

# Banking and insurance

## Introduction

Financial services have been at the forefront of digital adoption, and are leading in the adoption of AI and robotic process automation as well. Data processing and collection, underwriting, and actuarial activities are all highly susceptible to automation, and AI can also improve quality in areas such as risk assessment, predicting customer demand and next product to buy, and personalizing products.

Banking and insurance will face one of the most pervasive workforce transitions in the years to come. Jobs such as tellers, financial analysts, and brokerage clerks will decline substantially, while the number of technology professionals and customer-interfacing roles will grow. The need for workers who use mainly basic cognitive skills, such as data input and processing and basic literacy and numeracy, will likely decline, while the need for workers with advanced technology skills, and those with social and emotional skills, will grow.

## Sector trends at a glance Industry snapshot

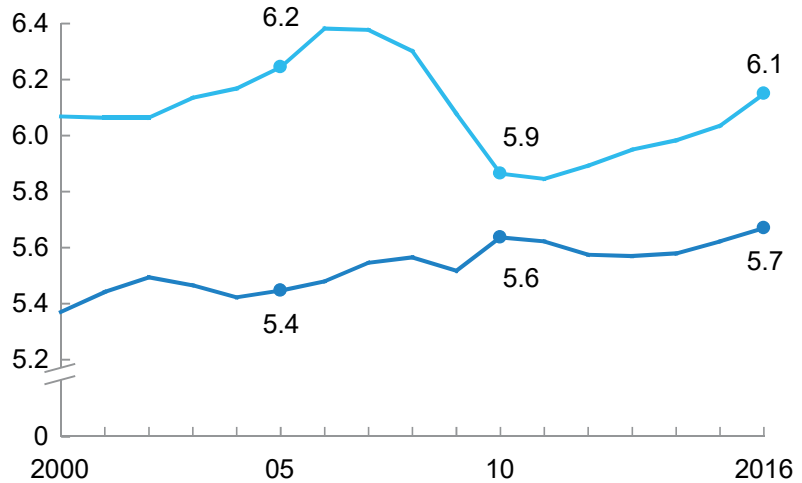


United States<sup>1</sup>



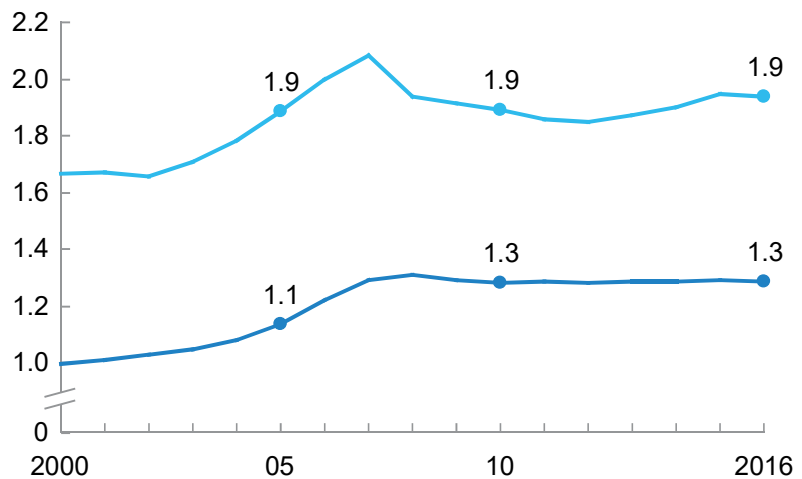
Western Europe<sup>2</sup>

### Employment Million FTEs



### Revenue

\$ trillion, 2016 exchange rate



### Labor productivity

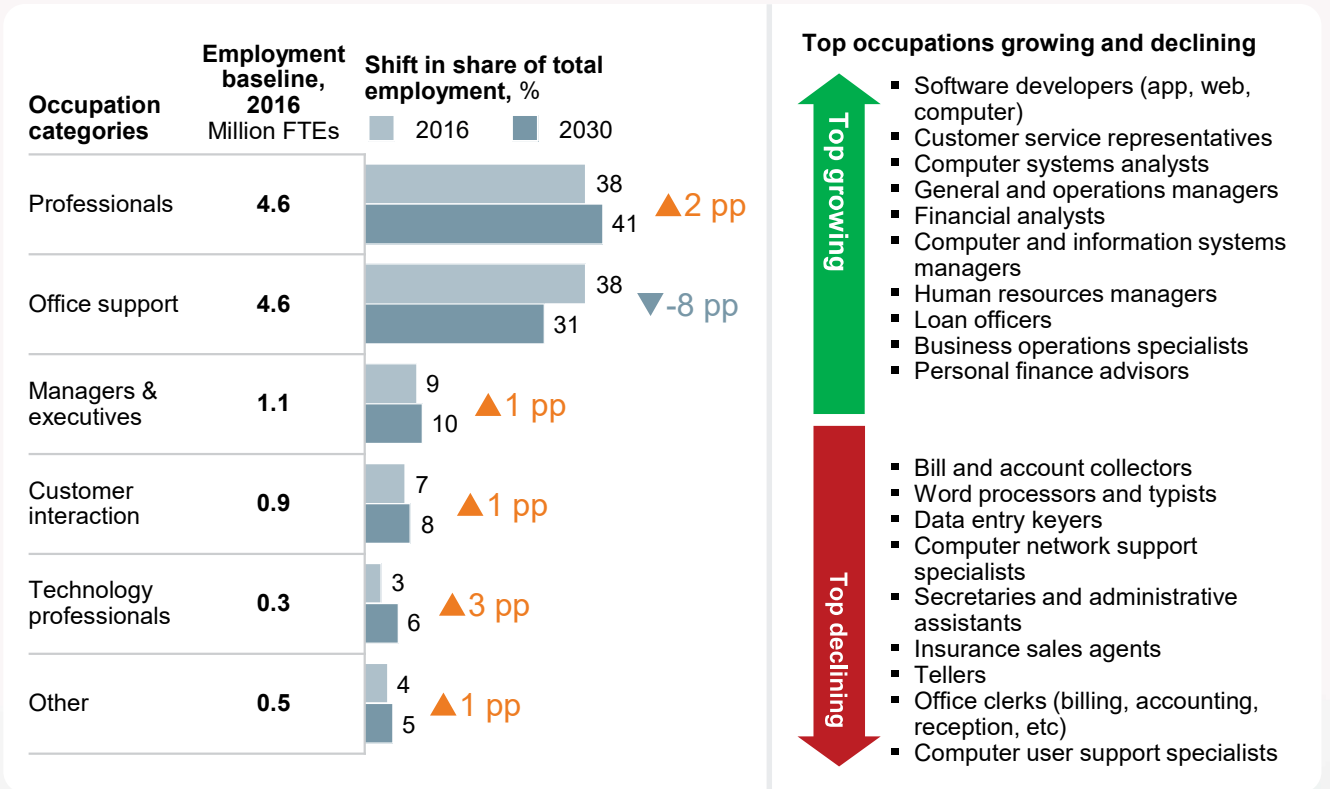
	Loans per FTE, 2016 \$ million	CAGR, 2000–16 %
United States	3.6	3.9
Western Europe	4.4	4.6

<sup>1</sup> Employment in the United States for the years 2000 and 2001 was calculated based on the 2004–16 CAGR.

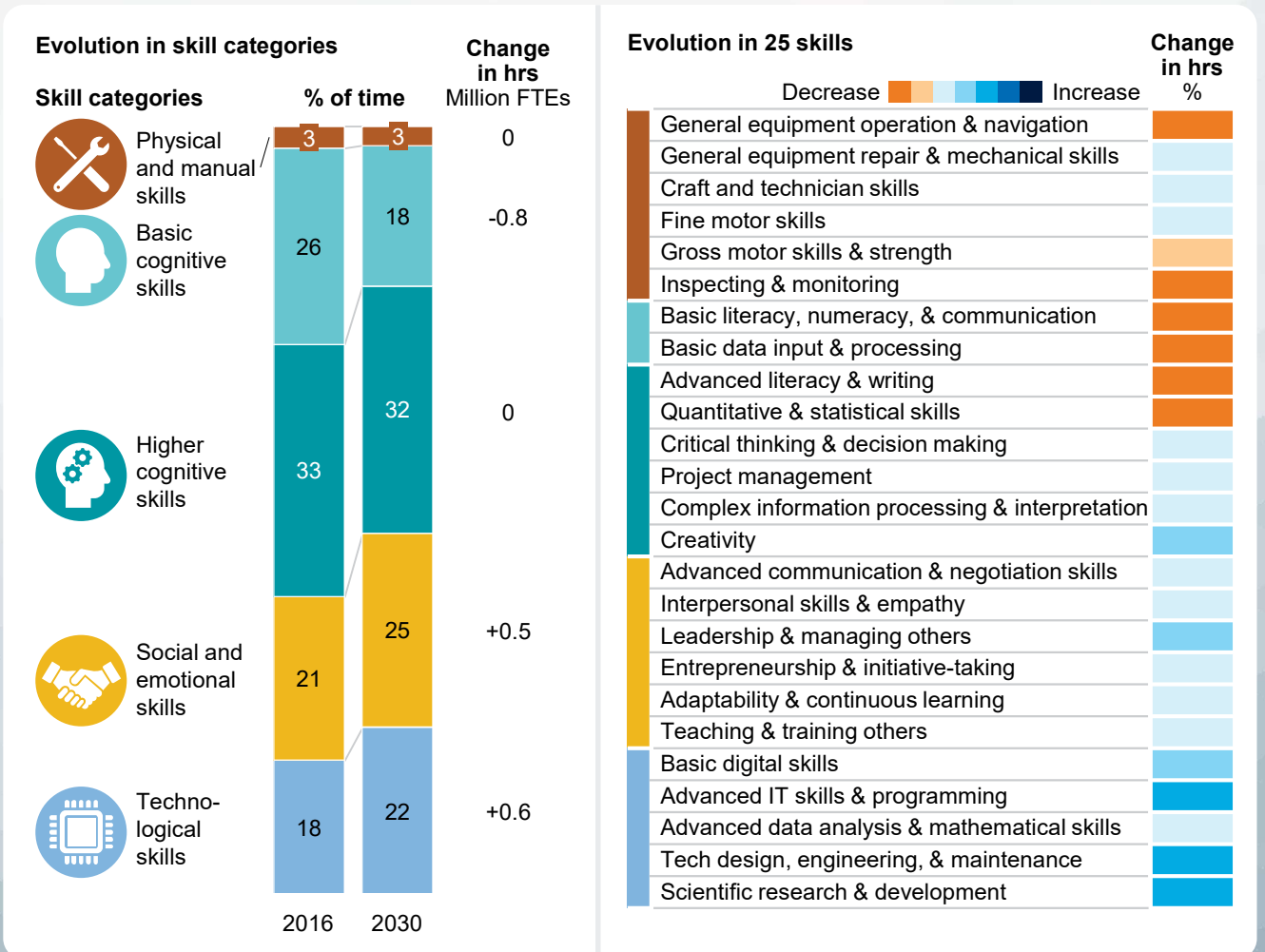
<sup>2</sup> Western Europe comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.

SOURCE: IHS (revenues); BLS (US employment); OECD (EU employment); McKinsey Global Institute analysis

## Sector job shift by 2030



## Sector skill shifts by 2030



NOTE: Numbers may not sum due to rounding.  
SOURCE: McKinsey Global Institute analysis

# Energy and mining

## Introduction

Automation and digital technologies have already begun to change the mining and energy industries, enabling companies to tap new reserves, increase extraction efficiency, and optimize material and equipment flow. The next wave of AI and smart automation will enable further improvements, enabling more accurate demand forecasts, predictive maintenance, and fully automated extraction operations.

Predictable manual work, such as drivers and field operators, is susceptible to being displaced, as are administrative jobs and those that involve data manipulation, such as meter readers, while demand for technological jobs will be buoyant. As a result, demand for physical and manual skills along with basic cognitive skills are expected to decrease, while demand for all other skills in higher cognitive, social and emotional, and technological categories are expected to grow.

## Sector trends at a glance Industry snapshot

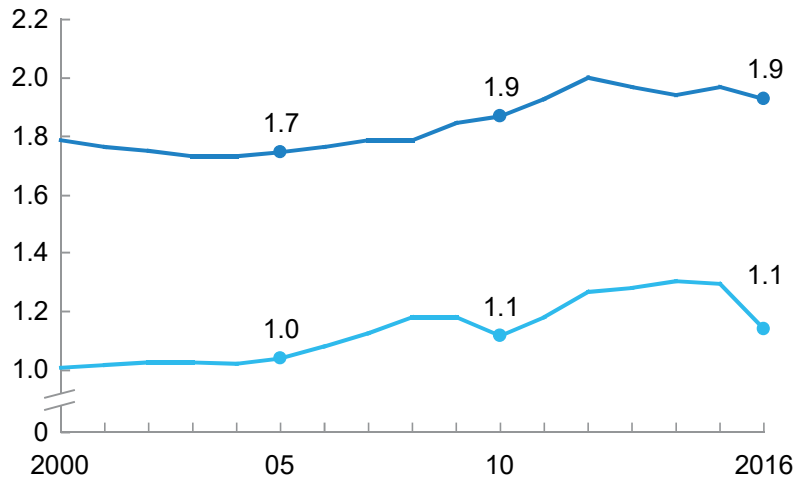


United States<sup>1</sup>

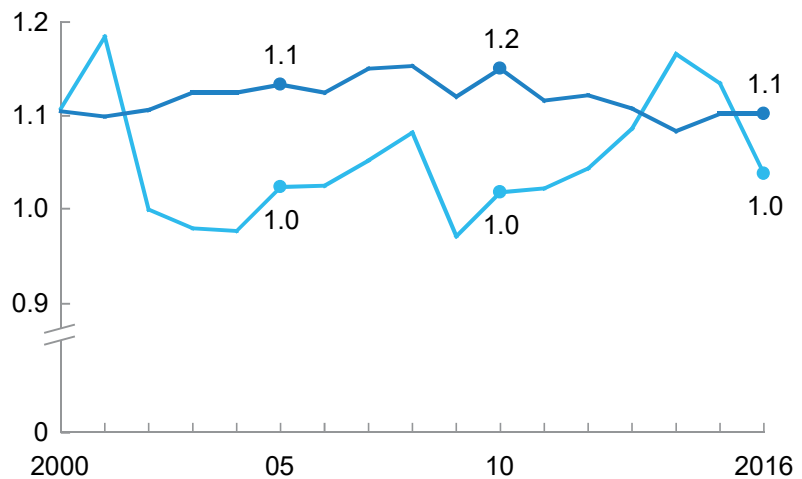


Western Europe<sup>2</sup>

### Employment Million FTEs



### Revenue \$ trillion, 2016 exchange rate



### Labor productivity

	Revenue per FTE, 2016 \$ million	CAGR, 2000–16 %
United States	0.9	-1.2
Western Europe	0.6	-0.5

<sup>1</sup> Employment in the United States for the years 2000 and 2001 was calculated based on the 2004–16 CAGR.

<sup>2</sup> Western Europe comprises Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.

SOURCE: IHS (revenues); BLS (US employment); OECD (EU employment); McKinsey Global Institute analysis

## Sector job shift by 2030



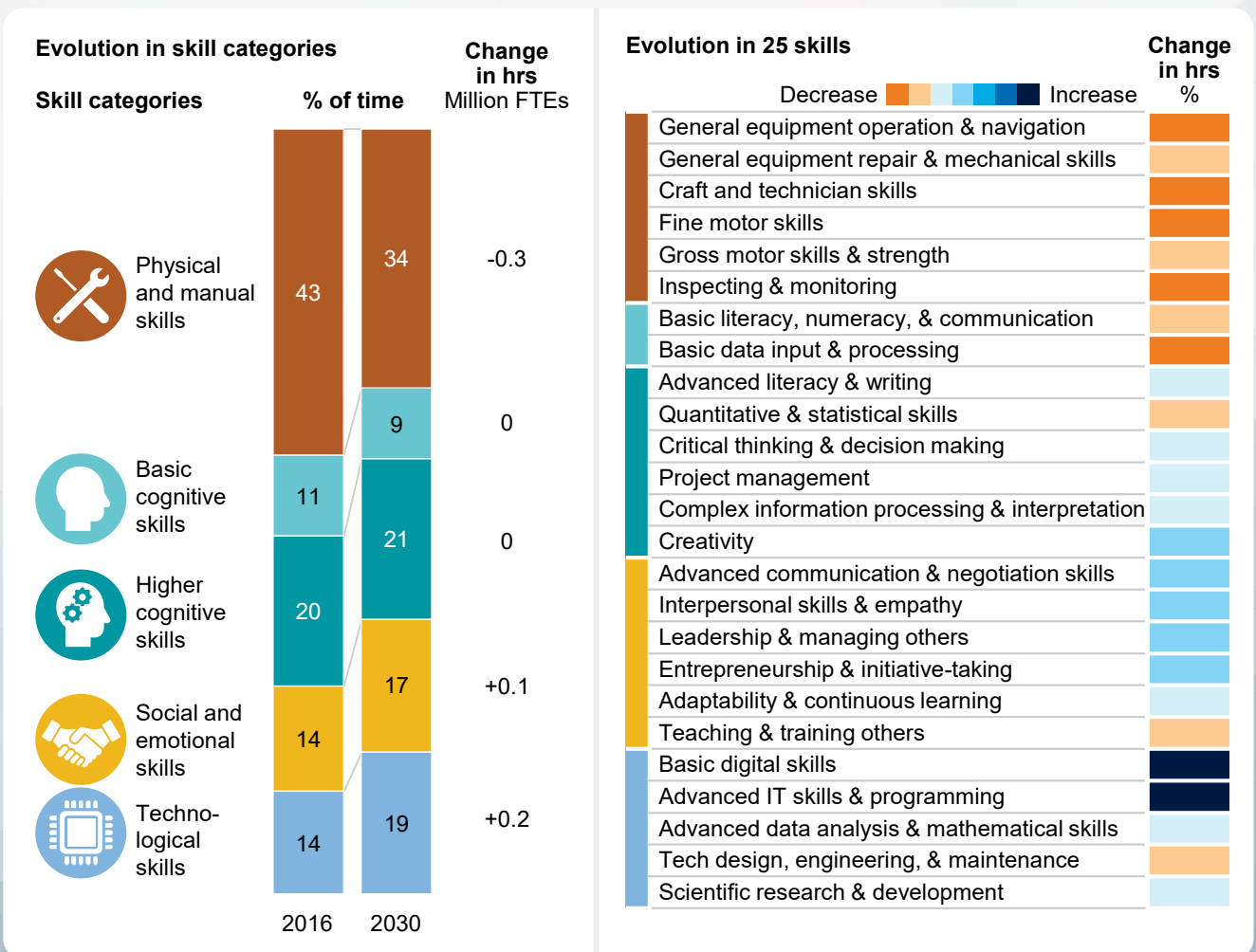
### Top occupations growing and declining

- Top growing

  - Software developers
  - Customer service representatives
  - Computer systems analysts
  - Electrical engineers
  - Electrical and electronics technicians
  - General and operations managers
  - Accountants and auditors
  - Management analysts
  - Sales representatives
  - Engineers by training
- Top declining

  - Power plant operators
  - Stationary engineers and boiler operators
  - Construction equipment engineers and operators
  - Welding, brazing, soldering machine operators
  - Service unit operators, oil, gas, and mining
  - Meter readers, utilities
  - Heavy and tractor-trailer truck drivers
  - Mine shuttle car operators
  - Office clerks (billing, accounting, reception, etc)
  - Wind turbine service technicians

## Sector skill shifts by 2030



NOTE: Numbers may not sum due to rounding.  
SOURCE: McKinsey Global Institute analysis

# Healthcare

## Introduction

Demand for healthcare is expected to grow significantly as populations age, although cost pressures and potential shortages of care workers may constrain growth. Automation and AI will enable large gains in both efficiency and quality, enabling patient co-management, real-time analytics, and improved treatment methods.

Care providers such as nurses will continue to see growing demand, while office support staff will see decreases due to automation of tasks in record keeping and administration. Advanced IT skills, basic digital skills, entrepreneurship, and creativity will see the largest double-digit growth in demand. However, demand for skills such as inspecting and monitoring patient vitals and medical equipment will stagnate. Healthcare is one of the few sectors that will see growing need for physical and manual skills, reflecting gross motor skills and strength needed for eldercare and physical therapy, and fine motor skills required of registered nurses inserting IVs, and of surgeons and other doctors.

## Sector trends at a glance

Industry snapshot



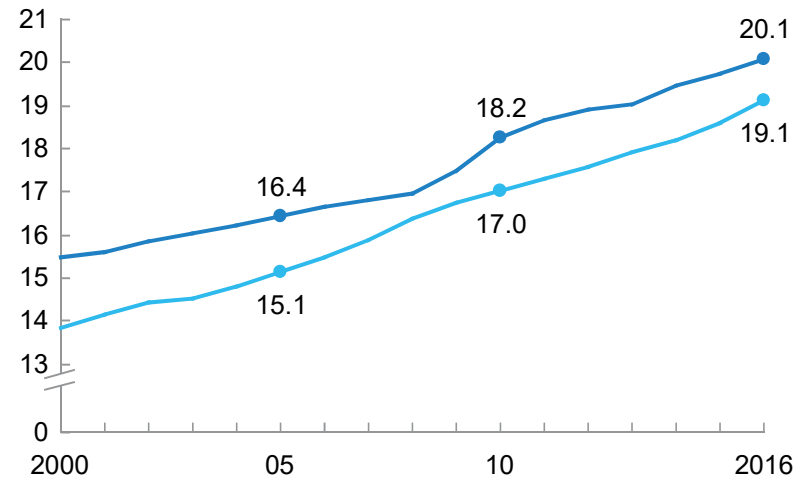
United States<sup>1</sup>



Western Europe<sup>2</sup>

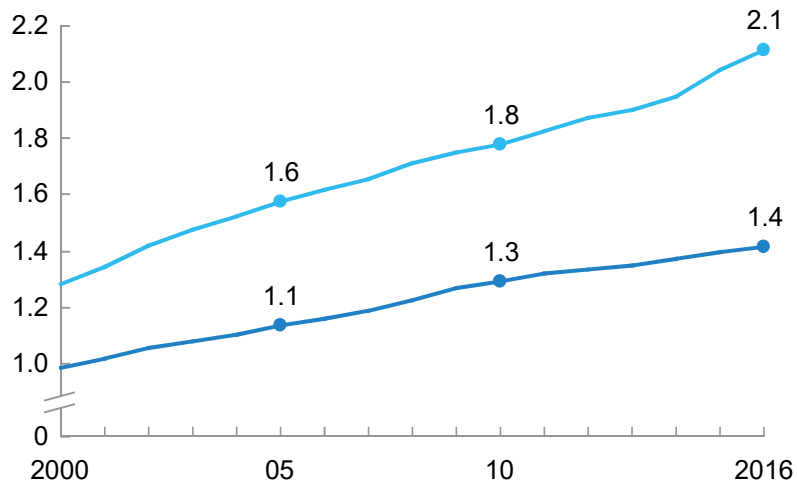
### Employment

Million FTEs



### Revenue

\$ trillion, 2016 exchange rate



### Labor productivity

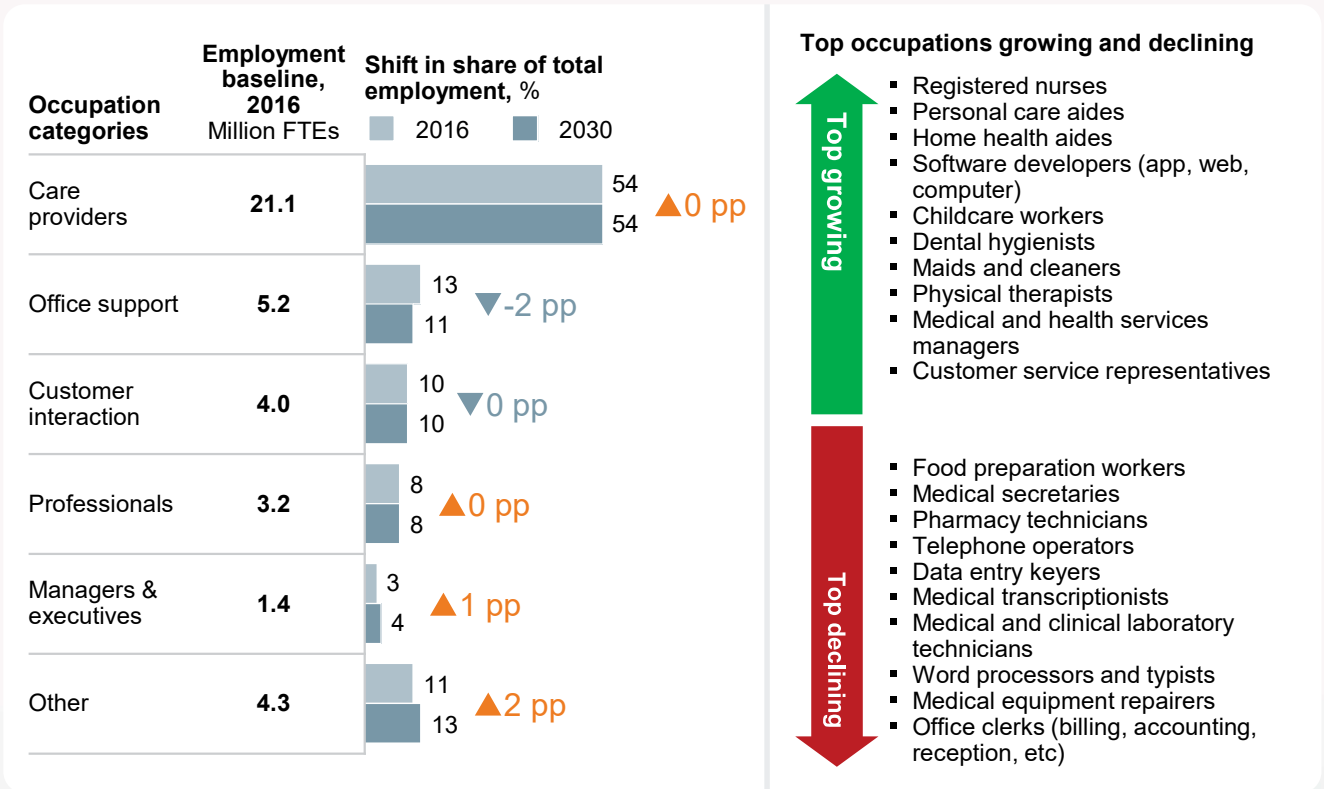
	Population per FTE, 2016 People per healthcare employee	CAGR, 2000–16 %
United States	16.8	-1.2
Western Europe	18.5	-1.2

<sup>1</sup> Employment in the United States for the years 2000 and 2001 was calculated based on the 2004–16 CAGR.

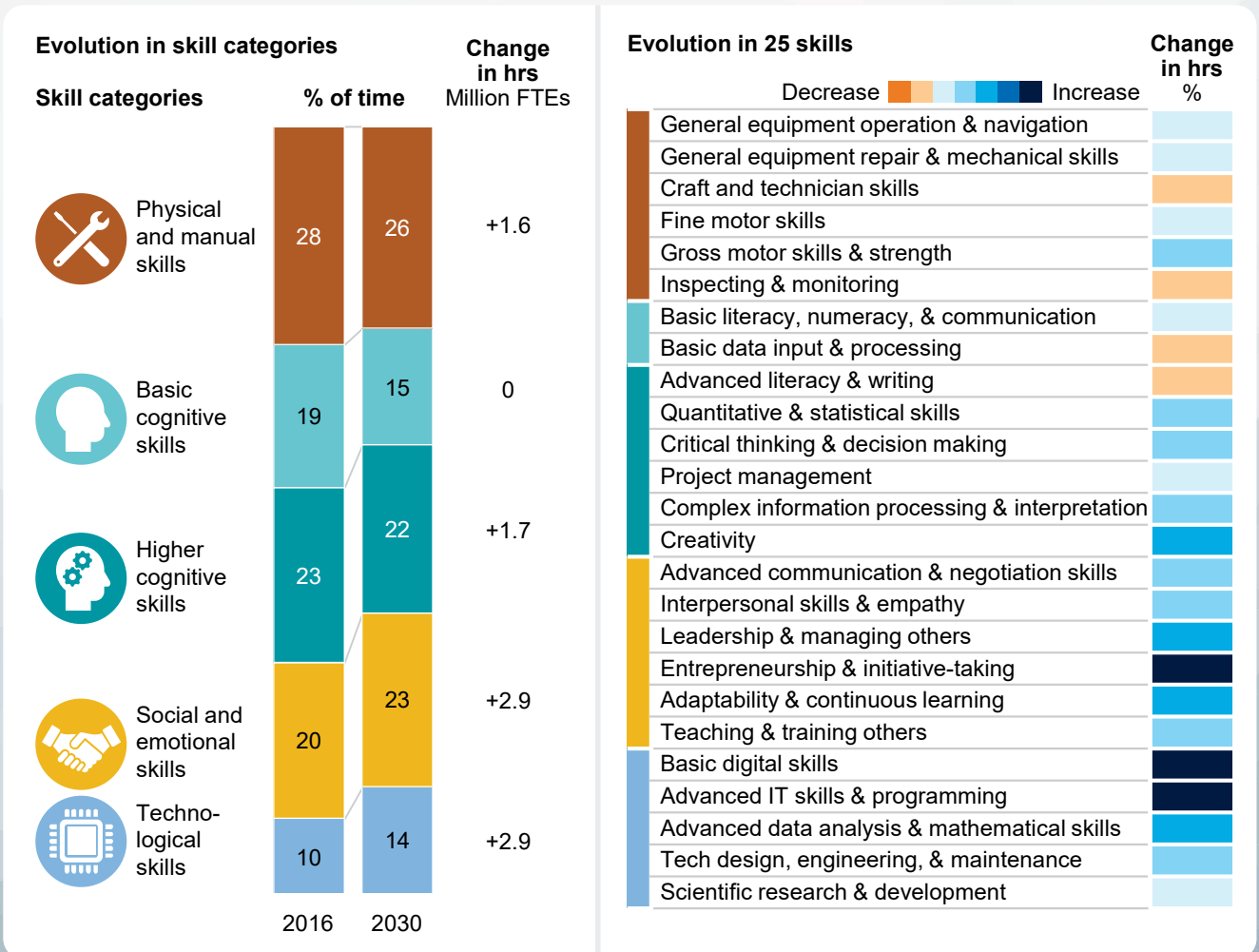
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SOURCE: IHS (revenues); BLS (US employment); OECD (EU employment); McKinsey Global Institute analysis

## Sector job shift by 2030



## Sector skill shifts by 2030



NOTE: Numbers may not sum due to rounding.  
SOURCE: McKinsey Global Institute analysis

# Manufacturing

## Introduction

The next wave of automation and AI in manufacturing will continue to disrupt production functions in factories through better analytics, predictive maintenance, and increased human-machine collaboration. It will also have an impact on product development and on marketing and sales.

Demand for physical and manual skills overall in the sector is decreasing at more than twice the rate for the whole economy, and demand for basic cognitive skills is also declining as office support functions are automated. Professional occupations such as sales representatives and engineers will grow, as will production technicians. This will drive an increase in the need for social-emotional and higher cognitive skills, such as communication and negotiation, adaptability and continuous learning, and leadership. The need for technological skills will also increase, both for advanced IT skills for technology professionals and basic digital skills required of technicians and others.

## Sector trends at a glance Industry snapshot

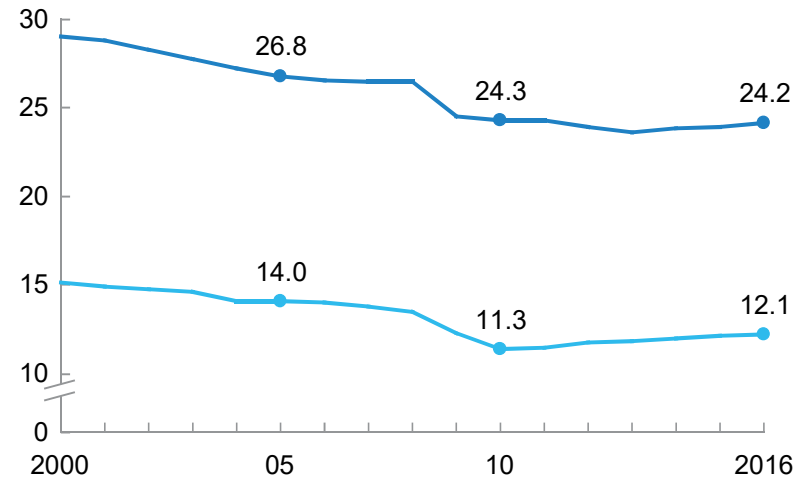


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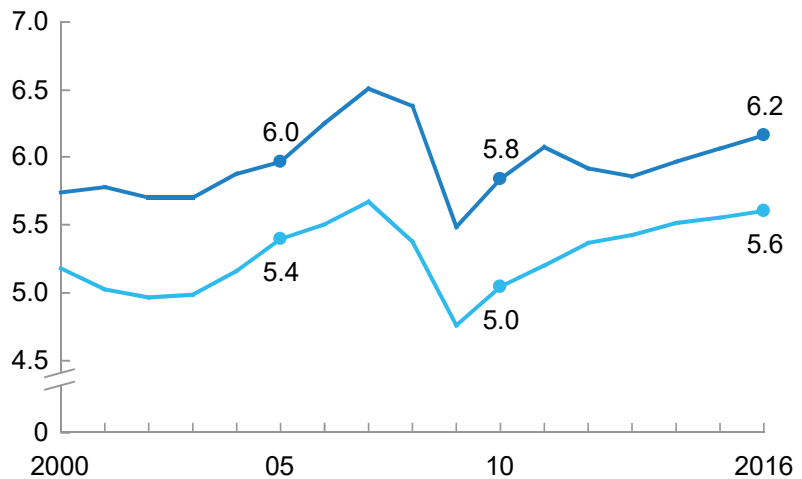


Western Europe<sup>2</sup>

### Employment Million FTEs



### Revenue \$ trillion, 2016 exchange rate



### Labor productivity

	Gross output per FTE, 2016 \$ thousand	CAGR, 2008–16 %
United States	158	2.5
Western Europe	99	2.4

<sup>1</sup> Employment in the United States for the years 2000 and 2001 was calculated based on the 2004–16 CAGR.

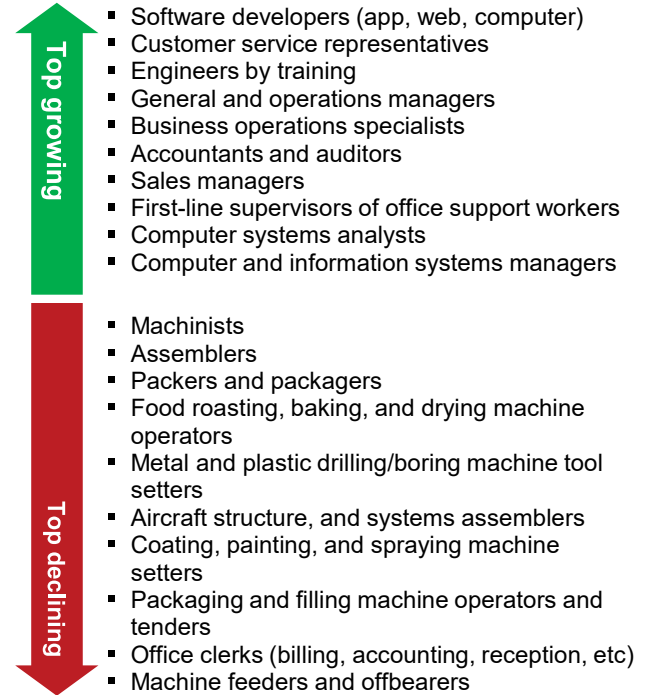
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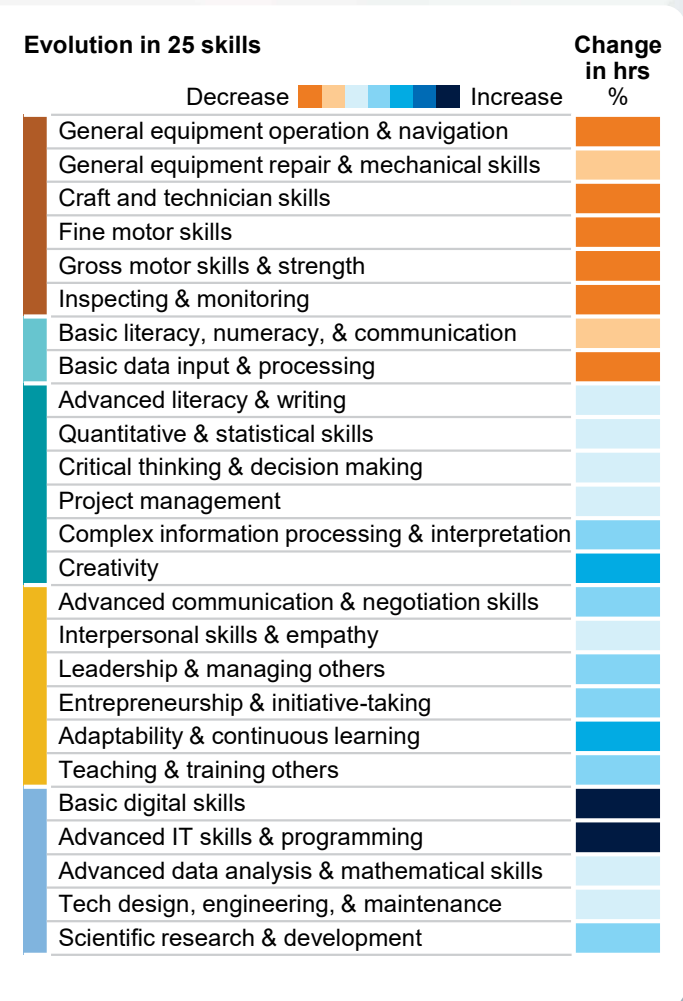
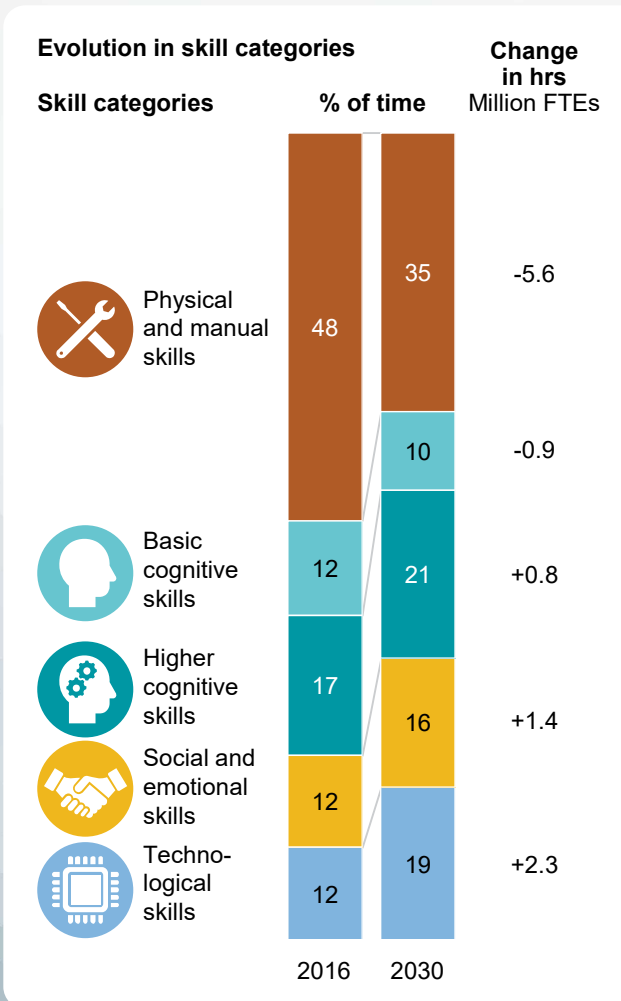
## Sector job shift by 2030



### Top occupations growing and declining



## Sector skill shifts by 2030



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SOURCE: McKinsey Global Institute analysis

# Retail

## Introduction

Digital technologies will drive significant skill shifts in the retail sector. E-commerce and online channels are now standard for all major retailers, and AI and smart automation will transform the retail experience, as self-checkout machines replace cashiers, robots restock shelves, and machine learning improves prediction of customer demand.

Jobs requiring physical and manual skills will decline, such as drivers, packers, and shelf stockers. Positions requiring mainly basic cognitive skills, such as cashiers, will also decline. Jobs that remain will be concentrated in customer service, management, and technology deployment and maintenance. The sector will see strong growth in workers with interpersonal skills, creativity, and adaptability. Advanced IT skills and programming skills will also see a surge in demand, as new technologies are deployed and maintained across the sector.

## Sector trends at a glance Industry snapshot

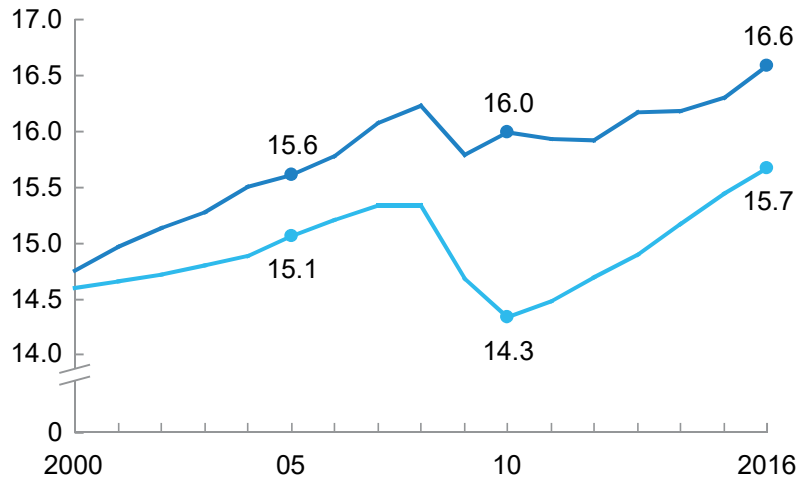


United States<sup>1</sup>



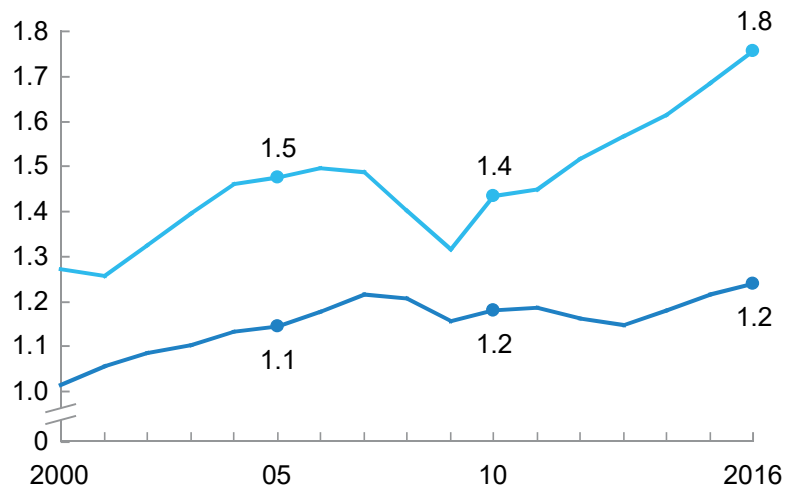
Western Europe<sup>2</sup>

### Employment Million FTEs



### Revenue

\$ trillion, 2016 exchange rate



### Labor productivity, 2016

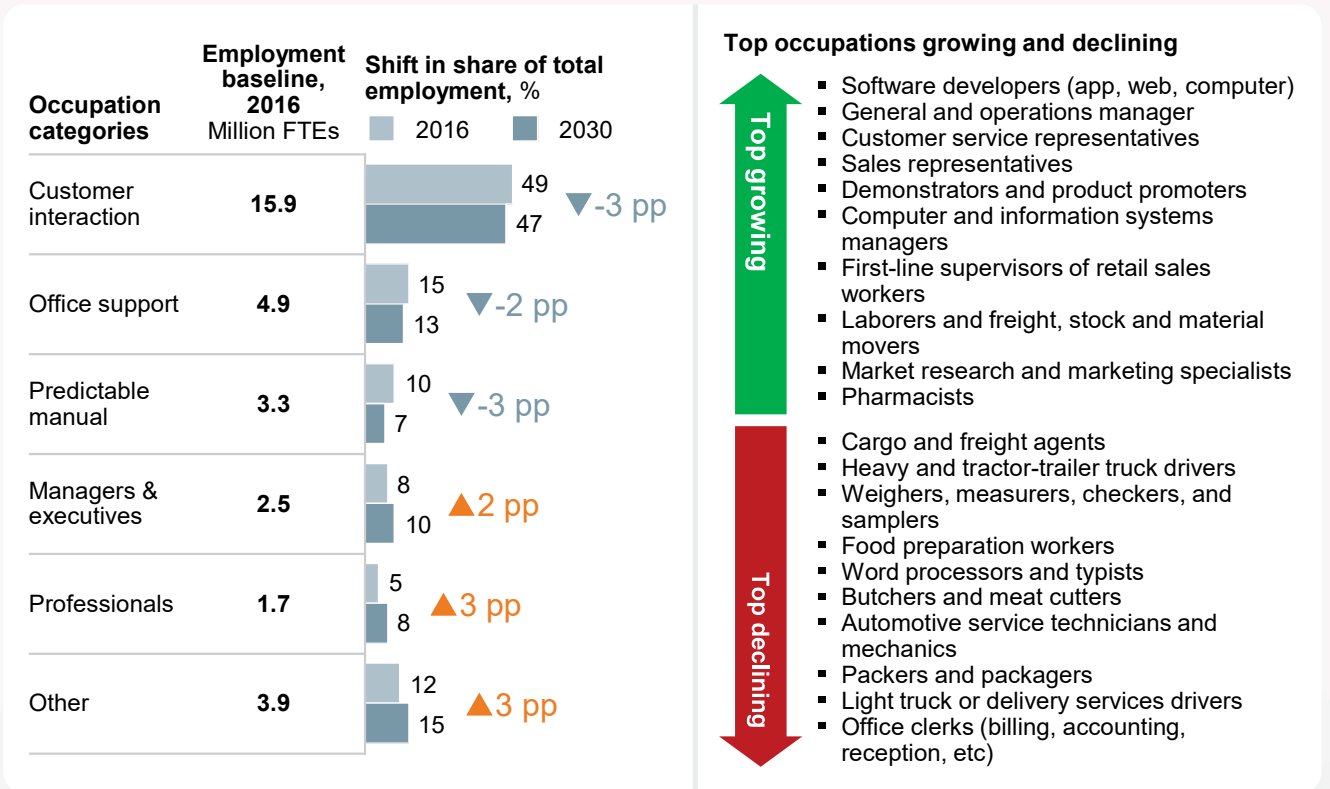
	Revenue per FTE, 2016 \$ thousand	CAGR, 2000–16 %
United States	112	1.6
Western Europe	73	0.5

<sup>1</sup> Employment in the United States for the years 2000 and 2001 was calculated based on the 2004–16 CAGR.

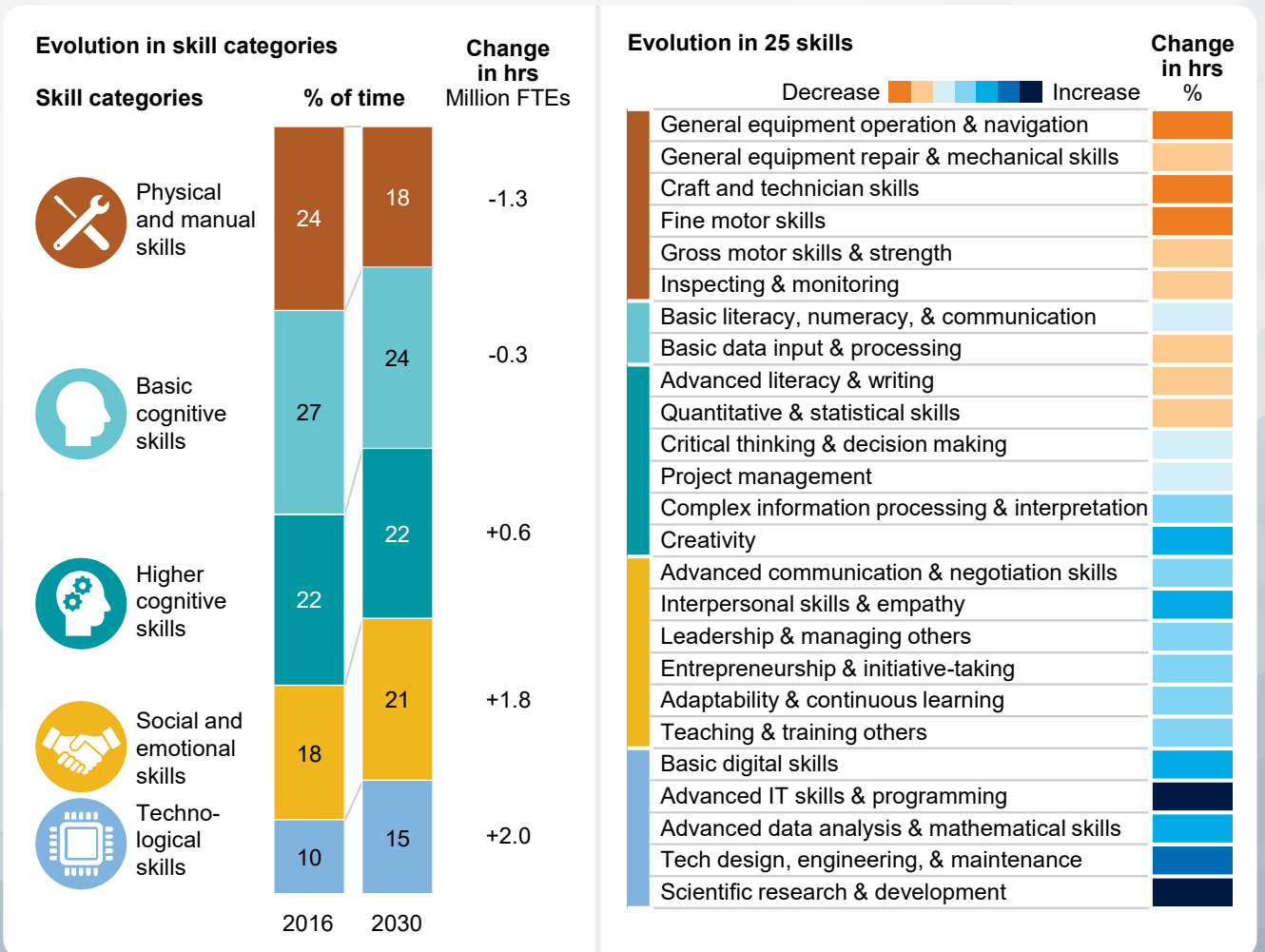
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## Sector job shift by 2030



## Sector skill shifts by 2030



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SOURCE: McKinsey Global Institute analysis