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Takamol Advisory Unit

HOW THE FOURTH INDUSTRIAL REVOLUTION IS CREATING
A NEW SECTOR OF JOBS AND HOW TO GET AHEAD

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INSIGHT ARTICLE

HOW THE FOURTH INDUSTRIAL REVOLUTION IS CREATING A NEW SECTOR OF JOBS AND HOW TO GET AHEAD

The advent of the Fourth Industrial Revolution (4IR) is revolutionizing the labor market and jobs as we know them. Emerging technologies such as artificial intelligence, automation, robotics, and the Internet of Things have the potential to disrupt traditional industries, transform job roles, and reshape the skills required for success in the future workforce. This article explores the far-reaching impacts of 4IR on employment patterns, highlighting both the challenges and opportunities it brings. It examines how the replacement of certain job tasks by machines may lead to job displacement, while simultaneously creating new employment opportunities in innovative fields. Additionally, it investigates the importance of upskilling and reskilling in the face of these rapid technological advancements, providing insights into how individuals, organizations, and policymakers must adapt to ensure a smooth transition into the digital era.

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Introduction

The COVID-19 pandemic has brought about unprecedented changes to the labor markets in many high-income countries, including Saudi Arabia. At the beginning of the pandemic, certain industries experienced a shortage of workers as lockdowns were implemented. However, this shortage has evolved into what is known as the "Great Resignation", where a record number of workers have not returned to their jobs after lockdowns ended.

But it's not all doom and gloom – it's becoming clear that these workers aren't necessarily leaving the labor market for good. Instead, they're taking this opportunity to reassess their career paths and explore new opportunities. This could mean switching sectors, seeking positions with more responsibilities, starting their businesses, or becoming freelancers. As individuals search for better opportunities, it's contributing to worker shortages in some industries. Therefore, it's accurate to say that the labor market is undergoing a "Great Reshuffle" rather than experiencing mass resignations. In Saudi Arabia, we can see this trend firsthand as workers seek out new opportunities and industries adapt to meet the changing demands of the job market.

Due to these trends, the labor market in Saudi Arabia is undergoing a rapid transformation, and this transformation is being felt on multiple fronts. On one hand, Saudi nationals – particularly Saudi women – are entering the labor market at an unprecedented rate, due to recent reforms aimed at promoting female employment. At the same time, foreign workers – who make up more than 70% of the workforce in the private sector – are leaving employment in large numbers, resulting in a sharp and rapid contraction of total employment. The number of Saudi citizens quitting their jobs in the third quarter of 2021 is up 95% from the same period the previous year. In fact, according to the news release by the World Bank, resignations further increased in the third quarter of 2021, reaching 3% of total private-sector employment. This means that roughly 270,000 workers – most of them Saudis – quit their jobs in Q3 2021 compared with 134,000 in Q3 2020 and 152,000 in Q3 2019.

As the world braces for a technological revolution that will fundamentally alter how we live and work, Saudi Arabia is actively working to diversify its economy under the Vision 2030 plan. The country's long-term economic challenge is to diversify its sources of growth and strengthen the resilience of its economy, and the Vision 2030 plan is designed to address this challenge. The scope and complexity of the technological transformation that is on the horizon are unlike anything humanity has ever experienced. It's not yet clear how this revolution will unfold, but it's evident that a comprehensive, integrated response is necessary from all stakeholders, including the public and private sectors, academia, and civil society. By actively working to diversify its economy, Saudi Arabia is positioning itself to be ready for the changes that are to come.



How Important is Upskilling and Re-Skilling Today and Tomorrow?

As technology continues to advance, the potential for automation in the global economy is increasing. With advancements in robotics, artificial intelligence, and machine learning, machines are now able to match or surpass human performance in a variety of tasks, including those requiring cognitive skills. According to a study by McKinsey, adapting currently demonstrated technology has the technical potential to automate roughly 50 percent of the world's current work activities. Automation has the potential to improve business performance by reducing errors, improving quality and speed, and even achieving results that go beyond human capabilities. It can also increase productivity, as it has done in the past.

In a time of sluggish productivity growth, automation has the potential to drive economic growth and prosperity, particularly in countries where the share of the working-age population is decreasing. According to McKinsey, automation could increase global productivity growth by 0.8 to 1.4 percent per year. The analysis of over 2,000 work activities across 800 occupations found that almost half of the activities for which people are paid approximately \$16 trillion in wages worldwide have the potential to be automated using currently demonstrated technology. While less than 5 percent of all occupations can be fully automated using current technology, about 60 percent of occupations have at least 30 percent of their tasks that could be automated. Our research suggests that while automation may eliminate some jobs, it will also transform many others.

According to research, the tasks that are most likely to be automated in the United States are physical activities in structured and predictable environments, as well as the collection and processing of data. These types of activities make up 50 percent of the economy and account for almost \$2.7 trillion in wages. They are most common in industries such as manufacturing, accommodation and food service, and retail trade, and include some middle-skill jobs. Automation has the potential to improve efficiency and reduce the need for human labor in these types of tasks.

As the world enters the Fourth Industrial Revolution (4IR), the job market is being transformed by rapid technological change and the emergence of new technologies such as artificial intelligence, the Internet of Things, and robotics. To succeed in this rapidly evolving environment, it's becoming increasingly important for individuals to continuously upskill and re-skill themselves. One of the major drivers of this trend is the increasing demand for workers with advanced technical skills. A recent study by the Institute for the Future (IFTF) and Dell Technologies found that by 2030, 85% of jobs that will exist will require digital skills, with

fields such as data science, programming, and cybersecurity being particularly in demand. To meet this demand, individuals need to invest in their education and training, either through formal education or by taking advantage of online resources and professional development opportunities.

In addition to the demand for technical skills, another factor contributing to the importance of upskilling and re-skilling is the increasing need for workers who are adaptable and able to learn new skills quickly. In the 4IR, the job market is likely to be highly dynamic, with new technologies and industries emerging regularly. To remain competitive, workers will need to be able to adapt to these changes and learn new skills as needed.

The importance of upskilling and re-skilling is not limited to the global job market. In Saudi Arabia, the 4IR is likely to have a significant impact on the job market, as the country looks to diversify its economy and promote the development of new industries. To keep up with these changes, it will be important for workers in KSA to invest in their education and training, and for educational institutions to offer programs and resources that help students develop the skills needed for the jobs of the future.



Meeting the Demands of the Future Today

As 4IR is ongoing, it is increasingly important for individuals in KSA to have the skills they need to participate in the economy now and in the future. According to the World Economic Forum, half of all employees worldwide will need to be reskilled by 2025, and this number does not even include those who are currently not employed. The benefits of upskilling are clear – not only from a social standpoint, but also from an economic perspective. By providing individuals with the skills they need to succeed in the future workplace, we can drive economic growth and prosperity. Economic modeling has shown that countries that invest in upskilling their citizens in line with OECD and industry best practices can expect a significant increase in GDP growth due to the productivity uplift that results. It is clear that upskilling is not only a smart investment for individuals, but also for countries looking to drive economic growth and prosperity.

Our key economic findings include the following:

- **Greater private-public collaboration** on large-scale upskilling and reskilling initiatives could boost global GDP by \$6.5 trillion and create 5.3 million net new jobs by 2030.
- **Economies**, where the skills gaps are larger, could see the biggest gains as a percentage of GDP, including China (7.5%) and India (6.8%).
- **Half of the additional GDP globally** is expected to be gained in the business services, consumer services, and manufacturing sectors.
- **Sectors that have suffered from low-wage growth and output** for decades could reap significant benefits from upskilling. Health and social care could add \$380 billion in additional GDP through upskilling by 2030.

Upskilling and reskilling are key to post-COVID economic recovery, as they have the potential to increase global GDP by over \$6 trillion and create 5.3 million new jobs by 2030. By investing in these efforts, we can not only improve economic performance but also ensure that all people have the opportunity to participate in the workforce and contribute to society. The Singapore government for example, has launched an online portal, SkillsFuture, to provide upskilling and re-skilling opportunities for individuals, employers, and training institutions. The government's online portal aims to support traineeships and training programs to help Singaporeans adapt to the changing job market and acquire the necessary skills to succeed in the 4IR.

Germany has tried to export one of the keys to its industrial success – its dual-track vocational education system – to countries such as Slovakia, which has made significant progress in adopting the system. For businesses in KSA, finding and hiring well-qualified employees is crucial to success. However, a lack of well-qualified technical employees in business and industry can be a major hindrance to development. The Dual VET system, which has been in place in Germany, Austria, and Switzerland for a long time, is a key pillar of their strong industrial performance. It systematically produces well-trained technical employees in large numbers, and a similar system could be beneficial for KSA as it navigates the challenges and opportunities of the 4IR.

In Germany, the dual-track vocational education system puts young people through three-year traineeships that consist of equal parts classroom instruction at trade schools and on-the-job training at participating companies, under the supervision of skilled mentors. This system helps young people emerge from their apprenticeships with a thorough understanding of their trade and the ability to complete tasks in a real work environment. Approximately 52% of young Germans graduate from Dual VET apprenticeships, and many of them are offered long-term employment at the company where they completed their apprenticeship. This system could be beneficial for KSA as it navigates the challenges and opportunities of 4IR and seeks to develop a skilled workforce that is able to succeed in the changing job market. By investing in upskilling and reskilling initiatives, KSA can help ensure that its citizens have the skills they need to thrive in the 4IR.



KSA Future Jobs and Industries

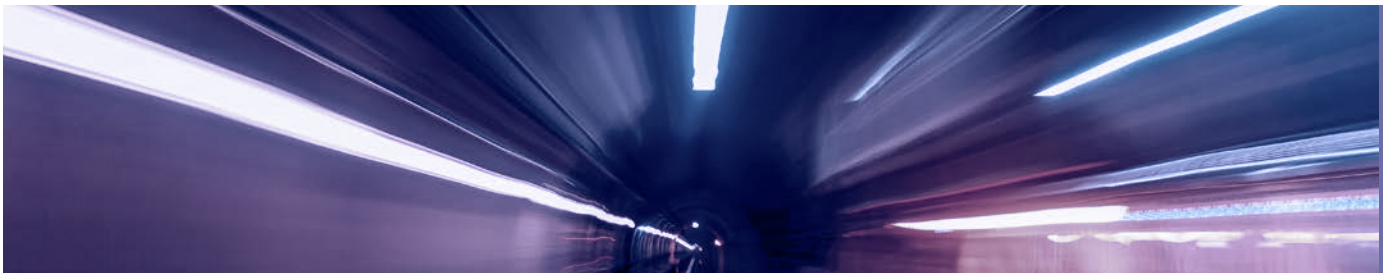
A major player in the global economy, Saudi is no stranger to change. In recent years, KSA has been actively working to diversify its economy and foster the growth of new industries. These efforts have paid off, as we're seeing a shift in the types of jobs that are in demand. And this trend is likely to continue. One example of this shift can be seen in the growing importance of technology in the KSA's economy. With the proliferation of new technologies such as artificial intelligence and the Internet of Things, there is an increasing demand for workers with advanced technical skills. In fact, data from the Ministry of Human Resources and Social Development shows that the number of individuals participating in vocational training and professional development programs in the KSA has more than doubled in the past five years, from 750,000 in 2016 to over 1.5 million in 2020.

Saudi Arabia is also looking to promote the development of small and medium-sized businesses, which will create new opportunities for entrepreneurs and small business owners. To support these efforts, it will be critical for educational institutions to offer programs and resources that help students learn the skills needed

to start and run a successful business. The job market in Saudi is likely to continue evolving and adapting to the changing needs of the economy and one key component of this plan is the Human Capability Development Program (HCDP), which aims to develop the skills and knowledge of the KSA's citizens and prepare them for the jobs of the future. One of the main goals of the HCDP is to create a solid educational base for the KSA's citizens. To achieve this, the program focuses on improving the quality of education at all levels, from early childhood to higher education.

According to data from the Ministry of Education, KSA has made noteworthy progress in improving its educational system in recent years. For example, the enrollment rate for children aged 3-5 has increased from 37% in 2015 to 89% in 2020. In addition, the number of higher education scholarships provided by the government has increased from 25,000 in 2016 to 37,000 in 2020. Over 9 million beneficiaries of distance learning platforms and 3,700 professional development programs provided for more than 420,000 educational professionals. In addition to improving the educational system, the HCDP also focuses on upskilling the KSA's citizens. This includes providing opportunities for individuals to learn new skills and knowledge through various programs and initiatives, such as vocational training and professional development courses. The HCDP also encourages employers to invest in the training and development of their employees, to ensure that the workforce is prepared for the jobs of the future. It is said that there would be a 40% increase in Saudization in high-skilled jobs by 2025 and Saudi Arabia would be at the 45th place in the World Bank's Human Capital Index by 2025. Since launching the program, according to data from the Ministry of Human Resources and Social Development, the number of individuals participating in vocational training and professional development programs has increased significantly in recent years. In 2016, there were approximately 750,000 participants in these programs, and since the HCDP launched in 2021, this number increased to over 1.5 million.

Government entities in KSA are cross-cutting in the pursuit to re-skill and upskill citizens for the future. The HCDP is a vital component of KSA's Vision 2030 development plan and plays a key role in preparing the country's citizens for the jobs of the future. By focusing on improving the educational system and providing opportunities for upskilling, the HCDP is helping to ensure that the KSA's citizens are equipped with the skills and knowledge needed to succeed in a rapidly changing job market. Additionally, the Ministry of Communications and Information Technology (MCIT) launched a training program to develop national digital capabilities called Future Skills 2.0. Training is conducted through the Saudi Digital Academy where graduates are equipped with technical skills associated with 4IR. Courses offered include development in blockchain technology, AI, digital marketing, 5G technology, the Internet of Things, and more.



The Local Strategy for Tomorrow

4IR is set to have a significant impact on the job market in the Kingdom, with new technologies and industries emerging on a regular basis. To stay ahead of these changes and succeed in the 4IR, it's crucial for workers in the KSA to invest in their own education and training, and for educational institutions to offer programs and resources that help students develop the skills needed for the jobs of the future. KSA's Vision 2030 plan is a key part of this process, as it seeks to diversify the economy and promote the development of new industries, ensuring that the country is well-positioned to thrive in the 4IR. By taking advantage of upskilling and re-skilling opportunities, workers in KSA can prepare for the exciting, technology-driven future that lies ahead.

