FUTURE OF WORK: AUTOMATION & A CHANGING ECONOMY

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EXECUTIVE SUMMARY

Technology is creating and disrupting work. This has happened before. Automation has created jobs directly and indirectly over the past century, changing the composition of work.

This time might be different. The automation we are experiencing now is deeper, faster, broader, and may be more disruptive than the past. Up to a third of the U.S. workforce may need to change occupations by 2030.

In the past, we have made smart investments in education and a social safety net to address the changes brought on by automation. But now we are trailing other advanced economies in training our workforce and preparing for the jobs of tomorrow.

We need to implement policies for shared prosperity to address the challenges and opportunities of automation:

• Encourage employers to lead a human-centric approach to automation;

• Enable workers to access skills training, good jobs, and new economic opportunities;

• Help people and communities recover from displacements; and

• Understand the impact of automation on the workforce

# U.S. WORKFORCE HAS GROWN OVER TIME EVEN WITH WAVES OF AUTOMATION

CIVILIAN EMPLOYMENT LEVEL, 1950-2019
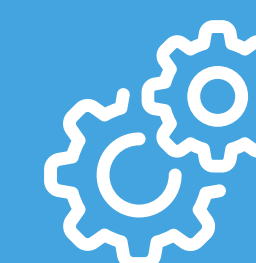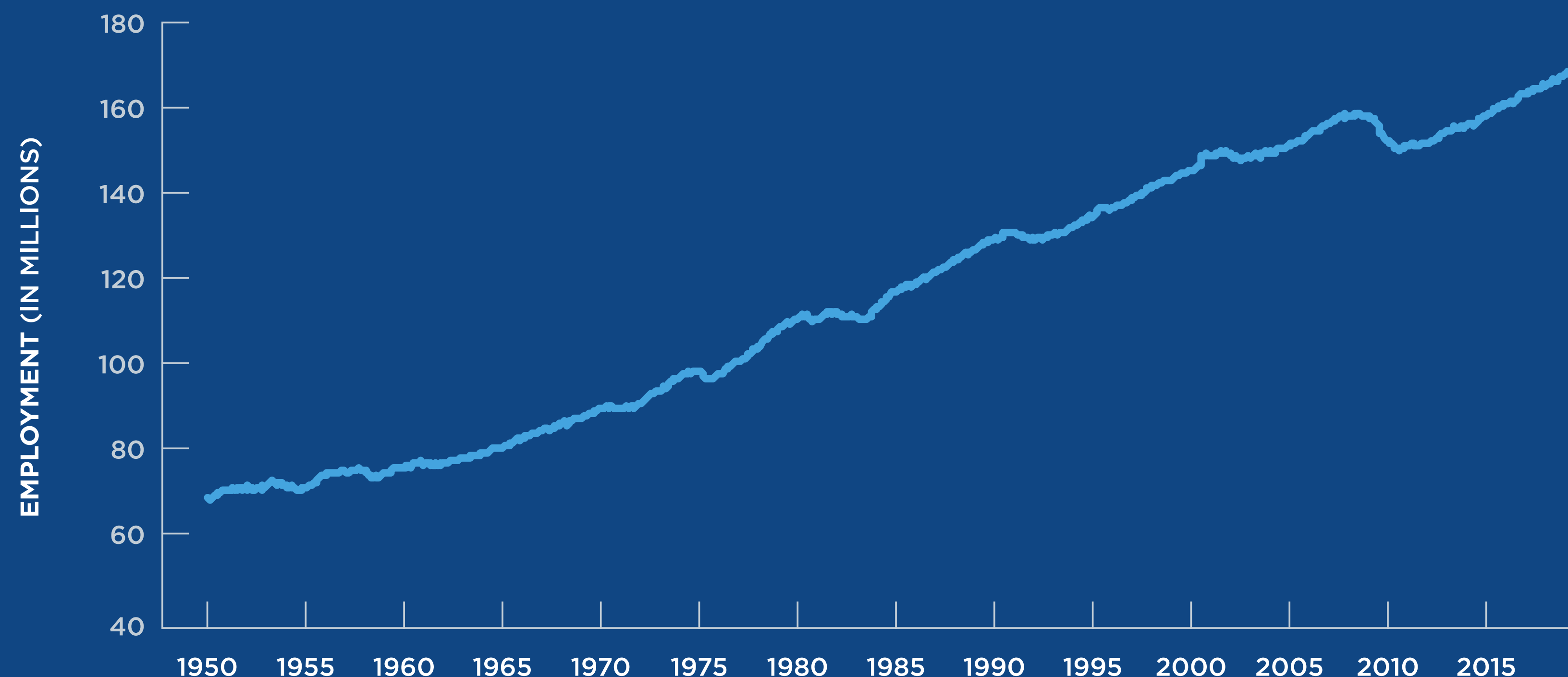
HISTORY OF AUTOMATION – WAVES OF NEW TECHNOLOGIES (THE PERSONAL COMPUTER, INTERNET, IPHONE) HAVEN'T LED TO WIDESPREAD JOB LOSS. BUT THE COMPOSITION OF JOBS IN OUR ECONOMY HAS BEEN CHANGING

IMPACT OF TECHNOLOGY ON ROUTINE VS. NONROUTINE JOBS

EMPLOYMENT LEVELS OF ROUTINE AND NONROUTINE OCCUPATIONS, 1983-2017

EMPLOYMENT (IN MILLIONS)
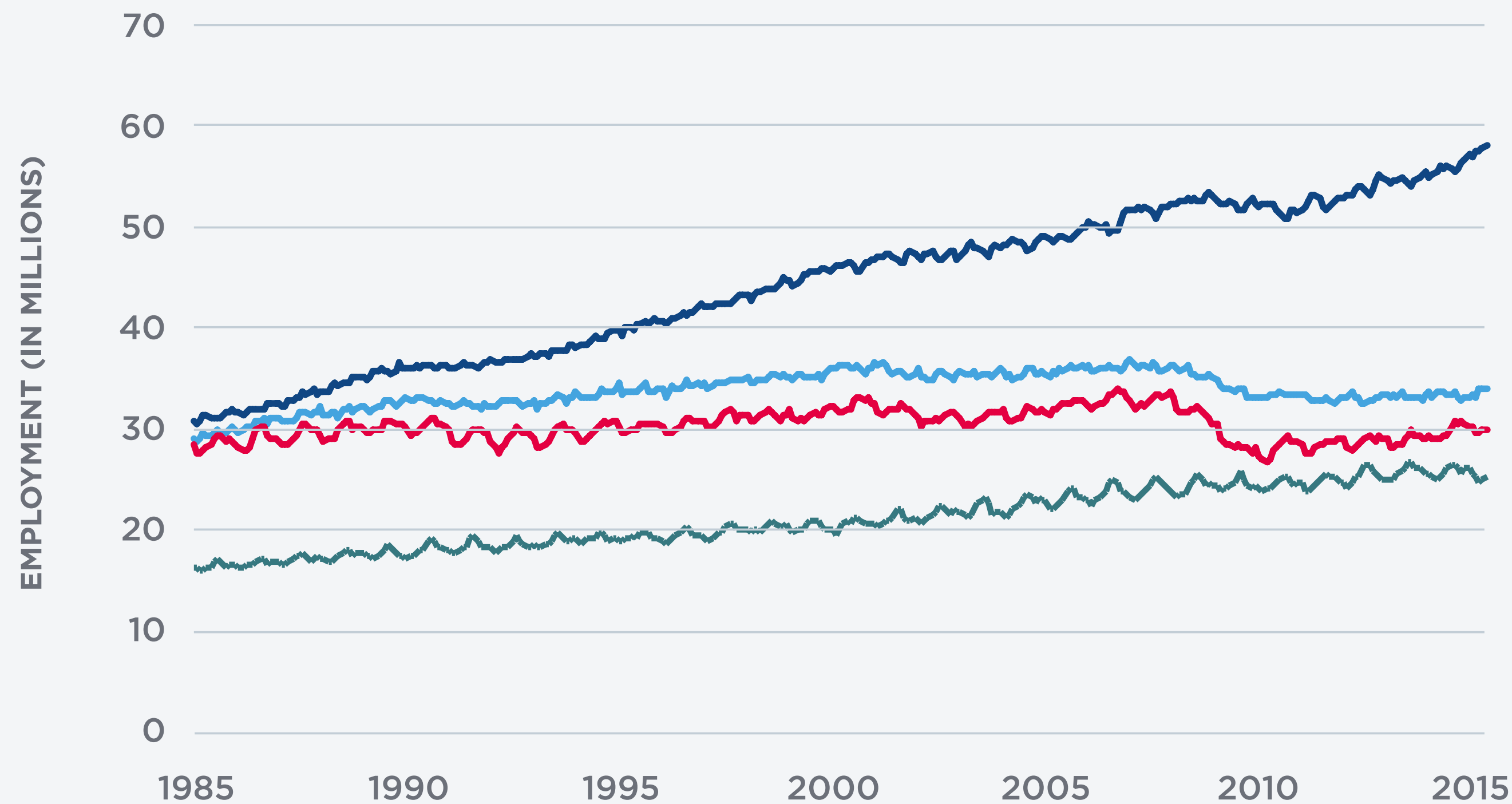
NONROUTINE COGNITIVE: MANAGEMENT, PROFESSIONAL, AND RELATED OCCUPATIONS

ROUTINE COGNITIVE: SALES AND OFFICE OCCUPATIONS

ROUTINE MANUAL: PRODUCTION, TRANSPORTATION, AND MATERIAL MOVING OCCUPATIONS + INSTALLATION, MAINTENANCE, AND REPAIR OCCUPATIONS + CONSTRUCTION AND EXTRACTION OCCUPATIONS

NONROUTINE MANUAL: SERVICE OCCUPATIONS RELATED TO ASSISTING OR CARING FOR OTHERS

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WHY MIGHT THIS TIME BE DIFFERENT?

1.
DEEPER
Machine learning may dramatically expand the types of tasks that can be automated.

2.
FASTER
Digital advancements could lead to a higher pace of change.

3.
BROADER
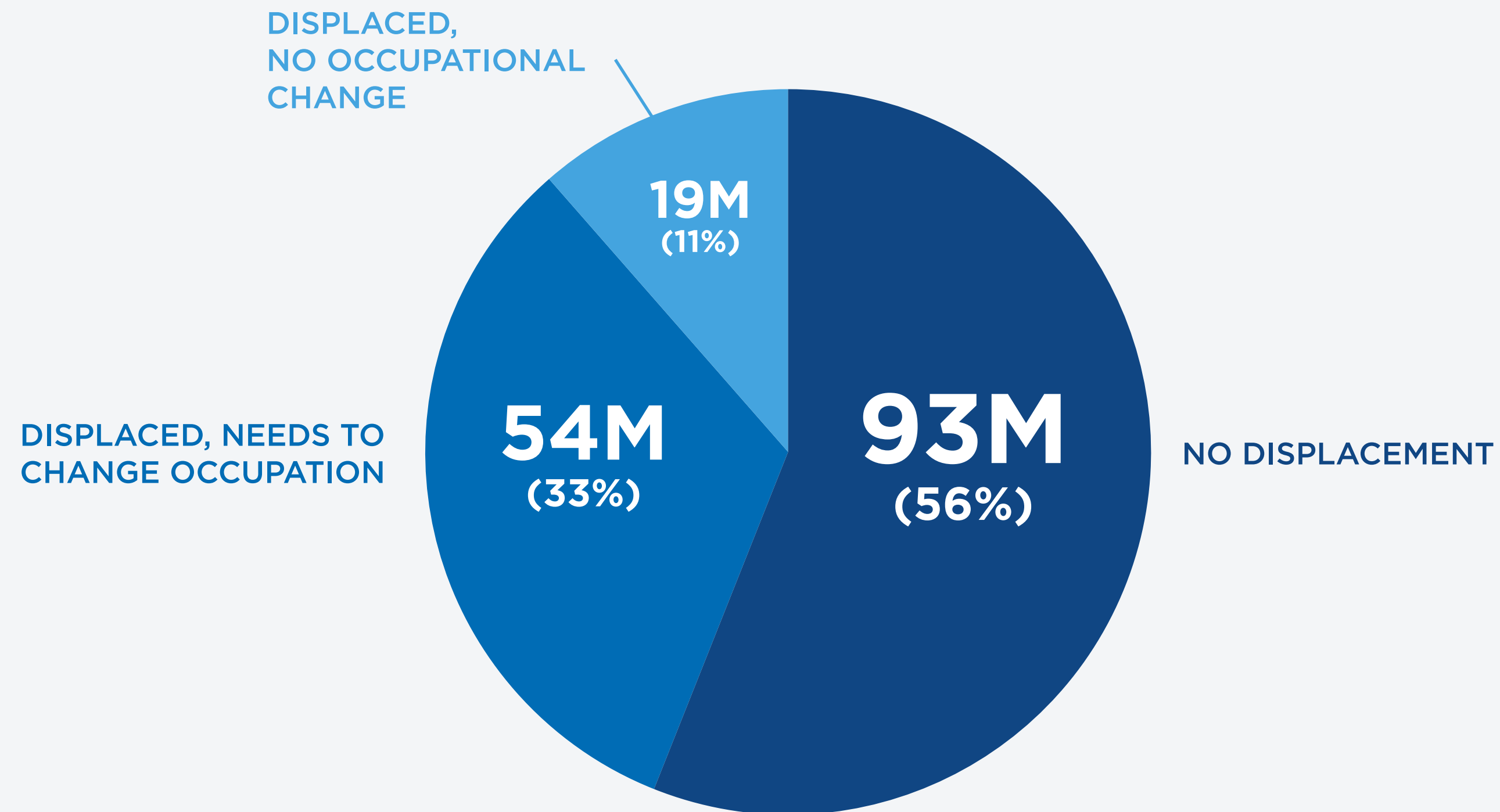Digital technology has applications in nearly every industry and occupation.

4.
MORE DISRUPTIVE
Automation's adverse labor market impacts may be intensifying.

WORKERS POTENTIALLY DISPLACED BY AUTOMATION

NUMBER OF U.S. WORKERS DISPLACED BY AUTOMATION BY 2030
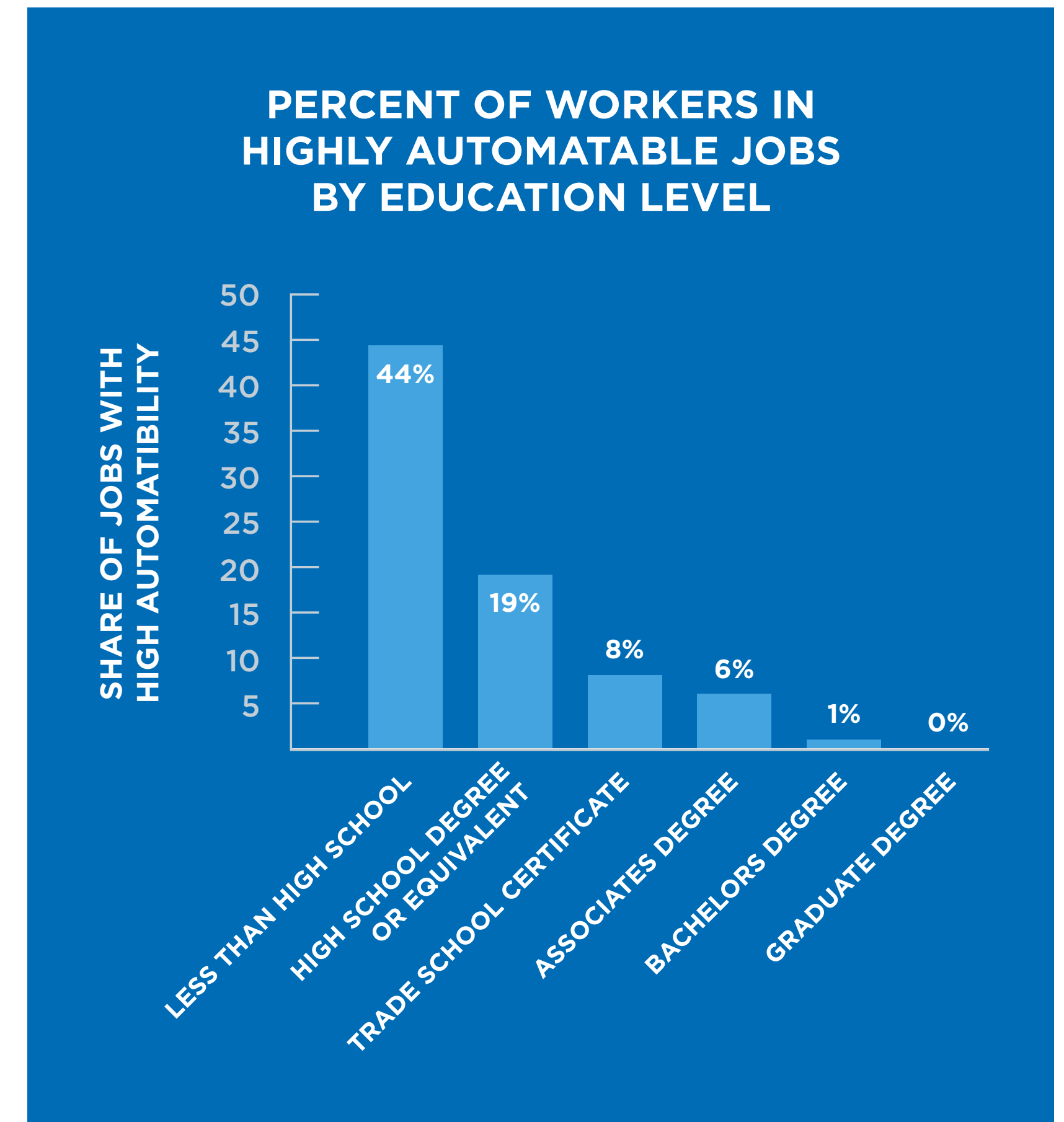(IN RAPID AUTOMATION SCENARIO)

DISPLACED, NO OCCUPATIONAL CHANGE

19M (11%)

DISPLACED, NEEDS TO CHANGE OCCUPATION

54M (33%)

93M (56%) NO DISPLACEMENT
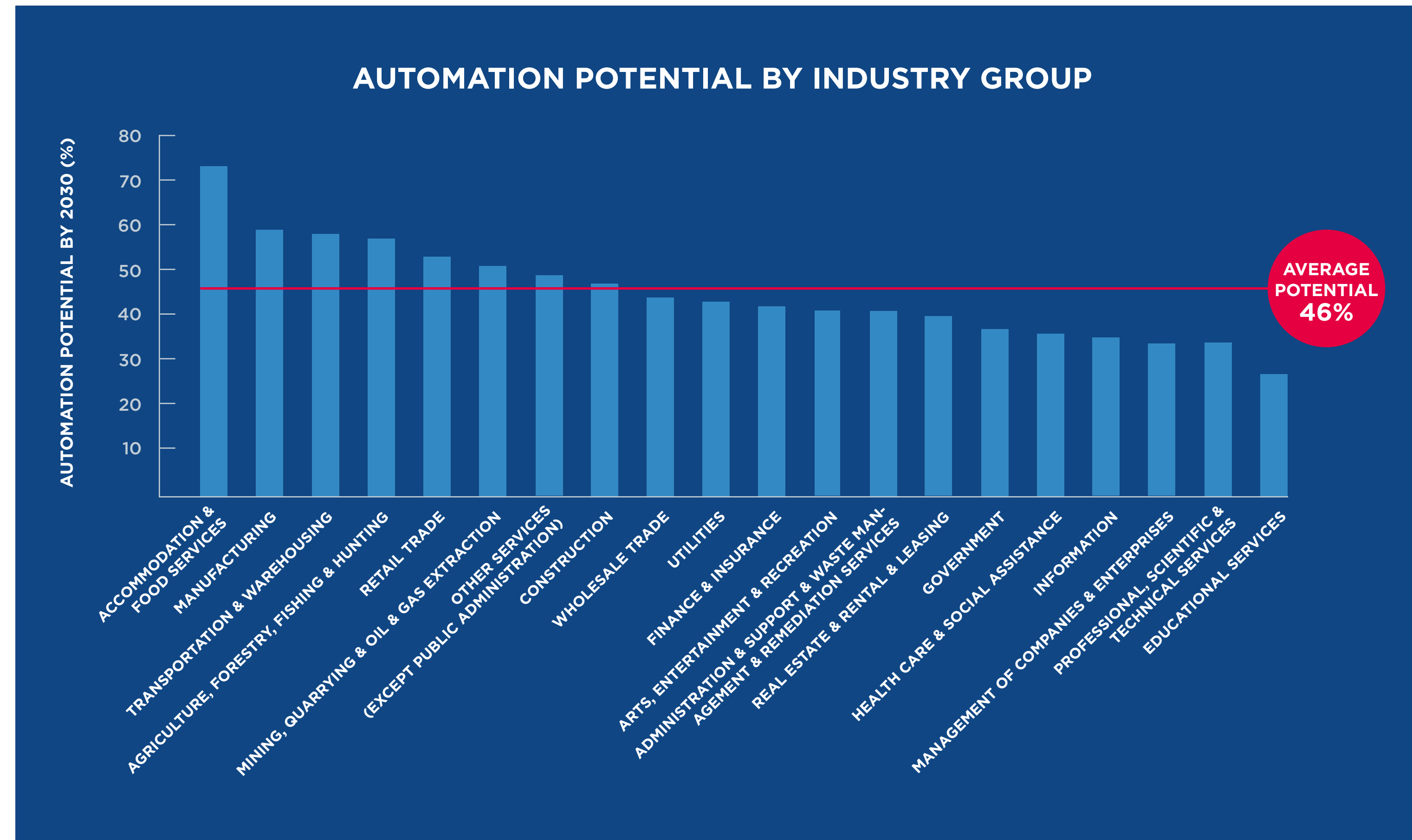
BASED ON RECENT MCKINSEY ANALYSIS, UP TO 33% OF THE U.S. WORKFORCE MAY NEED TO CHANGE OCCUPATIONS BY 2030

McKinsey & Company
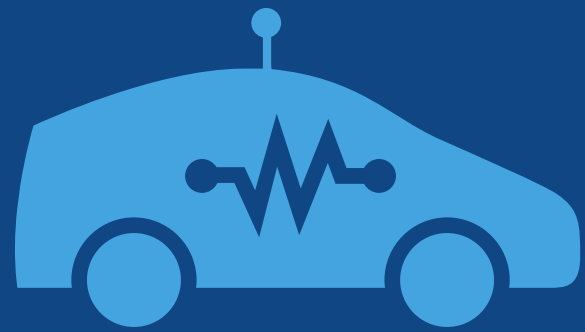
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POTENTIAL IMPACT BY INDUSTRY AND EDUCATION LEVEL

The potential impact varies by industry and education level. Industries with a higher potential for automation are those having more routine, manual work while other industries like education are seen to be less vulnerable to automation. Employees with less than a high school degree are extremely vulnerable to automation.

AUTOMATION POTENTIAL BY INDUSTRY GROUP

AVERAGE POTENTIAL 46%

PERCENT OF WORKERS IN HIGHLY AUTOMATABLE JOBS BY EDUCATION LEVEL

INDUSTRY SPOTLIGHT: TRANSPORTATION

AUTONOMOUS CARS

$2.6 BILLION
invested in companies developing technology to support autonomous cars

25% OF MILES DRIVEN
on U.S. roads by 2030 could be by shared self-driving vehicles

305,100
taxi drivers in the U.S.– plus rideshare drivers and

750,000
workers in U.S. auto repair industry

AUTONOMOUS TRUCKS

65%
of U.S. manufacturers believe self-driving trucks will be mainstream within the next 10 years

30%
in total transportation cost savings for manufacturers using autonomous long-haul trucking through 2040

1.3-1.7 MILLION
truck drivers in the U.S. could lose their jobs

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IN THE PAST: INVESTMENTS IN EDUCATION, SAFETY NET, SOCIAL CONTRACT

EDUCATION

HIGH SCHOOL MOVEMENT

GI BILL

MANPOWER DEVELOPMENT TRAINING ACT

WORK STUDY PROGRAM

HIGHER EDUCATION ACT

SAFETY NET

UNEMPLOYMENT INSURANCE

SOCIAL SECURITY

WORKS PROGRESS ADMINISTRATION

AID TO FAMILIES WITH DEPENDENT CHILDREN

MEDICARE

FOOD STAMP PROGRAM

LABOR MOVEMENT

COLLECTIVE BARGAINING POWER

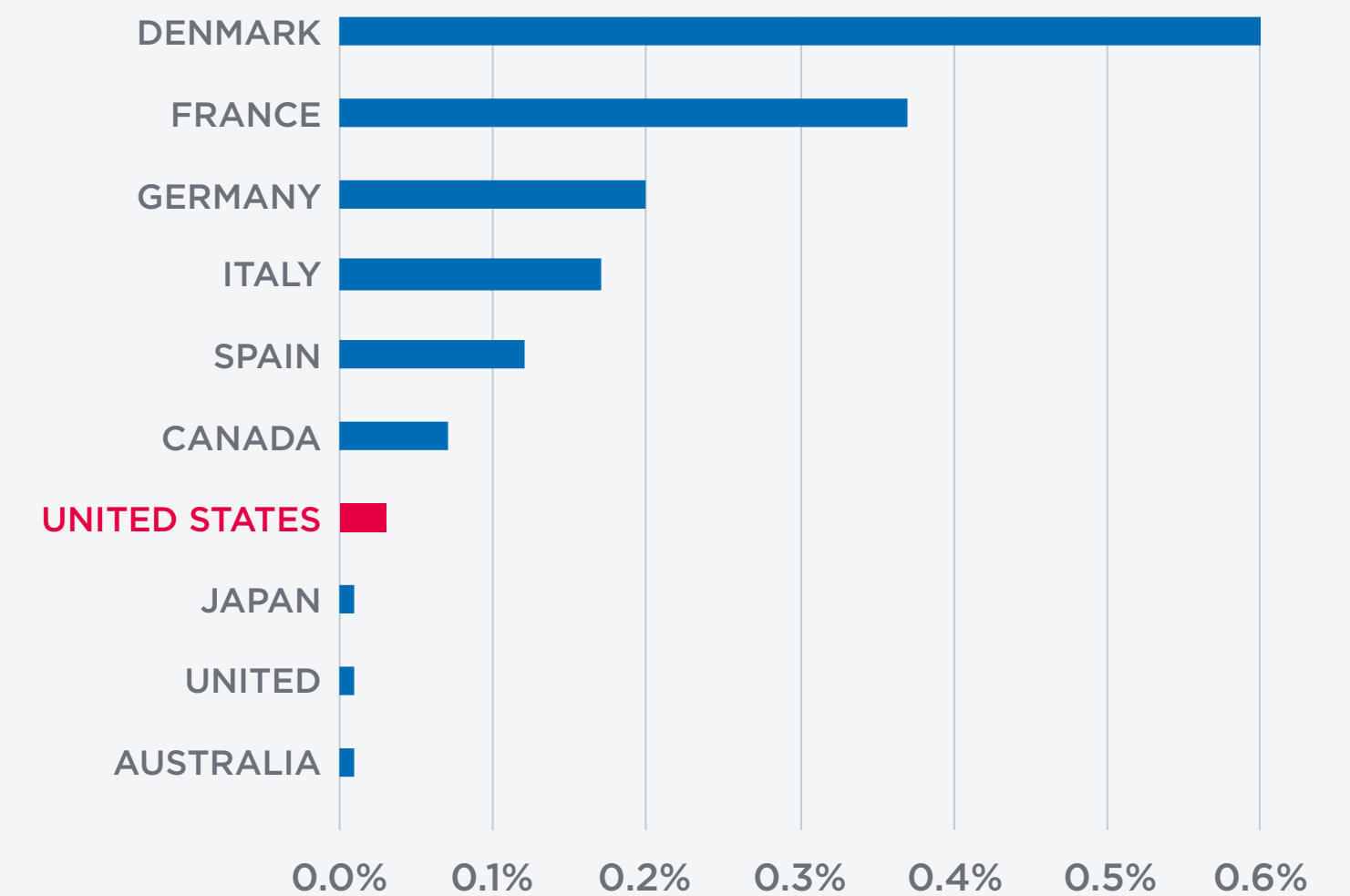40-HOUR WORK WEEK

OVERTIME

MINIMUM WAGE

HOW THE U.S. COMPARES TO THE REST OF THE WORLD IN TRAINING ITS WORKFORCE

The United States outspends OECD countries on higher education, but we are comparatively weak in training our workforce beyond college. And we are moving in the wrong direction. As the need for increased workforce training increases, a McKinsey report noted U.S. spending on workforce training programs fell as a percentage of GDP from 0.08% to 0.03% (or less than $5.5 billion) between 1993 and 2015.

TERTIARY HIGHER EDUCATION SPENDING AS % OF GDP, OECD COUNTRIES

2.58%
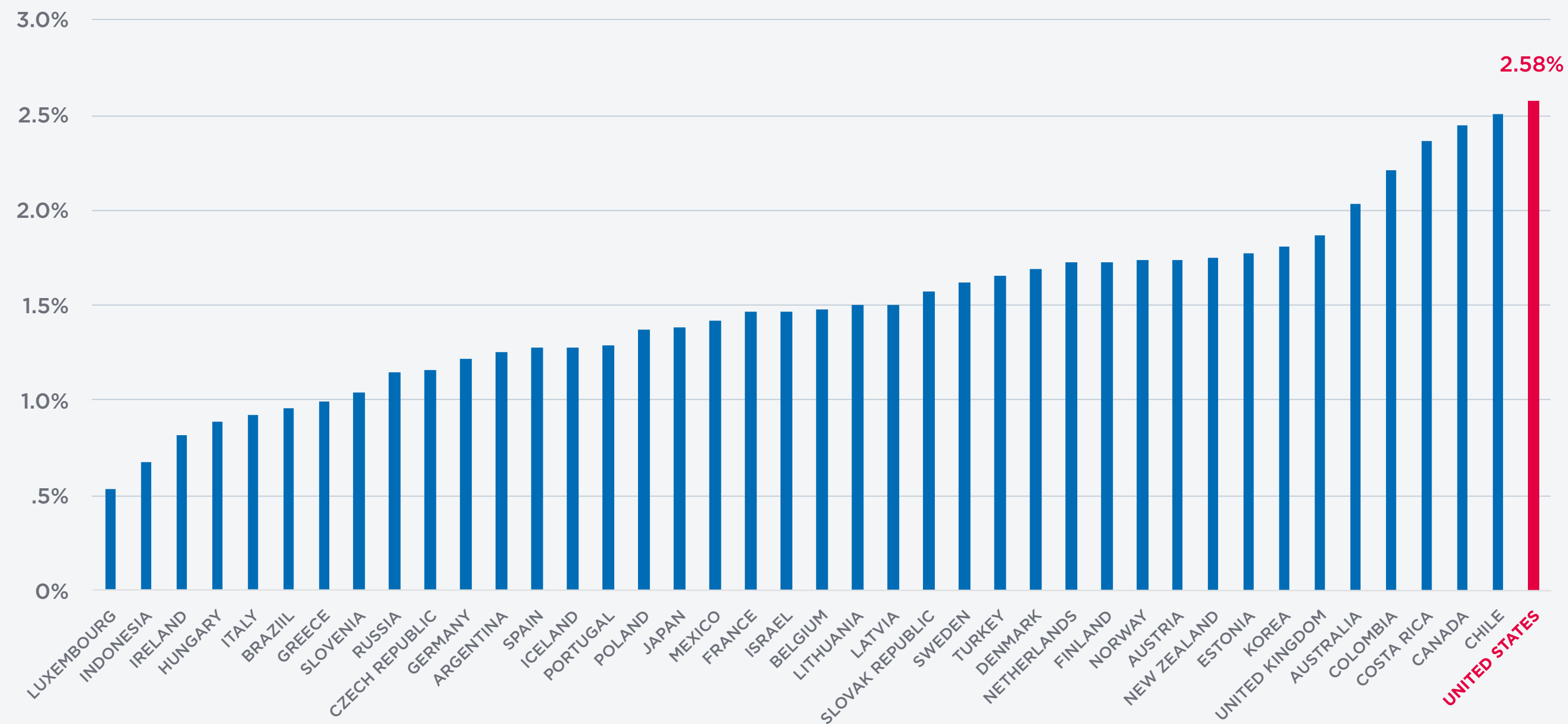
TOTAL PUBLIC SPENDING ON WORKER TRAINING, 2015
(% OF GDP)

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21ST CENTURY POLICIES FOR SHARED PROSPERITY

1.

ENCOURAGE EMPLOYERS TO LEAD A HUMAN-CENTRIC APPROACH TO AUTOMATION.

- Create Worker Training Tax Credit

- Expand apprenticeship programs

- Promote worker voice

2.

ENABLE WORKERS TO ACCESS SKILLS TRAINING, GOOD JOBS, AND NEW ECONOMIC OPPORTUNITIES.

- Establish lifelong learning & training accounts

- Improve data on training outcomes

- Promote job quality

3.

HELP PEOPLE AND COMMUNITIES RECOVER FROM DISPLACEMENTS.

- Develop place-based policies

- Provide wage insurance to older workers

- Modernize unemployment insurance

4.

UNDERSTAND THE IMPACT OF AUTOMATION ON THE WORKFORCE.

- Create new metrics for tracking technological progress and automation

- Improve occupational projections

- Develop better data on local and regional labor markets

BOOST THE INCENTIVE FOR EMPLOYERS TO INVEST IN WORKERS

BACKGROUND

- Employers are uniquely positioned to play an important role in preparing the workforce for lifelong learning
- Unfortunately, available data suggest that employer investment in worker training is declining

PROPOSAL: CREATE BUSINESS TAX CREDIT TO OFFSET TRAINING COSTS

- Tax credit to offset portion of cost of new training activities for non-highly compensated workers
- Currently, there is a 20 percent R&D tax credit but no similar credit for corporate investment in training

EXAMPLES

- CT, GA, KY, MS, RI, and VA provide businesses with tax credits for training investments that range from 5 percent to 50 percent of training expenses. Versions of this proposal have been introduced in NJ and VA
- Federal legislation to create a Worker Training Tax Credit also introduced last Congress in the U.S. Senate and House

EMPOWER WORKERS TO INVEST IN THEIR OWN TRAINING

BACKGROUND

- To succeed in a rapidly changing economy, workers will need to update skills over the course of their careers, both to adapt to the evolving skills that will be needed in their jobs and/or to help transition to new jobs if their industry or occupation faces disruption

PROPOSAL: CREATE LIFELONG LEARNING & TRAINING ACCOUNTS

- Lifelong Learning and Training Accounts would be funded by workers, employers, and government, and could be used by workers to pay for education and training opportunities over the course of their career

EXAMPLES

- Demonstration programs have been implemented in ME, WA, Chicago, and New York City
- In MA, legislation has been proposed to establish a Lifelong Learning and Training Account program
- Federal legislation was also proposed in the U.S. Senate and House last session

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IMPROVE STATE LABOR MARKET DATA

BACKGROUND

- Detailed data on local and regional economies is often nonexistent or inaccessible
- Better data would improve understanding of how economic forces like automation are affecting local and regional economies, to best target policymaking, service offerings, and delivery

PROPOSAL: IMPROVE DATA COLLECTION AND USAGE

- Add new data elements in state UI wage records
- Create training program effectiveness data by matching with education program data through state longitudinal data systems
- Increase funding for state labor market information systems
- Develop a more effective and transparent skills-based labor market

EXAMPLES

- LA, OR, WA, and AK currently collect additional data elements, including occupational title
- CO and IN have worked with the Markle Foundation's Skillful Initiative to develop a more effective and transparent skills-based labor market

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