

Jobs of the future 4.0

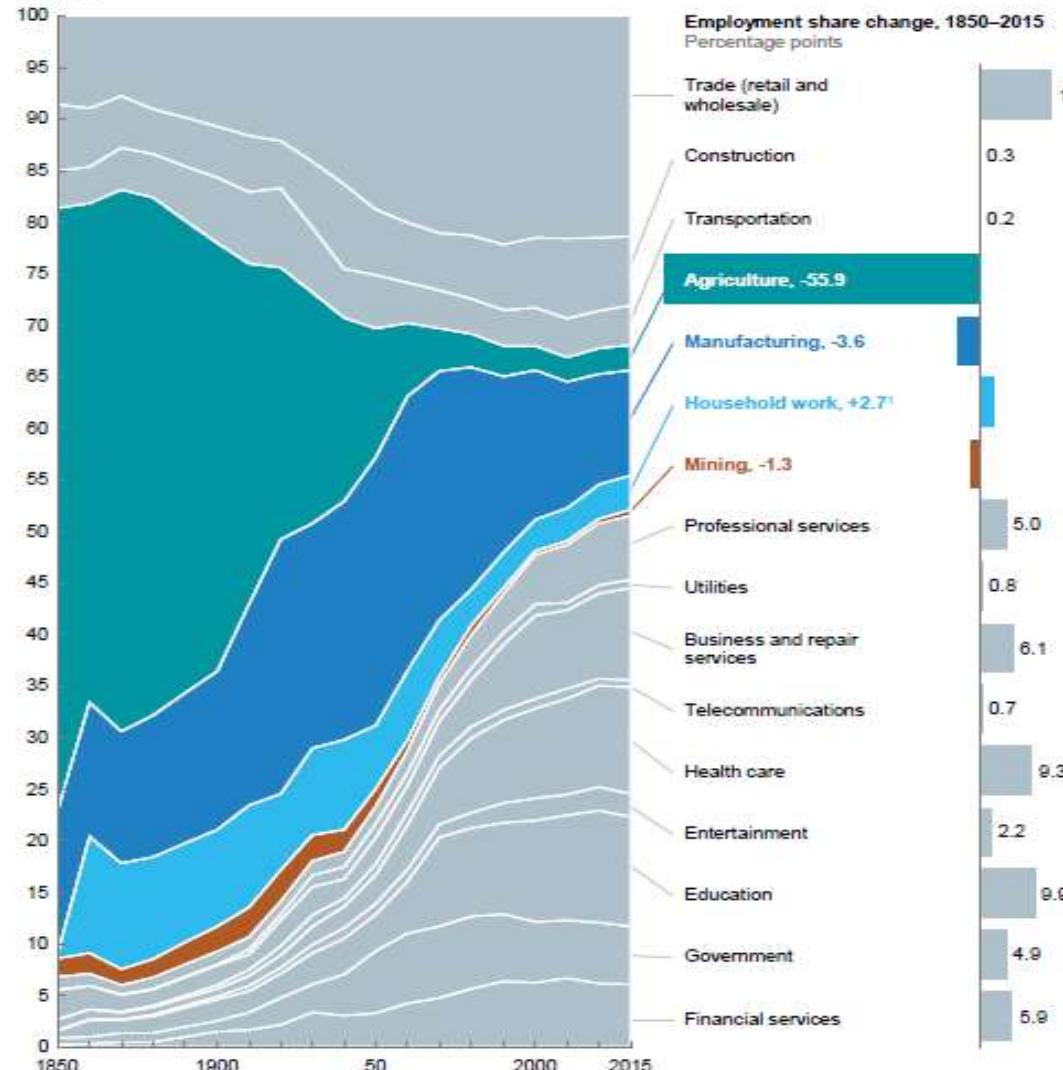
Future?

- ▶ It is difficult to believe that some jobs will disappear
- ▶ The rate of which they disappear is given by the automation but also by the demand for workforce
- ▶ But they disappear gradually, most of the times without even realizing it

LESSONS FROM HISTORY ON TECHNOLOGY AND EMPLOYMENT

- ▶ Sewing Machine Operators
- ▶ Switchboard Operators
- ▶ Data Entry Keyers
- ▶ Word Processors and Typists
- ▶ Electrical and Electronic Equipment Assemblers
- ▶ File Clerks
- ▶ Pressers, Textile, Garment, and Related Materials
- ▶ Postal Service Mail Sorters, Carriers and Clerks

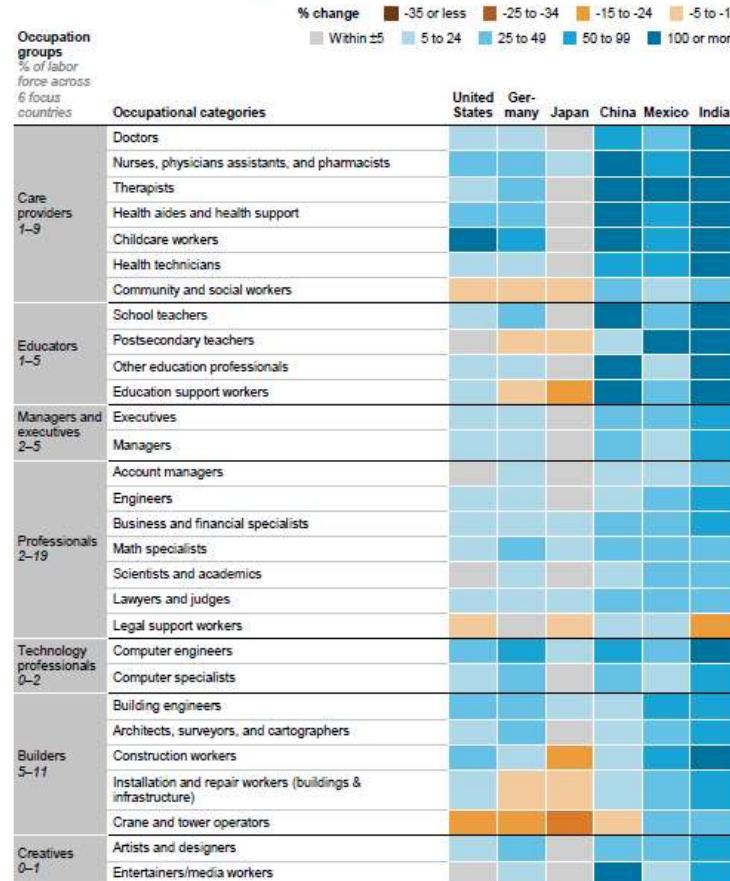
Share of total employment by sector
in the United States, 1850–2015
% of jobs



Throughout history,
large-scale sector
employment
declines have been
countered by
growth of new
sectors that have
absorbed workers

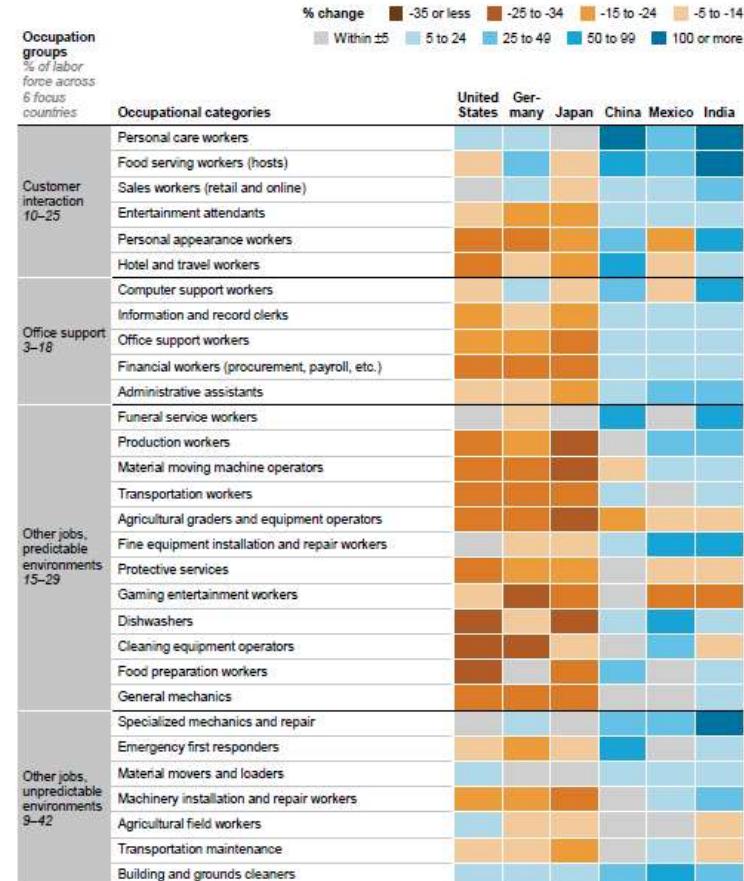
Jobs of the future: Employment growth and decline by occupation

Net impact of automation and seven catalysts of labor demand, 2016–30
% change (+/–), step-up labor demand, midpoint automation¹



Jobs of the future: Employment growth and decline by occupation (continued)

Net impact of automation and seven catalysts of labor demand, 2016–30
% change (+/–), step-up labor demand, midpoint automation¹



¹ Midpoint of earliest and latest automation adoption in the “step-up” scenario (i.e., high job growth). Some occupational data projected into 2016 baseline from latest available 2014 data.

SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

What's next?



ROBOTICS

- ▶ The first industrial robot was introduced in 1961 and the first one to move completely in 6 directions, in 1971. Since then, we have witnessed a huge evolution, especially in the third millennium, from robots who did the job of an industrial worker at a production line, to robots that do extremely complicated operations

<https://www.youtube.com/watch?v=2dJewkJZ4PU>

https://www.youtube.com/watch?v=Duub_dO_TwU

- ▶ In agriculture we now have autonomous tractors/machines, controlled by a single operator who coordinates several of these at the same time.
- ▶ The large farms are also investing in the constructions of machines that gather the fruits. În prezent, fermele mari investesc mult în construcția de roboți care culeg fructele:

<https://www.youtube.com/watch?v=M3SGScaShhw>

https://www.youtube.com/watch?time_continue=6&v=ALmqr120qM

Who develops these industrial robots? The largest producers in the world are Japan, EU, KUKA (with China as the major share holder) (Pambuccian 2017)

Artificial Intelligence

- ▶ The technological evolution has created computers with artificial intelligence that surpass every expectation. There is a lot of debate regarding the morality of using AI. The automated pilot of the autonomous car that will drive on the roads in 2020 (Mercedes and BMW have invested billions of dollars in this area) will choose to sacrifice the passengers if an accident with a higher number of casualties is otherwise inevitable
- ▶ The cities of the future will be Smart Cities, in which the actions of their citizens will be monitored by artificial intelligence for security reasons but also to be able to analyze and provide different services and products
- ▶ Facial recognition is already being used in airports, street surveillance cameras, to combat terrorism and also to satisfy the client's needs
- ▶ Intelligent Store: In 2018 Amazon launched Amazon Go, a store where everything is automated and there are no human employees within

The Transportation of the Future

- ▶ Autonomous cars will become more and more popular in the entire world during the next 10 years. The most important changes will occur in the transportation of goods, where autonomous trucks will gather in caravans on the world's highways. The disappearance of the professional drivers will bring only in the United States (where professional driving is a very popular job) 3 millions unemployed people. In some cities, busses driven by AI have already been introduced. In Helsinki for example, a computer that "drives" the bus decides the route towards destinations in real time.
- ▶ <https://www.youtube.com/watch?v=DFHXFF4BhWw>
- ▶ https://www.youtube.com/watch?v=sllCR4eG8_o

The Jobs and Competencies Map of the Future

The essence of the labor market of tomorrow will be flexibility and change. Under the pressure of technological evolution, social and climate changes, the employee and the employer will have to be flexible enough to adapt to the permanent change that will occur in the demand for services and products.



Future for Supply Chain Careers

- ▶ Demand planner becomes commercial troubleshooter
 - Equipped with cloud-based planning systems, real-time drill down to transactions and learning algorithms the demand planner of the future becomes a business creator. Empowered to prioritize, analyze and solve supply-demand balancing problems at the transaction level, this career will reward those able to figure out who gets expedited and who gets shorted while there's still time
- ▶ Production planner becomes customization master
 - Working with collaborative robots that can be reprogrammed in minutes, sequencing simulations that digitally test thousands of work paths in seconds and IoT-equipped machinery to assure precision, the production planner of the future becomes a master craftsman
- ▶ Logistics manager becomes customer satisfaction director
 - Analytics and automation in fulfillment centers will deepen the range of options available to build a load, plan a route, and confirm the customer's readiness to receive a shipment. Extended backward with late-stage custom packaging and forward with omnichannel delivery options like Uberization and drones, logistics could become the sexiest job in supply chain
- ▶ Sustainability leader becomes resource Czar
 - Sustainability in supply chain has been around for a while, but precision in operations, coupled with machine learning on optimal resource consumption, could create a career that has more financial impact even than sourcing

Thank you!

Irina Mincinopschi