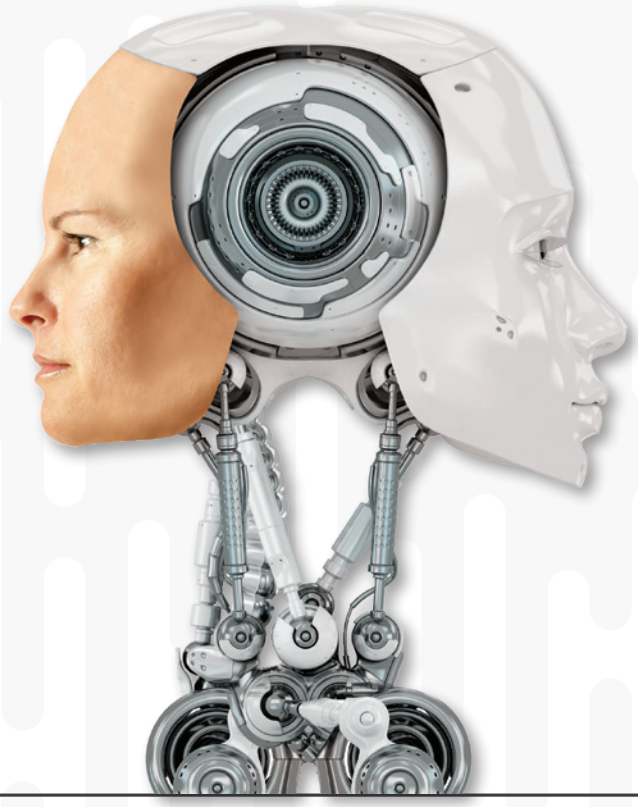

The Future of Work
Regional Perspectives

Summary

AFRICAN DEVELOPMENT BANK GROUP
ASIAN DEVELOPMENT BANK
European Bank for Reconstruction and Development
IDB Inter-American Development Bank

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Contents

Executive Summary

Rapid technological progress provides a golden opportunity for emerging and developing economies to grow faster and attain higher levels of prosperity. However, some disruptive technologies could displace human labor, widen income inequality, and increase informality in the workforce.

The degree to which technological change affects labor markets is determined by economic structures, workforce skill levels, access to broadband, demography, and the availability of safety nets. These factors also shape the menu of policy actions needed in a country or a region.

Estimates of the percentage of occupations that can be automated vary greatly for emerging and developing economies, ranging from a low of 5 percent to 10 percent to a high of 60 percent to 70 percent. However, recent studies show that not every task or activity in an occupation can be automated (see Table 1). Refining these estimates is imperative for good policy.

The introduction of computing and other information and communications technologies (ICT) has widened inequality in many countries. In developed economies, job creation has been concentrated at the top and at the bottom of the job distribution, with a hollowing out of the middle. Similar trends have also been observed in Emerging Europe and a similar phenomenon may be happening in many countries in Developing Asia. There is a high risk that the deployment of new technologies will accentuate this trend, creating a polarization between high-paying and low-paying jobs. Policies will need to address such inequalities and promote access to good employment opportunities.

Large differences in economic structures generate large differences in the way countries will be or are being affected by the so-called "Fourth Industrial Revolution"—the confluence and rapid development of a wide range of new

Table 1. The Risk of Automation by Region

While initial estimates predicted great risks of joblessness through automation, more recent estimates and a finer break-down by task and activity suggest that the risk has been overstated.

Region	Approach		
	Occupation	Task	Activities
Africa	0.71		0.48
Developing Asia	0.73		0.51
Developed countries	0.48	0.09	0.48
EBRD countries	0.60	0.08	0.50
Latin America and the Caribbean	0.67		0.51

Sources: For occupation, World Bank (2016); for task, Armtz, Gregory, and Ziehran (2016); for activities, McKinsey Global Institute (2018). Detailed references are available in the full version of this study.

Note: EBRD = European Bank for Reconstruction and Development. For a detailed list of EBRD regions and countries, visit "Where We Are" on EBRD's website (www.ebrd.com) or click here.

technologies, such as artificial intelligence, robotics, 3D printing, the Internet of Things, biotechnology, and blockchain.

Technological developments in agriculture could be particularly relevant in Africa and Developing Asia, where agriculture accounts for a large percentage of employment (51 percent and 32 percent, respectively). New developments in precision agriculture, based on automation and the use of the Internet of Things, offer great potential for increasing productivity in agriculture and speeding up structural transformation in those two regions.

In many manufacturing export-oriented countries in Developing Asia, automation will reduce demand for workers in capital-intensive industries such as automobiles and electronics, but these industries already employ a relatively low proportion of workers. At the same time, labor-intensive industries will continue generating jobs in the coming years due to the region's relatively low labor costs and the difficulties of automation that require high levels of dexterity.

Advances that drive automation in the manufacturing sector, such as robots or 3D printing, may help reduce upward pressure on wages and maintain economies' competitiveness in Emerging Europe, Central Asia, and the Southern and Eastern

Mediterranean, particularly in Emerging Europe. About 30 percent of jobs in these regions are in manufacturing.

Automation in Latin America and the Caribbean is happening more slowly than in developed countries. The increasing automation in services seen in developed nations is an opportunity for growth in a region where services account for nearly 60 percent of employment. However, while this may improve productivity in this sector, it will put some workers' jobs at risk. In addition, the region's low human capital development may constrain growth of good jobs in this sector. There is a need to improve education and training systems as well as social protection mechanisms, which are under increasing strain due to aging population and the emergence of new forms of work.

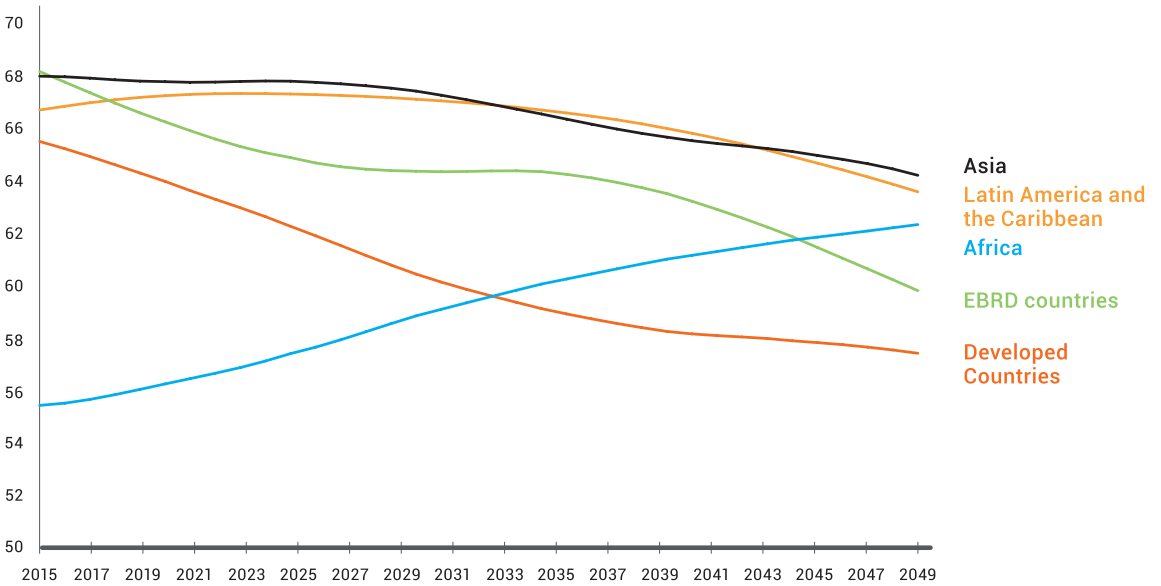
Differences in the skill base across regions alter the incentives to automate and the potential to create new jobs and occupations. On average, countries in Emerging Europe, Central Asia, and the Southern and Eastern Mediterranean have the highest skill levels, followed by countries in Developing Asia, while Latin America and the Caribbean and Africa have the lowest, according to the World Economic Forum's Human Capital Index. Investments focused on developing people's soft, cognitive, and technological skills will be key to fully taking advantage of any technological advancement.

Low broadband coverage may constrain the pace of automation in developing and emerging economies. While there has been a rapid convergence in the spread of mobile phone lines across the world, marked differences in broadband subscriptions remain. Africa, Developing Asia, Emerging Europe, Central Asia, the Southern and Eastern Mediterranean, and Latin America and the Caribbean have an average of 10 fixed broadband subscriptions per 100 people compared to 35 in developed countries. The EBRD countries have the highest number of subscriptions after the developed world, with more than 20 subscriptions per 100 people, followed by Latin America and the Caribbean with 11, Developing Asia with 10, and Africa with 1.

Cost pressures to automate also differ substantially across regions. Countries with faster wage growth and/or shrinking working-age populations in relation to the overall population will experience greater incentives to automate. Emerging Europe face a rapidly aging labor force and declining shares of the working-age population. The share of the working-age populations will decline slightly in countries in Latin America and the Caribbean and Developing Asia. By contrast,

Figure 1. Evolution of the Working-Age Population as a Percentage of Total Population by Region

The working-age population will decline slightly in Asia and Latin America and the Caribbean, decrease more sharply in EBRD countries, and increase in Africa.



Source: Authors' calculations based on ILO (2017). Detailed references are available in the full version of this study.

Note: Developed countries include Canada, the high-income countries in Asia and the Pacific, Western Europe, and the United States. The other four regions include the developing member economies of each regional development bank: the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development (EBRD), and the Inter-American Development Bank. For a detailed list of EBRD regions and countries, visit "Where We Are" on EBRD's website (www.ebrd.com) or click here.

Africa, the Southern and Eastern Mediterranean and parts of Central Asia will continue experiencing a demographic boom, with an increasing share of their population in the labor force (Figure 1).

While in developed countries the effects of automation will be driven by production costs, in developing and emerging countries they may result from changing international trade patterns. To the extent that automation can increase the competitive advantage of producing in developed countries, the offshoring trend that has occurred since the 1980s may come to a halt and may even be reversed as a higher share of production takes place in developed countries. Such adverse effects could be potentially more important for countries in Developing Asia, Emerging Europe, and the Southern and Eastern Mediterranean because of their higher specialization in the production of industrial goods. However, effects in Developing Asia are likely to be more than compensated by the growing demand for labor caused by rising income, leading to a net expansion in employment.

The welfare costs of automation may be higher in developing and emerging economies because their safety nets are less developed than in higher-income economies. The costs of job dislocation are higher for workers without access to unemployment insurance or unemployment assistance. Social security coverage, including unemployment coverage, is typically low in emerging and developing regions.

Tapping into new technologies in a way that maximizes benefits, mitigates adverse effects, and shares benefits among all citizens will require public-private cooperation and smart public policy. The greatest risk that emerging and developing countries face is missing the opportunities presented by the Fourth Industrial Revolution.

While every region is different, there are four actions that policymakers could take to facilitate and accelerate the adoption of technology while seeking to mitigate its potentially adverse effects on people's jobs and incomes. These are assisting workers in their transitions to new jobs; investing in ways to improve the job-readiness of new and existing workers for a new world of work; strengthening social protection, including seeking ways to include informal workers and those in new arrangements, such as the “sharing economy” as well as designing and enacting better tax and income redistribution policies.

The Future of Work in Africa

African Development Bank

Economic transformation can increase productivity and unleash more dynamic sectors in Africa that can create and sustain jobs (absorb labor). Some transformation policies that show good promise in Africa are agriculture-driven transformation, local content and local participation, modernizing the services sector, export-oriented manufacturing, and enhancing infrastructure.

Fourth Industrial Revolution (4IR) technologies—including information and communication technologies (ICT), artificial intelligence (AI), machine learning, and robotics—will play an increasingly important role in Africa's economic transformation. Africa is already the world's second-largest mobile phone market, and the pool of mostly young, successful entrepreneurs using these technologies is growing. Yet while Africa will surely face the disruptions—for better or worse—associated with 4IR, the region currently is ill-prepared to take advantage of the unique opportunities that will come with these challenges.

Across the region, employers identify inadequately skilled workers as a major constraint to their businesses. Job creation and growth strategies need to be revisited so that they can address the opportunities and challenges presented by 4IR. Africa especially needs to address the problem of youth unemployment.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The Future of Work in Developing Asia

Asian Development Bank

Developing Asia has done remarkably well in creating jobs for its workers. Recent advances in technology will further fuel productivity gains. Yet there is concern that the high degree of automation made possible by some of these advances could cause widespread job losses. However, there are good reasons to remain optimistic about developing Asia's job prospects—in addition to the fact that automation often displaces particular tasks and not entire jobs.

First, job automation takes place only where it is both technically and economically feasible. This tends to be in capital-intensive manufacturing, where employment levels in the region are relatively low.

Second, data covering 12 developing Asian economies show that from 2005 to 2015 rising domestic demand more than compensated for jobs lost due to technological advances. This pattern is likely to continue as a growing middle class consumes more and better goods and services.

Third, technological change and rising incomes will lead to new occupations and industries, further offsetting labor displacement due to automation.

Nonetheless, new technologies will alter the composition of skills needed by the workforce. They may also lead to more frequent unemployment, lower wage growth—especially for the less skilled—and widening income inequality. Governments should respond by ensuring that workers are protected from these negative effects. Ensuring that new technologies serve the broader development agenda also requires paying careful attention to using technologies in the delivery of public services and supporting their spread and further development.

The Future of Work in Emerging Europe, Central Asia, and the Southern and Eastern Mediterranean

European Bank for Reconstruction and Development

Populations are aging and birth rates are falling much further in Emerging Europe than in many other emerging markets. In contrast, the "youth bulge" of the Southern and Eastern Mediterranean, and parts of Central Asia, makes job creation particularly challenging.

While the European Bank for Reconstruction and Development (EBRD) regions enjoy relatively high rates of penetration of digital technologies compared with other emerging markets, the impact of the next wave of technological change on the region may be different. Strong incentives for automation are already evident in Central Europe, and the share of medium-skilled occupations and the labor share of income have been falling. The regions' deficit of governance relative to per capita income levels may constrain the effectiveness of policy response to change in the workplace.

The distributional impact of technology has been further compounded by wage decompression in the transition from centrally planned to market economies, leading to a pronounced rise in inequality, as well as strong and growing support for populism. Given these pressures, the region faces the challenges of retooling education and social protection systems, leveraging technology to improve transparency, improving the efficiency of government services, and strengthening governance.

The Future of Work in Latin America and the Caribbean

Inter-American Development Bank

Information and communication technologies (ICTs) in Latin America and the Caribbean are a relatively untapped opportunity that could improve the region's productivity. However, ICTs are expanding at a slower rate than in developed countries.

Informal employment has been traditionally identified as a long-lasting challenge for Latin America and the Caribbean. However, digital technologies combined with other trends in labor markets may provide new job opportunities and change the nature of informality.

The demographic trends that fueled the region's economic growth in the past are starting to reverse. Decreased population growth, combined with longer life expectancies, will add pressure to social security systems.

Latin America and the Caribbean must act decisively to take advantage of the upcoming opportunities from technological advancements while minimizing its risks. Public-private partnerships will have to be developed on three fronts: (1) investing in skills for everyone, adapting a system designed to transmit knowledge from an early age to one that allows people to learn throughout their lives; (2) supporting workers as they transition to new jobs and new skills, including by creating and refining digital platforms to let workers identify find job opportunities and undertake training; and (3) rethinking the welfare state because social security systems must adapt to a new digital reality and future demographic changes.

Complete version of the study available

To download the study, scan the QR code with your mobile device.

or visit http://www.iadb.org/TheFutureOfWork

Recent technological innovation in fields such as robotics, automation, and artificial intelligence have reduced the number of workers required in a range of sectors, while lowering costs and increasing reliability. This trend has led policymakers, academics, CEOs, and entrepreneurs to ask what types of jobs will be most affected, what new skillsets will be needed for the jobs of tomorrow, and how governments can ease the transition. ***The Future of Work: Regional Perspectives*** considers how technology is likely to change labor markets in Africa, Developing Asia, Emerging Europe, Central Asia and the Southern and Eastern Mediterranean, and Latin American and the Caribbean in the coming years. The study identifies concrete policy actions countries in these regions could take to face up to the challenges and seize the opportunities presented by emergent technology.