

OMRON



Industry Solutions

Are We Ready to Manufacture the Future Battery?

May 17th, 2017



CORPORATE OVERVIEW

Globally and within the Americas

OMRON

Who is

OMRON

At a glance



84+ years — founded in 1933

\$8.5 billion annual sales

300+ offices in 150 countries

38,000+ employees

40% industrial automation

7% annual R&D investment



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NASDAQ

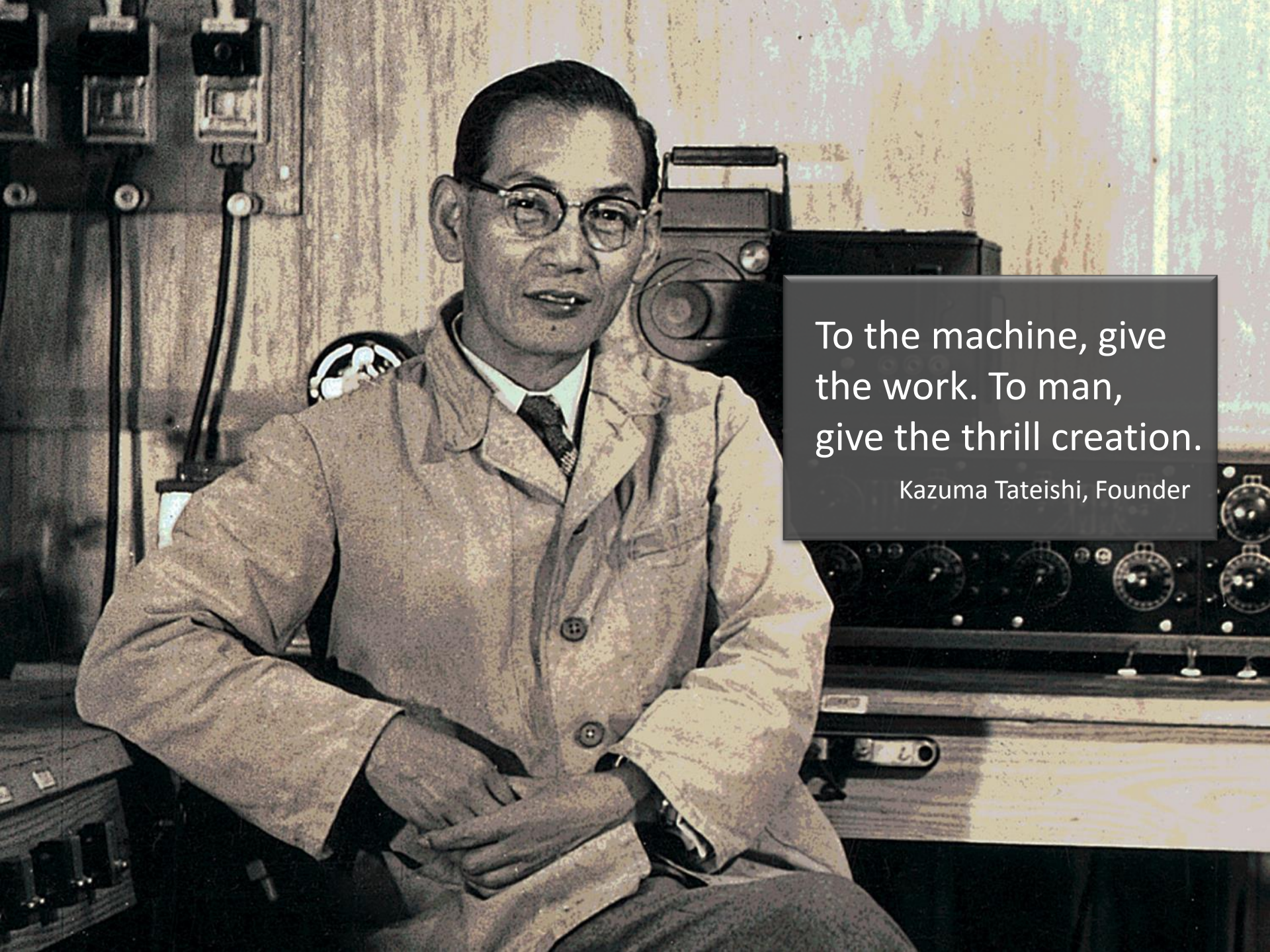
Listed in Forbes Top 2000 largest companies of the world
Omron Corporation NASDAQ: OMRNY
Top ranking in Dow Jones Sustainability Index
Thomson Reuters Top 100 Innovators

2012 THOMSON REUTERS
TOP 100
GLOBAL INNOVATORS



Dow Jones
Sustainability Indexes
Member 2011/12

NASDAQ



To the machine, give
the work. To man,
give the thrill creation.

Kazuma Tateishi, Founder

FUTURE FACTORY

Are we there yet?

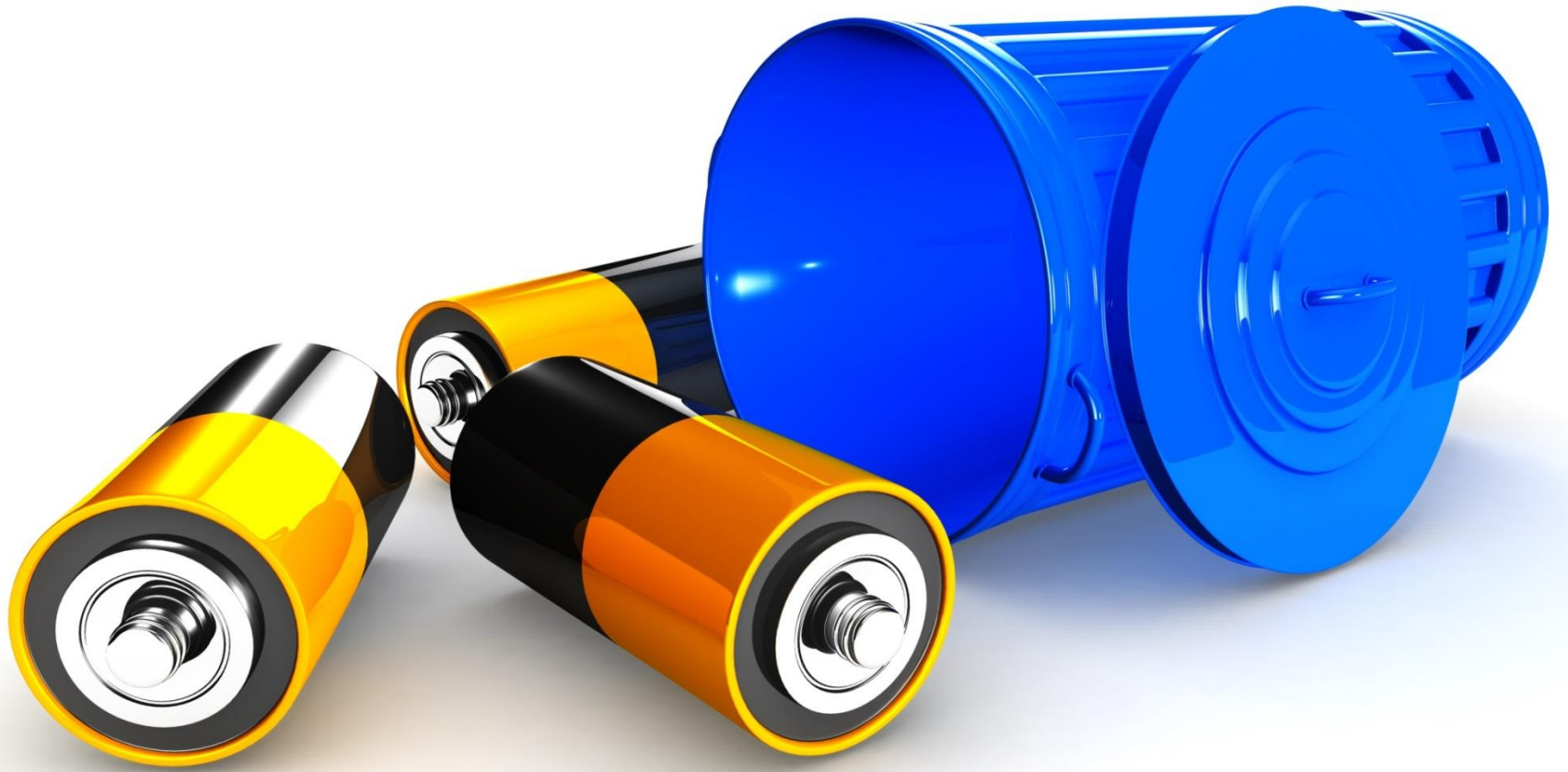
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A modern industrial factory interior with a yellow overhead crane and a blue text box. The factory has a high ceiling with a grid of lights and a polished floor with yellow safety markings. The text box is blue with white text, and the words 'strategy', '5', and '10' are highlighted in yellow and green respectively.

What is your manufacturing and people development **strategy** in the next **5** years?
In the next **10** years?




IoT has existed since **1974...**
the most compelling trend in technology
over the **past 40 years** is making dumb
technology smart



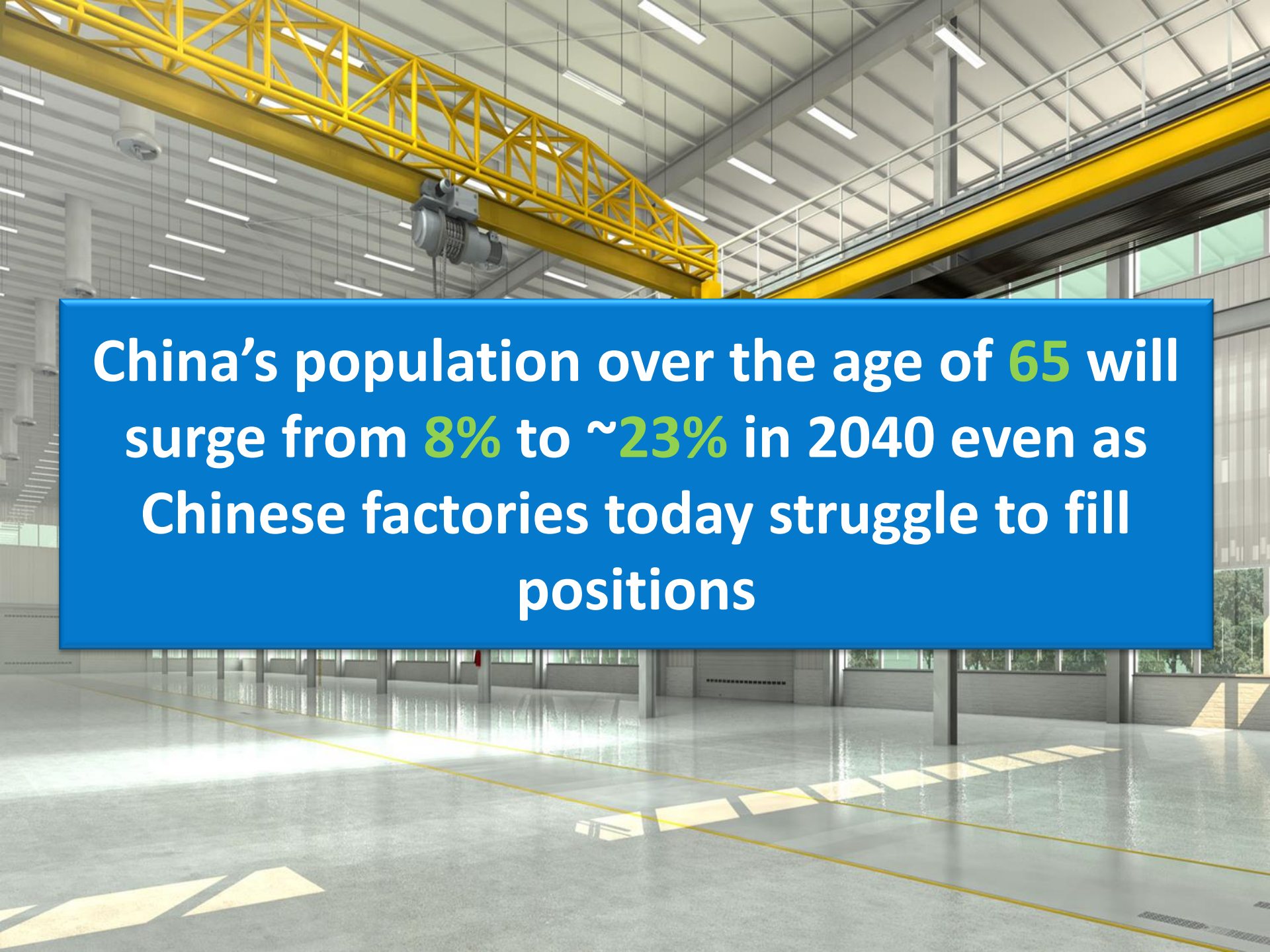
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Over **600,000** US manufacturing jobs go unfilled each year due to skill shortages

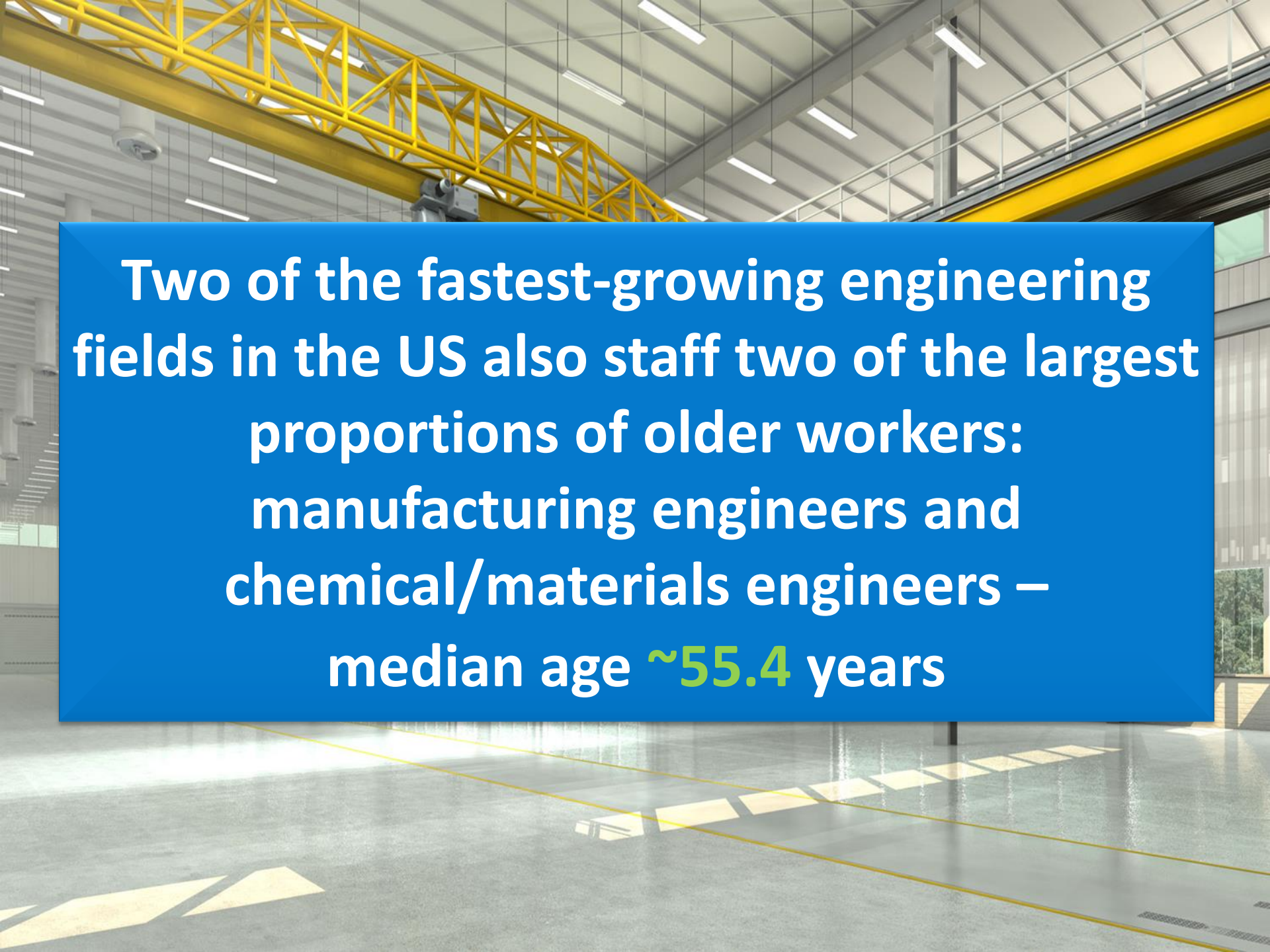
The situation in Europe is similar – European CEOs predict a possible **gap** of **>500,000** engineers by **2025**

A large, empty industrial factory interior. The ceiling is high with a complex network of steel beams and yellow overhead cranes. The floor is polished and reflective, showing yellow safety markings. The walls are light-colored with large windows on the right side. A blue rectangular text box is overlaid in the center of the image.

China's population over the age of 65 will surge from 8% to ~23% in 2040 even as Chinese factories today struggle to fill positions

A large, modern industrial factory interior. The ceiling is high with a complex network of steel beams and numerous recessed lights. A prominent yellow overhead crane system spans across the upper part of the frame. The floor is a polished, reflective grey concrete with yellow safety markings. Large windows along the right side of the building provide natural light. A blue rectangular text box is overlaid in the center of the image.

~75% of all tool & die makers are 45 years
of age or older




Two of the fastest-growing engineering fields in the US also staff two of the largest proportions of older workers: manufacturing engineers and chemical/materials engineers – median age ~55.4 years



72% of executive report a **shortage** of adequate technology and computer skills

However, only **1 in 5** manufacturers are looking for next generation employees who have **data analysis** skills

A large, modern industrial factory interior. The ceiling is high with a complex network of steel beams and numerous recessed lights. A prominent yellow overhead crane system spans across the upper part of the frame. The floor is a polished, light-colored concrete with yellow safety markings. Large windows along the right side of the building allow natural light to enter. A blue rectangular text box is overlaid in the center of the image.

80% of manufacturing executives said that a **shortage** of **skilled workers** will affect their companies in the next 12 months



A large, modern industrial warehouse interior. The ceiling is high with a complex network of steel beams and a yellow overhead crane system. The floor is polished and reflective, with yellow safety markings. Large windows along the side wall provide natural light. A blue banner with white text is overlaid in the center.

What is the **potential** impact?

A large, modern industrial factory interior. The ceiling is high with a complex network of steel beams and numerous recessed lights. A prominent yellow overhead crane system spans across the upper part of the frame. The floor is a polished, reflective grey concrete with yellow safety markings. Large windows along the right side of the building allow natural light to enter. A blue rectangular text box is overlaid in the center of the image.

McKinsey Global Institute warns that **workforce availability** threatens to reduce economic growth by **40%**

A large, modern industrial factory interior. The ceiling is high with a complex network of steel beams and numerous recessed lights. A prominent yellow overhead crane with a motor and pulley system is visible in the upper left. The floor is polished and reflective, showing yellow safety markings. Large windows along the right side provide natural light. A blue rectangular text box is overlaid in the center, containing white and yellow text.

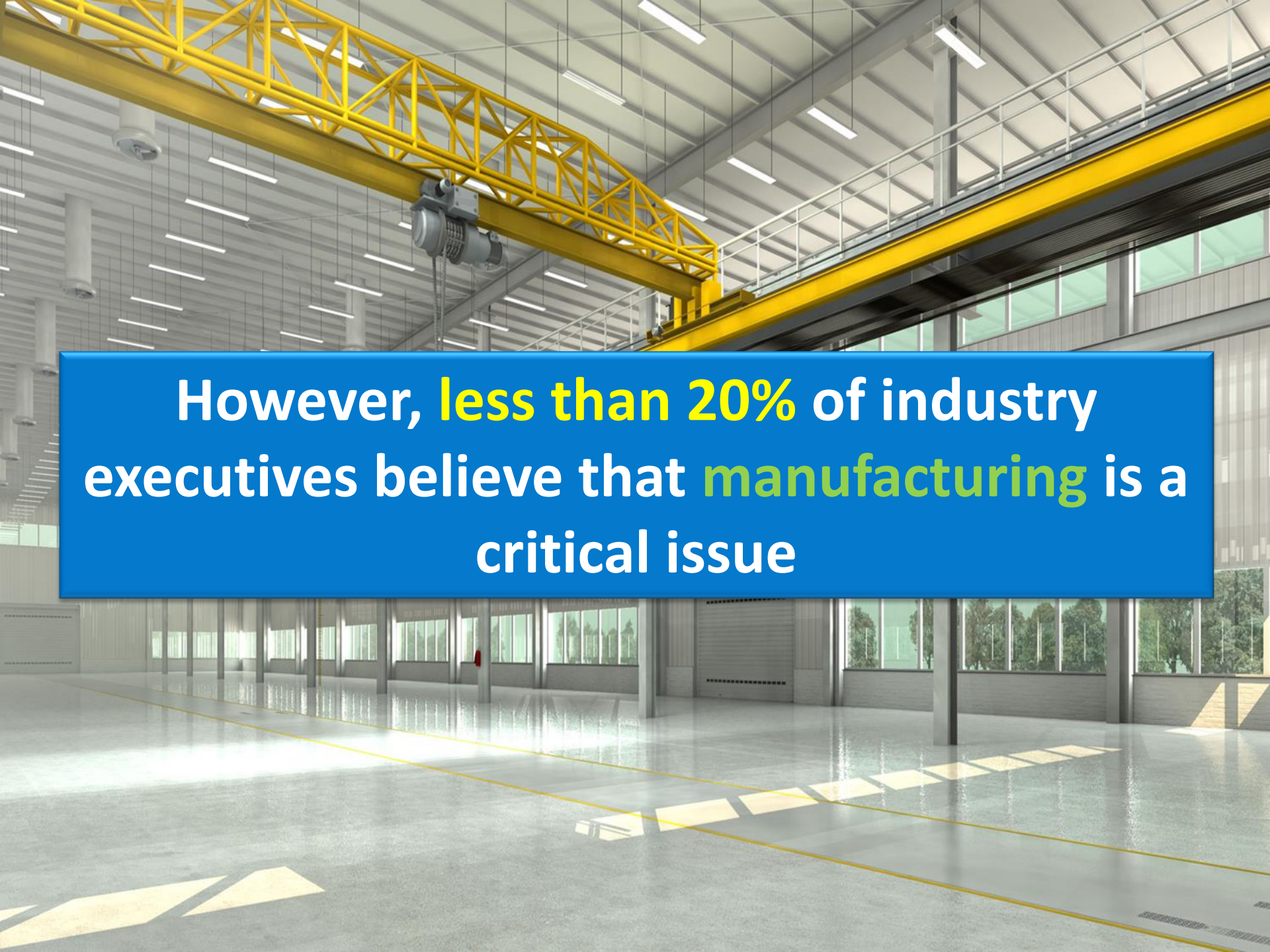
61% of manufacturers have reported
increased cycle times of 5% or more due to
skill shortages

A large, modern industrial factory interior. The ceiling is high with a complex network of steel beams and numerous recessed lights. A prominent yellow overhead crane with a motor and pulley system is visible in the upper left. The floor is a polished, reflective grey concrete with yellow safety markings, including a large arrow pointing right and a series of rectangular blocks. Large windows along the right side of the building allow natural light to enter. A blue rectangular text box is overlaid in the center of the image.

70% of manufacturers have reported
increased overtime of 15% or more due to
skill shortages

A large, empty industrial factory floor with a yellow overhead crane and a blue text overlay. The floor is polished and reflects the overhead lights. The crane is a prominent yellow structure with a motor and pulley system. The background shows a high ceiling with a grid of lights and a mezzanine level with a railing. Large windows are visible on the right side, showing greenery outside.

Manufacturers are expected to **lose** as much as **13% of their annual revenue** in 2017 due to unfilled positions

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However, **less than 20%** of industry executives believe that **manufacturing** is a critical issue

Key dimensions



Infrastructure



Intelligence



Process



H2X

Infrastructure

Multidirectional



Modularity



Sustainability



Embodies the move toward personalization and mass customization moving products closer to the source of consumption

Federated manufacturing – product design, production and support processes become integrated around the entire product lifecycle



Integrated

①

**High-Speed/High-Precision
Reduced Engineering Time
Easier Troubleshooting**

②

**Flexible & Modular Machines
Automated Changeover
Real-Time Adjustments**

Innovative

③

**Zero Downtime Equipment
Predictive Maintenance**

⑥

**Collaborative Production
Cobotics & Safety**

④

**Factory Intelligence
Collect, Store & Process Data
Analytics & Improvement**

Interactive

⑤

**Flexible Production Lines
Conveyor-less Mobile Robots**

Intelligent

Preemptive



Augmented



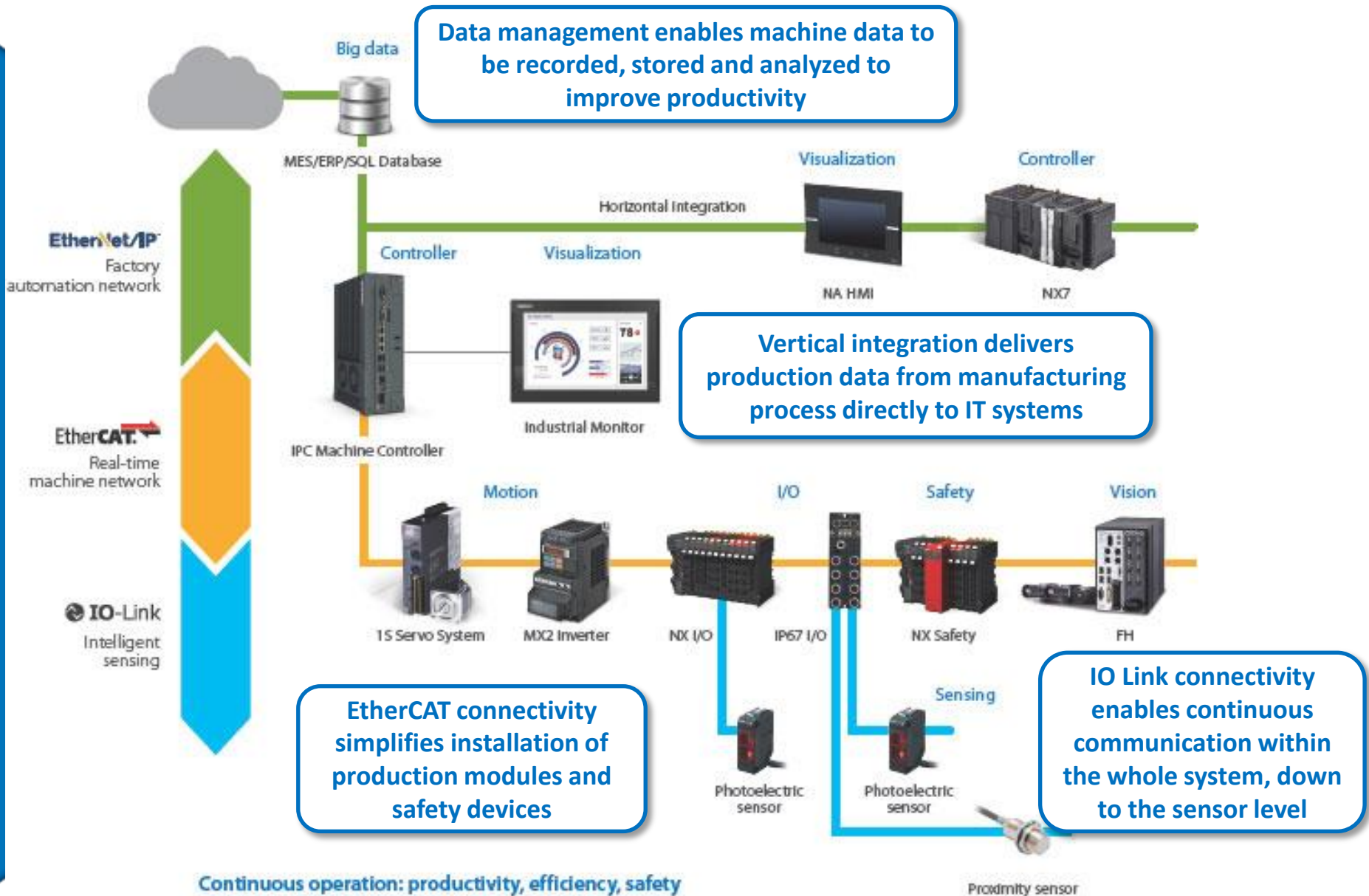
Decentralized



“Disrupt-collapse-transform-repeat” movement

Asset intensive industries will be threatened by asset light models

Connected platforms will allow learning of a different order – an anticipatory response to the business cycle





Machine to Machine (M2M)

Focus is only on specific processes or silos – prefers common protocols and common components; historically followed

Internet of Everything (IoE)

Focus moves from applications to the concepts of “spaces” – prefers diversity and avoids silos; requires different types of investment

Process

Complexity

From “just parts and products” to “as a service” model

Advanced sensing and cognitive based analytics are used to validate product performance, compliance and determine immediate returns – but this will require new levels to be developed for customer centricity



Centricity



Time
Order Pick Time
002:09:27
15:14:03

Return



While the globalization of the industry may carry us closer to universal standards for manufacturing quality and traceability, the overwhelming majority of industry recalls remain a result of either manufacturing or assembly related causes = lost revenue



**Lean
Six Sigma
Agile**

H2X



Strategy



Technical



Social

Focus on higher level tasks – to harvest the transformative benefits and create new types of value = innovative leaps

While artificial intelligence and robotic process automation hold immense promise, the required skills, current capability, and tools must be inventoried

**A
ND
THE
YLIV
EDHAP
PILEYE
VERAFTER**

What's next?



How can we improve your business?



1.800.556.6766



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