



Fujitsu World Tour 2019

Future of Work - Artificial
Intelligence and Automation

FUJITSU

Human Centric Innovation

Driving a Trusted Future

Future of Work - Artificial Intelligence and Automation



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Three questions



THE MACRO VIEW

How will AI and automation impact the economy?



THE MACRO VIEW

How will AI and automation impact my company and my



THE PERSONAL VIEW

What should I do to prepare for AI and automation?

Terms used



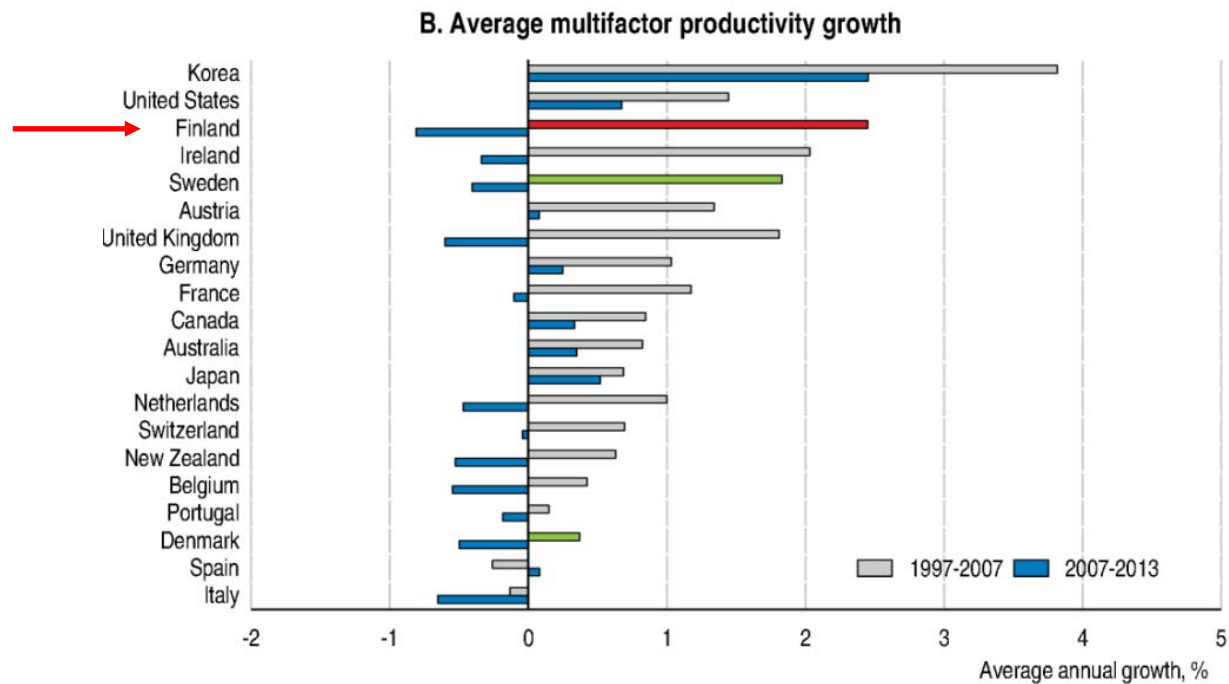
- **Artificial Intelligence:** the theory and development of computer systems able to perform tasks normally requiring human **intelligence**, such as visual perception, speech recognition, decision-making, and translation between languages (Oxford Dictionary)
- **Automation:** technology by which a process or procedure is performed with minimal human assistance (Wikipedia). Looking from wider technological point of view, how Intelligent Automation, in the forms of Robotic Process Automation, Autonomous Robots, Chatbots, Blockchain, AI, Advanced Analytics or similar that benefit daily work.



The macro view

- Since the onset of the global financial and economic crisis, **Finland's productivity has declined both** in absolute terms and relative to the leading OECD economies (OECD, 2016)
- **Europe is lagging** behind the US and China in the adoption of AI (McKinsey Global Institute, 2017)
- OECD, in the Science and Technology Outlook, has stated AI to "Stand Out" among "**Game-Changers**" of Future (OECD, 2018)

Productivity Growth



Source: OECD Productivity database.

How CEOs view the impact of AI?

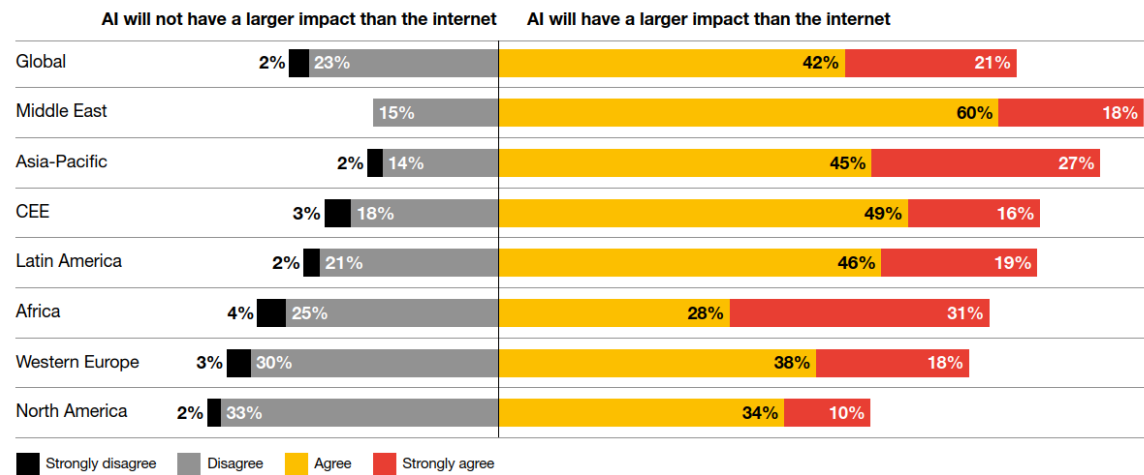


EXHIBIT 15

Addressing these gaps is critical as the majority of CEOs believe AI will have a larger impact than the internet revolution

QUESTION

How strongly do you agree/disagree that AI will have a larger impact on the world than the internet revolution?



(PWC, 2019)

Source: PwC, 22nd Annual Global CEO Survey
Base: All respondents (2019=1,378)

Different views of the impact of AI and automation



The optimists
(e.g. Ray Kurzweil of Google)

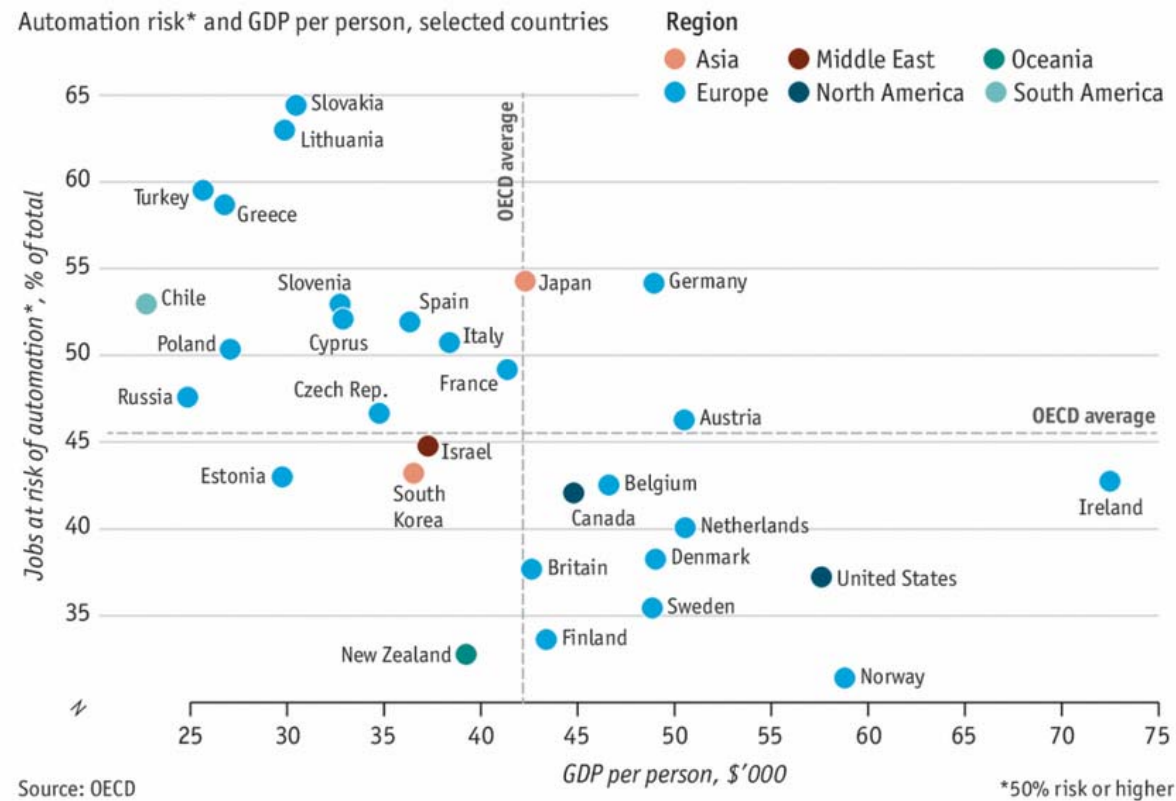
The pessimists
(e.g. Nick Bostrom of Oxford)



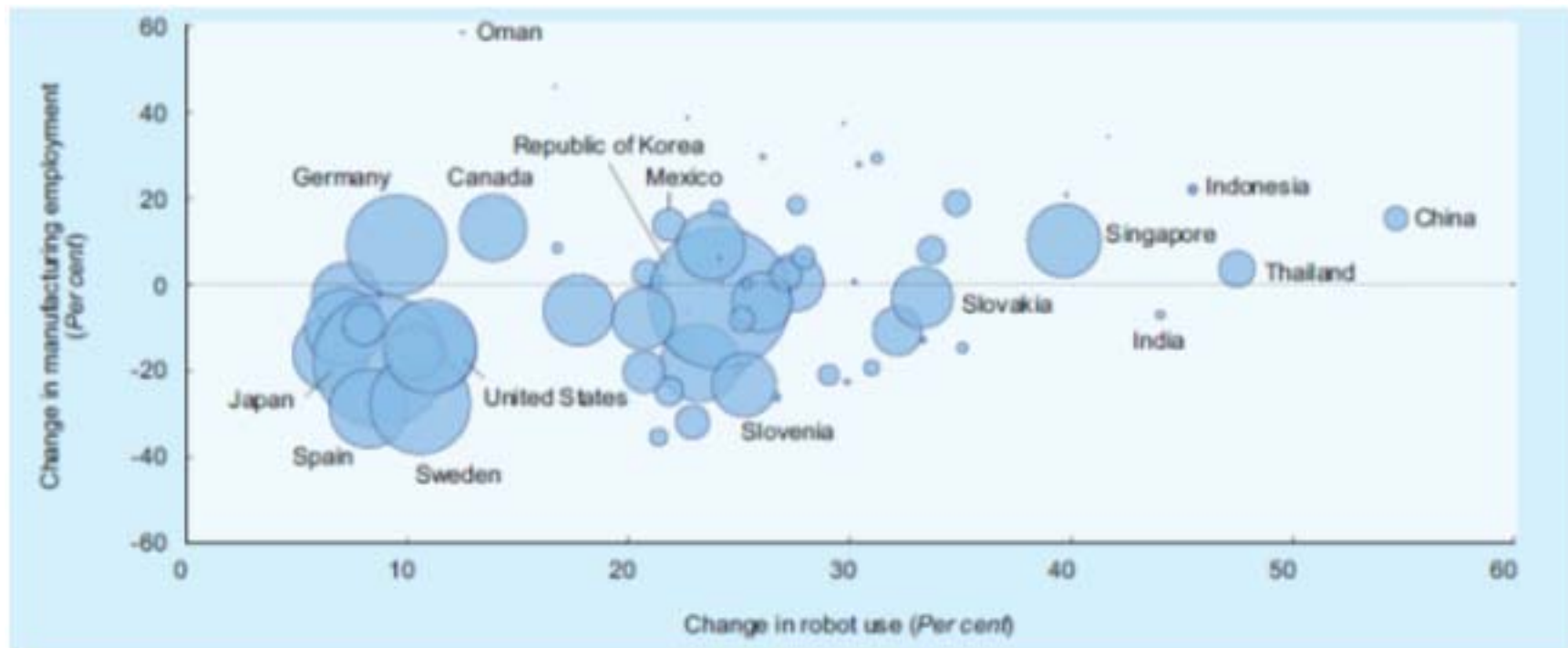
The realists
(You? and I)



Jobs at risk of automation by country



Robot use and manufacturing 2005-2014



Note: The size of the bubbles reflects robot density in 2014. Change in robot use reflects the percentage change in the ratio of the average annual robot installation and the average robot stock over the period 2005 and 2014. Change in manufacturing employment reflects the percentage change in manufacturing employment between 2005 and 2014. The figure includes the 64 economies for which data are available. Source: UNCTAD

Positive, countervailing effects

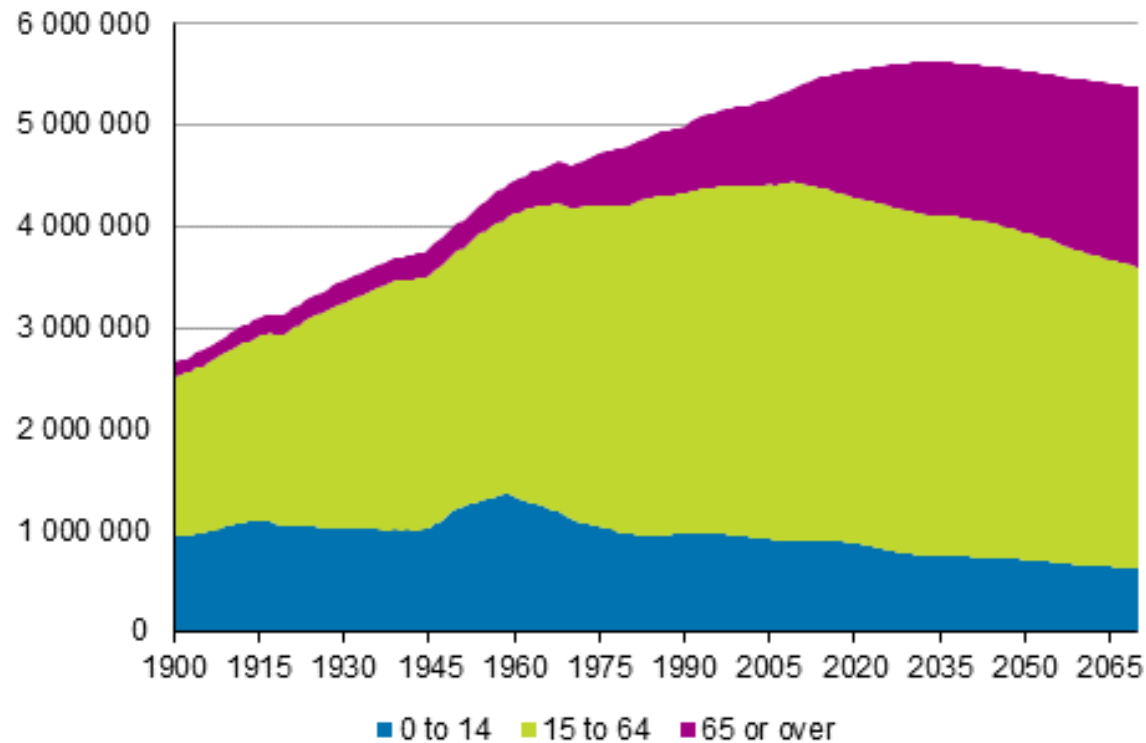


1. New occupations will be created, although there may be a lag between displacement and replacement.
2. Productivity effects will lead to lower prices and higher demand, thus driving demand for labor in non-automated tasks.
3. Capital accumulation will drive up wages in jobs where automation and labor are complements.
4. Shrinking working population in Europe and the U.S. is likely to offset wage impact of automation.
5. Rising incomes globally will increase demand for labor. One billion people entering the consuming middle class in the next two decades.

Demographic effect may offset automation effect on wages (Hal Varian, Google)



Finnish population



Source: Statistics Finland

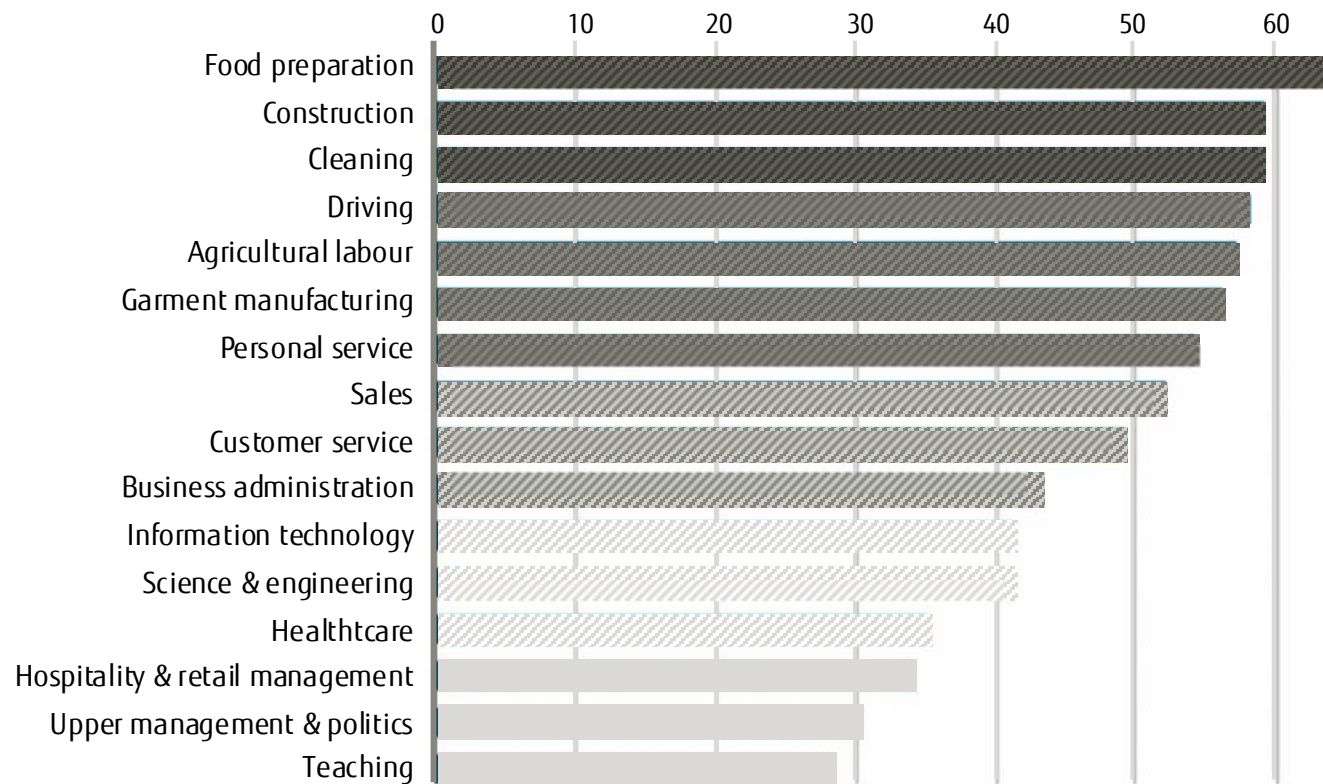


The micro view

Spoiler Alert – The future is here



Jobs at risk of automation by sector

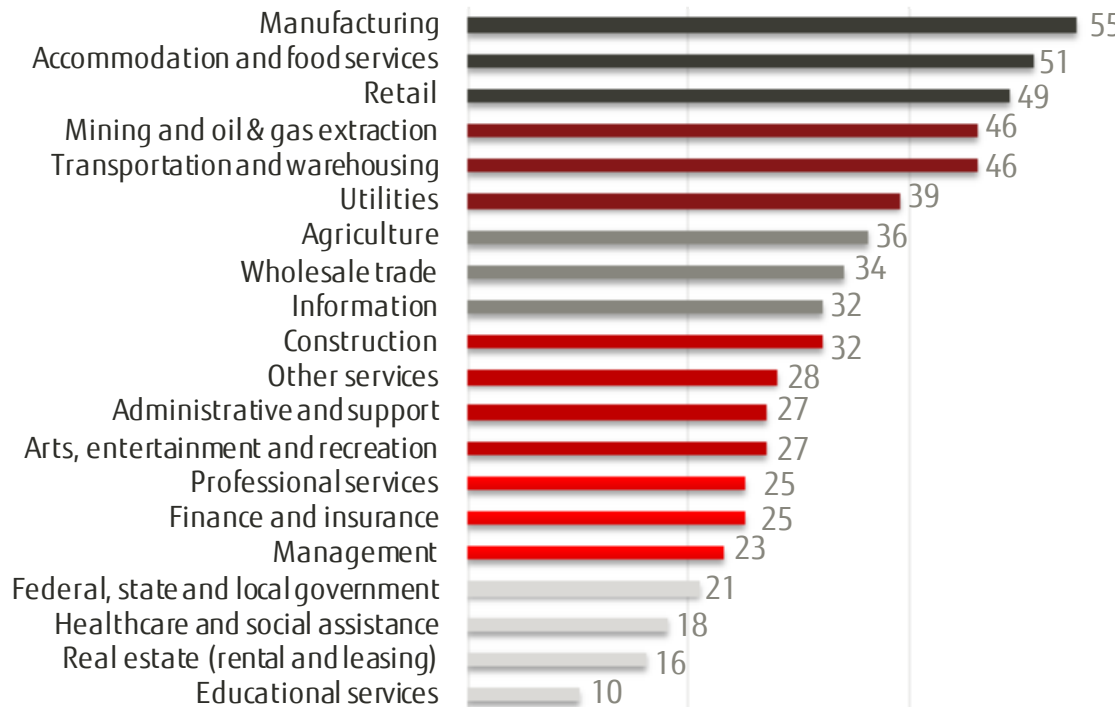


Source: The Economist

Impact of automation on labor productivity by sector



■ Automation-driven labor productivity growth, 2016 vs. 2030



Source: Bain & Co

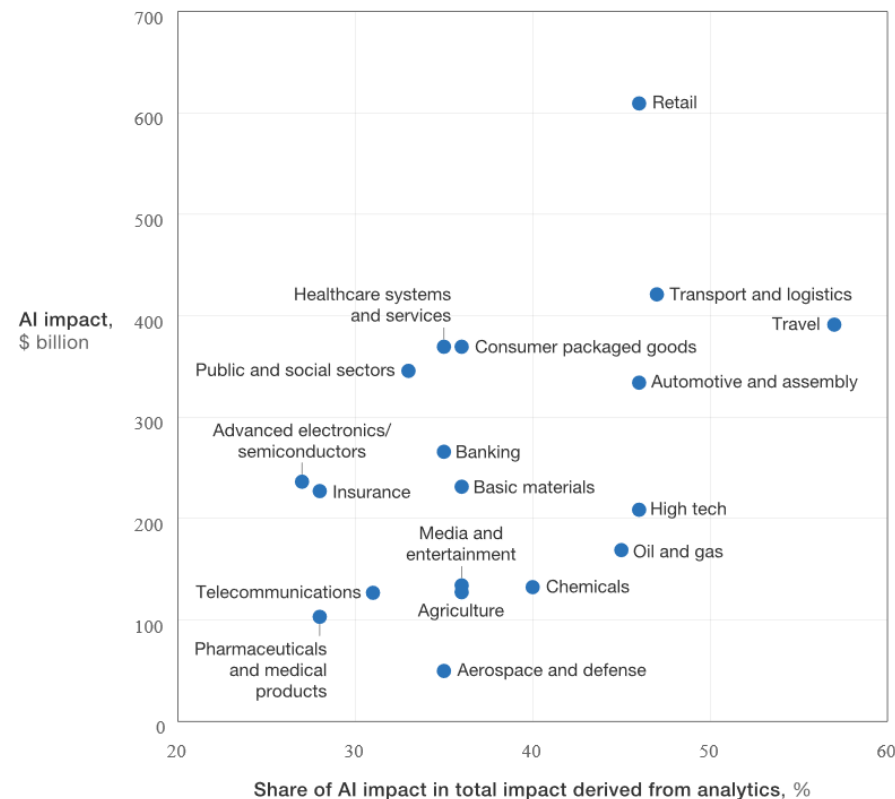


**Increase in
average output
per worker due to
automation**

Value-added by deep learning (neural networks)



Deep learning is estimated to generate \$3.5-5.8 trillion in annual value in the global economy or 40 % of the total potential value of all analytics techniques



Source: McKinsey

What is the winning strategy in my industry?



- AI and automation are not optional
 - They are critical to success and survival
- Race to the bottom to save labor costs does not create winners
 - Cost saving technologies won't be differentiating factors in the long run
- Winners will be those who create most high value jobs
 - Winners will look for q-complements: AI and automation techniques that enhance the value of human labour
 - Winners will have CoEs for AI and automation that understand how to improve the productivity of the their employees



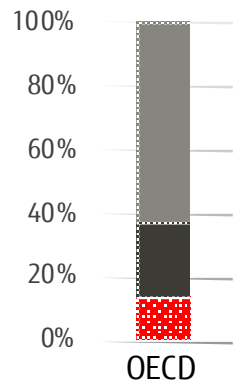
AI and automation will create winners who

1. Have more productive and satisfied employees
2. Who produce improved products and services in larger quantities
3. Leading to lower prices and more satisfied customers
4. And hence larger market shares
5. With growing demand leading to employing more, not less people



The personal view

OECD 2018



About 14% of jobs in OECD countries are highly automatable. Another 32% of jobs could face substantial change in how they are carried out.



AUTOMATION



mostly affects the **manufacturing industry** and **agriculture** BUT some service sector jobs are highly automatable too.

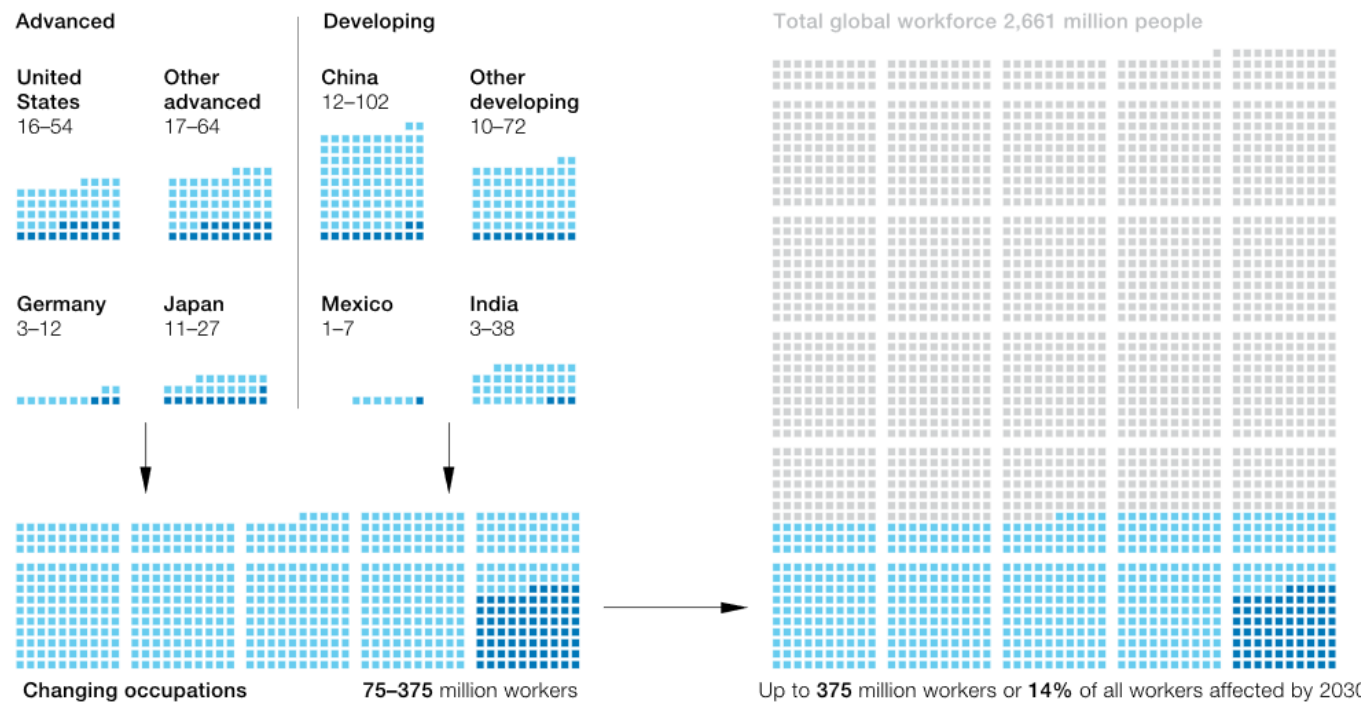
To highest risk is concentrated in **routine jobs** with low skill requirements and often low wages WHILE the lowest risk applies to a broader range of jobs from **professionals to social workers**.

Impact of automation on shifts in jobs



Number of workers needing to move out of current occupational category to go find work, 2016–30 (trendline scenario)¹

■ Midpoint automation ■ Additional from rapid automation adoption (each block = 1 million workers)



Source: McKinsey

Tasks that are not easily automated

- Tasks related to perception and manipulation, in particular where they are performed in unstructured, complex situations such as operating in cramped work spaces.
- Task related to creative intelligence, such as coming up with original ideas.
- Tasks related to social and emotional intelligence, such as understanding other people's reactions in social contexts or assisting and caring for others.

Source: OECD



The skills of the future are technological, social and emotional



Source: McKinsey

Message for leaders in organisations



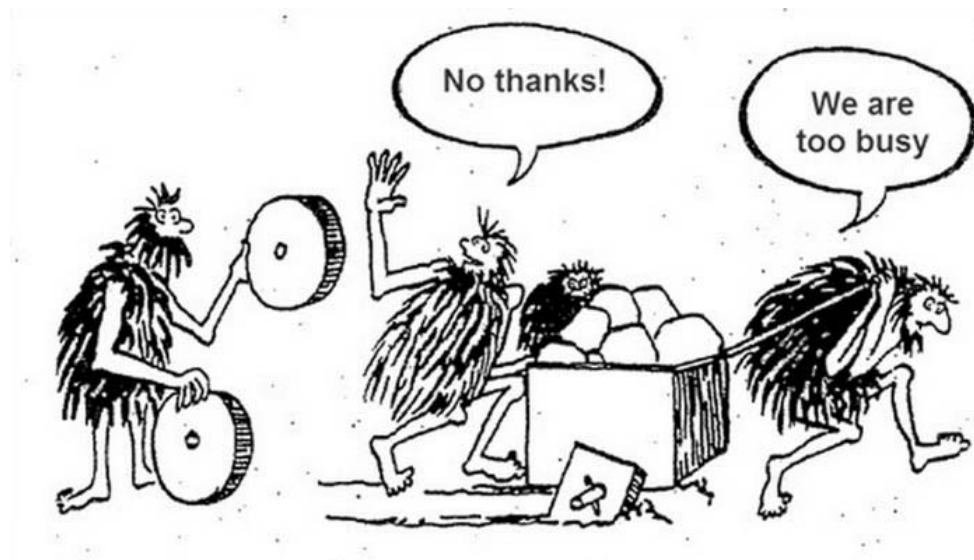
- You need to create understanding and how to apply new technologies
 - Identify opportunities for reskilling workers
 - Technological skills will be much easier to teach than emotional skills, or change of culture
- Rethink and restructure workflows
 - Speak to your employees and ask them what tasks take them too much time and that could be automated
 - Direct workflows to high value targets
- You might need a separate center of excellence to do this



The background of the slide is a dark, abstract composition. It features a large, central, multi-layered geometric shape that resembles a stylized flower or a series of overlapping polygons, rendered in various shades of gray. This central shape is set against a dark background that includes diagonal lines and other subtle geometric patterns, creating a sense of depth and complexity.

Impact?

Productivity: Running Faster or Working Smarter?



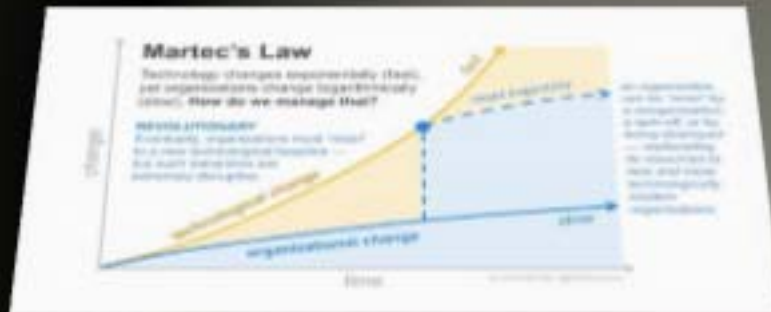
PWC 2018 Study:

Europe: AI and Automation will
Create more jobs than destroy

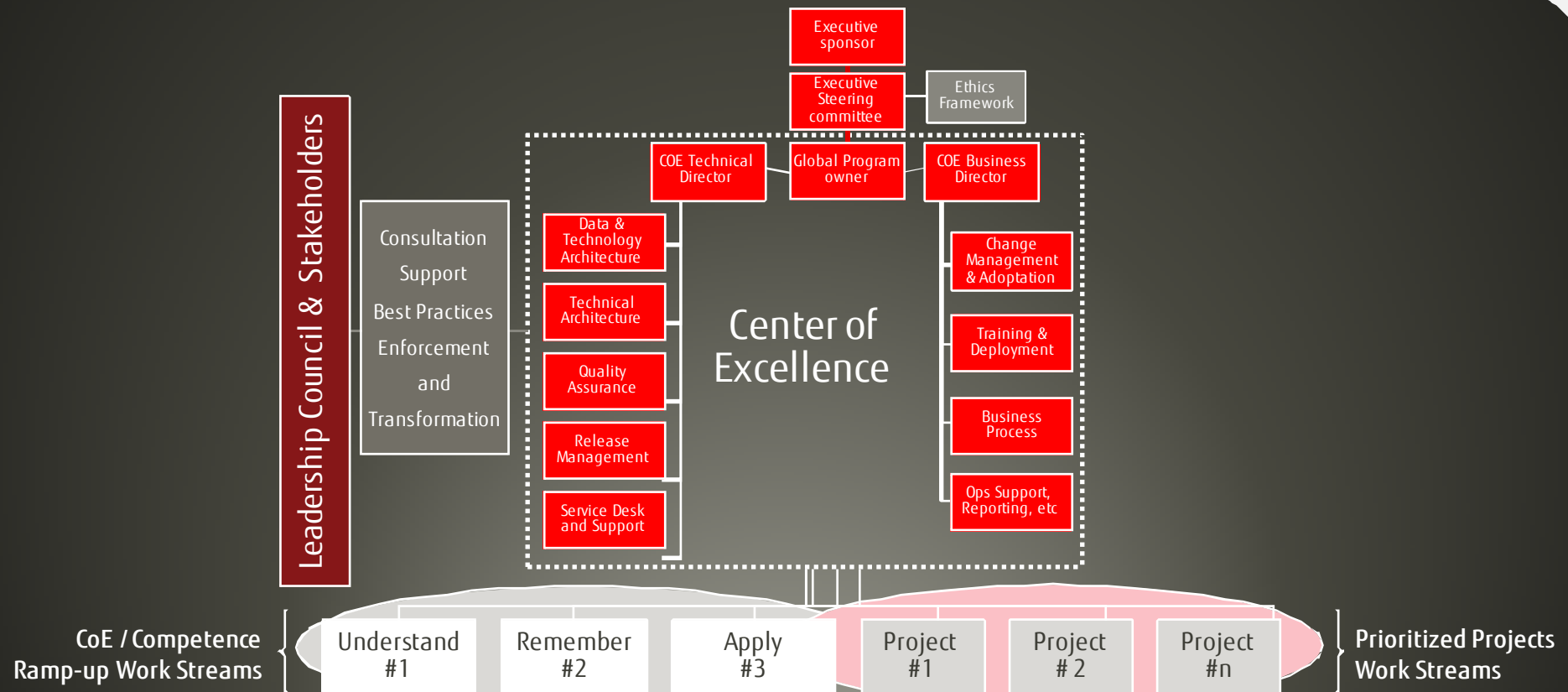
What Does This Mean for Organizations?

The Needed Assimilated Knowledge is an Increasing Burden for Organizations:

Leading to **Disruptors, Adaptors**
and Those Who **Fade Away**



CoE: Global Governance Framework



Conclusions:

We are creating a **human centric**, not machine centric society. Work will change, but so shall we.



shaping tomorrow with you