



# **IoT** INTERNET OF THINGS EXPERIENCE FOR MANUFACTURERS

**A VIRTUAL EVENT**

**SOFTWARE, SENSORS  
AND CONTROLS**

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# System Integrators to help you along your Digital Transformation / IoT Journey

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Control System Integrators Association

# Agenda

- Digital Transformation / IoT beyond the Hype
- Digital Transformation / IoT Journey
- The Role of the System Integrator

# Transformations don't always feel like Transformations

Conventional

New



Look very similar: Both approaches bring passengers from Point A to Point B upon request...

What is the vision for your company?



**What are your main goals? Where are your main pain points? What are your current constraints?**

**Production Flexibility**

**Cost Reduction**

**Energy Efficiency**

**Shorter Production / Product Development**

**Sustainability**

**Higher Throughput**

**Reduced Downtime**

**Increased Output**

**Quality**

**Safety**

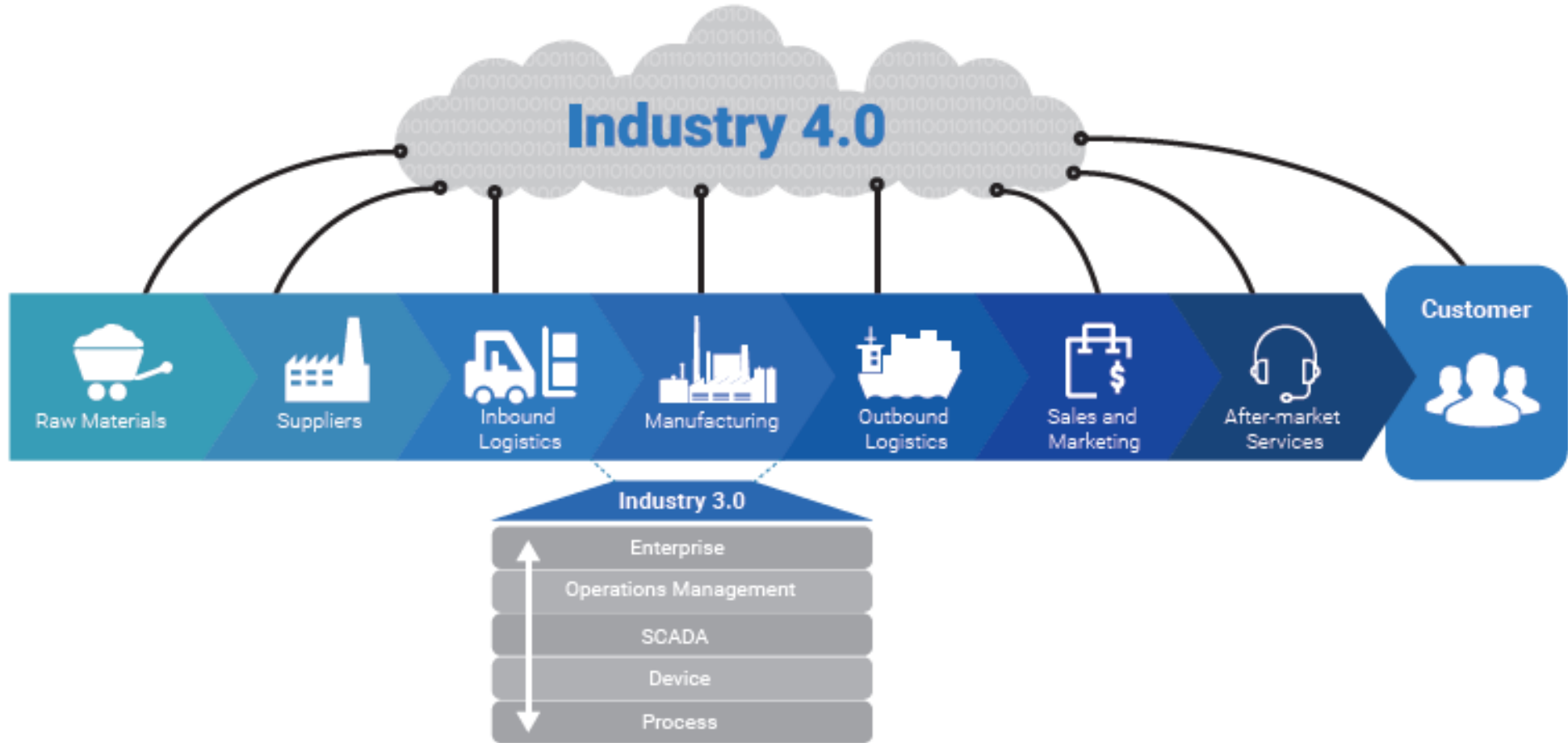
# Technology as an Enabler, not the Goal

One Definition for *Digital Transformation*:

- *“The transformation of industrial products, operations, value chains, and aftermarket services that are enabled through the augmentation of people and knowledge, through the expanded use of sensors, data and analytics.”*

ARC Advisory Group

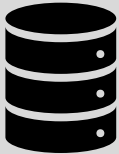
# The Bigger Picture



**Figure 2:** From Industry 3.0 to Industry 4.0



# Flat rolled steel supply and coil processing plant



Steel rolls

Receiving

Warehousing



Processing to customer requirements

Straightening

Cutting

Crating



Finished Product

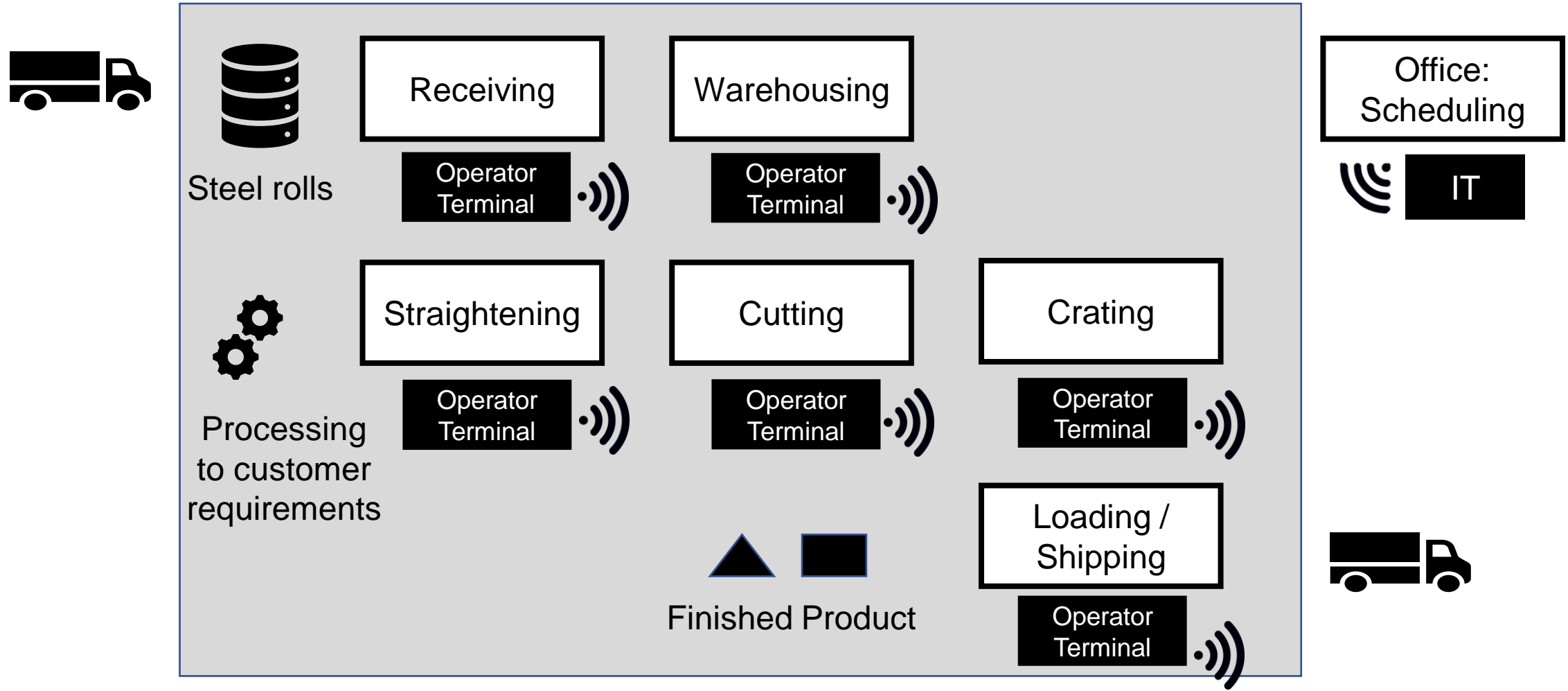
Loading / Shipping



# Goal: Increased Throughput

- Integration of existing machines / manufacturing stations into a comprehensive system (including order entry, shipping,...etc.).
  - Installation of some equipment (sensors, gateways) to extract and transmit machine and process data wirelessly.
- Operator terminals on the production floor to provide work up-to-date instructions and process relevant information to operators (KPIs).  
Elimination of paper.
- Monitored throughput and utilization of equipment to identify and remove constraints and drive continuous improvement.

# Flat rolled steel supply and coil processing plant



# An example of Digital Transformation / IoT?

- A very solid start – for sure.
- Is their vision driving further refinement / investment?
- Where are the new bottlenecks?
- Will additional investment deliver the required ROI?
  
- Technology as an enabler, not the goal.

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# The Importance of a Framework

- Digital Transformation / IoT provides immense opportunities. It is easy to get lost.
- A framework leverages experienced gained by others, helps expedite the deployment and ensures that the most critical aspects are considered / addressed.
- The Singapore Smart Industry Readiness Index is viewed as a practical framework by many.

# The 16 Dimensions of Assessment

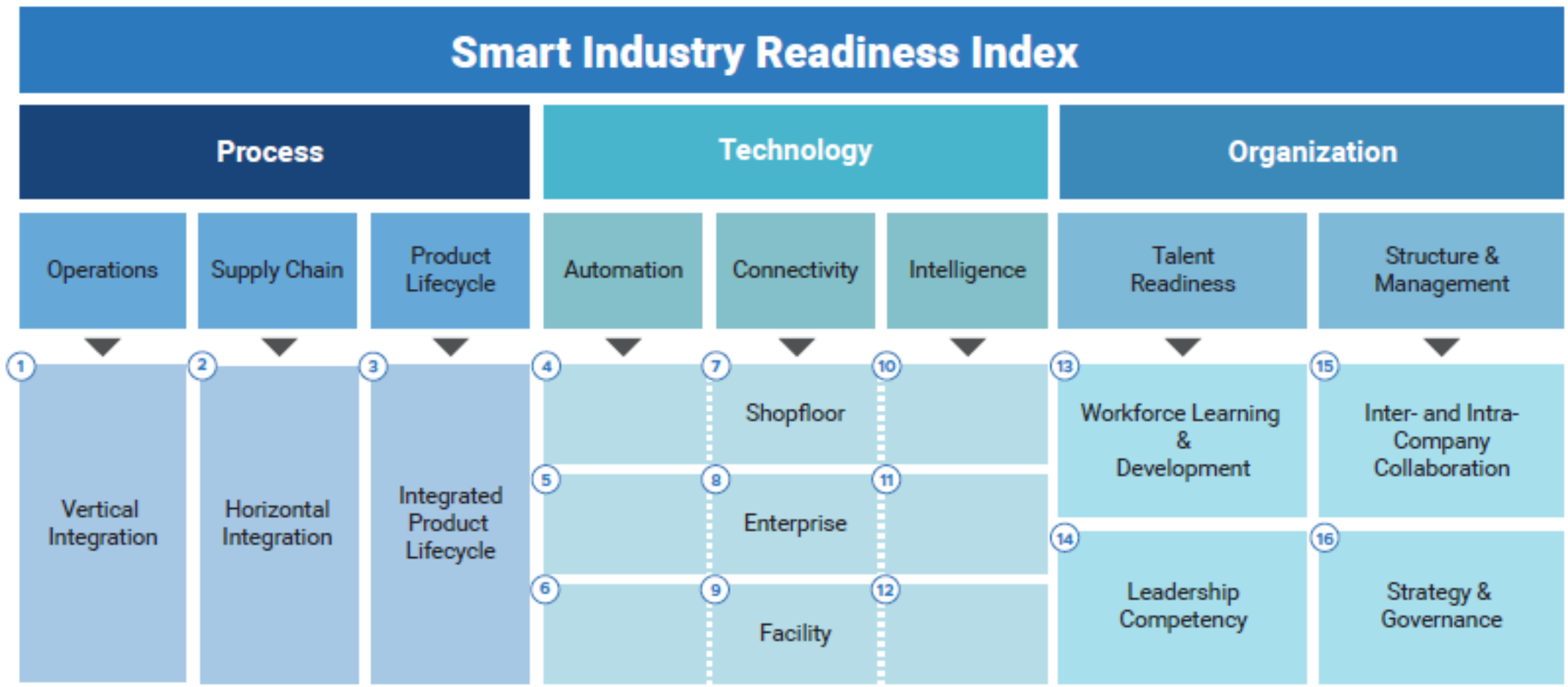
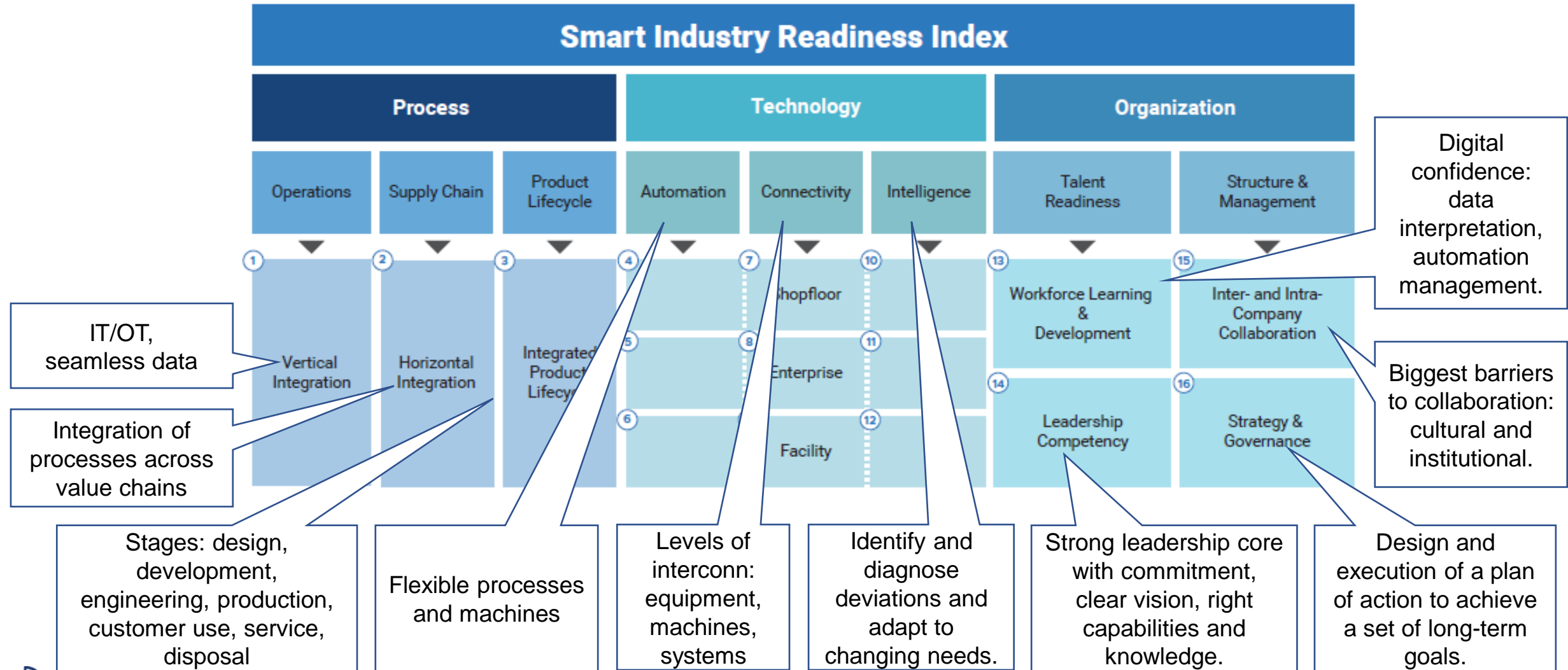


Figure 6: The 16 dimensions of assessment

# The 16 Dimensions of Assessment





# A possible guideline 1/2

1. Build a digital transformation team and dedicate the required resources.
  - Leverage digital transformation to address critical challenges faced by the company: higher manufacturing flexibility, increased OEE, etc.
  - Assign a cross-functional team to craft the vision of what digital transformation could translate into for their company. Develop a strategy to deploy over an extended period (to be set and with the expectation to be regularly reviewed).
2. Provide upper management endorsement with ongoing support and funding.
  - This team reports regularly on project status to upper management.
  - Upper management engages and gets involved to confront organizational barriers.
  - Make upper management's support and transformation progress visible to the entire organization; ideally through a regular internal communications campaign.

# A possible guideline 2/2

## 3. Involve and gain buy-in from the entire organization.

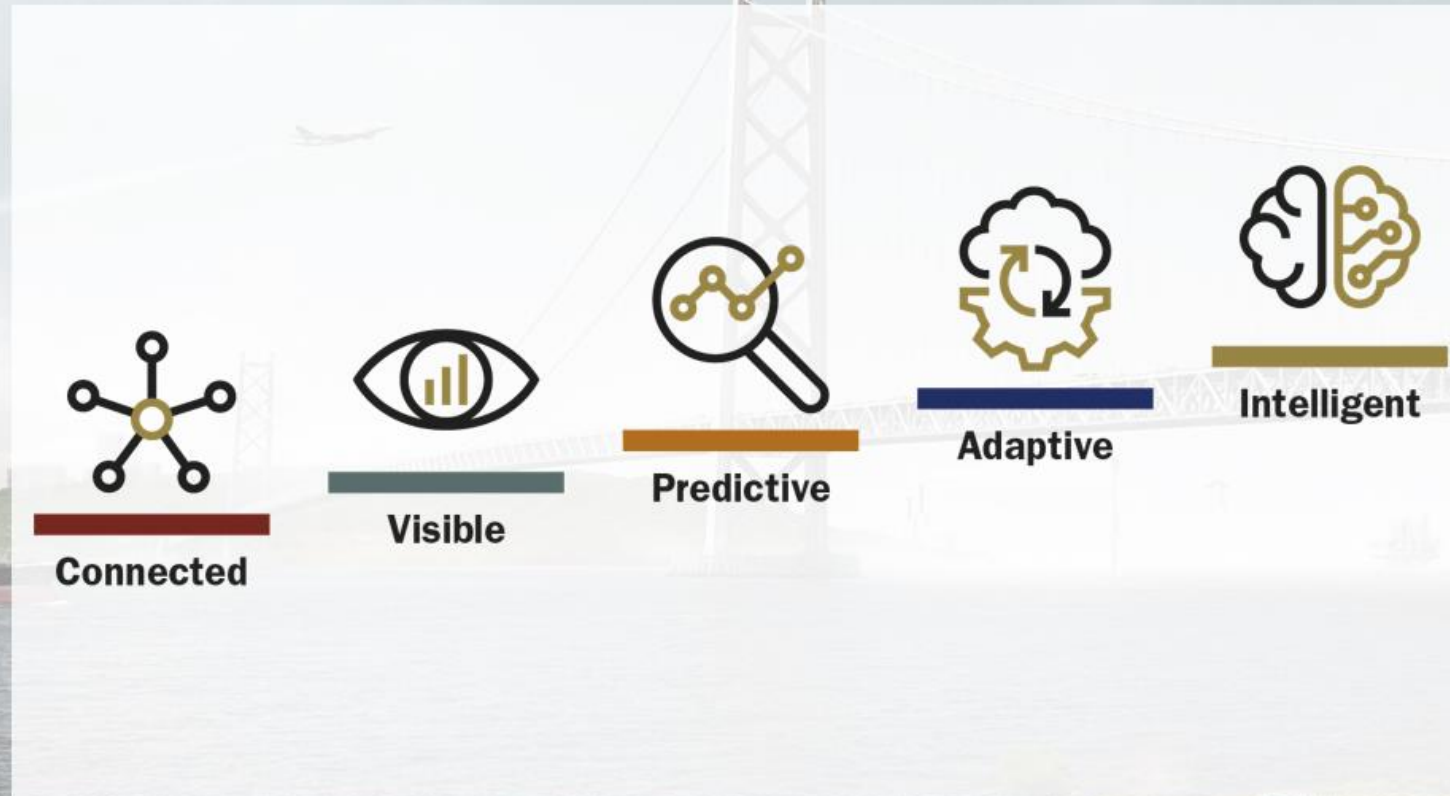
- Transformation is about disruption, and this requires serious change management.
- The goal is for most not “lights out manufacturing” but of operators playing an elevated role, empowered through advanced tools to make better decisions.

## 4. Bring in the experts when internal resources are overloaded or to aid in those areas where in-house expertise is lacking.

- Assess the organizational maturity early is wise as the success of many projects depends on the human element.

# What your Roadmap could look like

## Production Intelligence (PI) Maturity Model

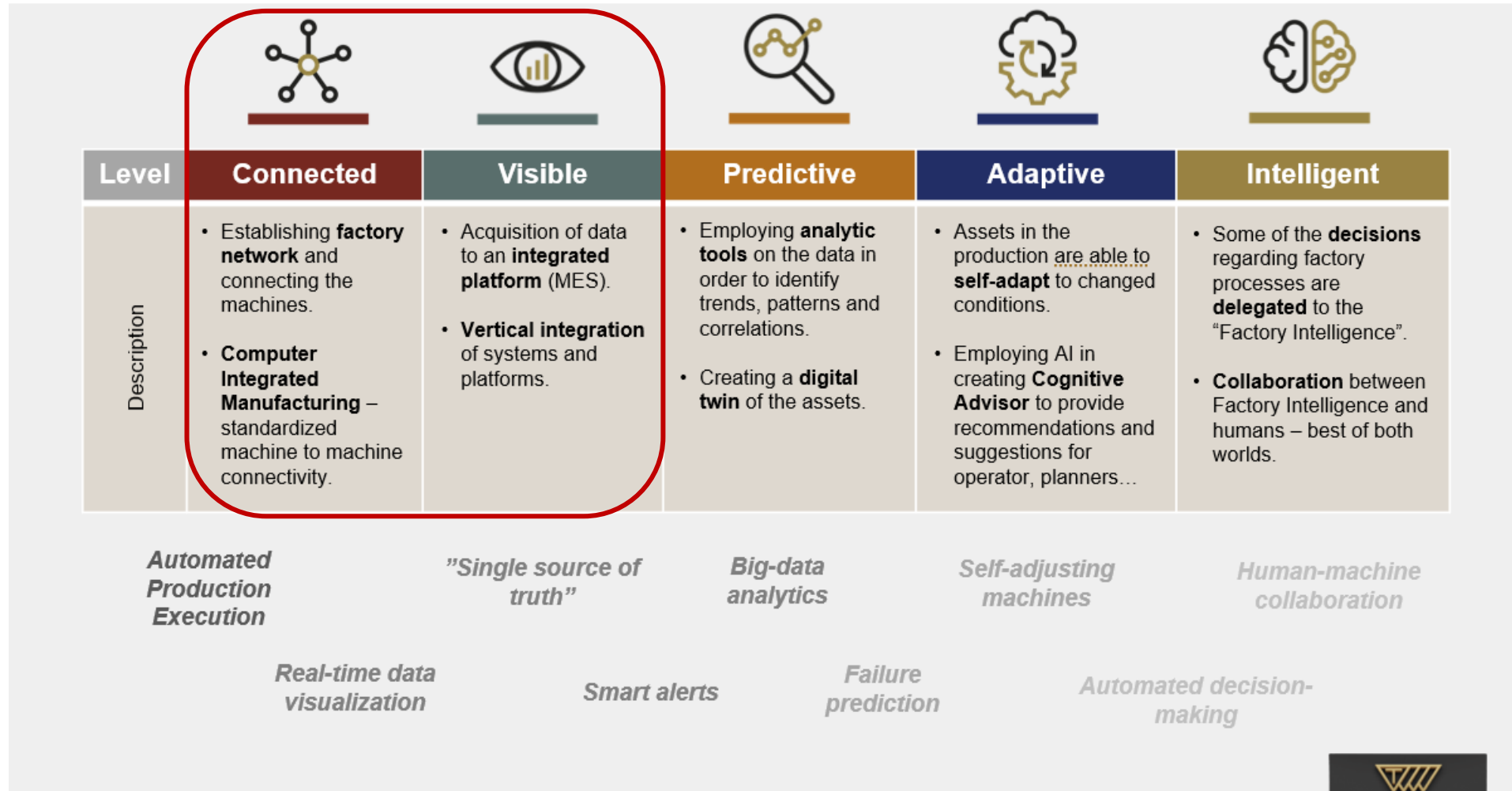


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# What your Roadmap could look like



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# The Role of the System Integrator in the Digital Transformation

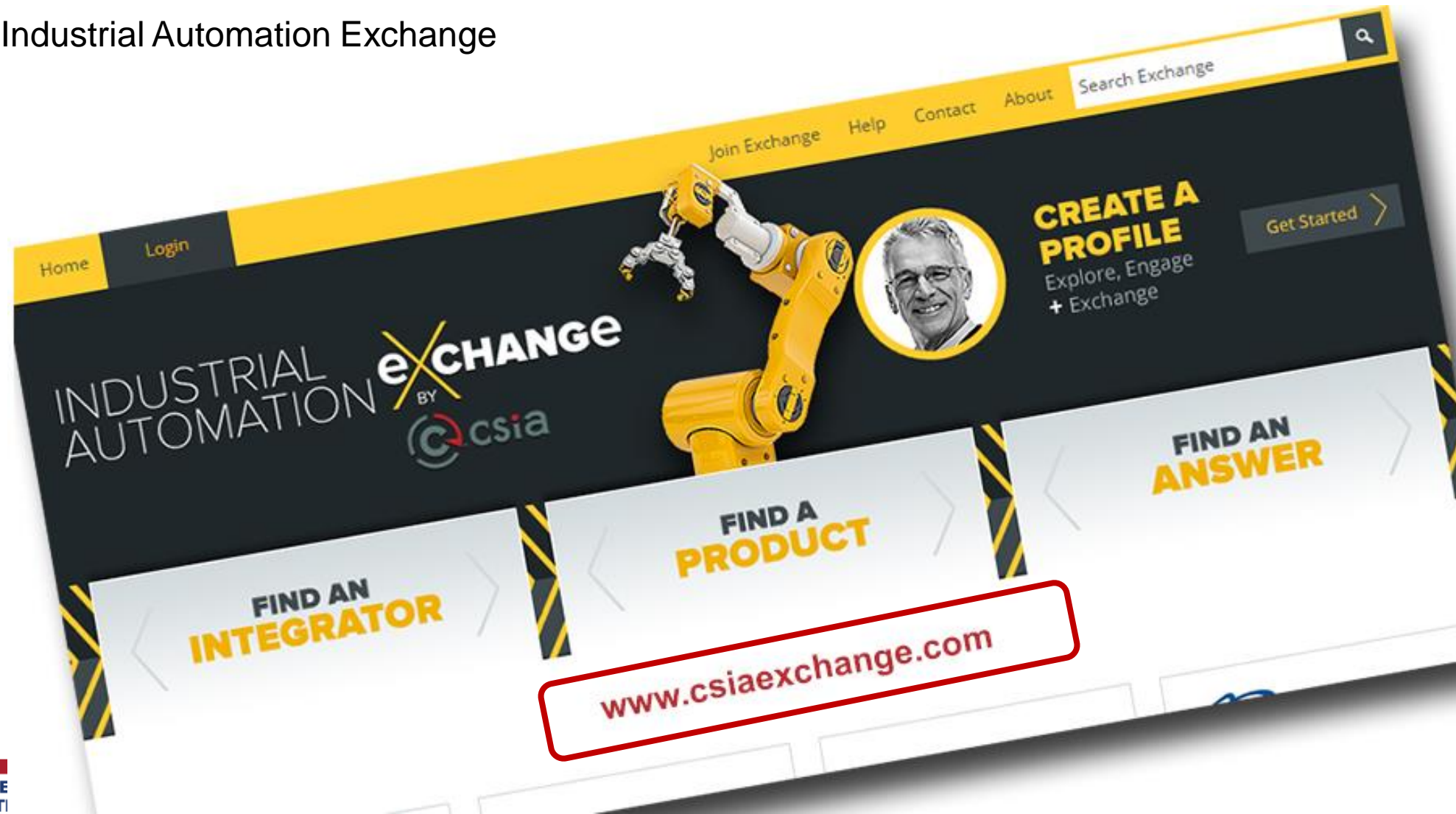
- Data: Fundamental to Digital Transformation / IoT.
- Connectivity: Likely first major challenge for most.
- Most brownfield manufacturing plants / machines not designed with data capturing and sharing in mind.
- Patchwork of legacy systems to be networked with the appropriate cyber-security protections.
- Latter steps to make data “visible”, i.e. put into context.
  - Example: Provide machine operator with machine KPIs to enable better decision making.
- **These are all traditional areas of expertise of the System Integrators (SI).**

# The Role of the System Integrator in the Digital Transformation

- Many additional steps can follow deploying adaptive and intelligent systems once the organization has taken care of the basics and gained confidence.
- Beyond the deployment of technology, SIs can play an emerging role, namely that of a trusted advisor in the early stages of digital transformation plan development. SIs could supplement the cross-functional teams with cost estimates and technology options.

# Where to find the right System Integrator for you?

Industrial Automation Exchange





# Thank You

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