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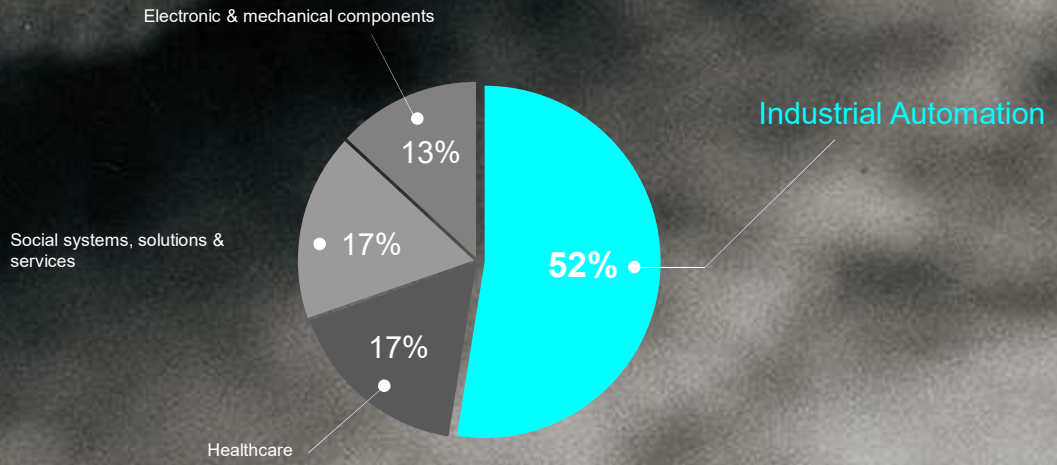


# Harmony Between Humans and Machines

Creating a collaborative workplace

To the machine the work of the machine, to man the thrill of further creation

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Dr. Kazuma Tateishi

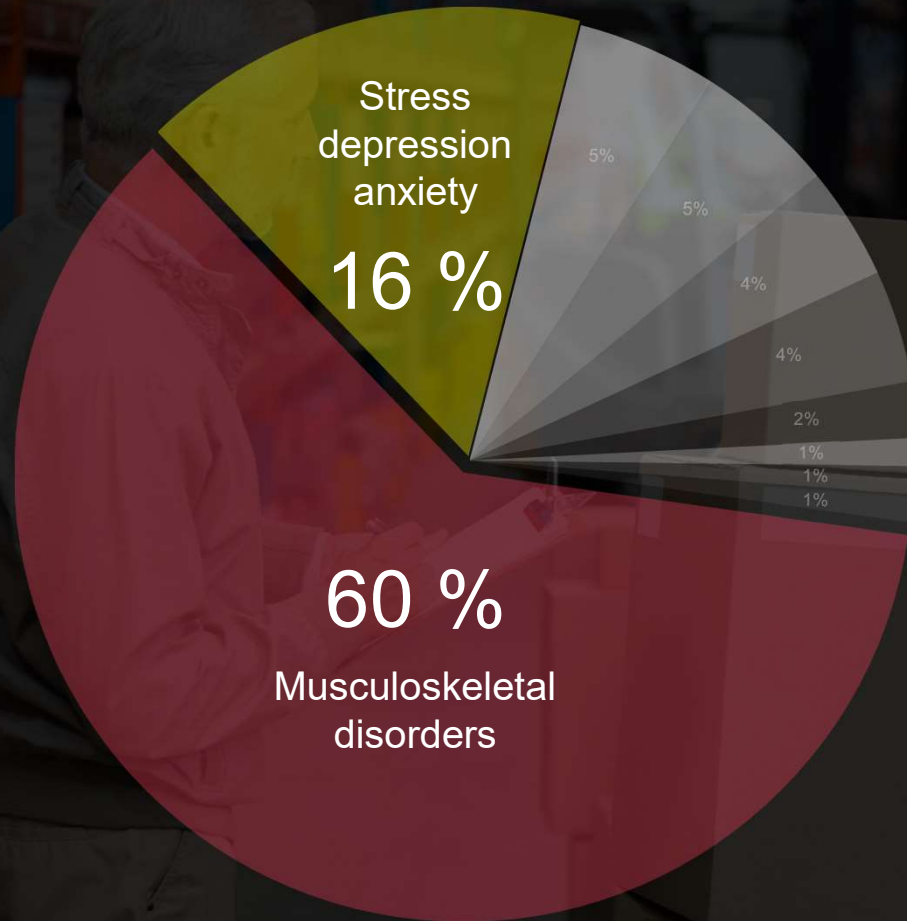




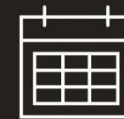
# Work-related health problems - Fact 1

Bureau Labor Statistics, EU-27

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\$2.4 billion minimum annual cost associated with employee absence (pre-Covid)



Average rate of absence up to 6% of working time

# Risk factors present in the establishment - Fact 2

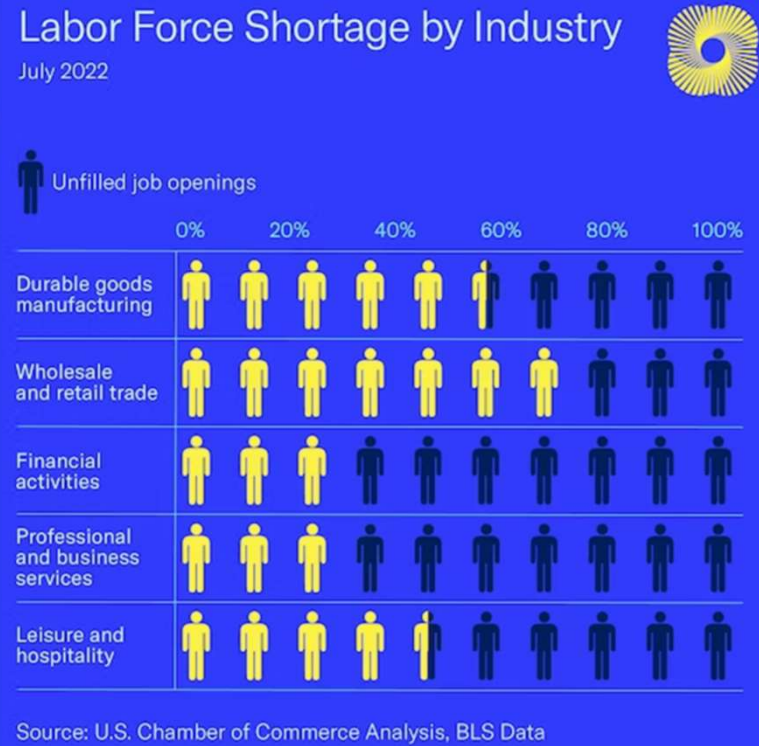
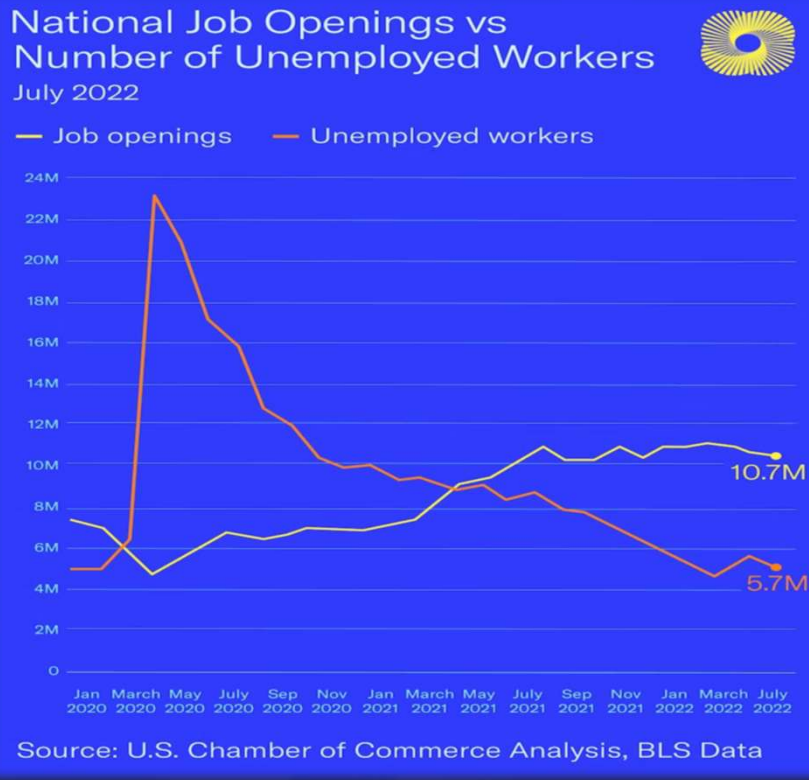
Base: all establishments in the EU28, ESENER-3 (2019) and ESENER-2 (2014)

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# America's Labor Shortage

- US Chamber of Commerce – August 2022
- <https://www.uschamber.com/workforce/america-works-data-center>



# Covid-related work problems

- US Chamber of Commerce – August 2022
- <https://www.uschamber.com/workforce/understanding-americas-labor-shortage>

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## Reasons:

- Stimulus / unemployment \$
- Increased Savings (\$4T)
- Childcare gap
- Early Retirement (3M+)
- “Great Resignation”
- Upskilling
- Wages vs. Inflation

## Labor Force Participation

There would be 3.4 million more workers today if labor force participation was the same as in February 2020



3.4M  
missing workers

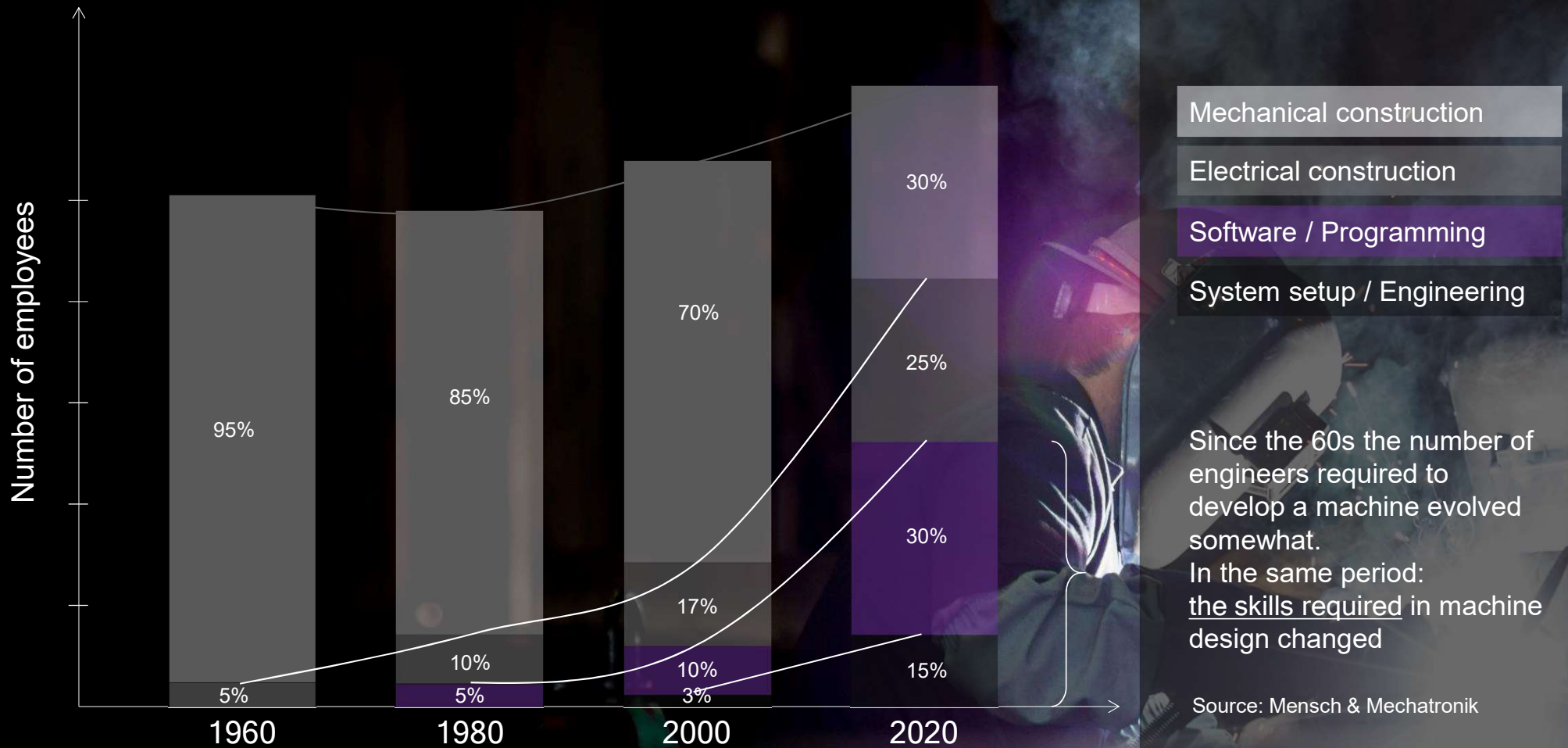




# The facts in manufacturing – Fact 2

Changes in development capacity and know-how

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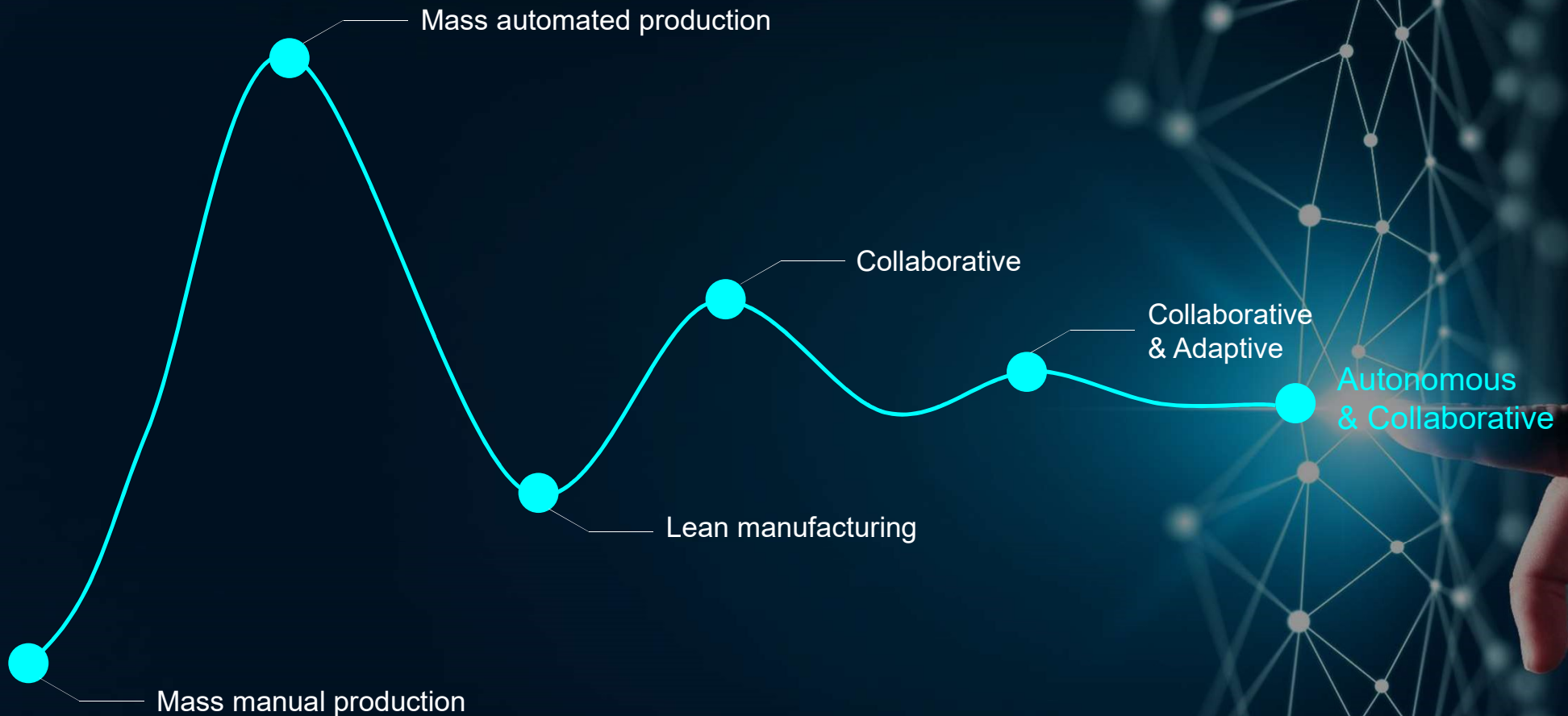


Since the 60s the number of engineers required to develop a machine evolved somewhat.  
In the same period: the skills required in machine design changed

Source: Mensch & Mechatronik

# The path towards harmony between people and machine

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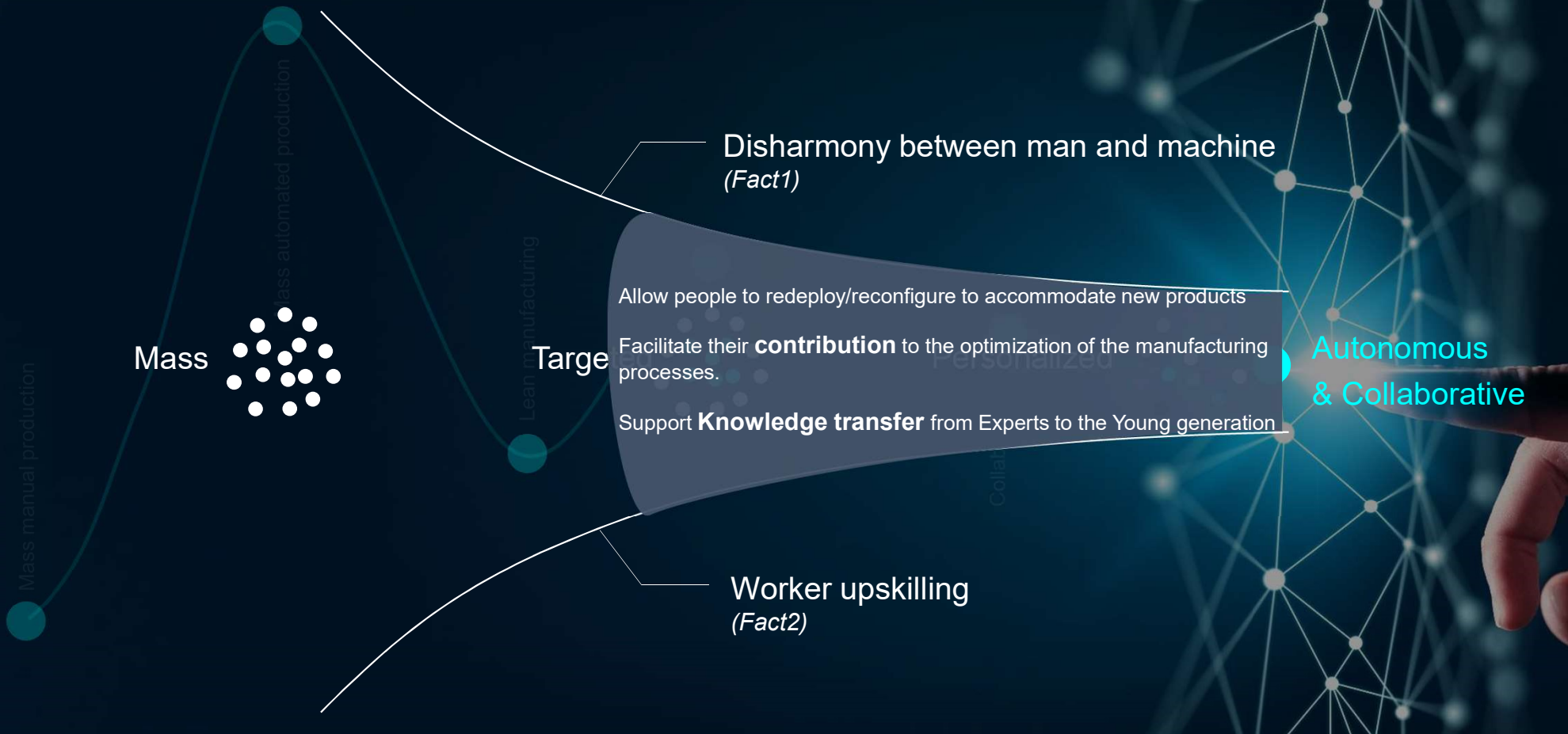
# The path towards harmony between people and machine

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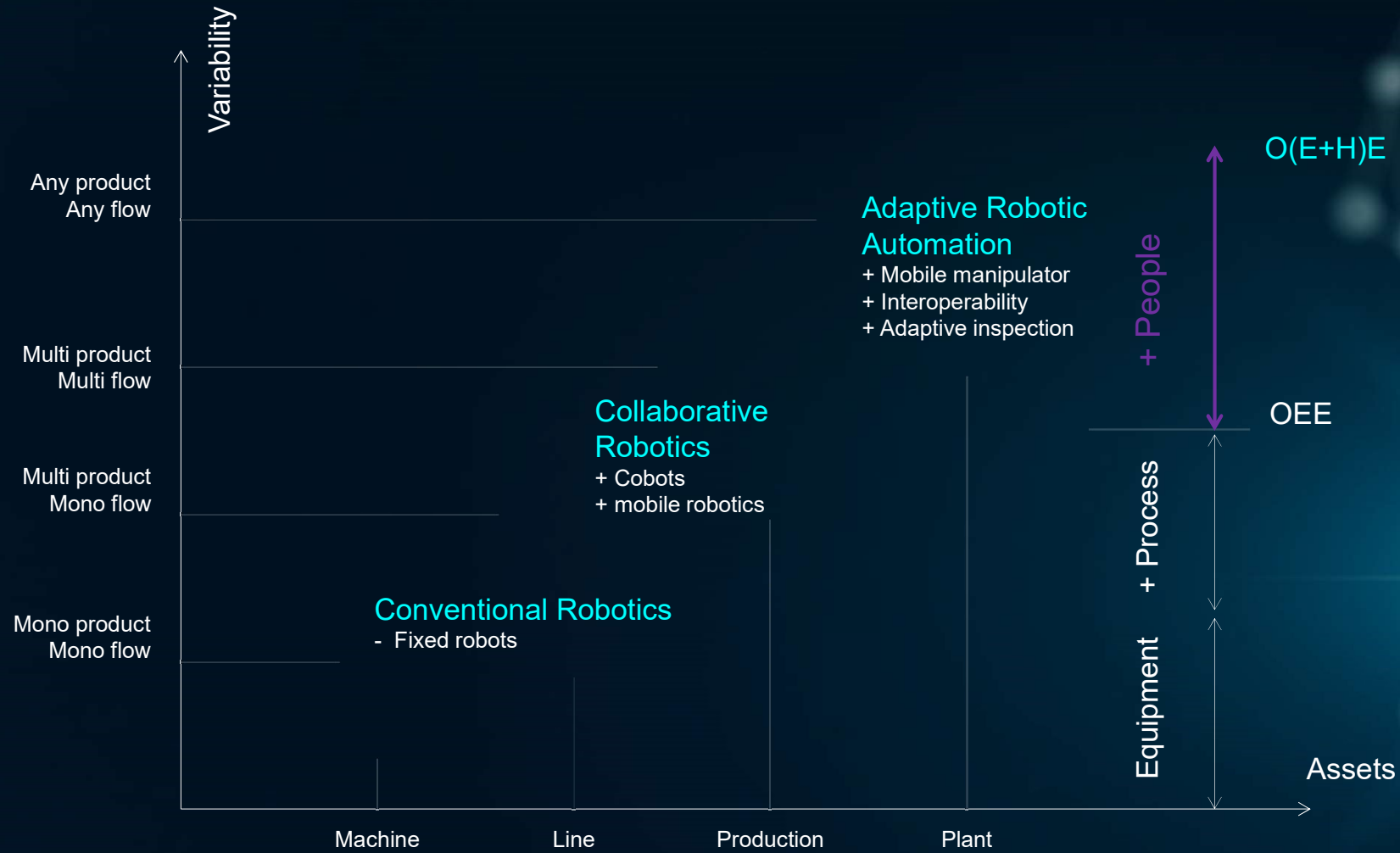


# The path towards harmony between people and machine

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# Collaborative & Adaptive Map





The collaborative and adaptive workplace

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Industrial Automation Solutions

# Turning Operators into Creators

Robotics & AI Adaptive Vision

# AI



Facilitates knowledge transfer between  
Experienced and non-experienced employees

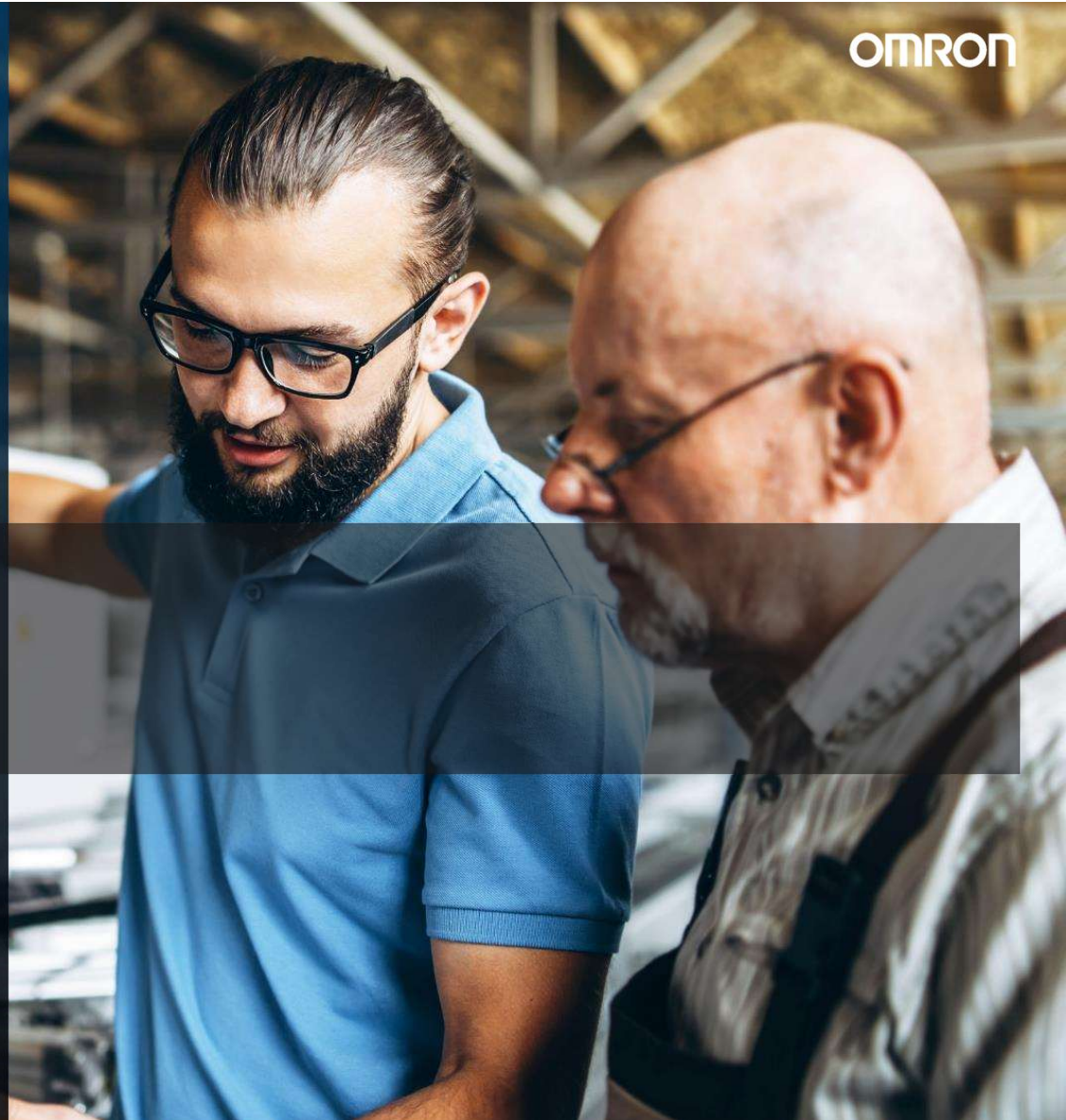


Reduces the learning curve for operators



Helps people to avoid human mistakes

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Collaborative  
Robotics

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TePe Sweden, Malmö



The path towards harmony between people and machine

"MoMa" – Mobile Manipulator

# Technology trends

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## Game changer



Collaborative & Mobile robotics



Edge AI Vision and edge analytics



IIOT ready automation platform



## Game enabler



Proven base of industrial automation platform



Solid global partner and network of system integrators

# A final word



Think beyond



Start small



Scale fast

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Johnson & Johnson

B|BRAUN



Boehringer  
Ingelheim



Nestlé

Continental

Mondelēz  
International



Thank you