

NLC NATIONAL
LEAGUE
OF CITIES

CENTER FOR CITY SOLUTIONS
AND APPLIED RESEARCH

The

FUTURE OF WORK

In Cities



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The **FUTURE OF WORK** In Cities



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CENTER FOR CITY SOLUTIONS



Assessing the Future of Our Work
AUTOMATION AND THE ROLE OF CITIES



The ***“FUTURE OF WORK”*** refers to changes in the way jobs are structured, how income is distributed, and the skills that the modern economy demands.

These changes are brought on primarily by advancements in technology, an increase in trade, and shifting demographics.

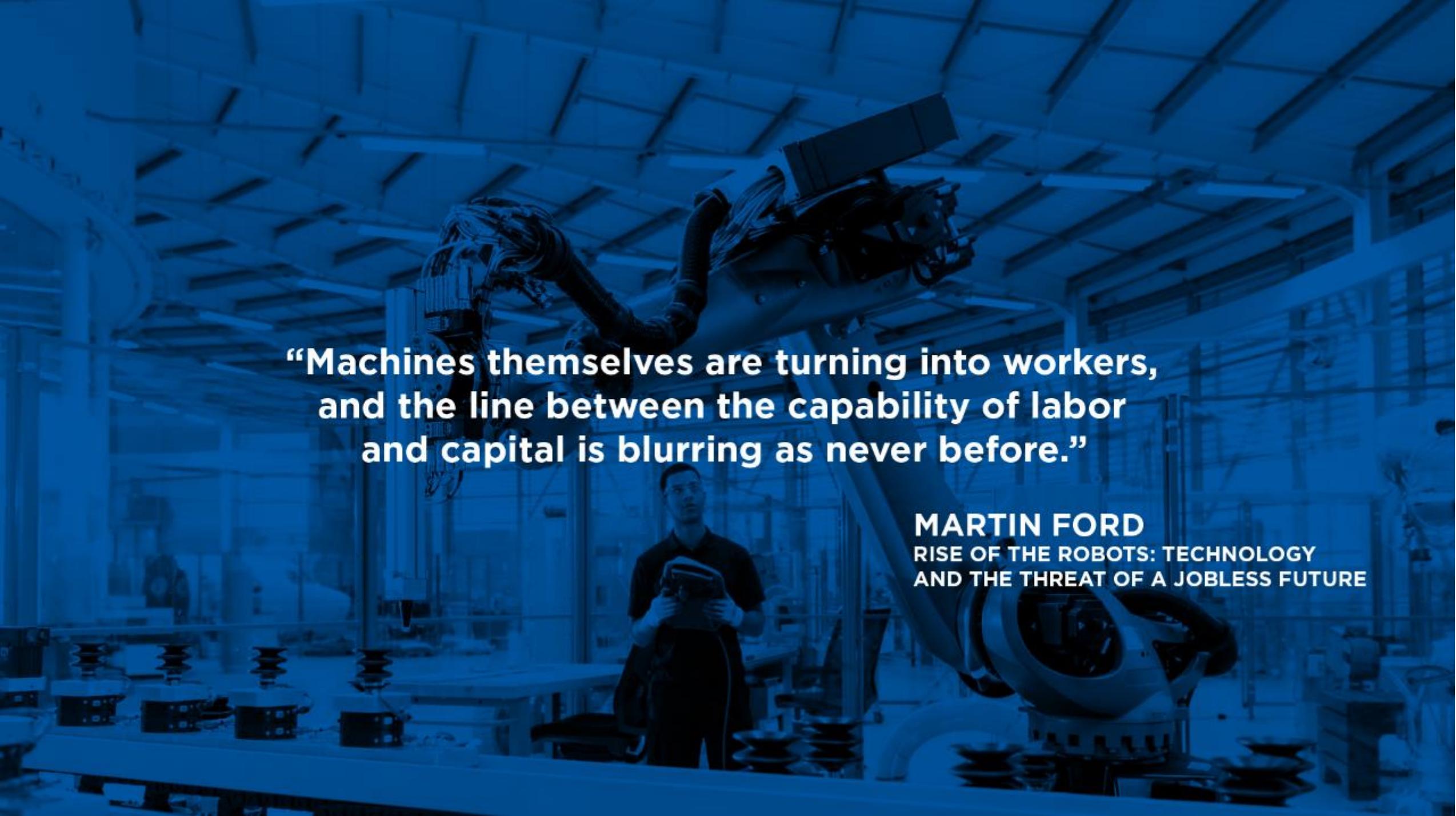


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HOW WE WORK IS CHANGING

Technology is fueling a drive towards automation, which will improve productivity and raise wages in some jobs, while erasing or transforming others entirely.

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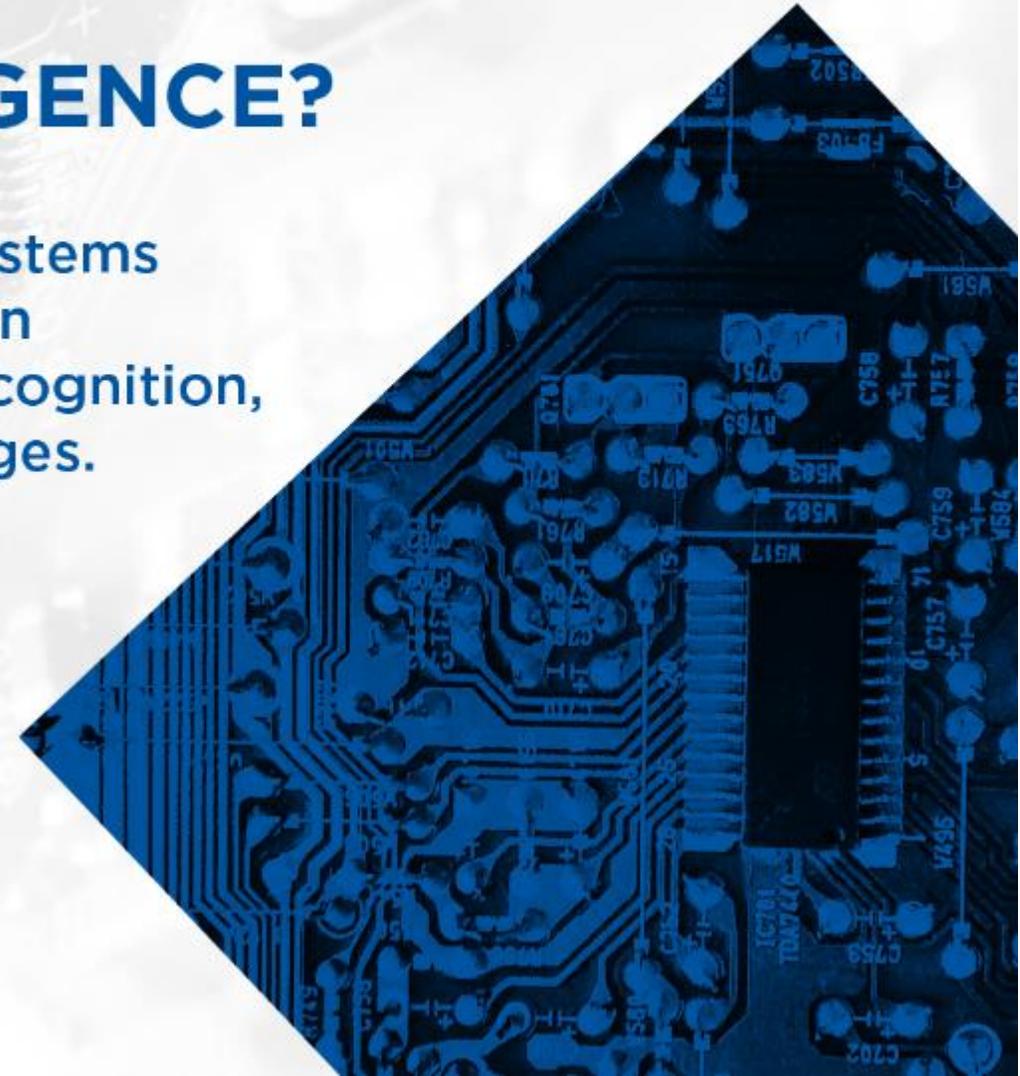


**“Machines themselves are turning into workers,
and the line between the capability of labor
and capital is blurring as never before.”**

MARTIN FORD
RISE OF THE ROBOTS: TECHNOLOGY
AND THE THREAT OF A JOBLESS FUTURE

WHAT IS ARTIFICIAL INTELLIGENCE?

AI is the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making and translation between languages.





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ANOTHER SIDE OF AUTOMATION: AUTONOMOUS VEHICLES

- ◆ Driverless cars and minibuses
 - ◆ Robot patrol officers and ushers on the streets
 - ◆ Autonomous vehicles making deliveries from local stores and restaurants
- //////

A person's hand is holding a smartphone. The screen shows a map application with a red location pin and a button that says 'JOB BESTELLEN'. The background is a blurred city street scene. A large teal triangle is overlaid on the right side of the image.

CONTRACT WORK AND THE RISE OF THE GIG ECONOMY

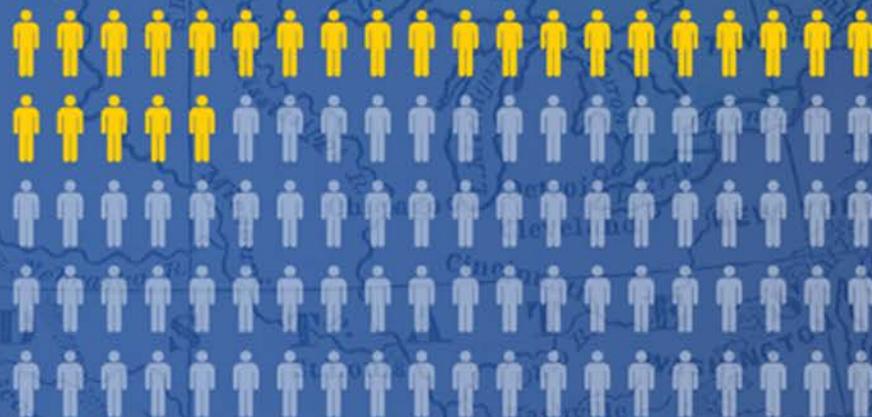
Gig Economy: a labor market characterized by the prevalence of short-term contracts or freelance work as opposed to permanent jobs

HISTORY OF WORK

- **Prior to the Industrial Revolution, the majority of people worked in agriculture or small businesses**
- **Large-scale factories were the dominant employer in the early 20th century and helped spur the labor movement**
- **Union membership peaked in 1954, but has been declining rapidly ever since**
- **Recent technological advances have increased productivity and disrupted the relationship between capital and labor**
- **Jobs in 2025 and beyond will look very different from those today**

TECHNOLOGY'S IMPACT ON WORK

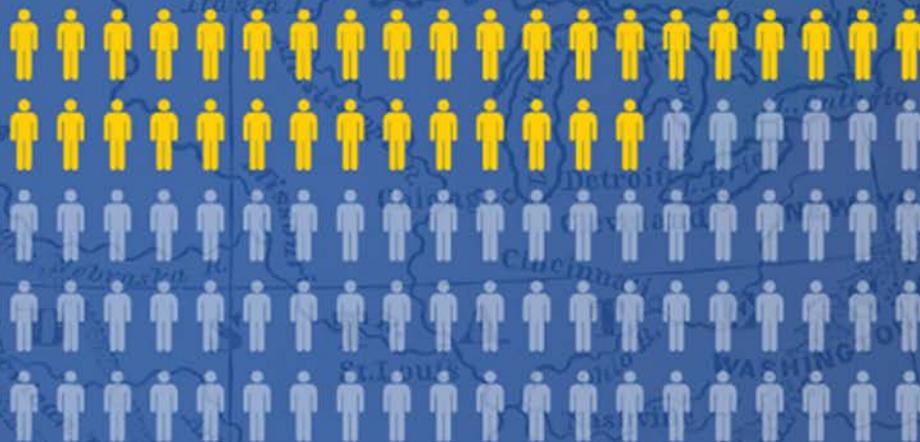
25%



15 - 25% of tasks in manufacturing, packing, construction, maintenance, and agriculture could be automated by 2025.

TECHNOLOGY'S IMPACT ON WORK

34%



Already we're seeing the number of freelance workers grow. Today, America has roughly 53 million freelance workers. That's 34% of the workforce.

FORECAST: RETAIL AND OFFICE ADMINISTRATION



ONE in **FOUR**
Americans
are employed in
retail or
office
administration

FORECAST: RETAIL AND OFFICE ADMINISTRATION

2015 Employment



Retail

Business Services

Population

1 Million

Retail

125,000 Employed

Business Services

125,000 Employed

FORECAST: RETAIL AND OFFICE ADMINISTRATION

001,089,720

The number of Business Services jobs **LOST** from 2000-2015



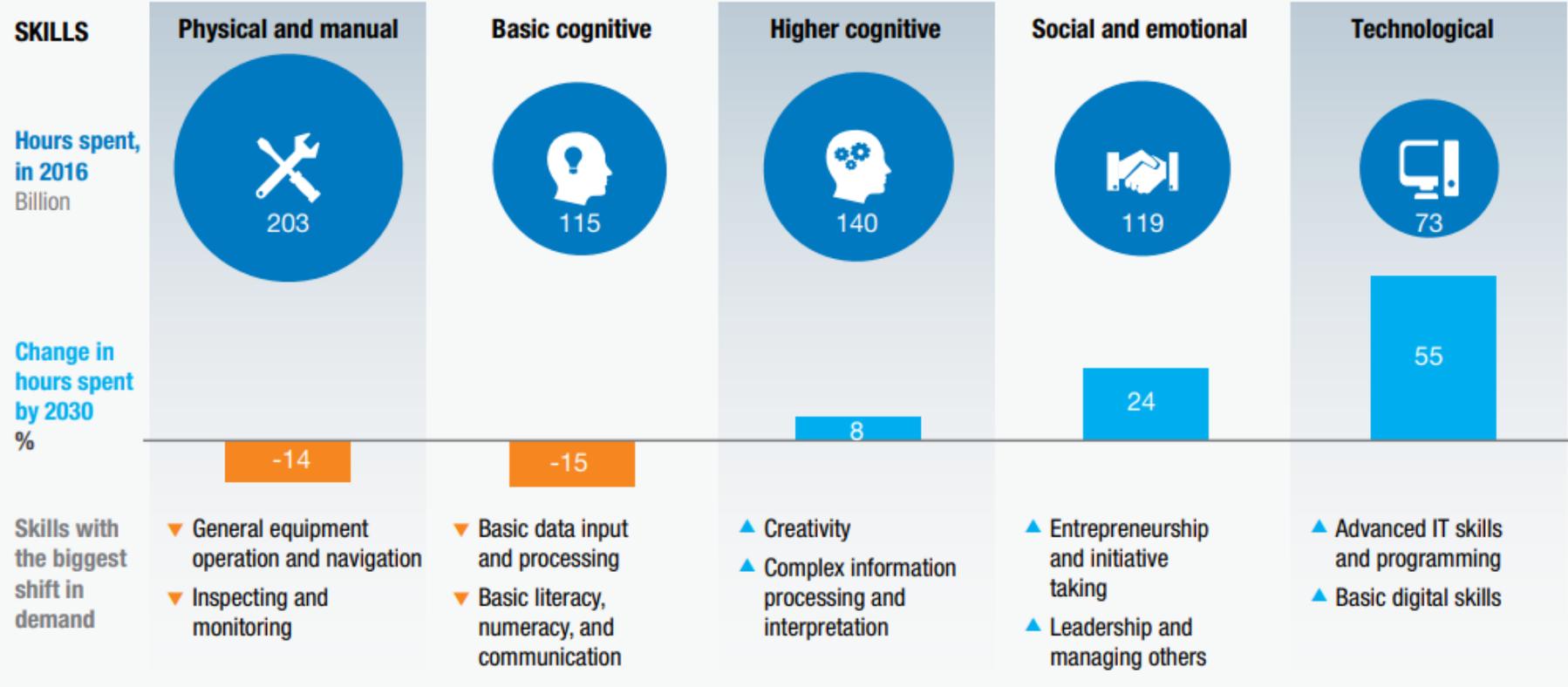
Assessing the Future of *Our* Work

AUTOMATION AND THE ROLE OF CITIES

JOB AUTOMATION

Automation and AI will change the skills needed in the workforce

Total is for United States and 14 Western European countries



Source: McKinsey Global Institute, *Skill Shift: Automation and the Future of the Workforce*

TOP JOBS WITH HIGH AUTOMATABILITY

Automatability	Job Titles	New Jobs 2016-2026 (in thousands)	Education for Entry	Median Income
95%	Landscaping and grounds keeping workers	135.2	No formal educational credential	\$26,320
85%	Laborers and freight, stock, and material movers	199.7	No formal educational credential	\$25,980
92%	Combined food preparation and serving workers, including fast food	579.9	No formal educational credential	\$19,440
96%	Cooks, restaurant	145.3	No formal educational credential	\$24,140
87%	Food preparation workers	68.6	No formal educational credential	\$21,440
94%	Waiters and waitresses	182.5	No formal educational credential	\$19,990
85%	Sales representatives, wholesale and manufacturing, except technical and scientific products	76.4	High school diploma or equivalent	\$57,140
72%	Carpenters	83.8	High school diploma or equivalent	\$43,600
85%	Receptionists and information clerks	95.5	High school diploma or equivalent	\$27,920
74%	Personal care aides	777.6	High school diploma or equivalent	\$21,920
94%	Accountants and auditors	139.9	Bachelor's degree	\$68,150

Source: Bureau of Labor Statistics & The Future of Employment, Oxford Martin

TOP 7 JOBS WITH LOW AUTOMATABILITY - NO BACHELOR'S DEGREE

Automatability	Job Titles	New Jobs 2016-2026 (in thousands)	Education for Entry	Median Income
17%	First -line supervisor: Construction trades and extraction workers	75.8	High school diploma or GED	\$62,980
1%	First -line supervisor: Office and admin. support workers	51.2	High school diploma or GED	\$54,340
28%	First -line supervisor: Retail sales workers	57.7	High school diploma or GED	\$39,040
15%	Electricians	59.6	High school diploma or GED	\$52,720
6%	Licensed practical and licensed vocational nurses	88.9	Postsecondary nondegree award	\$44,090
0%	Heavy tractor-trailer truck drivers	108.4	Postsecondary nondegree award	\$41,340
1%	Preschool teachers, except special ed.	50.1	Associate degree	\$28,790

Source: Bureau of Labor Statistics, Table 1.7 & The Future of Employment, Oxford Martin

TOP 5 JOBS WITH LOW AUTOMATABILITY - BACHELOR'S DEGREE

Automatability	Job Titles	New Jobs 2016-2026 (in thousands)	Education for Entry	Median Income
25%	Manager, all other	79.5	Bachelor's Degree	\$104,970
13%	Software developers, applications	255.4	Bachelor's Degree	\$100,080
1%	Registered nurses	438.1	Bachelor's Degree	\$68,450
0%	Nurse practitioners	56.1	Master's Degree	\$100,910
13%	Management analysts	115.2	Bachelor's Degree	\$81,330

Source: Bureau of Labor Statistics, Table 1.7 & The Future of Employment, Oxford Martin

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**Fastest-growing occupation
with low automatability:
Registered nurses are
projected to generate 430,000
new jobs before 2026.**



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MOST IN-DEMAND SKILLS IN THE FUTURE

- ◆ Time management
- ◆ Operation monitoring
- ◆ Speaking
- ◆ Active listening
- ◆ Judgement and decision making
- ◆ Coordination
- ◆ Critical thinking
- ◆ Material resource management