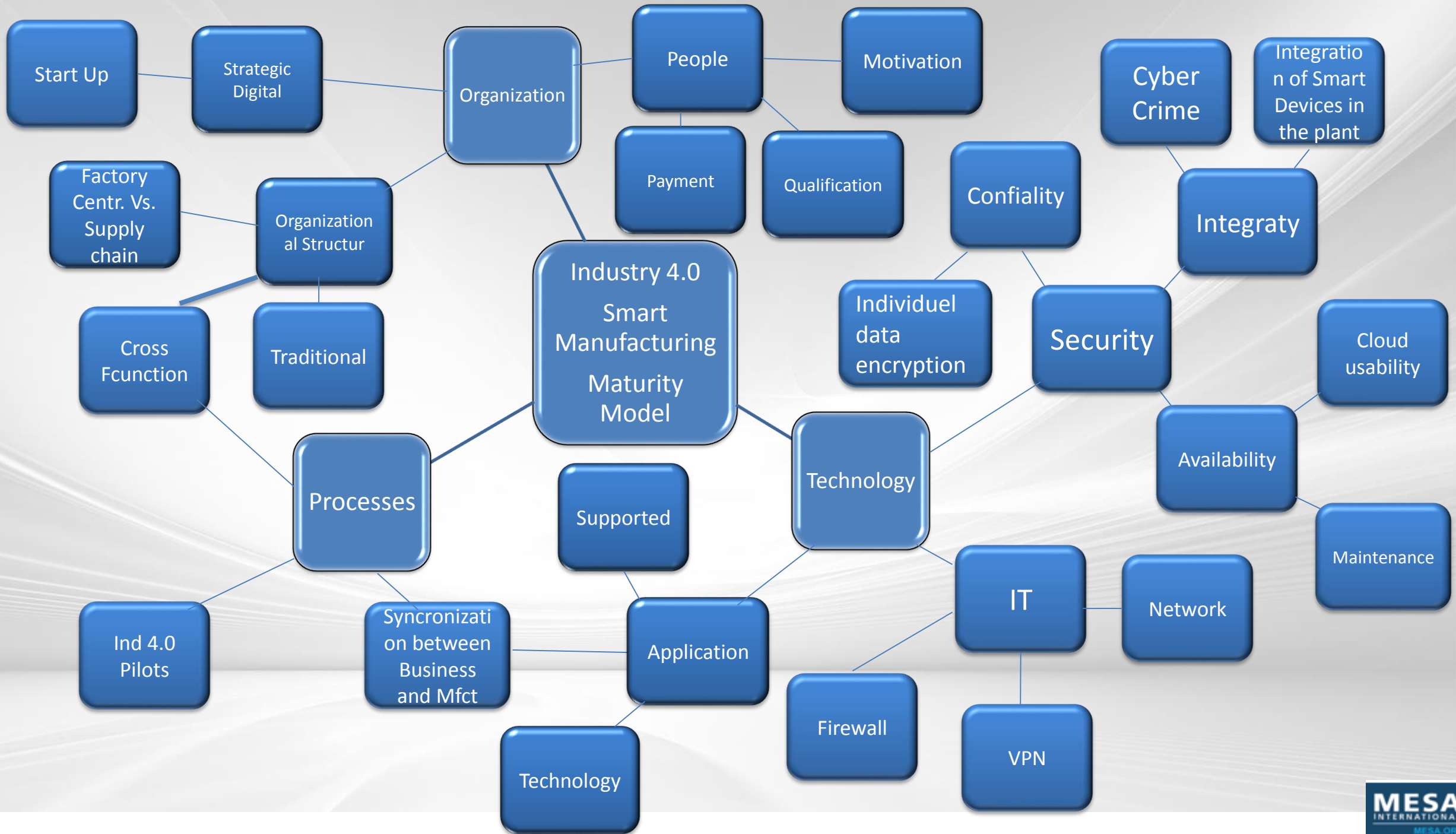
6 How Are Analytics Being Used Inside the Enterprise Today?

The top five use cases are:



How mature are you in your organization?





The CTO Questions and 4 points to consider

Eight questions for the chief transformation officer



1

Do I have the full backing and confidence of the CEO and the board?



5

Am I coaching the CEO and top team and successfully changing how they lead the transformation?



2

Have I taken on incumbent vested interests and slaughtered relevant sacred cows?



6

Do I have a clear-eyed view on where the real value lies and where we cannot afford to compromise?



3

Have I established a rhythm and clock speed that is changing the metabolic rate of the business?



7

Have I intentionally picked some fights with senior line leaders and gotten them to change?



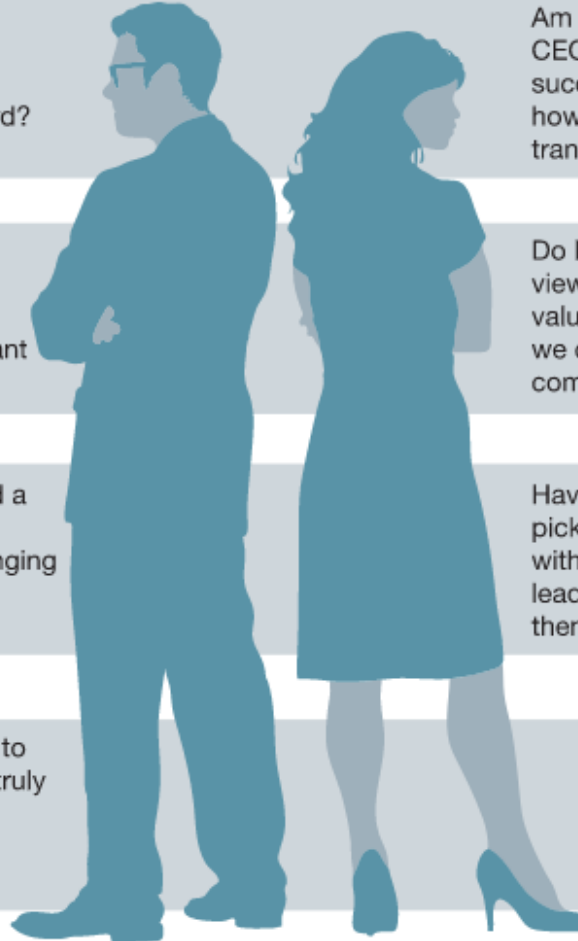
4

Have I connected to the front line and truly understood its perspectives and frustrations?



8

Do I understand the dominant culture and mind-set and where it needs to shift?



Some considerations

Positive company climat (Enviroment)?

Strong Governance?

It is not an IT problem but IT is an enabler!

Where are the facts that can clearly show an optimization?

How do i make my world better!?

Clarity: What does digital means for you in your industry and for your company specifically?

Urgency: And that's a difficult one for many to understand if a company is still performing well. Why should they change?

Planning: What's an appropriate plan to do this at scale?

Recognition of your current company setup and how to change it to adapt to the new environment. This includes talent management.

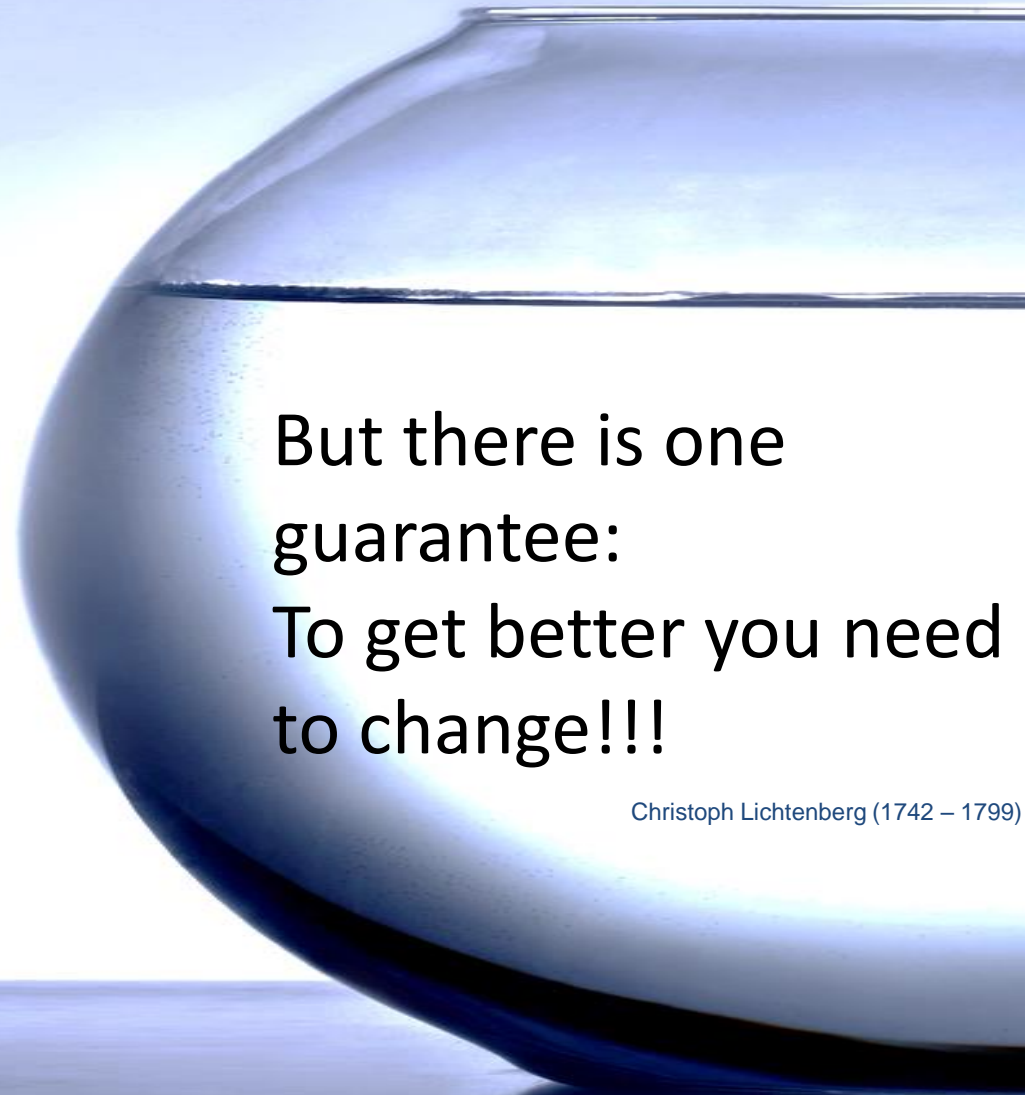
Four phases of a successful digital transformation program by McKinsey

- Discovering the ambition for the business based on where value is migrating
- Designing a transformation program that targets profitable customer journeys
- Delivering the change through an ecosystem of partners
- **De-risking the transformation process to maximize the chances of success**

What are your innovation projects ?



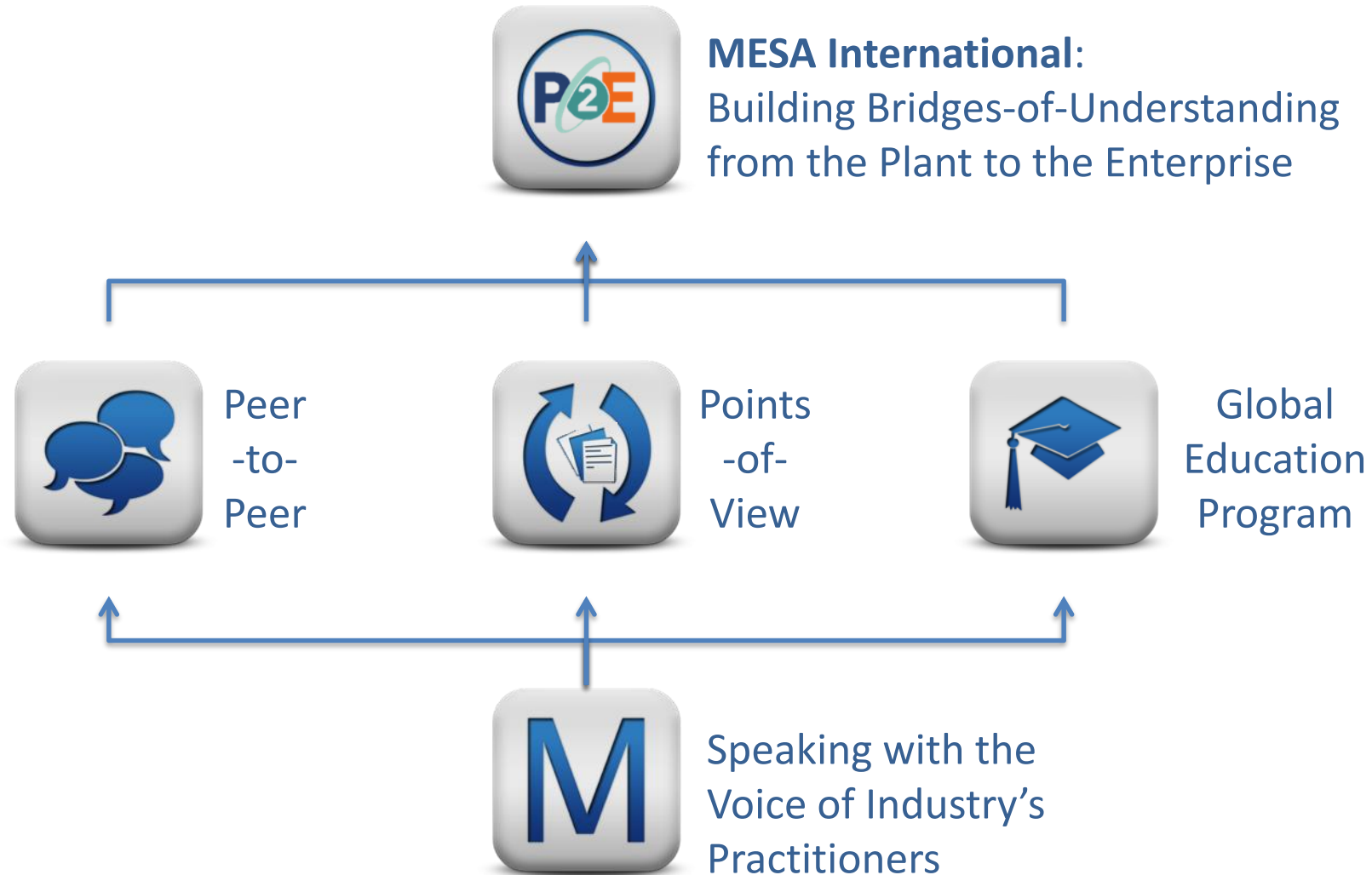
There is no guarantee that it
will be better once you change



But there is one
guarantee:
To get better you need
to change!!!

Christoph Lichtenberg (1742 – 1799)

How MESA Delivers



Introduction to MESA International



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Introduction to MESA International



Find Business Value Where
Manufacturing Meets IT

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