

Analysis of Global Job Market and Suggestion for Future Employment Opportunity

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Abstract: Technologies direct the development of our next generation of digitally savvy people. Most of our teenagers have already evolved into digital citizens as a result of the prevalence of social media platforms. Technology benefits students and the younger generation in a variety of ways and creates a wide range of job opportunities for the generation after them. The internet and digital tools enable today's youth to study a variety of topics, carry out research, and access educational materials that might not be included in conventional textbooks. Students now have access to a variety of academic and research materials through digital libraries and online databases, including e-books, academic articles, journals, and multimedia tools that can enhance their learning. Once more, students who choose to enroll in technical colleges or institutes will receive specialized training geared at illuminating the precise skill set required for their future employment. Prior to receiving a certification, this technical curriculum will also include a significant amount of practical instruction. Contrary to their colleagues seeking four-year degrees, trade schools place more of an emphasis on the skills necessary for future employment and do not mandate general education coursework. When taking general education classes like history, political science, botany, foreign languages, or English today's students are frustrated and encounter delays. It is a research study that assesses the global labor market in light of technological development and makes recommendations for potential career options for the next generation.

Keywords: Career, job, digital, smart, AI, ML, AR, VR.

Introduction

In the twenty-first century, young people are interested in starting their own small firms or companies based on their technical training and expertise. They have also been successful in helping other educated people find work. Technical education actually encourages lifelong learning, which is essential for staying current with emerging technologies and business developments.¹ Any person can benefit from it in order to keep current, stay relevant in their employment, and adapt to rapidly developing technologies. It is one of the crucial tools for developing small and medium-sized businesses (SME). Additionally, technical education can open doors for social mobility, allowing people to move up the socioeconomic scale and achieve a higher standard of living. Technical education programs appeal to newcomers or those who are just interested in exploring the job market and offer good options for education, employment, and internships. In terms of technological advancement, artificial intelligence (AI) is currently far more advanced than virtual reality. Indeed, Elon Musk's remarks about putting chips in people's heads to create superhumans have made us more aware of the potential of AI. Students and young people can learn about how machine learning

(ML) and artificial intelligence (AI) are boosting Earth monitoring.² AI could be used to create useful robots and enhance business processes, among other things.³ Because AI advancement has nearly unlimited potential, there won't be a sudden decline in the demand for jobs in this sector. However, a PwC study on AI found that over time, more jobs will undoubtedly be created as a result of the larger and richer economy that these new technologies would enable.⁴

A great opportunity for the next generation of people who are interested in learning more about human-robot interaction is provided by the fascinating dominance of robotics and AI in healthcare⁵, industry, service, and transportation. The next generation can learn the value of NLP in generative AI and understand the basic problems with it. By enrolling in a few relevant courses, such as those on creative AI⁶, medical robots, natural language processing, big data, blockchain, and many others, the new generation can learn more about this subject. The only thing that cannot be taken away is education. It has the secret to realizing people's dreams. But because to the COVID-19 pandemic, 1.6 billion children have had their learning interrupted and schools closed. Many kids live in poverty and are unable to read and comprehend simple texts. As a result, it has created new

techniques for facilitating remote learning, such as transmitting educational content on radio and television in places without internet.⁷ The best technology currently available is computer technology. Almost every aspect of life has been impacted in some way by breakthroughs in computer science. The use of computers and communications technology has altered how people live.⁸ The development of human resources in any country depends on technical education and skills. A skilled workforce is produced, production is increased, and population quality of life as a whole is improved thanks to this kind of education. The socioeconomic development of any country is closely related to its technical or vocational education system. However, not enough young people and students from poor, LDC, and emerging nations receive technical and vocational training. Comparing this to several economically developed and powerful countries reveals how low and concerning this is.

Megatrends like globalization, digitization, and others are currently causing enormous changes in professional life. The OECD wants to help stakeholders and governments make the workplace more inclusive. By doing this, we promote progress toward SDGs 4 and 8, which deal with ensuring that everyone has access to high-quality education and opportunities for lifelong learning as well as good jobs. It's fascinating to notice that a variety of industries have adopted robot suits, and staff members have had to train with them. We might be surprised to learn that 40% of workers in highly digitalized industries make up the 60% of the workforce in OECD countries that lack even the most basic computer proficiency. In addition, employees are finding jobs through online job boards, leveraging new technologies to fulfill their responsibilities more rapidly, and collaborating creatively with colleagues around the world.⁹ Contrarily, the situation is worse and more frustrating in LDCs and rising economies. In order to better balance our professional and personal lives, we may need to work more flexibly or change occupations later in life. We must make sure that people can successfully adjust to these technological advances and that they enjoy all the advantages that modern technologies have to offer. As a result, we should help the general public, or people everywhere, learn how to use cutting-edge technologies and acquire the skills needed for new occupations.

According to employers, 44% of workers' abilities will change during the next five years. Cognitive skills are perceived as increasing in importance among these talents at the fastest rate, showing the growing importance of complicated problem-solving in the workplace. Businesses that were surveyed also observe that creative thinking is becoming slightly more important than analytical thinking. The third-fastest expanding core competency is technology literacy. When it comes to the pace of rise in value of skills indicated by businesses,¹⁰ self-efficacy skills are more important than interpersonal skills. By utilizing technology for work, education, and daily life, digital and smart abilities enhance our confidence. This is vital in many employment situations, including ones that don't require substantial degree or expertise. For instance, someone who works in a store or warehouse might maintain digital stock records. We now require digital abilities on a daily basis for tasks like banking, shopping, and staying in touch with loved ones. In poor, LDC, and developing countries, parents and students need to adopt a different mentality that places a higher priority on technical

education than general education. Because there will be millions of unemployed people with a general education in the future. And the nation and society are greatly burdened by those unemployed people. These unemployed people frequently experience depression, which leads them to commit crimes and abuse drugs. It is an analytical study that draws on both primary and secondary data to assess the future of the global labor market in light of technological development. There will be recommendations for potential work opportunities in the future.

Technology as Changing Tools of Global Future

We've gone a long way and gained knowledge from our mistakes.

¹¹ Our past has taught us that there may one day be a society in which self-organizing teams, automation, and outsourcing take the place of the human resources function.¹² It's not difficult to see a world where the competition for top talent is so intense that the most talented workers need personal agents to manage their careers. The goal is to continue to be ready for that future.¹³ Let's imagine what the world of work will be like in the future. PwC envisions four alternate work environments, each with a different color name. As tiny firms become more powerful thanks to new technology, one planet might turn away from large corporations. In another, businesses might collaborate to improve society as a whole. On whether technological advancements ¹⁴ will eliminate some human occupations or create as many jobs as they replace, there are two opposing views and two groups.¹⁵ According to a WSJ article, automation is predicted to have three waves of effects on the workforce.¹⁶

- 1st Wave (early in 2030). Called Algorithmic. In the first wave, 3% of employment are anticipated to disappear.
- Second Wave (until 2030). It is called augmentation. This percentage may increase significantly in the following two waves as 30% of occupations may be automated as more and more organizations begin to adopt new technologies. Women may experience a greater risk of automation during the first two waves of automation due to their higher prevalence in administrative and clerical jobs. In the future, automated vehicles and machines are anticipated to take over many manual duties currently performed by men.
- 3rd Wave (starting in 2030). It is called autonomy. the vocations and talents that will be most in demand in 2030. Moments are designated as turning points in history when they cause disruption to human life. Other challenges, such as partisan politicians in charge of the most powerful nations in the world, the looming climate disaster, etc., are front and center in the wake of previous wars and the current coronavirus pandemic that is undermining the stability of our healthcare systems and the global economy. As we look ahead and attempt to forecast the future, there are many things that we must take into account.

The employment landscape will significantly change as experts assess the most promising career options over the upcoming ten years. The Oxford Martin School and Nesta collaborated to make predictions about the jobs and skills that will be in the greatest demand over the ensuing ten years. They have examined the needs and desires of the world's population and have created a complete report on their findings. Exist any industry gaps or niches that job seekers believe they could fill? Is there any work they could perform to upgrade their skills so they are better equipped to meet

future demands? All of these points should be taken into account when reading the summary of the Oxford Martin School and Nesta report titled "Most Sought After Jobs and Skills of 2030".¹⁷ using very large job trend databases and examining this information using seven different lenses that depict how our world will develop over the coming ten years. This poll does not just collect data from Australia, but also from other western nations. There won't be many noticeable changes before or after 2030. Examples include: urbanization, rising inequality, political unpredictability, environmental sustainability, technological advancement, and automation. The most in-demand occupations for 2030 include: engineers; preschool, primary, secondary, and special education school teachers; food preparation and hospitality trades; animal care and service workers; sports and fitness occupations; lawyers, judges, and related professionals; professionals in the natural and social sciences; teachers and educators; managers and proprietors in the hospitality and leisure services industry; personal appearance workers; health and social services managers. The core requirements of modern society—care, service, education, health, and entertainment—are ultimately reflected in these projects.¹⁸ We can thus take confidence in the idea that these essential elements won't alter and the makeup of the workforce won't abruptly shift.

In 2030, fewer talents and aptitudes will be in demand. Deductive reasoning, complex problem solving, system analysis, monitoring, learning strategies, judgment and decision making, psychology, fluency of ideas, teaching, active learning, social perceptiveness, sociology and anthropology, originality, education and training, system evaluation, coordination, etc. To encourage the development of these skills, educational systems will need to change their strategies. The teaching of information, facts, and processes currently takes precedence in most western educational systems over activities that promote the learning of more abstract skills. When we use engineers as an example from 2020 and apply one of the lenses that will result in a change in the nature of the abilities needed for this job in 2030, we can start to notice big shifts. For example, from the standpoint of urbanization, our expanding population demands constant innovation in how we make the most of our living areas. Compared to, say, Shanghai, it is far less of a problem here in WA. To ensure the sustainability of big cities, engineers will need to understand not only the mechanics of infrastructure but also those of human interaction and movement. This is going to become more and more important as urban gardening becomes the norm in response to the food shortages brought on by the climate crisis. Buildings will need to function as both centers of production and living. Therefore, there needs to be some interaction with societal systems. Due to all of these aspects, engineers in 2030 will need to possess a new set of abilities than those that are often associated with the position. These could include social awareness, a commitment to service, and an understanding of anthropology and sociology.¹⁹ In light of the possible importance of these abilities for engineers in 2030, educational institutions must make sure that their curricula go beyond mechanical expertise. Additionally, those considering a career in engineering should take it upon themselves to acquire the education and information that may be required to achieve this kind of lateral thinking and novel social engineering approach.

In the future, people who have been ignored by traditional financial institutions will be able to get credit. "Gig work" is poised to become the predominant form of employment as worldwide

internet availability and the popularity of digital labor marketplaces and platforms continue to rise.²⁰ For low-skilled/blue-collar employees, who typically make up more than 80% of the workforce in developing nations, this transition will have greater effects. In nations where there aren't enough jobs for low-skilled populations, internet platforms in e-commerce, food delivery, ride-sharing, logistics, etc., offer minimal entry hurdles and are producing a variety of earning options.²¹ Employees can interact with a variety of platforms concurrently to increase their revenue. Future digital and intelligent labor markets will incorporate financial services into their goods, allowing many people who are not served by conventional financial institutions to access loans. Technology will, in fact, enable financial discipline and stability without the need for individuals to acquire specialized skills. In order to democratize access to growth and financial security, AI and ML advisors will become routine, regularly providing advice on the next job, investment, or online course. Actually, Web3 technology will completely change the way that business is done. The third generation of the web, known as Web 3.0, aims to make it more intelligent and intuitive.²² This progression comprises giving the web the ability to understand content meaning and provide users with specialized information. Web 3.0 platforms will make use of cutting-edge technologies like AI, ML, blockchain, and the Internet of Things to promote a more connected, intelligent, and user-centered web experience. The ultimate goal of Web 3.0 is to create a decentralized web that is also smarter and more secure. This is because it uses ML and AI to give people a more beneficial experience. Users will see content that is more relevant to them thanks to these technologies. Additionally, it will enable online merchants to reach the correct audience with their content and fill their sales pipelines with the right kinds of clients.²³

By 2035, three cutting-edge technologies—AI, ML, blockchain, and synthetic biology—are expected to have achieved commercial viability and will fundamentally alter how society and business operate. These tools increasingly generate behavior and anticipate it. They continue to grow and learn. In a growing number of situations, these technologies are superior to people in decision-making.²⁴ No moral restrictions apply to these technologies. The public became aware of the potential and strength of generative AI in November 2022 thanks to the release of ChatGPT. Within the following six weeks, it had been downloaded by over 100 million individuals worldwide. Business executives, policymakers, and experts are curious about how this fantastical technology will impact their business strategies. Workers in creative and other professional fields are concerned about how it will impact their ability to make a living. Governments all across the world are becoming more aware of how technology might upend the status quo.²⁵ Over 500 firms using generative AI have lined up for funding from venture capitalists. Some of the top AI CEOs have publicly stated that this generation of AI has the potential to obliterate human society. Others have claimed that by resolving insurmountable issues like climate change, eliminating the need for people to work for a living, and making energy completely free, it may lead to a worldwide utopia.²⁶ Within the next ten years, technology has the potential to drastically alter our planet. The Technology Pioneer community of the World Economic Forum is made up of start-up to growth-stage businesses from all around the world engaged in the creation, development, and use of novel technologies and ideas. Future societal well-being and economic

progress depend on innovation, which is also one of the World Economic Forum's top focus topics. The Forum established its Technology Pioneer community in 2000 to promote these two pillars²⁷. A new group of Technology Pioneers is honored by the Forum every year, and they are included in its initiatives, activities, and events. According to the 2022 cohort²⁸ technology will revolutionize the globe over the next five years. Here are their forecasts for the near future, covering everything from the development of cutting-edge technologies like Web3 and quantum to managing flexible grids and on-demand manufacturing.²⁹ For controlling cancer chronically in the present and near future to using 5G and quantum computing will be a break-through.³⁰

Soon, online retailers will be able to claim ownership of the resources vital to their operations. These resources consist of pictures, movies, reviews, and other kinds of content. These might currently be a part of the Shopify or another e-commerce platform in use. With Web 3.0, however, vendors will take control of these assets and have full ownership of their online storefront. Voice assistants and AR/VR technologies will be incorporated into Web 3.0. The e-commerce sector is experiencing a lot of change as a result of Web 3.0. Customers will benefit from a simpler, more individualized, safe, and transparent purchasing experience thanks to the usage of blockchain and other technologies.³¹ Similar to how Web2 technologies impacted information access, Web3 technologies will have completely reshaped the world of business by 2025. Phygital is a portmanteau that combines the terms physical and digital. In the future, 'things' will be listed and traded on a transparent, active, and digital market. Information was mostly compartmentalized in early proprietary online networks throughout the early days of the internet.³² However, the unified, searchable, open internet of knowledge we enjoy today was made possible by the zero marginal cost of distribution and customer demand. It makes sense that commerce has taken longer to advance. The exchange of tangible goods necessitates confidence in order to control counterparties' risk, settle disputes through mediation, and secure settlement. Either trusted sellers or trusted middlemen are beneficiaries of this trust. As a result, the majority of e-commerce transactions take place within a closed, proprietary system. The development of Web3 technology makes it possible to tokenize physical asset commerce transactions into a global standard like NFTs and automate settlement through smart contracts.³³ An ecosystem of decentralized "commerce lego" protocols and applications will develop to establish an open market for things where everyone can participate in the value they create, much to how decentralized finance's "money lego" applications have started to unbundle conventional finance.

The data sector will get more accessible and cost-effective.³⁴ As more companies enter the data market in the coming years, technology will become more accessible and affordable, provided that governments permit it. When properly implemented, the metaverse has the potential to positively affect social interaction, economic innovation, increased productivity, consumerism, and enjoyment. Therefore, it is necessary to closely integrate diverse technologies to provide technological assistance in order to improve the development of both real and virtual societies. Without communication technology (ICT), rendering technology, interaction technology, and teamwork technology, users cannot participate in the metaverse.³⁵ By 2027, the metaverse will view our digital interactions the same way we currently view our carbon

emissions. The dangers of technology created without placing humans at the center and its detrimental impacts on our mental health and emotional wellness have been made public through social media. Humanity, closeness, depth, and empathy are things we lost from our encounters a decade ago, and they are now absent. Interactions that bolster our sense of community. Our attention will be on the human experience in the future. It will not be a technological but a cultural paradigm change that ushers in the metaverse. Our ability to express our emotions through the use of tools like virtual and augmented reality and brain-computer interfaces will have an impact on the metaverse. The metaverse will reinvent the social dynamics in the virtual world as new hardware, platforms, disciplines, and sensory experiences come into play. The most valuable currency will be emotion, trust, and safety, which will decentralize the platform experience in favor of emphasizing human interaction.

In spite of the fact that modern technology makes it possible for humans to connect visually and audibly across extremely large distances, there is still no reliable way to convey touch.³⁶ Flexible actuators included in the e-skin sense wearer movements and translate them into electrical impulses.³⁷ The actuators in another e-skin system can then transmit these signals through Bluetooth, where they are subsequently transformed into mechanical vibrations that resemble the initial movements. According to the researchers, friends and family might utilize the technology to communicate virtually. A 'new, wireless, skin-interfaced olfactory feedback system' was recently developed by researchers at the City University of Hong Kong. Or, virtual reality accessories that are allow us to smell things. The machines heat and melt odorous wax, which emits varying amounts of stench, to produce the odors.³⁸ The technology comes in two variations. One is 'mounted' on your top lip for easy access to your nose, and the other is a facemask-like design with a huge variety of odors. The institution claimed that a wide range of uses for the new technology exist, including online learning and 4D movie viewing. That's right; in the future we'll be able to smell our favorite movies in addition to seeing them in virtual reality.

The field of art is a new industry to add to the list as artificial intelligence continues to do tasks just as effectively as humans. Software developed by researchers at the startup OpenAI can produce graphics using only spoken inputs.³⁹ Anyone who searches for "a dog wearing a cowboy hat singing in the rain" will find a ton of absolutely unique pictures that meet the description. Even the type of art that will be used to respond to their request is up to them. The technology isn't perfect, though, and there are still problems. Now, using our written cues, we can obtain high-quality photos that provide incredibly detailed images in a couple of seconds.⁴⁰ The creation of art exhibitions, rapid, original images for business purposes, and, of course, a revolution in the way memes are made on the internet are all possible uses for this technology in the future. In addition, there is a technique called Midjourney, an AI picture generator that can create elaborate gothic masterpieces from simple text instructions.⁴¹ We actually are residing in the future. Sustainable building will be supported by batteries. "The construction industry accounts for almost 40% of global CO2 emissions, and much of this is driven by the urbanization of humanity," said Brandon Ng, co-founder and CEO of Ampd Energy. Around half a billion tonnes of CO2 are emitted annually as a result of the continued use of fossil fuels to power

construction projects. The usage of fossil fuels also has a negative impact on worker health and local air quality through noise and exhaust pollutants.⁴² This is evolving quickly. Battery energy storage systems (ESSs) designed for construction sites are being adopted by the sector. These ESSs reduce carbon emissions by 80%, with the remaining 20% coming from the electricity used to recharge the ESSs.

The 3D printing sector has the potential to be used for a variety of purposes, from building houses more affordably to making robust armor. The creation of 3D printed bones, however, is one of the most fascinating applications of this technology. A system developed by engineers at Columbia University School of Engineering can build a cheesecake with seven ingredients using food inks and then use a laser to cook it to perfection.⁴³ They used banana, jam, peanut butter, and Nutella to make their invention. One day, the technology might be used to prepare customized meals for everyone from elite athletes to people with dietary disorders, as well as for others who are pressed for time. Around 2022, digital twin technology began to become widely used, which was a turning point in our ability to simulate, compute, and interact with physical systems, ranging from intricate industrial machinery to entire cities. This change has accelerated digitalization exponentially, reshaping the technology landscape and catapulting us into the next-generation digital era.⁴⁴ The introduction of digital twin technology is a paradigm-shifting innovation that has fundamentally altered how we think about simulation, prediction, and interaction with the physical world. Digital twins have grown and become more useful as a result of the convergence of several technologies, including AI, machine learning, XR, and blockchain. This has led to a new paradigm of digital-physical interaction.⁴⁵ Digital twins are actually dynamic tools that enable in-depth, real-time analysis and process optimization, acting not just as copies but also as dynamic tools. One of the most important technical developments of our time is predicted to be the development of digital twin technology, which has the ability to alter industries and sectors across the globe. The voyage has just begun, and everyone is looking forward to what lies ahead.⁴⁶

Currently, a segment of the population cannot access the internet because of a connectivity issue. .⁴⁷ Google is steadily working to find a solution by utilizing helium balloons to beam the internet to inaccessible locations,⁴⁸ While Facebook abandoned ambitions to achieve the same using drones.⁴⁹ An artificial leaf that runs on solar electricity has been created by chemical engineers in Switzerland. They convert water from its gaseous form in the air into hydrogen fuel using a transparent, porous electrode that is powered by solar energy.⁵⁰ People will eat more nourishing food in the future. Though wholesome, delicious food ought to be accessible to both the wealthy and the poor, according to Edwin O. Rogers, Chief Executive Officer and Co-Founder of Bonumose, "too often there is a wide divide between "the is" and "the should." However, the disparity is not required by capitalism or the pursuit of profit. The food problem can be resolved via supply chain information.⁵¹ Major producers of food, drinks, and consumer packaged goods will deploy AI-driven supply chain technologies by 2027 to predict potential disruptions and take action before weather, labor disputes, and other events that could jeopardize the world's food supply. There will be much less need for contingency planning because businesses will have prior knowledge of how future weather disasters will affect their suppliers, giving them

plenty of time to locate alternatives. The garment business may undergo a digital transformation as a result of advanced production and fashion technology. There will soon be a quantum internet.⁵² Quantum secure communications make use of physics' inherent capacity to provide uncrackable security. Super-precise clocks, GPS, and ultra-high-resolution telescopes will all be made possible by distributed quantum sensing. Additionally, clustered quantum computing and ultimately distributed quantum computing will enable the quantum internet in order to put the capabilities of quantum computing to good use.

AI will drive clinical judgment in fertility clinics all over the world. By 2027, AI will direct clinical judgment in all fertility clinics, enabling medical practitioners to practice more precise treatment. This development will lead to better results and greater patient accessibility.⁵³ Human potential will be redirected in the twenty-first century toward more worthwhile goals.⁵⁴ Future data streams from remote sensing will precisely track natural ecosystems. According to Kevin Lang, Chief Executive Officer and President of Agerpoint, "nature-based solutions to restore, conserve, or enhance forests or agricultural lands are a valuable contributor to removing carbon dioxide from the atmosphere and capturing it into the soil to achieve the United Nations goal to reach carbon neutrality by 2050 and keep global warming below +1.5 °C." ⁵⁵ However, in order to precisely evaluate the carbon store potential in plants, data such as tree height, trunk diameter, and biomass are needed. Traditionally, these metrics have been evaluated manually, which is labor-intensive and subjective. Technology will give the brightest talent the best opportunity.⁵⁶ The epidemic put it through its paces, but even while production ranged from flat to up, the loss of cultural connectivity, as well as an increase in anxiety, exhaustion, apathy, and burnout, are some of the repercussions that are still being felt. Parsing out each component separately in a time of fast change is challenging.

The features and electrical properties of neurons seen in our nervous system can now be mimicked by attaching artificial neurons to silicon chips. According to University of Bath Professor Alain Nogaret, "Up until now, neurons have been like black boxes, but we have managed to open the black box and peer inside." ⁵⁷ He continued, "Our discovery is paradigm-changing because it offers a reliable approach to precisely replicate the electrical characteristics of genuine neurons. However, it is wider than that because the power required by our neurons is just 140 nanowatts. Other attempts to create synthetic neurons have employed microprocessors, which require a billionth of that amount of power. Due of how little power it uses, researchers believe that their work can one day be included into medical implants to treat diseases like heart failure and Alzheimer's. One of the most popular keywords from the previous decade will still be relevant in the coming one. Nearly all IT services and online applications have the potential to be hosted in the cloud, and more businesses are adopting public cloud solutions as a result of improved cybersecurity measures. The distribution of goods and services will be transformed by advancements in artificial intelligence (AI), machine vision, sensors, motors, hydraulics, and materials. At the same time, there will be a noticeable rise in the demand for tech expertise to build, run, and maintain sophisticated robotics systems. According to a recent survey of security experts, 72% of businesses intend to do away with conventional passwords by

2025. New authorisation services for face, voice, eye, hand, and signature identification will result from this.⁵⁸

Analysis of Present and Future Job Market

According to the World Economic Forum's (WEF) Future of Jobs Survey 2023, while tight labor markets are common in high-income nations, unemployment rates in low- and lower middle-income nations are still greater than they were prior to the COVID-19 epidemic. Individual labor market outcomes are also differing because women and employees with only a high school diploma have lower employment rates. Real earnings are also falling due to the continuous cost of living crises, and concerns about the standard of work and shifting worker expectations are becoming increasingly widespread issues globally.⁵⁹ The Future of Jobs Survey 2023 combines the opinions of 803 organizations, who collectively employ over 11.3 million people across 45 economies and 27 industry clusters in all worldwide regions. The scope of the Survey includes technology trends, their impact on employment, their impact on skills, and the workforce transformation initiatives that firms plan to apply between 2023 and 2027.⁶⁰ Big data, cloud computing, and AI are among the technologies with the highest likelihood of adoption. In the next five years, these technologies are expected to be used by more than 75% of businesses. The data also demonstrates how trade and commerce have been affected by digitization. The technologies that the corporations polled are most likely to adopt are digital platforms and applications, with 86% of businesses intending to do so in the next five years. Seventy-five percent of enterprises are anticipated to adopt e-commerce and digital trading. With 81% of businesses planning to embrace these technologies by 2027, education and workforce technologies are the second-ranked technology. Robot adoption, energy storage technology adoption, and distributed ledger technology adoption are all lower on the list.

Big data analytics, technology for managing climate change and the environment, as well as encryption and cybersecurity, are expected to be the main drivers of job development. A considerable percentage of businesses anticipate internal job displacement as a result of agribusiness technologies, digital platforms and applications, e-commerce and digital trade, and AI. On the other hand, these factors are all predicted to cause significant disruptions in the labor market. However, it is anticipated that job development in other regions would offset this

relocation, creating a net beneficial effect overall.⁶¹ In the next five years, all technologies—aside from non-humanoid robots and humanoid robots—are anticipated to create more jobs than they eliminate. In the next five years, employers predict a structural churn of 23% of positions in the labor market.⁶² This can be seen as an overall indicator of disruption, consisting of both newly created jobs and positions that are being lost. The Future of Jobs Survey participants this year predict higher-than-average job turnover in the supply chain, transportation, media, and entertainment industries, and lower-than-average job turnover in manufacturing, retail, and wholesale of consumer goods. The respondents anticipate structural job growth of 69 million jobs and a drop of 83 million jobs out of the 673 million jobs reported in the dataset in this research. This translates into a net loss of 14 million jobs, or 2% of the existing labor force.⁶³

Businesses believe that motivation and self-awareness, resilience, adaptability, and agility, as well as curiosity and continual learning, are the socio-emotional attitudes that are rapidly gaining relevance. The top 10 growing talents are systems thinking, AI and big data, talent management, service orientation, and customer service. A small minority of employers believe that reading, writing, and math skills, as well as global citizenship, sensory-processing skills, and manual dexterity, endurance, and precision, are becoming less important for their employees, despite the fact that respondents did not perceive any skills to be falling overall.⁶⁴ Before 2027, six out of ten workers will need training, yet only half of workers are currently believed to have access to sufficient training options. Analytical thinking is the skill set with the highest priority for training from 2023 to 2027, and it is projected to make up 10% of training initiatives on average. The promotion of innovative thinking, which will be the focus of 8% of upskilling activities, is the second priority for workforce development. In the next five years, teaching employees how to use AI and big data ranks third among firm skill-training priorities, and 42% of surveyed companies will give this priority. Employers also intend to place a strong emphasis on fostering workers' social influence, resilience, and flexibility, as well as on their lifelong learning and curiosity (30%). Within a year of the investment, two-thirds of businesses anticipate seeing a return on their skills training expenditures, whether it takes the shape of improved cross-role mobility, elevated employee satisfaction, or better worker productivity.⁶⁵ Figure 1 below shows the most frequent occupation-specific labor shortages in Europe in 2022.

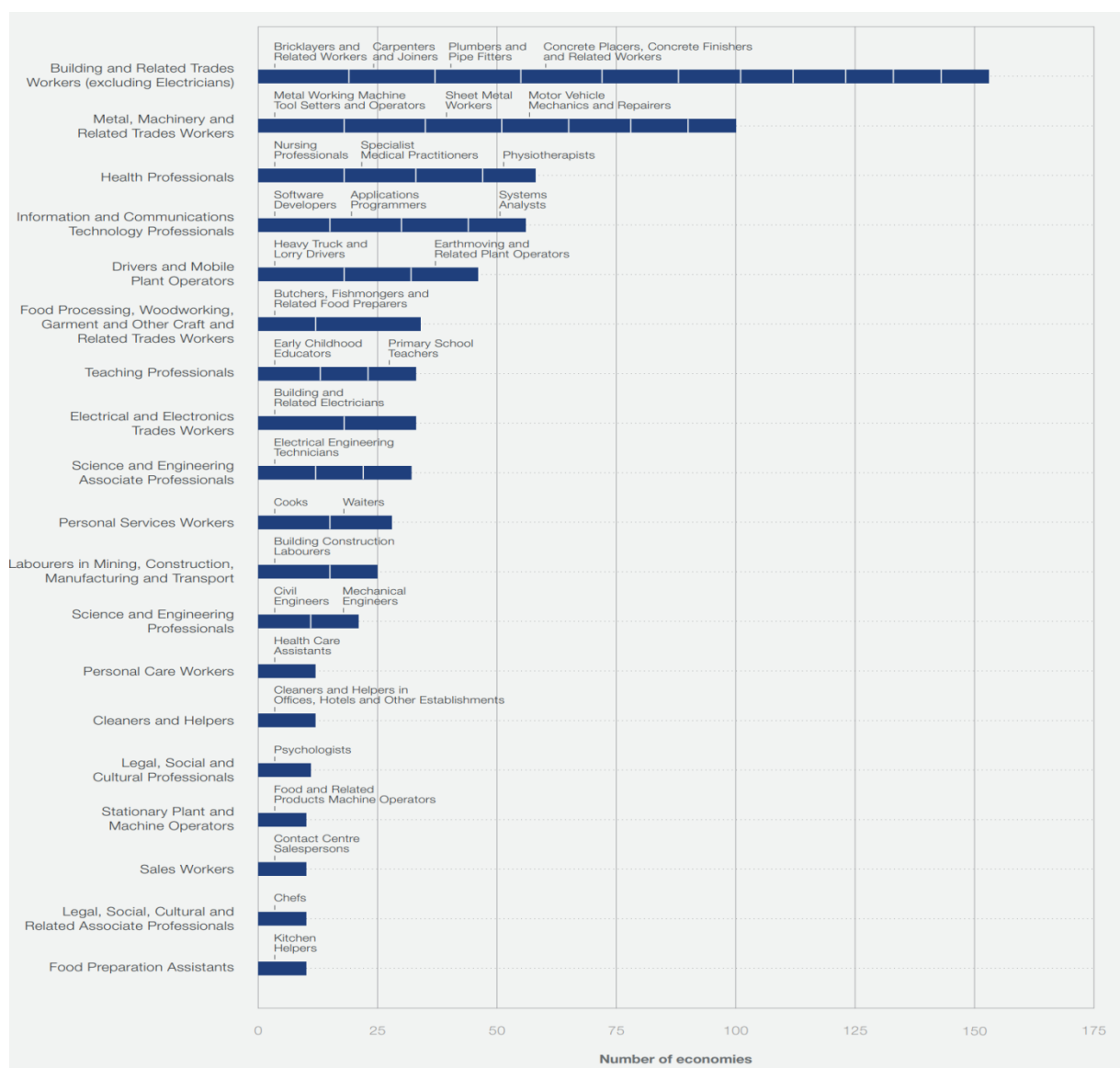


Figure 1 shows the most prevalent occupations in Europe with a labor shortage in 2022 (source: European Labour Authority, Labour Shortages Report 2022).

The International Labour Organization (ILO) reports that labor income is still below pre-pandemic levels in many developing nations.⁶⁶ The global economy began to see levels of inflation in 2020 that had not been witnessed in nearly 40 years.⁶⁷ The most vulnerable people have been severely hurt by the worldwide cost of living issue due to excessive inflation.⁶⁸ The ILO reports that in the first half of 2022, real earnings for workers decreased by 0.9% for the first time in the previous 15 years. North America, Latin America, the Asia-Pacific area, and Northern, Southern, and Western Europe were the regions most impacted by real wage increase overall.⁶⁹ Real earnings fell 10.5% in Africa in 2020 as a result of the global pandemic. Real wages have, nevertheless, been rising throughout the Arab countries, Central and Western Asia,

and Asia Pacific in 2022. Given the increasing weight of energy and food in the expenditures of the lowest-income households, buying power has decreased for the most vulnerable in line with growing inflation.⁷⁰ Rising food and energy costs, with hotspots in Sub-Saharan Africa, the Balkans, and the Caspian Basin, could force up to 71 million people into poverty, according to recent research by the United Nations Development Programme (UNDP).⁷¹ The need to develop long-term social protection strategies that offer security and support resilience for non-standard work and the informal economy is highlighted by the current cost of living crisis.⁷² Figure 2 below depicts the Global Employment Trends for Youth 2022 as an investment in transforming the destiny of young people (ages 15 to 24).

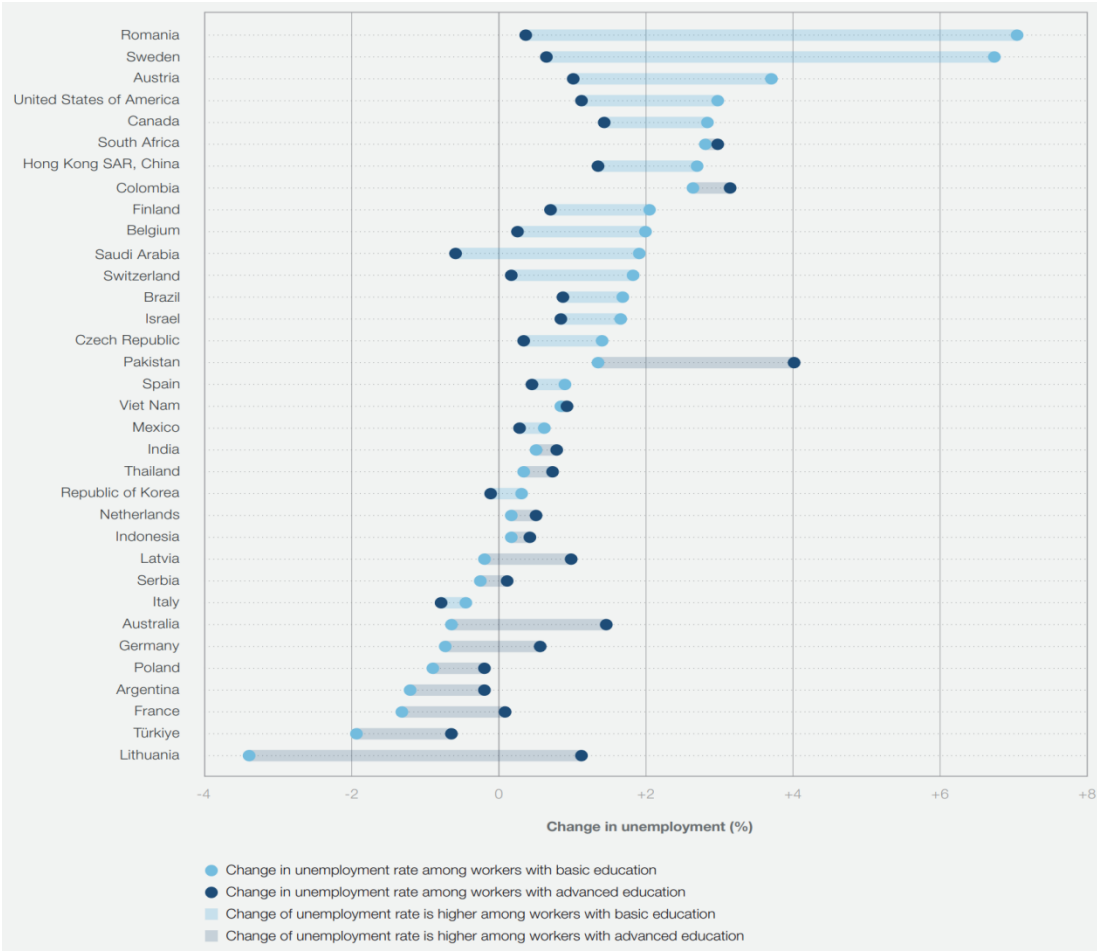


Figure 2 shows the sub-regional youth employment gap in relation to 2019 (source: ILO estimations using ILOSTAT, ILO modelled projections, November 2021).

The techniques for upskilling and downskilling employed by businesses responding to the Future of Jobs Survey for the period of 2023 to 2027 are summarized in Figure 3 below. Businesses predict that, out of a representative sample of 100 workers, 39 will not need training before 2027; 12 will need training, but it won't be available to them until 2027; 15 will need training, but it won't be

available for the foreseeable future, likely leaving their skill gaps unfilled after 2027; and 18 will be upskilled in their position by 2027. By 2027, employers anticipate that 16 of the representative 100 workers will successfully be retrained and redeployed to expanding positions inside their business.

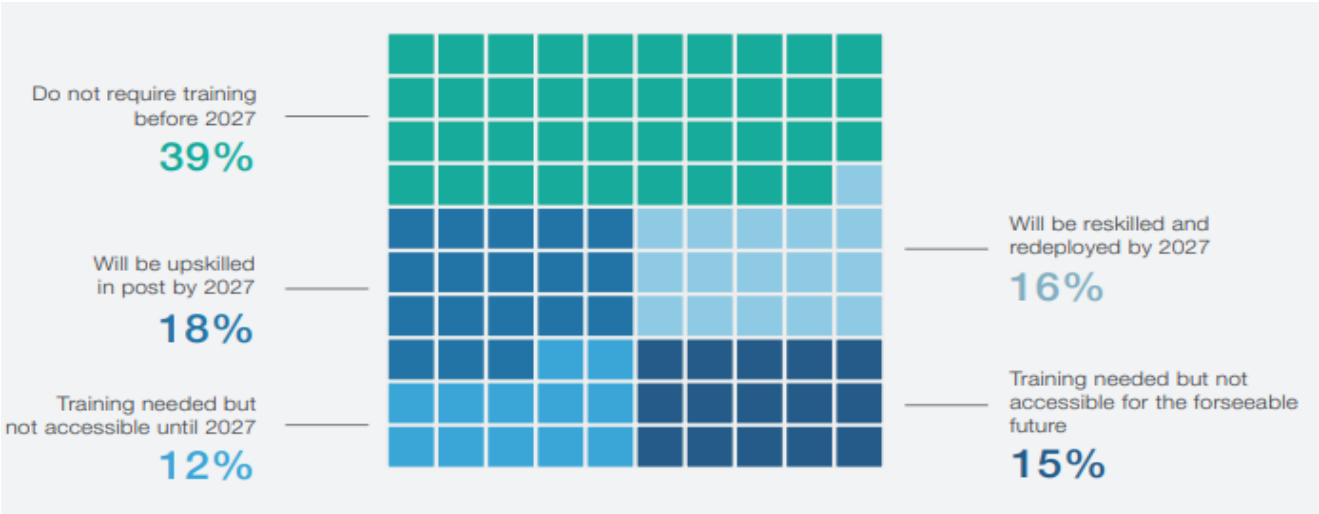


Figure 3: Outlook for upskilling and reskilling, 2023–2027, by workforce share(Source: WEF, 2023 Future of Jobs Survey).

The 100 positions, dubbed "Jobs on the Rise," that have increased the fastest, steadily, and worldwide over the past four years are described in research done by LinkedIn for the Future of Jobs Report 2023. Data from the ILO and OECD reveal which industries are employing more people, but data from Jobs on the Rise identify the precise job categories that have seen significant expansion. According to ILO and OECD data on the expansion of positions in the information technology and digital communication sector, 16 of the top 100 Jobs on the Rise, or the third-highest of all job categories, are in the field of technology and IT-related roles. With 22 of the 100 occupations, positions connected to sales growth and customer engagement are at the top of the list. In a

world with expanding digital access and quick technology innovation, roles like Sales Development Representatives, Director of Growth, and client Success Engineer may be included in this group, which may indicate a growing focus on broadening client demographics and growth models.⁷³ The second-most popular roles are in human resources and talent acquisition, and the majority of these are related to recruitment and talent acquisition, including a specific role for information technology recruitment, perhaps illuminating the difficulty and significance of finding talent in an overall robust labor market. Figure 4 shows the expanding roles by job type on LinkedIn in the years 2018 to 2022. Figure 5 displays the fastest-growing job ads on LinkedIn from 2018 through 2022.

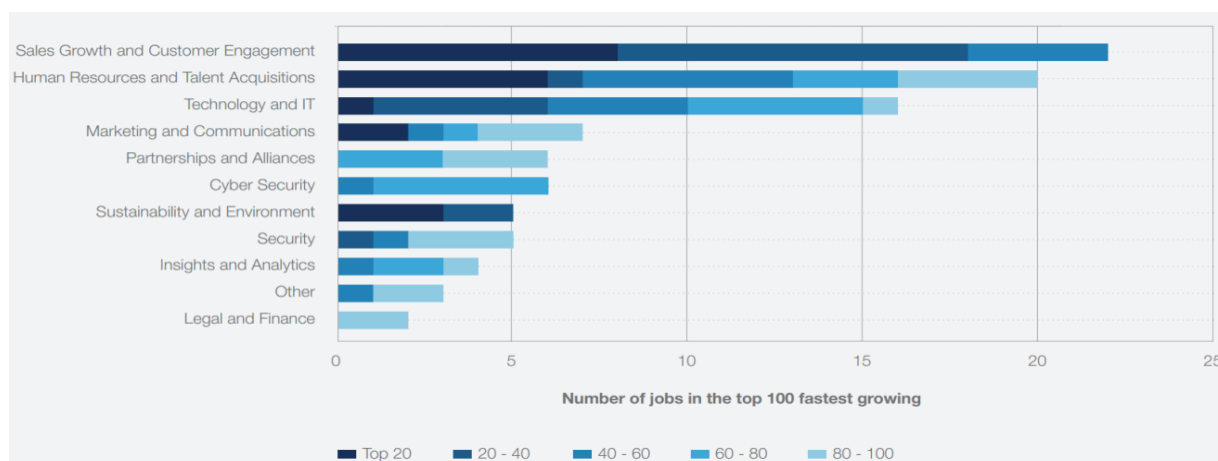


Figure 4: Growing roles by job type on LinkedIn between 2018 and 2022 (Source: LinkedIn)

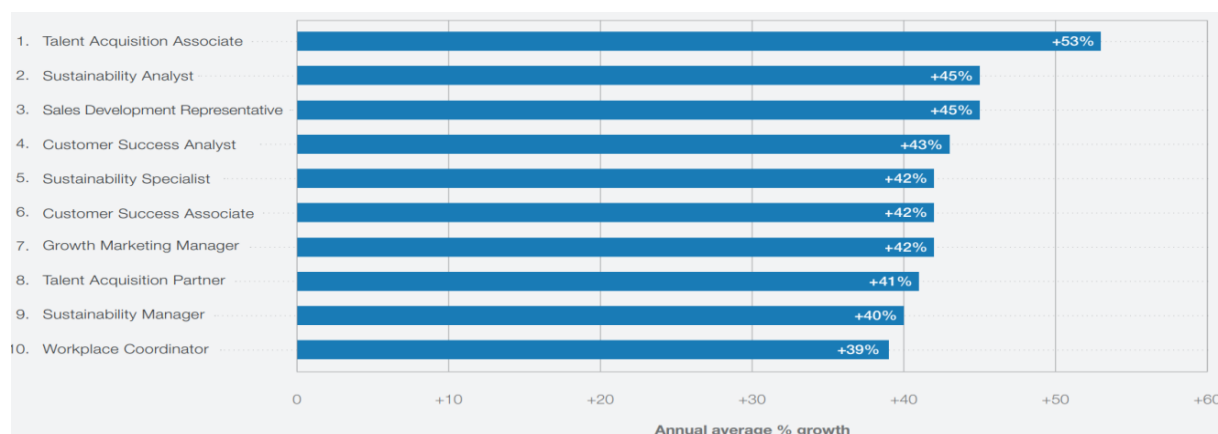


Figure 5: LinkedIn's fastest-growing job posts from 2018 through 2022 (Source: LinkedIn)

Corporate upskilling programs don't always take into account the talents whose relevance is reportedly rising the quickest, according to businesses. Beyond the top cognitive talents, there are two more abilities that businesses value significantly more than their current importance to their workforce would suggest: AI and big data as well as leadership and social impact.⁷⁴ Companies place AI and big data 12 spots higher in their skills strategies than in their assessment of core skills, and they report investing 9% of their reskilling efforts in it, which is more than the more highly ranked creative thinking. This shows that even though AI and big data are included in fewer strategies, they tend to be a more significant component when they are.⁷⁵ The top ranking attitude is one of leadership and social influence, which is ranked five places higher than its current importance would imply. Design and user

experience (ranked nine spots higher), environmental stewardship (10 spots higher), marketing and media (ranked six spots higher), and networks and cybersecurity (ranked five spots higher) are additional abilities that business strategically values.⁷⁶ Although the respondents indicate confidence in the development of their current staff, they are less upbeat about the prospects for talent availability over the next five years. As a result, firms see a lack of talent and a lack of skills as the main obstacles preventing industrial transformation. In response, 48% of businesses name strengthening talent progression and promotion procedures as a crucial business strategy that can improve the talent pool available to their company, ahead of paying higher wages (36%) and providing efficient reskilling and upskilling (34%). According to 45% of firms, government financing for skill development is a

successful intervention for matching talent with jobs.⁷⁷ Funding for skills training is more important than salary flexibility (33%), tax incentives and other business incentives for wage increases (33%), school system reforms (31%), and adjustments to immigration policies regarding foreign talent (28%).⁷⁸

Results from the Future of Jobs Survey show anticipated trends in technology usage across industries. The technologies are organized in Figure 6 based on how likely it is that businesses will use them by 2027. The top three technologies on this list, as in previous years, are big data, cloud computing, and artificial intelligence, with almost 75% of businesses planning to use them in the coming five years. The research also demonstrates the effects of the digitalization of trade and commerce, with platforms and applications expected to be embraced by 86% of firms and e-commerce and digital trade anticipated to be implemented by 75% of organizations. Education and labor technologies, which were placed second, are expected to be adopted by 81% of businesses by 2027. The potential adoption of technology between 2023 and 2027 is depicted in figure 7 below. The predicted effect of technology adoption on employment is another topic included in the Future of Jobs Survey. In the coming five years, all technologies—aside from two—are predicted to create more jobs than they eliminate. The largest job growth drivers are anticipated to be big data analytics, climate change and environmental management technology, encryption, and cybersecurity. Agriculture technologies, digital platforms and apps, e-commerce and digital trade, and AI are all predicted to significantly disrupt the labor market. While a sizable portion of businesses anticipate job displacement within their own organizations, this is expected to be partially offset by job growth elsewhere, creating a net positive effect. Recently, generative AI has drawn a lot of attention, with headlines claiming that 19% of the workforce might have more than 50% of their duties automated by AI, leading to job losses, while others anticipate the technology to According to the net effect on employment creation, the percentage of firms questioned expects each technology to either create or eliminate jobs.⁷⁹ The percentages of firms that believe the adoption of these technologies will have little impact on jobs are not plotted.⁸⁰ According to our research, only robots—humanoid or nonhumanoid—will have a net

negative overall impact on employment, with nearly similar numbers of enterprises anticipating growth, displacement, and neutral effects.

The percentages of polled organizations that predicted a neutral impact are not plotted. While respondents from various industries exhibit varying preferences for technology, some exhibit significantly higher overall expectations to adopt new technologies than others, with some showing more caution.⁸¹ The employment services, insurance and pension management, and real estate sectors are the least likely to adopt new technology, while the electronics, chemical, and advanced materials sectors intend to adopt more technologies than the average amount. One of the technologies with the most varied adoption across industries is environmental management, with Oil and Gas employers predicted to embrace it at a rate of 93%, followed by Chemical and Advanced Materials (88%) and Production of Consumer Goods (86%). Just 26% of businesses in the employment services sector, followed by those in education and training (36%) and insurance and pension management (42%), anticipate using this technology. Similarly, organizations in the Electronics (80%), Research, Design, and Business Management (77%), and Energy Technology and Utilities (75%) industries are more likely to adopt augmented and virtual reality than those in the Mining and Metals (46%), Accommodation, Food, and Leisure (42%), and Agriculture, Forestry, and Fishing (30%) industries. Robot adoption is particularly strong in the Electronics (83%), Energy Technology and Utilities (72%), and Consumer Goods (71%) industries, according to data from the Future of Jobs Survey. According to data from the International Federation of Robotics, the ratio of industrial robots per 10,000 workers has been rising quickly globally during the last five years.⁴⁷ The number of industrial robots per 10,000 workers has increased by about a half over the past five years, to 126 robots. The adoption of non-humanoid robots presents the clearest sectoral picture in terms of how they will affect employment, with 60% of businesses operating in the consumer goods and oil and gas industries predicting job losses and 60% of businesses operating in information and technology services predicting job growth over the next five years.

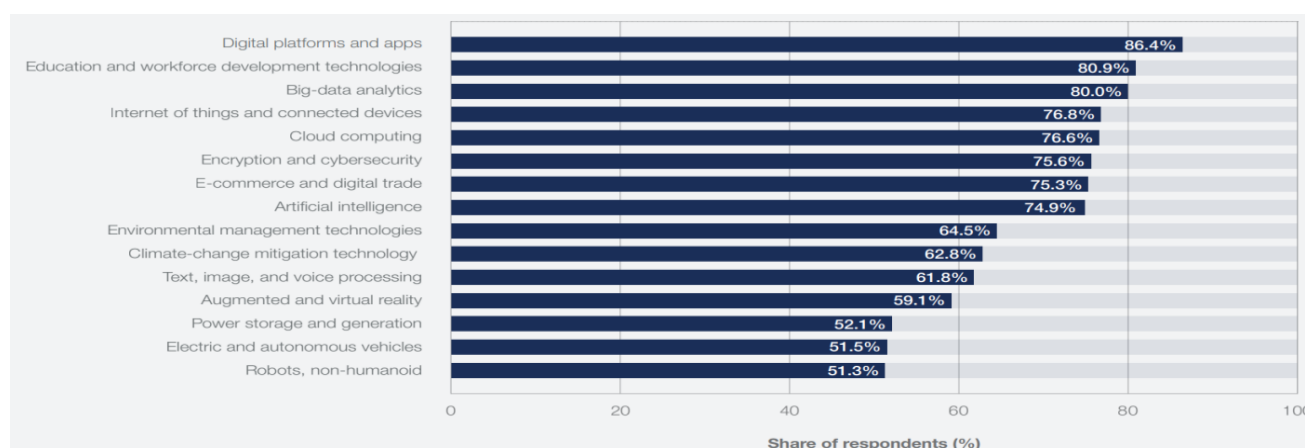


Figure 6: Technology adoption in future within 2023-2027 (Source: WEF, Future of Jobs Survey 2023)

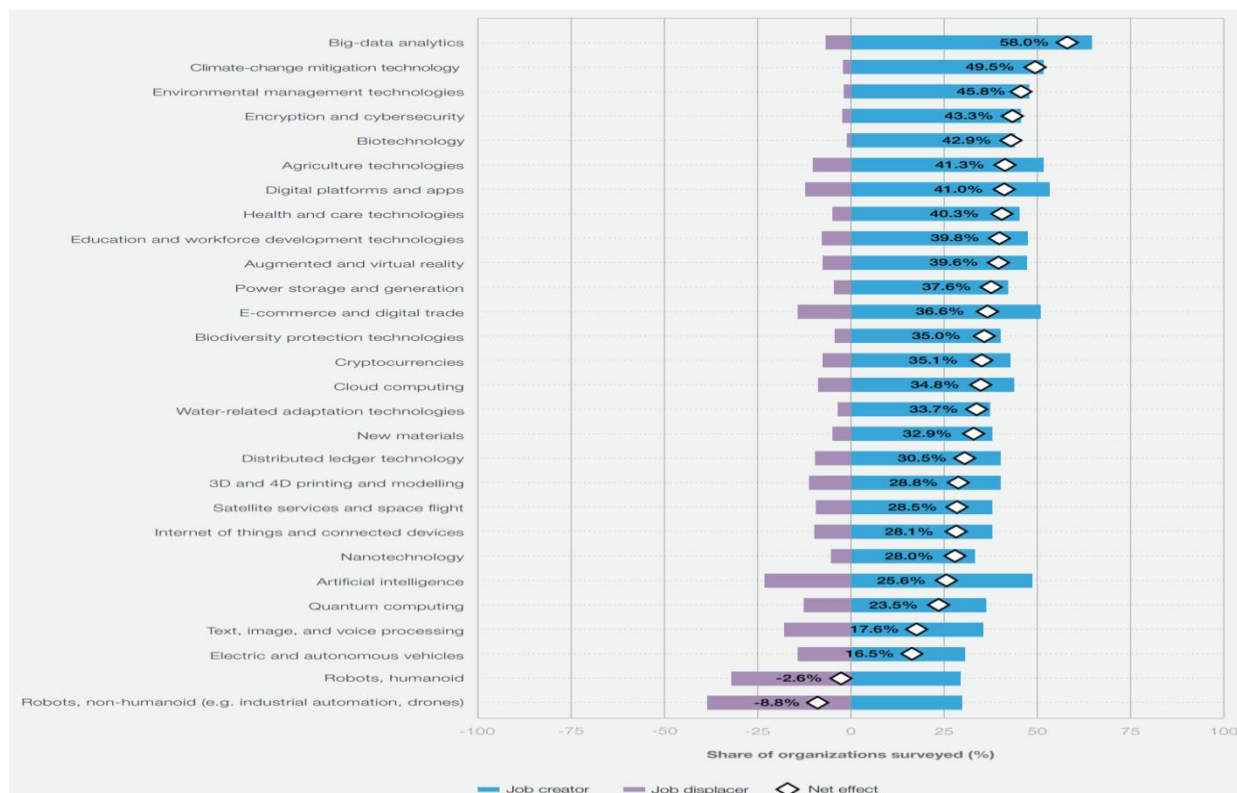


Figure 7: Expected impact of technology adoption on jobs, 2023–2027 (Source:WEF, Future of Jobs Survey 2023)

The rate at which people and jobs are reallocated is referred to as "labour-market churn." The poll sheds light on structural labor-market churn by dividing the anticipated number of new positions by the anticipated number of roles that will be eliminated throughout the relevant period. The natural churn of employees switching jobs for personal reasons is excluded from structural churn.⁸² By adding the absolute magnitudes of each job's reported workforce fraction changes from now to 2027, as reported by respondents to the Future of Jobs Survey, and dividing by the sum of workforce fractions today, as reported by respondents to the Future of Jobs Survey, we can estimate the five-year structural churn for each job. It can be seen as a broad indicator of disruption, including both growth and decline. Figure 8 illustrates the projected 23% structural labor-market churn for studied businesses across industries and nations over the following five years. This shows that 23% of the current workforce represents the overall planned job mobility, which includes both newly created functions and roles that are being eliminated.⁸³ This study aids in illuminating circumstances in which relatively small changes in net job counts across a nation or industry can partially conceal

significant underlying reconfigurations within a volatile labor market. A structural labour-market churn of 152 million jobs, or 23% of the 673 million employees in the study's data set, is anticipated over the next five years, with 83 million jobs forecast to be lost and 69 million projected to be generated. This results in a loss of 14 million jobs, or 2%, in total employment. The ongoing structural reconfiguration of labor markets is anticipated to continue over the next five years, according to future churn projections. The supply chain, transportation, and media, entertainment, and sports industries are predicted to experience higher than average churn from 2023 to 2027, with respondents estimating structural five-year churn to be 29% and 32%, respectively, according to the WEF Future of Jobs Survey 2023 report's churn analysis, while these industries are predicted to experience lower than average churn, as shown in figure 9 below. The areas of telecommunications and media, entertainment and sports, financial services and capital markets, and information and technology services are also predicted to experience quite significant churn, in part due to work shifts brought on by technology.

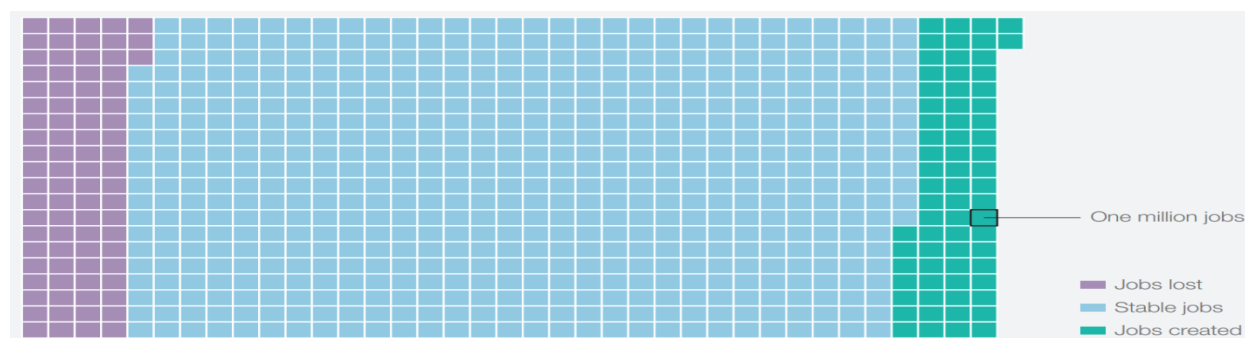


Figure 8: Projected job creation and displacement, 2023-2027 (WEF, Future of Jobs Survey 2023; International Labour Organization, ILOSTAT)

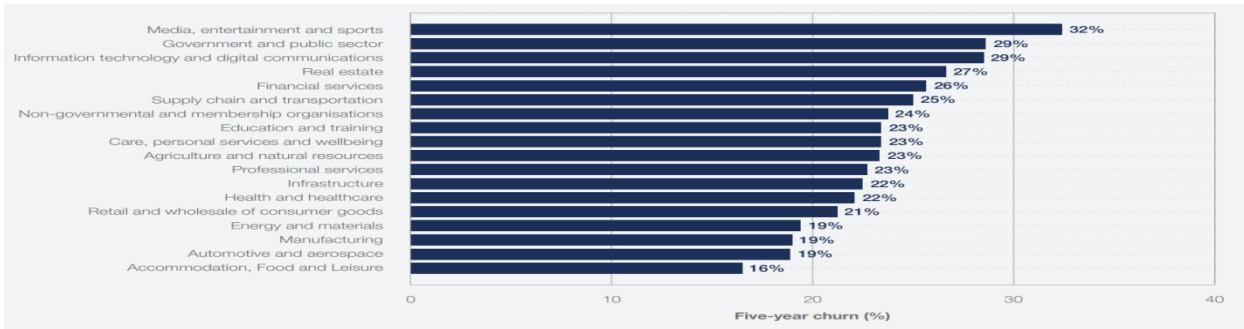


Figure 9: Labour market churn, by industry (WEF, Future of Jobs Survey 2023)

For the worldwide employee data set analyzed in this research, projected job creation (blue) and displacement (purple) between 2023 and 2027, expressed as a percentage of existing employment. By subtracting the two fractions, the expected net growth or fall for each occupation over the next five years is shown (shown by diamonds).⁸⁴ The complete width of the bars represents the structural labor-market churn that is anticipated for each occupation over the next five years and is equal to the total of the two fractions. Structural labor-market churn accounts for 23% of current employment on average across occupations. According to ILO occupation employment statistics and growth indicated by businesses questioned or informal employment, the top roles are ranked by the highest net job decline. As a result, the conclusions drawn from this subset of data shouldn't be viewed as exhaustive but rather as offering helpful information on a few workforce groups. Figures 9 and 10 show information on the occupations that are anticipated to experience the greatest absolute growth and loss.

According to survey findings, agricultural equipment operators, heavy truck and bus drivers, and vocational education teachers will experience the most growth between 2023 and 2027. The professions with the most anticipated job losses are data entry clerks, administrative and executive secretaries, and accounting, bookkeeping, and payroll clerks. These three occupations account for more than half of all predicted employment losses. Overall, our analysis predicts that 69 million jobs will be created and 83 million jobs destroyed, resulting in a 14 million job contraction in the global labor markets over the next five years at the current rate of change. However, this estimate is highly speculative because it is not comprehensive.⁸⁵ The total of these alterations results in an estimated 23% structural labor-market churn for the available data on the current global workforce.⁸⁶ According to calculations based on ILO Occupation Employment statistics and growth stated by firms contacted, the following top jobs are listed in order of highest net job growth and reduction:

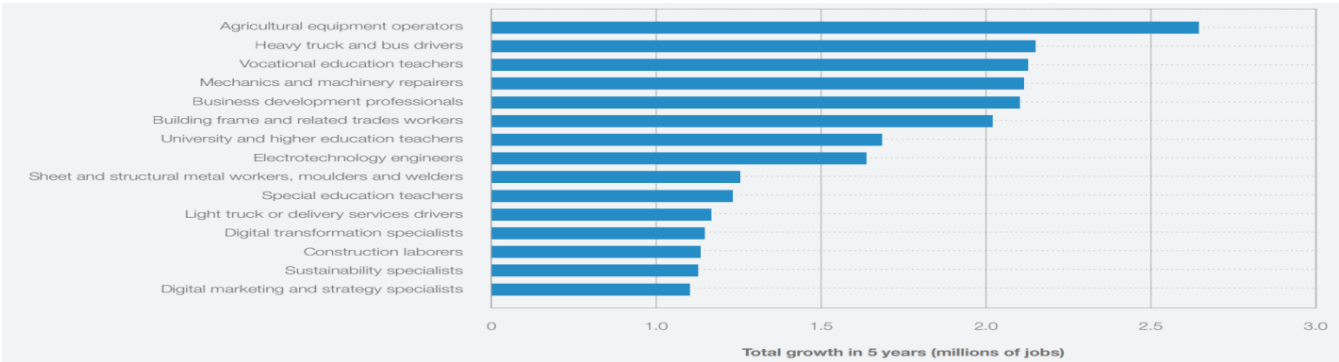


Figure 10: Largest job growth, millions (WEF, Future of Jobs Survey 2023)

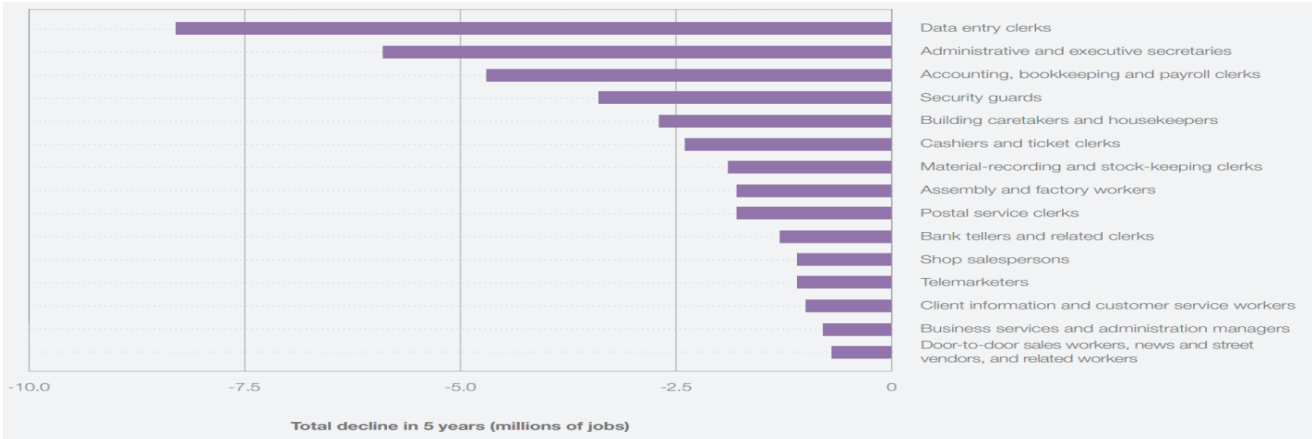


Figure 11: Largest job decline, millions (WEF, Future of Jobs Survey 2023)

When combined with information on employment trends, according to the WEF Job Survey 2023 report, this appears to drive expectations of job growth in positions related to digital trade and a reduction in positions where more digitalized global interactions make certain aspects of in-person services and recordkeeping less necessary. For instance, it is anticipated that the number of E-commerce specialists, Digital Transformation specialists, and Digital Marketing and Strategy specialists would rise by 25–35%, creating an additional 2 million jobs. However, this growth estimate varies by area, with Sub-Saharan Africa expecting the weakest increase at 15% and South Asia expecting the fastest at nearly 30%. For Digital Transformation Specialists, respondents anticipate an average increase that will be faster in China (32%) and slower in Japan (23%). Robot adoption is particularly strong in the Electronics (83%), Energy Technology and Utilities (72%), and Consumer Goods (71%) industries, according to data from the Future of Jobs Survey. According to data from the International Federation of Robotics, the ratio of industrial robots per 10,000 workers has been rising quickly globally during the last five years.⁴⁷ The number of industrial robots per 10,000 workers has increased by about a half over the past five years, to 126 robots. The adoption of non-humanoid robots presents the clearest sectoral picture in terms of how they will affect employment, with 60% of businesses operating in the consumer goods and oil and gas industries predicting job losses and 60% of businesses operating in information and technology services predicting job growth over the next five years.

Jobs in renewable energy and those related to climate change mitigation are another area that poll respondents anticipate will experience rapid growth. Additionally, three work groups that do not now employ a lot of people are seeing job growth as a result of the adoption of cutting-edge technologies. Demand for jobs like data analysts and scientists, big data specialists, business intelligence analysts, database and network professionals, and data engineers is expected to rise by 30–35%, or by 1.4 million, as more cutting-edge technologies that rely on big data are adopted. Across all nations, there is a shared expectation of growth in these

positions. For instance, growth in China is predicted to reach closer to 45%. Financial services (31%), retail and wholesale of consumer goods (37%), and supply chain and transportation (42%), on the other hand, are expected to experience rapid increase in these positions. Information technology and digital communications, on the other hand, are expected to experience more moderate growth, at just 8%. As the use of AI and machine learning drives ongoing industry transformation, the demand for AI and machine learning specialists is anticipated to increase by 40%, or 1 million jobs. Generative AI may have a major impact on a sizable portion of all worker jobs, according to recent studies. This, however, does not differentiate between tasks that are automated vs. augmented. This study also reveals that jobs with higher entry barriers and higher income functions are most likely to be impacted. To fulfill climate goals, we need a workforce equipped with the skills to fill green employment. This year's Future of Jobs Report evaluates how firms and employees are responding to the green transition using data supplied by LinkedIn. As illustrated in Figure 12 below, employers have raised the hiring rates for green jobs, with green job growth outpacing overall hiring rate growth every year since 2019. The two industries with the highest levels of green skill intensity are manufacturing and oil & gas. This is a positive development since it may open the door to a decarbonization strategy focused on green skills for these emissions-intensive industries. This holds true for all 50 nations. Again, employment in the education sector is predicted to increase by about 10% between 2023 and 2027. This development could result in 3 million more jobs for university and higher education teachers and vocational education teachers between 2023 and 2027 because there are many people working in these positions. A 30% rise in employment is anticipated for agricultural professionals, particularly for Agricultural Equipment Operators. According to the current employment rates for these positions, this might result in the creation of 3 million new jobs. This rise in demand could be caused by a number of trends coming together, including shorter supply chains, higher input costs, growing use of agricultural technology, and rising investments in climate change adaptation.

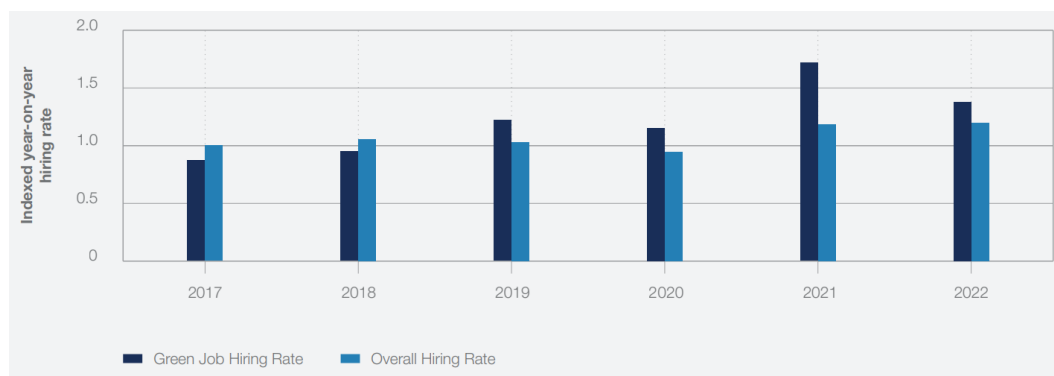


Figure 12: Increase trend of green job hiring rates since 2017 to 2022 (WEF, Future of Jobs Survey 2023)

It has been shown that almost as many responders, mechanics and machinery repairers, anticipate a diminishing outlook as one that is growing. The high overall employment in the role, along with the relative size of growth and decline that respondents anticipate, make this one of the largest-growing roles in absolute terms, with an estimated increase of 1.9 million jobs. However, due to the proportional extent of these changes, we anticipate that there will be a need for an additional 1 million workers. On the other hand,

more respondents believe that the role of construction workers will diminish than expand. Respondents predict a 5% decline in demand for assembly and factory workers, which might result in a loss of 2 million jobs for this workforce. This decrease is a result of dwindling demand from the electronics and advanced manufacturing sectors, particularly in China, Japan, Singapore, and the UK. Roles related to logistics are another occupation group where job growth and decline are expected. Localization of supply

chains is anticipated to be one of the major drivers of job displacement as well as one of the top gross contributors to job growth. Social employment, such as those in the care, education, and healthcare sectors, are essential to societal well-being because they promote social mobility, protect human capital, and increase society resilience. The significance of social jobs will undoubtedly expand as the world's population continues to grow and age. The relative increase of the three social employment divisions (care,

education, and healthcare) in relation to all other jobs is depicted in figure 13 below. Social jobs have risen more quickly than other jobs in 15 out of the 22 nations examined. In 16 of the 22 countries, healthcare and care occupations have expanded more quickly than other jobs, highlighting the crucial relevance of these jobs during the COVID-19 epidemic. However, in 12 of the 20 countries, the growth of the education sector has outpaced that of other sectors.

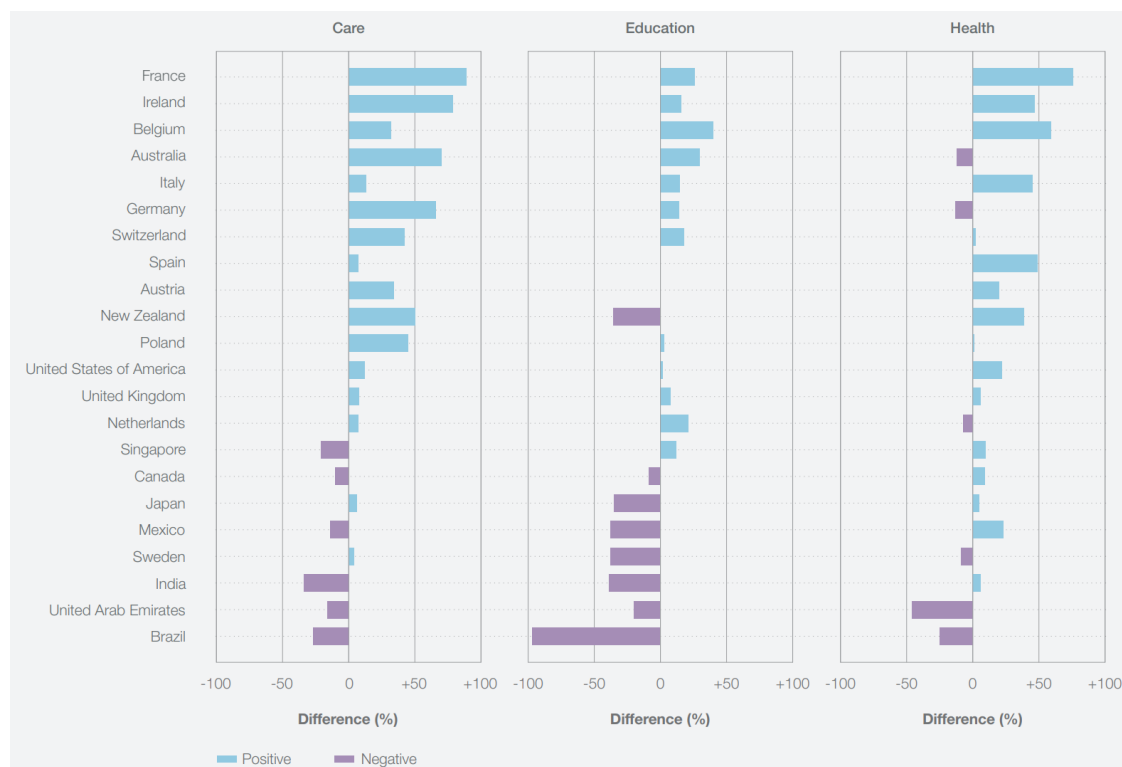


Figure 13: Growth in the rate of social-job (Sources: WEF, Future of Jobs Survey 2023)

Importance of Digital and Smart Skills and Best Employable Skill for Young Generation

We must enable people to create and exchange digital information, communicate and work together, and solve problems in order to promote productive and creative self-fulfillment in life, education, career, and social relationships. Digitally savvy members of the younger generation not only improve their employability but also future-proof their professions by getting to know key digital platforms.⁸⁷ Professionals and members of the younger generation can improve their daily lives and jobs by honing their digital skills. Developing a basic understanding of technology is the first step in acquiring a variety of other talents. When it comes to using technology effectively for job, school, and daily activities, these abilities can give pupils confidence. Many professions in today's world need mastery of digital and smart abilities, and even those with lower skill requirements benefit from having them, according to students and workers.⁸⁸ Future generations will need to have digital and cognitive abilities in order to conduct everyday activities like banking, shopping, and staying in touch with loved ones. It can aid in their success by helping them get ready for interviews. Nowadays, most jobs are posted online. They can fill out an online application form or send a CV via email. The manual hiring process now includes online testing or a video interview. Students or workers may continue to study more specific skills like website coding, social media marketing, cyber security, and

creating digital products and services if they feel confident using the most basic digital technologies. As a result, people may find new work opportunities or enhance their performance in their current role.⁸⁹

Finding the best career alternatives can be done with the help of the Occupational Outlook Handbook (OOH) published by the Bureau of Labor Statistics. It provides in-depth information on hundreds of occupations, describing the work itself as well as typical workspaces.⁹⁰ The best jobs today could not be the best jobs in the past. As an illustration, American industry peaked 50 to 75 years ago. Because of the high wages of factory jobs, workers with less education could join the middle class.⁹¹ But most of those jobs have already vanished, with the exception of a few high-tech regions. In the 2020s, more job openings are anticipated in sectors such high tech, engineering, AI, ML, data science, health care, personal care, food service, and advanced technology. The OOH predicts that the vast majority of these fields will grow by more than 10% between 2023 and 2033, while the economy as a whole is anticipated to grow by 7% during that time. However, better knowledge of each business and its goals may help students or workers determine which field is best suited for them. Think about which goals most interest them.⁹² Once again, a typical career coach is prepared to help customers with their job searches, interviews, and resumes. They lack the training necessary to help them select the best career.

Sustainability will serve as the foundation for industrial system development in the future. AI will be increasingly widespread in 2023 thanks to advances in ML and NLP. This method will help artificial intelligence better understand us and handle more challenging tasks. Future forecasts state that 5G and smart technologies will alter our way of life and employment. As a result, the younger generation and employees should stay current with new technical developments. They need to keep an eye on the future to grasp the skills they will need to obtain a stable job or profession in the future and even learn how to do so.⁹³ New technological trends that will soon take hold include computing power, smarter devices, datafication or coding, AI and ML, Augmented Reality (AR), Virtual Reality (VR), Extended Reality (ER), Digital Trust, 3D printing, genomics, new energy solutions, robotic process automation (RPA), edge computing, quantum computing, blockchain, Internet of Things (IoT), 5G, cyber security, etc.⁹⁴ Students will never be able to foretell the future because it is uncertain as we all know. However, by preparing for it, students can steer clear of choosing a career path that won't be competitive in the job market down the road. Choosing the right work is always important. Current industry developments are making certain jobs obsolete while elevating the worth of others. Flexibility, demand, security, and growth potential are the aspects that the next generation of young people and students need to start considering while choosing the best professions for the future. It is not implied that people must give up their interests, objectives, experience, aptitude, and academic and professional potential in order to choose the best future vocation or profession.

Young adults and students starting their careers sometimes struggle with a plethora of unresolved questions while understanding the prospect of significant changes in traditional employment relationships over time. The younger generation could be hesitant to pursue higher education or to embark on a different, more fulfilling job path. Alternatively, people who have already established themselves in the workforce can be particularly interested in comprehending labor market swings. Although there are numerous possibilities, it's crucial to pay attention to the professions that will be in demand in the future. Future ideal occupations must start considering factors like flexibility, demand, security, and growth potential into account. It doesn't mean that the younger generation should overlook their interests, goals, and background (academic and professional) when deciding on the best future careers.⁹⁵ It's wonderful that the younger generation is becoming aware of the perhaps best work opportunities in the future. They will have more freedom when selecting a profession. For stability and security, students should consider the most in-demand professions; otherwise, they run the danger of being at a disadvantage in their later years. We are conscious that changes in science, technology, and worldwide demand will always be reflected in the logic of the job market. Trends refer to the most recent technological advancements, discoveries, and innovations.⁹⁶ These patterns frequently have an impact on how businesses, industries, and society as a whole develop, altering how people interact, work, and live. Being aware of how technology is changing allows one to adopt new tools, improve processes, and benefit from growth opportunities.⁹⁷ The top technical developments for 2023 include things like AI, ML, Blockchain, 5G, IoT, quantum computing, VR/AR, cybersecurity, healthcare, and education. The top industries and job options for the future that are open to everyone are listed below. Many of these positions are

already in existence and are expected to continue to be necessary for several more years. Below is information about potential lucrative employment opportunities and future jobs.

Social Media. There are already 4.2 billion active social media users worldwide, according to a recent study. 4.15 billion of them actively use mobile devices. This information indicates that the number of social media users globally increased by 13.2% in a single year and is still growing. Therefore, it will be a profession that pays better in the future. Because social media is an essential and valuable skill, every professional should be able to understand it and use it effectively. Instead of just tweeting or updating Facebook, the purpose of social media marketing is to understand the dynamic relationship between brands, influencers, and customers. Due to the widespread use of social media by customers to express queries or comments, it now also plays a significant role in delivering top-notch customer care. Social media influencers need to understand the specifics of each platform, from YouTube to TikTok marketing, and how to increase community engagement if they want graduates to acquire significant and applicable skills.

Search Engine Marketing (SEM). Search engine marketing (SEM) is currently one of the disciplines on which marketers have come to rely. Consider, for instance, that, in the current world, 81% of internet users look for products online before making a purchase, with Google accounting for 70% of that traffic. Students who are familiar with SEM can employ paid advertising to increase a company's website's visibility on search engines like Google or Bing. The business will benefit from increased search engine traffic to its website by doing this. By utilizing SEM, staff and students can capture priceless organic search traffic results. Marketers, content managers, and webmasters put a lot of effort into optimizing websites, particularly for mobile and ad campaigns, to obtain the highest conversion rates possible. Most companies engage in online competition to draw clients by outpacing their rivals in the sales of goods and services. Online sales during the COVID 19 epidemic increased as a result of the number of customers who made purchases. 22 billion individuals, according to Statista, visited retail websites in June 2020. Interesting Furthermore, despite Covid, this internet activity doesn't appear to be slowing down.⁹⁸ Employers will therefore greatly appreciate job seekers with experience in search marketing.

Content Marketing. These days, we have access to content in many different formats, including blog posts, videos, podcasts, infographics, eBooks, case studies, newsletters, free tools, and even social media status updates.⁹⁹ Even though marketers typically spend their time honing their keyword strategies, content still reigns supreme in advertising efforts. Clients have no way of learning the benefits of a good or service without content because it is what drives a website or social media page. Increased brand recognition depends on content, which can establish influencers or brands as thought leaders. Therefore, potential employees must understand the value of creating content that is both linked to and optimized for keyword research. Students who are knowledgeable and skilled in content marketing gain a valuable set of abilities that prepare them for success in any line of work.

Email Marketing. One of the best ways to acquire and retain leads nowadays is through email, which is a tried-and-true tactic. Elon Musk, a prominent global business figure, uses email as a tool for command, communication, and control. Email marketing, one

of the earliest forms of direct marketing, is still successful in luring new customers and retaining old ones. Whether for small businesses or major corporations, the launch of successful campaigns depends on a solid email marketing plan. Experienced digital marketers understand that each phase of the funnel needs to be carefully considered. Every stage, from the signup page's location on a website to the welcome email, needs to be optimized to entice users and encourage participation. It's interesting to see that, despite the fact that people occasionally change their home addresses or social media profiles, they frequently maintain the same email addresses. Due to this trend, there is a high demand for professionals that are skilled at using email marketing techniques to communicate with clients. Therefore, rather than seeing email as an outmoded medium, teachers can urge the younger generation and students to reconsider how they may use it in their current and future employment.

Mobile Marketing. Mobile connectivity is growing, with 97% of people in the world holding mobile phones and 96% of all active connections coming from smartphones, according to the Digital 2021 study by We Are Social and Hootsuite. Since smartphone traffic has exceeded desktop traffic (64%), Google presently scans pages and gives content a higher priority utilizing mobile-first indexing. To grasp the effects of this transition, we only need to look at Google, who created a mobile-friendly web app to assess the usability and speed of mobile websites. We may increase our online visibility with clients who don't have access to desktop computers when we deploy mobile-friendly content. By tailoring their campaigns to the most recent developments in user experience and mobile search, job seekers may make use of this information.

Strategy and Planning. One is more likely to see measurable results from digital marketing campaign methods over time. Instead than depending on haphazard planning, digital marketers should concentrate on developing and implementing initiatives that are grounded on analytics and quantitative SEO data. In order to put things into perspective, 79% of senior marketers surveyed for DMI's study paper, "Perpetual Evolution," stated that strategy and planning were "very important" for an organization's effectiveness. Despite its importance, hiring marketers reported that it was one of the hardest skill sets to fill. Educators could take advantage of this skills gap by teaching students how to develop and implement a digital strategy.

Social Selling. To interact with customers and influence them, salespeople must improve their online skills. With 65% of sellers using it to fill their pipelines and 50% of sales in 14 major industries, social selling is proven to be an effective technique. As companies start to understand the importance of social selling, they are starting to invest in new "sales stack" technology including email tracking tools, productivity apps, and sales intelligence software. Above all, social marketing strategies are seen to be especially effective in attracting modern purchasers who rely on social media for recommendations and reviews. Because social selling is still a relatively new profession for organizations, any student interested in a sales career and successful social selling will benefit from training that is industry-aligned.

Pay-Per-Click Marketing (PPC). According to Larry Kim, the average landing page conversion rate is 2.35%, but the top 25% convert at 5.21% or more, which is double that amount. In

addition, for every US\$ 92 spent on customer acquisition, only US\$1 is needed to convert a customer. PPC is hence a popular method used by brands to quickly drive traffic. Businesses with sufficient spending power can pay to have their search result appear on Google's front page if they receive a lot of traffic. For the technologically aware job seeker, using a PPC for e-Commerce tracker is a great approach to keep track of expenditures and comprehend impressions, reach, cost per click, etc. Google's AdWords program is a well-known PPC advertising model.

Video Developer. In today's sophisticated society, video has evolved from being only an entertainment medium to a crucial source of social media content. Today, a select few platforms, such TikTok and Instagram, have flipped the traditional role of video to create affluent influencers. Today, video has become a powerful and influential medium that is also quite popular among all types of social media users thanks to TikTok and Instagram. Social networking apps like WhatsApp, Weibo, and WeChat are gradually replacing other instant messaging services as the norm as the average age of smartphone users rises. Actually, WhatsApp has more than 2 billion users worldwide, with the majority of downloads coming from Americans. Video is easier to comprehend than other material kinds like blog entries. By combining the emotional effect of social media video with the reach and scope of digital advertising, markets may be able to tap into a growing market of engaged customers.

Data Scientist and Analyst. Data science is currently one of the most popular industries, and it will remain so for a variety of good reasons. Data usage by companies and their customers has significantly increased. Organizations desperately require the help of data scientists to utilize that data effectively. Developing this expertise would enable the younger generation to become in demand professionals with ease in the future. Data scientists are employed by almost every sector of the economy, including e-commerce, startups, academic institutions, advertising agencies, etc. Data scientists are responsible for locating the best data analytics solutions for an organization.¹⁰⁰ They need to use deep learning, machine learning, and related technologies to complete their tasks. If job searchers wish to work in this field, they need sign up for a data science course and learn the relevant skills. Data scientists¹⁰¹ are a new breed of analytical data specialists with the technical expertise to handle challenging problems and the curiosity to determine whether problems are worthwhile tackling.¹⁰² The average salary for a data scientist in the US is US\$ 108,659 per year, according to LightcastTM.¹⁰³ Data scientists analyze the data and offer solutions using the data. A specialist with the knowledge to communicate the facts to everyone is an analyst. Making complex data and its insights understandable to a wider audience is the duty of a data analyst. This is an excellent career choice for children who are strong in math and statistics. This post requires knowledge of numerous programming languages in addition to those areas. Data science, a young field, is currently in high demand and offers a career path that is secure for the future. As a data analyst, he will need to use data to identify solutions to complex business problems. It is accurate to say that data is the engine of modern civilization. The amount of data produced by humanity each day has risen to an astounding 2.5 quintillion bytes, and it doesn't seem to be going down any time soon.¹⁰⁴ The market for big data and business analytics, according to a recent report from International Data Corporation (IDC), has been expanding

quickly over the past few years, going from US\$ 122 billion in global revenue in 2015 to US\$ 189 billion in 2019 and on track to reach US\$ 274 billion by 2022.¹⁰⁵

Software Developer. Software development has been one of the most prevalent sectors worldwide. Pushbike's dependence on digital goods and enterprises' migration to digital platforms are driving up demand for software engineers. Software developers are responsible for the coding and creation of software products. Software developers must work in teams and have excellent problem-solving abilities to handle any challenges that may come up during the development process. In order to fulfill market needs, workers must also regularly refresh their abilities to reflect the changing nature of the software industry. A software developer should not only be technically proficient but also have outstanding teamwork and communication skills. They must be able to converse and share ideas with other team members. Students and employees can become software developers by enrolling in a course on the subject and learning the necessary skills. Software developers use their expertise in programming to create new software and update existing applications. Any student who has a creative attitude and finds satisfaction in problem-solving is a good candidate for a job as a software developer.¹⁰⁶ Future society will be dominated by AI and ML, and careers as software developers will be more lucrative than now.

Big Data Engineer. A big data engineer is the person in charge of developing, maintaining, testing, analyzing, and evaluating a company's data. Big data refers to sets of extremely large data. Businesses in the modern economy routinely collect large volumes of data as they go about their everyday operations. When handled appropriately, big data is always beneficial for businesses to raise productivity, profitability, and scalability. The field of big data engineering is well-known and in high demand. Today, as part of our routine work, we generate enormous amounts of data. By 2020, the digital universe is expected to be 44 zettabytes in size, or forty times as many bytes as stars in the observable universe. We have already gone over the line. In that case, renowned data engineers can aid. Today, big data engineers take care of any organization's big data needs. Big data engineers construct the organization's or business's data handling infrastructure and technology. They are responsible for compiling, analyzing, storing, and processing data as well as data systems. A candidate for this role should be proficient in math, statistics, and problem-solving strategies. Employees and students should also have strong logical and communication skills so they can easily explain their conclusions to non-technical audiences. Employees or students can obtain degrees in computer science, statistics, or mathematics to work in such fields. Businesses prefer certified specialists since certification ensures that a person possesses the necessary abilities. It would be great to enroll in a big data course, suitable degree program, or skill-building program before entering this sector. However, a company's big data is meaningless without a big data engineer to design systems for data collection, management, and extraction. As a result, big data engineers, who also happen to have a lucrative line of work, are ultimately in charge of helping firms manage their massive amounts of data.¹⁰⁷

Cyber Security Expert. In the year 2019 alone, the number of cybercrime incidences increased by 60% worldwide. As our society becomes more digital and internet-connected, the threat posed by cybercriminals and organizations is growing. Currently, businesses and organizations from all over the world rely on

cybersecurity experts to help them get beyond these difficult scenarios and situations. In order to help them understand any potential cyber threats they might face, corporations consult students in their capacity as cybersecurity experts. Students can assist organizations in bolstering their cybersecurity measures to better fend off hackers and malware. Organizations can train their workforce to follow the best security practices with the help of cybersecurity experts. If you appreciate helping people, this is undoubtedly an excellent job for you because there is a constant need for cybersecurity specialists. To become cybersecurity specialists, students must need a degree in computer science or a closely connected subject. It would be great if interested students or members of the new generation participated in a cybersecurity course in order to acquire all the essential skills in addition to receiving a degree. They would find it less difficult to obtain well-paying positions in the cybersecurity sector. Its demand will continue to grow as a rewarding vocation in the coming years. To gain the required knowledge in the field, one could enroll in PG level cybersecurity courses. Students will never be able to foresee the future since it is so uncertain. However, by preparing for it, students can steer clear of choosing a career path that won't be competitive in the job market down the road. It's critical to choose the right employment. Current industry developments are making certain jobs obsolete while elevating the worth of others. The CompTIA Security+, CEH, CISM, CISSP, and CCSP certifications are just a few of the industry-recognized credentials cybersecurity experts can obtain after completing Simplilearn's Cyber Security Expert Master's Program. Prior to teaching intermediate hacking techniques like reverse engineering and network penetration testing, the training begins with a fundamental introduction to technology.¹⁰⁸

Artificial Intelligence (AI) and Machine Learning (ML) Expert. There is a huge need for experts in AI and ML, and that need is only increasing. AI and ML are used in a wide range of areas, including finance, health, medical, education, manufacturing, and production. According to a LinkedIn poll, occupations in artificial intelligence and machine learning are among the top ones in south Asia. Despite the fact that demand for these occupations is growing, there is a critical shortage of highly skilled AI and ML specialists. AI and ML present the strongest employment prospects over the next ten years. Even though the AI sector is still in its infancy, competition will grow with time.¹⁰⁹ To become an expert in AI or ML, a student will need to become proficient in programming, reasoning, and various computer science principles. Students might engage in a postgraduate program in artificial intelligence and machine learning to improve their chances of getting this job. By merging the digital and physical worlds, Digital Twin (DT) implementations can promote smart manufacturing. Applications of AI built on machine learning are frequently viewed as cutting-edge manufacturing technology.¹¹⁰

Virtual Reality (VR) Developer. Virtual reality is being used more and more by a wide range of industries to allow customers to handle an object even when they are physically unable to do so. It has been shown that the usage of VR by experts as different as surgeons, instructors, and architects allows highly skilled people to study objects they otherwise wouldn't be able to. If we were to choose an industry that will grow over the course of several decades, virtual reality (VR) seems like a job that would pay reasonably well. The most recent data indicates that the global market for AR and VR will increase from US\$30.7 billion in 2021

to US\$296.9 billion in 2024. That is an increase of over ten times. According to Meta (previously Facebook¹¹¹) predicts that VR and AR will have a significant impact both now and in the future. From marketing departments to video game developers, virtual reality will signify a turning point for the labor market and the entire society.¹¹² Young individuals and students can enrol in a few beginner courses like Introduction to VR Programming, Design, and Unity if they are interested in learning more about this subject.¹¹³ If students already have some VR experience, they can enroll in an advanced course like "Construct a Virtual Reality Experience".¹¹⁴

Augmented Reality (AR) Developer. The well-known AR-related game Pokémon Go has made over six billion dollars in total sales as of 2022.¹¹⁵ It was extremely innovative for the mobile game market and was successful. Combining an enduring franchise with augmented reality was a brilliant move. Although augmented reality (AR) transformed gaming and upped the bar, it is also thriving in other industries, such as fashion, where AR closets allow you to try on clothing at home. There is a growing demand for developers knowledgeable in this specialized field of technology as AR's applications grow.¹¹⁶ Enrolling in courses like Introduction to Virtual, Augmented, and Mixed Reality offered by NFTS, Royal Holloway, and other numerous companies can help students and young people understand more about immersive creative technologies like AR.¹¹⁷ Mixed reality (MR) jobs are widely available today.

Biomedical Engineering. One of the top academic specialties is biomedical engineering. This is especially for people who are interested in learning how life on Earth and contemporary engineering relate to one another. The goal of biomedical engineers' work is to better human health through the fusion of technology and medicine. Biomedical engineers are leading the way in the development of artificial organs and other life-saving tools. The artificial kidney is a fantastic demonstration of this. More than 2 million people's lives have been improved by this since it began.¹¹⁸ Due to the high need for biomedical engineers, it will be straightforward for graduates with a bachelor's degree in this field to get full-time employment. The BLS predicts that until 2030, this industry will expand at a rate that is 6% faster than the country as a whole.¹¹⁹

Biometrics. A popular career in the twenty-first century is biometrics. People who work in the subject of biometrics are taught how to create instruments that can recognize live things. One excellent example of this is the facial recognition system. Current identification techniques will gradually be replaced by biometrics and biometric readers in the future years. Numerous user-assigned passwords for electronic devices will also be changed. Smartphones, tablets, and laptops that enable fingerprint authentication instead of laborious password entry are instances of this. Grand View Research predicts a 20% increase in job growth for the biometrics sector by 2025.¹²⁰ Information security and privacy are top priorities for businesses of all sizes operating in the health sciences sector. A \$3 million fine was imposed on Touchstone Medical Imaging in 2019 for exposing over 300,000 patients' sensitive health information online via an unprotected FTP server; this could have been avoided with the deployment of biometric technology.¹²¹ According to a Business Insider study, 25% of businesses are preventing situations like these by installing biometric authentication technology on PCs and tablets.¹²²

Graduates in biometrics may work as security intelligence analysts or in the development of the many biometric technologies utilized by security services. They have access to some of the contemporary jobs with the quickest growth rates.

Digital Marketer. Digital marketing is currently one of the global businesses with the fastest growth. A nation like Bangladesh is growing at a 25% yearly rate. There are 100 million internet users in Bangladesh today. Once more, this number will rise as more people buy smartphones. As a result, it is without a doubt one of the best career options in the upcoming years. Another important advantage is that students don't need to be tech proficient to work in this field. Technical expertise and creativity are both required for digital marketing because it incorporates both of these elements. Digital Marketer assists students in learning marketing from actual marketers rather than academics and industry experts. Anyone may find out how to market like network with industry leaders, and obtain the tools and techniques they require to expand and take their business to new heights.¹²³ It will be more easy and lucrative profession in future further.

Cloud Computing Expert Career. The cloud computing sector in the IT sector is growing. Currently, three major organizations' platforms provide cloud computing capability. Amazon, Microsoft, and Google are the three companies that lead the industry in service delivery. Additionally, they employ the Google Cloud Platform, Azure, and Amazon Web Server platforms. As more firms learn about the benefits of moving their resources to the cloud, industry growth is unavoidable. Cloud computing has improved security and reduced costs for enterprises while increasing operational efficiency. As a cloud computing expert, jobseekers could concentrate on cloud architecture, administration, development, big data, networking, or security. Candidates for employment must evaluate their ability and choose a specialization in line with it. The demand for all of the roles is currently high and will remain so in the future. By training for the industry, job searchers can investigate in-demand employment in the USA, UK, Canada, Australia, China, India, Japan, Germany, France, and many other nations. Students will have a strong foundation with a computer science degree, but certification programs that focus on each component of cloud computing will offer him an advantage.

Digital Manager. As a company grows and flourishes, it needs additional managers to run its operations. Therefore, managers are always desperately needed to run any organization. For the younger generation and those who have always been interested in seeking leadership positions, management would surely be the right field. To pursue a career in management, students must obtain a Master of Business Administration (MBA) degree. It is a postgraduate degree that takes two years to complete. By enrolling in an MBA program, anyone can learn about leadership, entrepreneurship, basic and advanced business principles, and many other relevant subjects. Today's viewpoint, however, is executive MBA or EMBA (such as EMarketing, EManagement, EFinance, EHR, etc.). It also permits individuals to specialize in particular fields in accordance with these feelings. Therefore, rather of pursuing a technical career, management would be a wonderful choice for anyone looking for a position that is future-proof. Students can work in a variety of industries after receiving an MBA, such as banking, finance, investing, software, healthcare, etc. To be more specific, a master's in MBA is a highly sought-after graduate-level degree in the business world. Many working

adults who are committed to their career and personal growth are prepared to make the investment in an MBA, and many companies are prepared and eager to make the investment in applicants with this degree for executive posts.¹²⁴

Creators and Advisor to Creators. These professionals are already well-liked and will stay that way for a while. They are also known as digital influencers because they are the people who create online content. A creator is an authority in social media, particularly Instagram.¹²⁵ The fact that contemporary consumers prefer to connect with real people over brands can be ascribed to these people's success. But brands are aware of this and are considering working with online influencers.¹²⁶ A variety of businesses and professionals oversee the careers of digital influencers, and as more new producers emerge, it is expected that this number will grow. Advisors to artists manage and direct career trajectories in addition to helping them establish commercial connections.

Online Teaching and Coaching. Future careers will increasingly involve online education. Now that the online classroom exists, teachers are starting to see how it may expand their student base.¹²⁷ For professionals who want to grow their knowledge-distribution firm, this is a potent instrument. The market for online courses is expanding and growing increasingly specialized.¹²⁸ Anyone looking for advice on how to share their unique knowledge with people all around the world can go to the YouTube channel.¹²⁹ A coach, in contrast, is a trained someone who helps people advance in all facets of their lives, but especially in their professional careers. Numerous specialties, such as business, love, emotional intelligence, weight loss, and spirituality, have coaches available.¹³⁰ Those who aspire to become coaches have access to training programs, coaching techniques, and client-assistance tools.¹³¹

Community and Talents Manager. This specialist is in charge of interacting with customers and the neighborhoods where the business conducts business in order to advance operations and strengthen the company's standing with these groups of people.¹³² Some companies already fill this position, and it will undoubtedly increase over the next few years. They play a significant role in businesses since they develop brand evangelists and are in charge of establishing the company culture.¹³³ Modern human resources departments don't do everything that talent management does. Recognizing and acting more assertively on people's talents and weaknesses is essential for assisting them in moving up the professional ladder. In addition to assisting professionals in honing their skills, a talent manager also aids in hiring new employees, maintaining company culture, and reducing turnover.¹³⁴

3D Architect and Engineer. Engineering, architecture, and urbanism professionals should concentrate on these sectors to provide their clients with a more realistic experience because it will be possible to display locations in 3D in these fields.¹³⁵ An understanding of 3D architectural models is crucial for any engineer or architect who wants to improve the visualization of their projects. From the ideation of the project through its presentation to investors, these models can help at every stage of the design process. Organizations in the architecture and engineering fields will benefit from using 3D models for a variety of reasons. One of the main advantages of 3D modeling is the way it provides accurate descriptions of a project. Since a 3D model is

easier for non-technical people to understand, it speeds up the approval process. 3D models can help clients realize the necessary revisions when they are unable to understand why the original idea cannot be implemented.¹³⁶ Students who choose these vocations can look forward to great futures.

Hospital engineer. Additionally, hospital technology has advanced, and new instruments are being created for surgeries, cutting-edge therapies, and the routine tasks of medical professionals. Hospital engineers will therefore unquestionably be in demand in the future.¹³⁷ Their main duty is to gather and use whatever technologies deemed required to handle any problems that might occur in hospitals. The vast and interdisciplinary field of medical engineering is covered in the master's degree in medical engineering, which looks at the advantages and disadvantages of the technology used in clinical and preclinical applications. After deciding on a major in Computer Science, Electronics, or Physics, students can further concentrate in Biomechanics, Health Systems, or Imaging. Professionals in the medical and technological fields have many career opportunities.¹³⁸ Again, hospital maintenance engineers are in charge of the expansive heating, cooling, refrigeration, and ventilation systems in hospitals. They run a variety of equipment, including compressors, diesel engines, turbines, pumps, condensers, generators, and boilers. They operate, manage, stop, or repair this machinery.¹³⁹

Environmental Engineer. The environment has undergone substantial transformation, making this profession one of the most important in the next years.¹⁴⁰ Environmental engineering is a branch of professional engineering that deals with environmental science. Dealing with technology and the environment is this professional's main responsibility. It is clear that in order to protect the environment, new environmental management strategies and solutions are needed.¹⁴¹ Environmental engineering actually integrates a variety of scientific fields, such as chemistry, biology, ecology, geology, hydraulics, hydrology, microbiology, and mathematics, in order to create solutions that will protect the wellbeing of living things while also improving the quality of the environment.¹⁴²

Walker/Talker. Walker/Talkers are independent contractors employed in today's society to spend time with senior clients online so they can listen and talk to them. This is a different kind of work from typical caretakers, who assist with bathing and feeding and deal with medication. The walkers and talkers of society are helped by Facebook, Instagram, Apple, and other businesses by offering a variety of social media apps.¹⁴³ If children and students think that walkers and talkers won't be around in the future, they are wrong. In addition to being socially isolated, many elderly people live distant from their families. They need and demand that someone genuinely listen to them and what they have to say. The Engineering and Technology Education Department's several curricula regularly employ virtual reality technology.¹⁴⁴ Using VR technology allows students to learn the fundamental skills needed to complete a variety of tasks without having to worry about getting hurt or breaking their equipment. The VR systems are also a great way for us to recruit for Career and College Fest and for our visits to elementary and middle schools.¹⁴⁵

Specialist in Renewable or Alternative Energy. Experts must foresee the coming of new technologies and always keep abreast of applicable local, state, and federal public legislation in order to

produce energy from the wind, biomass crops, agricultural waste, municipal garbage, or solar energy. Successful renewable energy professionals communicate with both public and private sector entities. They interact with engineers, government officials, owners of big and small businesses, and members of the public. Over the coming years, environmental anxiety is only likely to grow. Rather than that! Consideration of alternative resources that won't hurt our ecology is probably going to become more and more important. Energy conservation and the development of alternative energy sources are urgently needed in the modern world. To save the environment, many individuals are converting to renewable energy sources.¹⁴⁶ This industry still has a huge amount of room to grow.¹⁴⁷ Experts in renewable energy assess the latest technological research, appreciate how energy production affects the environment, apply their understanding to practical business plans, and communicate through a variety of mediums, including public presentations. Renewable energy experts usually work for engineering design firms, utilities, educational institutions, governments, or charitable organizations. They now also work as independent consultants, which is a successful profession.¹⁴⁸ This makes this kind of specialist essential to our future.

Financial Manager and e-Commerce Specialist. This professional is now and will continue to be crucial for small and large businesses to manage their finances and stay in the black. Despite the existence of artificial intelligence that is capable of doing mathematical operations more correctly than humans, this position also requires making judgments that computers are currently unable to make.¹⁴⁹ E-commerce is a very common business concept in peoples' daily life, to reiterate. However, amid a sea of rival online virtual stores, one must stand out in order to attract customers.¹⁵⁰ The business and financial sectors of the future will gain a lot from AI. E-commerce is already a highly well-liked company idea in people's daily lives. Any teenager or student who works in the e-commerce sector will be familiar with online sales strategies and the various platforms available for carrying out digital transactions or increasing website conversions. In order to achieve goals like improving user experience, increasing website traffic and sales, and promoting brand loyalty, their responsibilities will also involve tracking daily site activity and overall performance. They will manage online advertising campaigns on search engines and other websites, as well as research and implement the most recent social media marketing strategies.¹⁵¹

Inside Sales Representative. Inside sales agents are generally referred to be any salesperson who does their business over the phone or online. The inner sales work paradigm is quite similar to the outside sales job paradigm.¹⁵² Businesses, especially those in the B2B market, employ representatives who will only approach the consumer after they have demonstrated interest in the product because the customer now has many more options. Sales will consequently become more aggressive and focused on the prospect.¹⁵³ Inside salespeople can deal with customers in an office or other retail setting, such as a store. In each environment, they will mostly interact with walk-in clients or source sales via email, cold calling, and lead follow-up calls.¹⁵⁴ An inside sales professional must have a high school diploma as a minimum educational requirement.¹⁵⁵ For qualified candidates, certain employers may demand a bachelor's degree in business, sales, marketing, or a related field. Depending on the firm or industry, it

might not be necessary, but prior experience in a commission-based or other sales role may help job seekers succeed in this field. Knowledge of Customer Relationship Management (CRM) or CRM software like Sales-force, competency with the Microsoft Office suite products, and knowledge of cold calling and closing sales are also potential assets.¹⁵⁶ Successful candidates will already have the core sales training and experience required to start working in the position, even though some on-the-job training might be provided.¹⁵⁷

Product Manager along with Fintech Career. The growth and profitability of a company are, as we all know, based on the products and services it offers. Even the biggest companies occasionally develop products that fail. It has been seen that new enterprises often launch extremely popular products. Product managers directly influence and pivot the introduction of new goods by enterprises. A product manager conceptualizes new goods or makes modifications to existing ones using data, corporate objectives, and a clear vision. Businesses are fiercely competing for their customers' attention in today's market. Product management is in high demand right now and will remain so in the future.¹⁵⁸ A product manager would monitor the market and be conscious of their customers' wants.¹⁵⁹ Based on the analysis, they will next create a plan for a product or service. All of this is handled by a team of professionals who normally work under the guidance of a product manager. A product manager is required in almost every sector. Any student who wishes to be successful in the field of fintech (financial technology) as a product manager must study both finance and technology.¹⁶⁰ To better prepare for their upcoming employment, he or she might study product management coursework. Fintech will be a great field to work in going forward.¹⁶¹

Paid Traffic Manager. A hired traffic manager performs a vital role in any company. They are in charge of organizing and managing paid marketing initiatives like Facebook and Google Ads.¹⁶² Additionally, they run A/B tests to identify potential locations for increased conversion. All of the advertising initiatives that a business finances in order to boost website traffic are categorized as paid traffic. Media networks, search engines, and social media platforms like Facebook and Instagram are just a few of the places where one can buy traffic. The most popular kind of paid traffic is Pay Per Click (PPC) advertising, which utilizes Google Ads (formerly known as AdWords). In the world of paid traffic, retargeting adverts are likewise becoming more and more popular.¹⁶³ Due in large part to the importance of sponsored media in generating leads and acquiring new clients, the demand for professionals in this industry is growing significantly.¹⁶⁴ Businesses run the danger of suffering a significant loss without an expert.

UX Design Specialist. A UX Designer (User Experience) is in charge of ensuring that the design of a website or app offers innovative and eye-catching solutions to meet the needs of the user. The ideas from business, psychology, market research, design, and technology are all incorporated into this extremely broad discipline.¹⁶⁵ UX design is concerned with how real people use everyday products and services like websites, apps, and even coffee machines.¹⁶⁶ User experience needs to be taken into account for marketing strategies to be successful. It's important to guide the user through the website and motivate them to react to the design in a way that promotes conversions.¹⁶⁷ Due to the high

degree of demand, anyone choosing to work in this sector will find themselves in high demand.

Coding Careers or special software developer. One of the most in-demand talents among research firms is coding, and as technological companies continue to develop, this demand will only grow. The profession with the highest overall ranking in the poll right now is software development. Software developers were recognized as the most important tech job in the future by 37% of respondents in a remote research of more than 500 IT workers and employers. The expanding importance of programming has pushed numerous countries to include coding in the primary school curriculum. Now, a child coding genius can instruct coding in a school. Coding will undoubtedly create new employment prospects in the future. It can take some time for those primary school children to enter the job market, thus there is an obvious vacuum that needs to be filled for the immediate coding market. Students who possess these abilities may change occupations and possibly enjoy a 40% wage increase. The younger generation and students must seize this opportunity to work in the software development sector. To get started, try out their foundational software development tools like ExpertTrack.¹⁶⁸ They should be enthusiastic in developing their knowledge of Python, Java, Microsoft, and Django. Because there are so many different things they can do with programming and their classes, they can do whatever they can conceive of or picture. Maybe they enjoy making video games, or maybe making software is more their style. Through the use of the cloud, businesses can save costs and increase productivity. In addition to these benefits, it fosters productivity and teamwork. As a result, a growing number of companies are beginning to embrace cloud computing. The demand for experts in cloud computing is high. One of the best careers for the twenty-first century is it. It was found that the pandemic's consequences had increased demand for cloud software. Engineering degrees are available to students that are interested in the cloud computing industry. Instead, people can register in a program for Advanced Certification in Cloud Computing to become professionals in this industry.¹⁶⁹

Ethical Hacker (Job related to Cybersecurity). Many people who work in the network security field today engage in ethical hacking. The demand for this vocation will rise more, nevertheless.¹⁷⁰ Only if the current internet were to vanish and be replaced by something else would ethical hackers, sometimes referred to as white hat hackers, lose their jobs. However, it doesn't appear that will happen anytime soon. Moral hackers therefore don't give up. Therefore, this can be a suitable fit for young people and students who are looking for a career where there is no unemployment. The ethical hacking industry is anticipated to grow by 20% by the end of 2023 compared to the previous year.¹⁷¹ If young people and students want to try their hand at simulating website hacking to find where adjustments may be made, they can enroll in a range of courses,¹⁷² such as online cybersecurity courses or Introduction to Ethical Hacking.¹⁷³

Big data Analyst. Over the past few years, big data has expanded dramatically, and this trend is not expected to reverse.¹⁷⁴ The global big data analytics market is expected to grow by 30% by 2025 and generate more than US\$ 68 billion, according to Statista's research.¹⁷⁵ Data analysts will be the company development industry's future leaders. They have already taken control of the department thanks to big data and their ability to analyze enormous amounts of data to the benefit of their employers.¹⁷⁶ Only via the

analysis of data streams can they reliably predict the future and give business executives the knowledge they need to make the best decisions.¹⁷⁷ If young people and students appreciate arithmetic and turning complex information into useable judgments, this is a career that is now available and should ensure financial security for the remainder of one's life. Young adults and students can enroll in a few introductory courses like big data analytics¹⁷⁸, marketing analytics¹⁷⁹, and data analytics¹⁸⁰.

Content creator. Unquestionably, the number of content providers has significantly increased in the last few years. An individual who generates entertaining or educational content for expression through any channel or medium is referred to as a content creator. Given that the majority of material is now viewed digitally and is where job seekers may make money from their efforts, content generation is particularly important for digital content.¹⁸¹ This is a broad term that refers to anyone who creates material for digital networks. However, the category of content creators with the most fame is social media influencers.¹⁸² Due to the epidemic, more online content was watched globally in 2020 than ever before. As a result, there will be an increasing need for content providers in the years to come.¹⁸³ This career path offers practically endless opportunities, from fashion bloggers to legitimate crime vloggers. If young people and students want to get started in this industry, they can enroll in a few introductory courses like Digital Marketing Content Creation¹⁸⁴, Instagram Marketing Essentials¹⁸⁵, and copywriting skills¹⁸⁶.

Quantum Machine Learning Analyst. A quantum machine learning analyst is responsible with doing cutting-edge research and developing unique solutions in order to enhance the efficacy and efficiency of system algorithms. With the quantum leap in processing power that quantum computing promises, machine learning may stand to gain significantly. Kids and students can discover the astonishing technologies that could revolutionize the industry inside. Machine learning performed on the standard computers we use every day is accelerated and improved by quantum computing. Compared to the tablets, smartphones, and supercomputers that power much of today's technology, quantum computers are able to store and process a lot more data.¹⁸⁷ The often illogical laws of quantum physics are used to build quantum computers. This is mostly attributable to the quantum element, which will signify our next technological advance and vastly improve computer capabilities. It is one of the most important future occupations.¹⁸⁸

Data Protection Jobs. Every ten years, there are more regulations governing data management¹⁸⁹ and privacy¹⁹⁰. Personal data is always of significant interest since it can be used by marketing teams to help them sell and by political departments to help them design focused campaigns. But far too often, when such data fall into the wrong hands, they are misused or put to illicit use. In order to find out how certain firms are utilizing data, this will result in the creation of new posts for data detectives, who are in charge of respecting data regulations. The investigation into Cambridge Analytica¹⁹¹ and how it affected the results of the 2016 US presidential election and even the Brexit vote, which can be understood by watching the Netflix documentary¹⁹² on Cambridge Analytica, demonstrates that these kinds of investigations have already started. The major takeaway is that more positions for data detectives will soon become available. Students and young people who are interested in learning more about this area could sign up

for a few top-notch courses like preserving patient privacy¹⁹³ and data science ethics.¹⁹⁴

Gene Experts/Editors. The UK government estimates that gene and cell therapy would generate more than 18,000 new jobs in Britain alone by 2030.¹⁹⁵ Therefore, this is a field that should be considered if young people and students are interested in genomic medicine. Gene editing is a widely contested topic since it allows us to practically act like gods. Aside from allowing us to choose our child's eye color or height, there is a medical benefit to it. With the ability to alter genes and the use of genetic technology, we will be able to significantly increase the quality of life for many people and reduce the likelihood of acquiring serious health issues.¹⁹⁶ However, there are numerous barriers and pitfalls that must be avoided, which necessitates regulation. Gene legislators and medical experts to manage the system and alter the genes will be needed to establish the sector. Despite the fact that the topic as a whole can be sensitive, it is definitely a significant milestone for humanity.¹⁹⁷ The future of genetics in medicine¹⁹⁸, how DNA affects health¹⁹⁹, genetics courses²⁰⁰, etc. are just a few worthwhile courses that young people and students can enroll in if they want to learn more about this subject.

Innovation Manager. An innovation manager is a person who is in charge of developing new products, services, or processes. IT innovation is the heart of the IT industry. Workers are motivated to make creative discoveries, approaches, products, and services. What truly constitutes innovation is creative thought that creates value.²⁰¹ This person will be in charge of reassessing a company's strategies in order to improve their business model, whether they relate to their core strengths or to a specific area. In the end, a company needs to be innovative and think beyond the box in order to stand out in the market. As more and more competitors appear, it is the responsibility of the innovation manager to develop original concepts to stay one step ahead of the pack. In the technology industry, innovation is very crucial. Due to the ever changing industry, tech companies struggle against obsolescence constantly. Every improvement, no matter how minor or significant, is necessary to maintain competition, encourage growth, and create new opportunities. Tech giants like Apple²⁰², Google²⁰³, and Amazon²⁰⁴ routinely lead global innovation rankings, demonstrating their unwavering commitment to pushing the boundaries and foraying into unexplored territory²⁰⁵. A degree program in IT innovation that is really multidisciplinary will include components from Management Information Systems (MIS), Computer Science and Engineering (CSE), and any other discipline the students²⁰⁶ are interested in.

Mental Health Jobs. Many people in society are working hard to reduce the stigma associated with mental health disorders, making it simpler for people to get assistance and use professional mental health services.²⁰⁷ But these jobs as mental health professionals won't go away either. Just like people will always need doctors and nurses, people will always need mental health specialists to help them get through difficult situations.²⁰⁸ In 2021, there were 230% more unique job adverts for mental health skills than there were in 2016, according to studies on the skills gap.²⁰⁹ There may be a greater need for psychologists and mental health organizations²¹⁰ as a result of the present epidemic, economic downturns, environmental concerns, and even an increase in distant

employment. For young people and students who are interested in learning more, there are classes offered on a number of mental health topics, such as depression, anxiety, CBT²¹¹, and supporting adolescents with complicated trauma²¹².

Nurse Practitioner. A nurse practitioner (NP) is a type of nurse with more education and authority than a registered nurse (RN). NPs are capable of performing many of a doctor's tasks without just being an assistant. According to the American Association of Nurse Practitioners (AANP), a nurse practitioner (NP) can oversee a patient's care, give medication, and identify illnesses. There are many different healthcare settings where NPs work.²¹³ They might be employed by private offices, clinics, urgent care centers, nursing homes, and hospitals. Some people work for institutions, colleges, or public health organizations. To become an NP, a student or worker must already have their RN license. That can include earning a nursing associate's or bachelor's degree.²¹⁴ He or she also needs to complete a graduate program and receive their national certification. The OOH estimates that the median annual pay for NPs in the United States was US\$123,780 in 2021. The hospitals had the greatest pay for NPs, whereas schools had the lowest pay. According to the BLS²¹⁵, there were 300,000 NPs in the United States in 2021. More than 325,000 NPs are thought to exist in the United States, according to the AANP. The OOH predicts that the need for NPs and other APRNs will rise by 40% in the U.S. and internationally between 2021 and 2031, especially in developed and emerging economies.

Data Broker. For instance, while present brokers help commodities transactions go smoothly, the advent of a brand-new category of broker known as the data broker could soon cause havoc in the broker sector. The idea is straightforward because data brokers will be in charge of setting up agreements between data corporations and other parties seeking to buy data blocks. They will ensure that the data is delivered to the buyer and that the selling company is compensated. They also make sure that the data is not shared further in order to protect the integrity of the new data market. Online data production is currently estimated to be 1.145 trillion megabytes MB²¹⁶ every day, and it is increasing exponentially every day. Data brokers will therefore continue to have steady work for a very long time, and this has been proven. For young people and students who are interested in learning more about working with data, there are many excellent courses available, including those in data science²¹⁷, data visualization²¹⁸, and data analytics²¹⁹, etc., among others.

Drone Expert/Pilot. Drones are more and more common and useful today. In fact, the Association for Unmanned Vehicle Systems International (AUAVSI)²²⁰ predicts that by 2025, there will be at least 100,000 new opportunities for drone pilots.²²¹ Drones can easily inspect building structures and agricultural fields, adjust delivery services, transport medical supplies safely, and change delivery methods. Drones will continue to infiltrate society and grow more prevalent over the course of the next ten years. Now that these gadgets must be built, maintained, and, perhaps the most pleasurable task of all, flown, drone specialists will be needed.²²² Drone engineers and pilots are in high demand, and young people and students can pursue jobs in these fields. UAV systems engineers frequently handle the development, design, and flight operations of large unmanned aerial vehicles (UAVs), including

multirotor and fixed-wing UAVs. Drone pilots, in contrast, operate remotely controlled aircraft for projects like aerial photography²²³, cinematography, and surveying. Expect to see more of these professions becoming widely accessible across sectors in the not-too-distant future. Understanding the challenges and regulatory restrictions related to drone use is essential. Children and students may benefit from important and difficult courses like "drone safety for managers"²²⁴ and "using drones for security."²²⁵

Entrepreneur. A person who starts and invests in businesses, assuming the majority of the risks and profiting heavily from them, is said to be an entrepreneur.²²⁶ Entrepreneurship is the practice of beginning a business in an original way. The entrepreneur is typically regarded as an inventor who develops novel ideas for goods, services, technology, companies, and operational procedures.²²⁷ Once more, the skill and willingness to develop, plan, coordinate, and manage a business initiative—along with any risks involved—in order to make a profit define being an entrepreneur.²²⁸ Typically, managing a small business is comparable to this.²²⁹ People who launch these enterprises are typically referred to as entrepreneurs. The ability to turn inventions or technological advances into products and services is what is meant by the term "entrepreneur" in reality.²³⁰ The reality that today's society is more entrepreneurial than ever is something we cannot ignore.²³¹ Because due to the internet and other technological improvements, today the average person has higher possibility are starting their own business.²³² If other technological milestones, such as those stated above, are reached, the alternatives to start one's own business will only expand. There has never been a better time to start your own business and help the next generation's ideas to succeed if they have any entrepreneurial aspirations.²³³ Students and young people can participate in entrepreneurship classes, which can inspire them and educate them how to be entrepreneurial in a number of industries as well as how to start a business from beginning.

Blockchain Developer. Blockchain refers to a shared distributed database or ledger that is shared by computer network nodes. They serve a crucial role in maintaining a secure and decentralized record of transactions in crypto currency systems, but they are employed in other contexts as well. Blockchain technology may be utilized in any industry to make data immutable, which is the technical term for something that cannot be modified.²³⁴ According to PwC's Time for Trust analysis, blockchain jobs would rank second by 2030, with more than 40 million jobs benefiting from the technology globally. Even people who haven't heard of blockchain technology are likely to have heard about it, usually in relation to cryptocurrencies like Bitcoin. But blockchains are used for more than simply digital money.²³⁵ They are autonomous technologies with applications across numerous industries. Blockchain technology is currently being used in the auto industry to track the history of autos in order to prevent seller fraud. No one will be able to manufacture information on the mileage or upkeep of the car once all of this data is safely recorded on the blockchain. In truth, blockchain has immense potential from today's standpoint, and in the future, practically every industry will be in desperate need of blockchain engineers. In contrast, data is digitally formatted and grouped into clusters or blocks with blockchains. There is a limited amount of storage for each block. When that threshold is reached, the block closes and creates a chain by using cryptography to connect to the block that came before it. A

timestamp is generated when a block uses cryptography to link to another, and it cannot be altered. This continuing record verifies the accuracy of sensitive data, such as transactions.²³⁶ Students and young people can learn about blockchain technology and its applications in modern technology, which will lead to lucrative careers in the future.

AI Jobs. Artificial intelligence and robots are further along in development than virtual reality. Our eyes have been opened to the potential of AI technology by ideas like implanting chips in people's heads to create superhumans. Students and researchers can look into how AI and ML are enhancing Earth monitoring.²³⁷ AI may, however, be used to create useful robots and enhance corporate processes. The potential for AI to develop is essentially limitless and will likely continue. AI employment provides a variety of growth options as a field that is continually expanding. The hiring of AI professionals has increased by 32% over the previous two years (2021–2022).It's possible to pursue a variety of AI-related occupations, including those as a consultant, researcher, practitioner, machine learning engineer, computer vision engineer, or even as someone who creates their own AI-related products.²³⁸ Not only are AI professions in high demand, but they also present a fantastic entry point into a variety of fields and businesses. Numerous disciplines can benefit from the programming languages and machine learning techniques you learn.²³⁹

Cloud Computing Professional. Through the use of the cloud, businesses can save costs and increase productivity. In addition to these benefits, it fosters productivity and teamwork. As a result, a growing number of companies are beginning to embrace cloud computing. The demand for experts in cloud computing is high. One of the best careers for the twenty-first century is it. It was found that the pandemic's consequences had increased demand for cloud software. Students can seek an engineering degree if they are interested in cloud computing. People can enroll in an Advanced Certification in Cloud Computing program to advance their careers in this industry.²⁴⁰

Technology innovation, technological advancement, aeration, positive thinking, talents, and educated technical labor all contribute to a nation's economic success. New product innovation creates employment opportunities. Future workers in the 21st century will need a mix of technological and non-technical abilities, and those with both will be in great demand. By taking into account how engineering advancements affect social, economic, and environmental challenges, technologists and engineers have shifted their perspective today. Humans are drastically modifying natural resources to meet societal demands. This makes it difficult to balance societal requirements with the protection of the environment on a global scale. By overcoming global difficulties including environmental degradation, rapid population expansion, resource depletion, appropriate technology, etc., technologists and engineers play a crucial part in sustainable development. Technologists and engineers play a crucial role in ensuring that society's needs for health and welfare are met while reducing resource waste, protecting the environment, and ensuring the sustainability of resource use. Technical training and human resources with the necessary skills are actually essential for any country's sustainable development, industrial expansion, and expansion of the appropriate service sector. These contribute to reducing socioeconomic inequality, foreign exchange expenditures, poverty, and unemployment in the nation. Additionally, those

programs offer the skills necessary to produce law-abiding, upright individuals. For job seekers, digital and smart skills are priceless assets that help them find and apply for relevant employment possibilities, get ready for interviews, and ultimately succeed.

In the future, there will be a large increase in the need for skilled laborers all over the world, especially in Middle Eastern countries where the bulk of the current labor force consists of unskilled or semi-skilled workers from impoverished, least developed, and developing countries. Most employment will demand some level of digital and cognitive expertise as technology develops. Technology today is opening up many fascinating new work opportunities. These positions will require workers with the self-assurance and technical proficiency to use the internet on a variety of devices, including smartphones, tablets, laptops, and PCs, to effectively communicate via email and social media, and to work remotely, including the use of web-based tools like Zoom, Skype, Teams, and FaceTime. They should also be able to set up online accounts to access information, carry out dependable internet searches, engage in safe and legal online behavior, etc. The optimum use of a nation's natural resources and labor force determines how well that nation develops. Productivity measures a country's progress and standard of living. A nation with a high productivity index can prosper more because it makes effective use of its natural resources. The conversion of a nation's natural resources into usable goods requires a skilled labor force, and technical education is crucial for that. Therefore, by integrating a qualified technological workforce both domestically and through international cooperation, any Least Developed Country (LDC) or developing country can achieve lasting prosperity. Furthermore, when money is sent by people with high technological competence, talents, and competitive capacities, they can considerably contribute to the growth of the country.

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