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Keeping up with the Fourth Industrial Revolution a crucial factor in economic growth

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OVER the past decade, there has been tremendous interest in understanding how technology is shaping the nature of work and education around the world. The advance of technology has shattered traditional business models and demands the modernisation of industries and new skills from workers. In this context, the Fourth Industrial Revolution (4IR) has seen unprecedented advances in technology that did not occur in previous industrial revolutions. Artificial intelligence, cyber security, cloud computing and robotics are changing our way of life and work. Also, the rapid pace of change is disrupting almost every industry in every country. The Internet of Things enables large-scale production, end-to-end data collection, and advanced decision-making for real-time reporting. Therefore, the 4IR poses a challenge for low-skilled and unskilled workers. While advances in technology create new jobs, many other jobs are also lost.

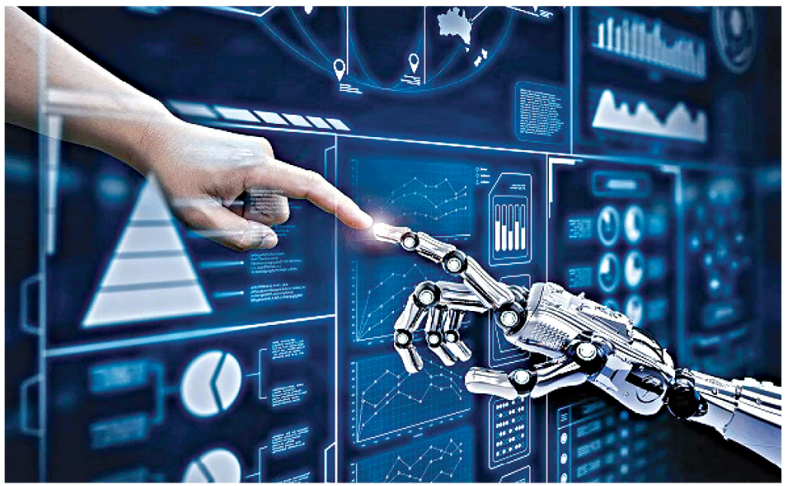
In countries that hold much higher numbers of low-skilled and unskilled workers over high-skilled workers, 4IR is particularly worrying and creates discussions on how technology will affect their socioeconomic development. The role of routine vs non-routine and cognitive vs manual tasks has become a hot topic of debate. In 2016, the World Development Report predicted that over 40 percent of today's jobs in many developing countries may be at risk of being significantly transformed or altogether replaced by digital technologies over the next decades.

Almost 90 percent of Bangladesh's workers are unskilled. As a result, 4IR will pose a great challenge to our government in dealing with this situation. However, more recent research suggests that the adoption of technology to transform many traditional industries immediately into smart industries is not economically feasible, thus, displacement due to automation may not occur immediately (Asian Development Bank, 2018). On the other hand, about 60 percent of the population works in agriculture, and about 30 percent of GDP comes from agriculture. We cannot expect that the adoption of technology in these sectors will happen anytime soon. Thus, the idea that all industries will become automated and that low-skilled workers will lose their jobs is not correct. However, non-routine jobs need to be accelerated to sustain economic growth. The non-routine and cognitive categories require higher-order cognitive and soft skills.

Bangladesh will be able to continue its economic growth without high risks to today's jobs. However, traditional industries have to choose the path of automation to increase the rate of production in the future. Adding resilience to the industry through training and skills development of workers is more important than ever. Since we do not expect that the tasks in routine jobs will change much in the near future, for now, we should focus more on non-routine jobs that will keep pace with the desired rate of economic growth.

Every industrial revolution in the world has been called disruptive in its time, as machines replaced human labour. The first industrial revolution replaced manual work with the invention of the steam engine, and 2IR increased mass production using electric energy. In the third IR, electronics and information technology was used to automate production. In 3IR, machines replaced a lot of the work that people used to do. All of these revolutions have substituted the human, but not their thinking.

However, 4IR has the potential to skyrocket economic growth or negatively impact the countries that will lag behind if they do not realise its potentials. It is important for developing countries to take steps to take advantage of the 4IR. The first challenge is lack of awareness and of a coherent strategy. Some of the technologies that are considered to be an integral part of 4IR have been used in manufacturing before, such as robotics and additive manufacturing. However, with the advancement of fields such as machine learning, data science and the Internet of Things, it is now possible to amalgamate these and related technologies to revolutionise manufacturing. Other challenges include lack of infrastructure and lack of specialists in required areas, lack of collaboration between industry and academia, and lack of collaboration among different countries. In 4IR, humans are needed in high-skilled innovation and critical decision-making jobs, as well as in fields that require emotional intelligence. To coexist with machines and achieve good results in the future, humans should make certain changes in education and skills. We should also develop principles and standards in dealing with the relationship between humans and intelligent machines.



Artificial intelligence, cyber security, cloud computing and robotics are changing our way of life and work. PHOTO: COLLECTED

Universities need to produce graduates who are equipped with the skills of complex problem-solving, critical thinking, creativity, human resources management, networking, emotional intelligence, judgment and decision-making, and service orientation. Graduates in science or engineering, or even social sciences, should have knowledge of machine learning. Traditional education inherited from the pre-independence regime of Bangladesh is not producing employable graduates. Now, developed countries adopt a "learning paradigm" instead of an "instructional paradigm" in teaching and learning. The underlying principle behind this new paradigm is based on the concept of teaching to students' ability levels, which has been known to work in improving learning. The Ministry of Education, University Grants Commission and universities need to work together to bring this paradigm into higher education.

Bangladesh needs to take steps to keep up with 4IR. The country needs to set up Artificial Intelligence (AI) and computing research centres, which should be centers of learning and research in AI. Smart factories need to have security experts and research centres to keep pace with new security threats and their prevention. Bangladesh needs to invest in infrastructure before taking further steps to implement 4IR.

Bangladesh can attain the level of a developed country by 2041 if it can take advantage of the 4th Industrial Revolution and restructure the entire education system, like many developing countries. We need to reform not only higher education, but also primary and secondary education. Research finds that a crucial part of education happens at the age of five. This is important in helping children develop creative minds at a young age.

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