one stop english

Technology and the future of jobs

1 Warmer

a. Discuss the following questions.

1. As a child, what kind of job did you think you wanted to have when you grew up?
2. Has that job changed a lot since you were a child? If so, in what ways?
3. What kinds of jobs do you think may disappear in 20 or 30 years?

2 Key words

a. Match the words in the box with the definitions. Then read the complete article to see how each of the words is used in context.

STEM	safe bet	sought after
harness	scarcity	heavy lifting
hypothesis	algorithmic bias	mind-boggling
sift through	contextual understanding	mixed reality

1. _____: computer data that is caused by manipulations in order to support certain attitudes or prejudices
2. _____: amazing, surprising or very difficult to understand or believe
3. _____: a scientific theory or possible explanation that is tested to check whether it is correct
4. _____: technology that combines the real world with virtual situations and images
5. _____: a choice or decision that is probably a good option and doesn't have much risk
6. _____: very popular or wanted by many people
7. _____: to control and use energy, power or resources for a specific purpose
8. _____: the ability to understand and consider emotions, situtions and other factors apart from basic facts

Intermediate

9. _____: not enough of something that is necessary

10. _____: the fields of science, technology, engineering and mathematics

11. _____: the part of a project or type of work that is the most difficult or takes the most time

12. _____: to examine a large amount of information to find what is useful or important

‘Expectations will shift dramatically’: tech jobs move from science fiction to fact

ROLES IN CUTTING-EDGE SCIENCE AND AI WILL GROW IN DEMAND, BUT TECH WILL TRANSFORM ALL JOBS

BY CRISTINA CRIDDLE AND CLIVE COOKSON

1 Jobseekers often look to roles in science, technology, engineering and mathematics as safe bets.

2 Under almost every 10-year scenario modelled by labour economists, they are correct to do so. Projections from the US Bureau of Labor Statistics, released in September, show an 11 per cent rise in so-called “Stem” employment, to 11.5mn, by 2032, while the number of non-Stem jobs will increase by just 2 per cent.

3 These will not necessarily be the jobs of science fiction. Many roles created from developments in technology will be augmented versions of those that already exist, or new roles serving age-old needs in areas such as healthcare, basic infrastructure, or public services.

4 Wind turbine technician is the hottest role on the BLS list, with projected employment growth of 44.9 per cent from 2022 to 2032, followed closely by nurse technicians, with predicted 44.5 per cent growth. Demand for IT roles such as data scientists, information security analysts and software developers will surge by more than 25 per cent.

5 Artificial intelligence, already transforming work across many sectors, will have an especially “huge impact” in fields of advanced science, says Adrian Smith, president of Britain’s national academy of sciences, the Royal Society.

6 Scientists will be able to harness computer power and sophisticated instruments to generate and analyse huge quantities of data and more advanced, sophisticated hypotheses.

7 “Being part of a team handling vast amounts of data requires a different set of skills to the individual with their own instrument,” Smith says. “The collection and processing of data will be at the heart of science — and increasingly it will involve the use of clever AI algorithms.”

8 Among the most hyped roles working with AI are prompt engineers. Specialised in large language models and coding, they understand how to command AI to perform tasks or create particular outcomes. And although experts are divided over the need for them in the distant future, most agree demand will increase over the next few years.

9 Talent site Upwork found searches for “prompt engineering” began increasing from April last year, about six months after ChatGPT was released. Between the fourth quarter of 2022 and the second quarter of 2023, it recorded a 1,500 per cent increase in generative AI-related search results.

10 “Supervising jobs are going to be more and more sought after, and there is a huge scarcity [of workers],” Adam Niewinski, managing partner at venture capital firm OTB Ventures, says. “There is a special skill set needed for this. It is a very tough logic that you need to follow.”

11 A growing awareness of AI’s flaws, such its tendency to state inaccuracies as fact or carry algorithmic bias, also demands a range of critical, regulatory and creative skills.

12 Teodora Danilovic is a prompt engineer at start-up AutogenAI, which uses AI to help businesses write bids for contracts. She says human, rather than technical skills, will be valued to oversee and check AI work.

13 “We have the contextual understanding… the understanding of bias, we have the creativity, the emotional intelligence,” she told the FT’s AI summit last year. “We are able to think of unknown unknowns…The AI is very limited in the sense that it can only work on what it’s been trained on.”

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Intermediate

14 AI and other developments are also transforming jobs in white-collar work such as consulting, compliance or law.

15 Frank Diana, a futurist and partner at Tata Consultancy Services, is exploiting AI's ability to quickly process big data and catch signals invisible to humans. When a client recently asked TCS to report on how remote work would affect transport use, for example, the consultancy posed the question to AI, then human analysts sifted through what it found.

16 "AI performs some of the heavy lifting, the human in the loop is able to apply some of their critical-thinking abilities," he says. "It primarily was a massive time-saver."

17 Digital twins — virtual copies of objects, structures or environments that can be used to simulate scenarios that could then apply to the real world — can be applied in a mind-boggling range of fields, says Diana, shaking up roles from urban planning to individualised drug discovery.

18 Another hot area will be virtual and augmented reality. Apple and Meta, which have both launched headset devices, envision mixed reality, or XR, becoming commonplace in interactions from socialising in virtual spaces, to watching concerts and holding work meetings.

19 Skills required to design such experiences have traditionally been concentrated in the games industry, and are already in high demand.

20 "Over the past few years, there has been a talent raid on the games sector, with everything from architecture and manufacturing through to XR companies competing for graduates who come from games," says Professor James Bennett, director at StoryFutures, a Royal Holloway project centred around training programmes for emerging technologies.

21 Its research found a lack of experience and technical skills among immersive workers. Shortages are in part due to the rapid acceleration of the sector, says Bennett. "There's a decent amount of graduates and people enrolling in courses if the games industry was static, but the games industry is growing, the metaverse sector is exploding."

22 Chris Marotta, design principal at global digital product studio Ustwo, compares the boom to the smartphone design's effect on digital experiences.

23 "If you're interested in designing the future of how we interact, both with each other and with computers, this area is the place to do it because expectations will shift dramatically."

3 Understanding the article

a. Choose the correct option to answer each question according to the information in the article.

1. According to the article, what will future jobs be like?

   a. They'll be like the jobs in science fiction.

   b. They'll be versions of jobs that exist now or new jobs related to basic needs.

2. Which job has the highest projected employment growth according to the US Bureau of Labor Statistics?

   a. Wind turbine technician

   b. Data scientist

3. According to the article, what will have a 'huge impact'?

   a. Engineering technology

   b. Artificial intelligence

4. What do prompt engineers specialize in?

   a. Large language models and coding

   b. Wind turbines and renewable energy

5. According to OTB Ventures, what types of jobs will require a special skill set?

   a. AI supervising jobs

   b. STEM jobs

6. According to the article, what human skills will be valuable for overseeing AI work?

   a. Technical skills like programming

   b. Skills like contextual understanding and creativity

7. Why are there shortages of workers with skills in virtual and augmented reality?

   a. Because universities don't offer courses in this area

   b. Because the sector is growing rapidly

8. What does a designer at a digital product studio compare the XR boom to?

   a. The effect of smartphone design on digital experiences

   b. The invention of the internet

4 Business language – trends in employment

a. Match the words with the definitions. Then look back at how the words are used in the article to check your understanding of them. The paragraph numbers are in brackets to help you find them quickly.

white-collar work (14)	immersive workers (21)	jobseekers (1)
prompt engineers (8)	talent site (9)	large language models (8)
venture capital firm (10)	compliance (14)	
talent raid (20)	bids (12)	

1. _____: AI systems that can understand and produce language to answer questions, write different kinds of texts or translate from one language to another

2. _____: offers to supply products or services to a company at a specific price

3. _____: people who are trained to write very specific instructions for AI systems

4. _____: understanding and following rules, regulations and laws related to specific fields or industries

5. _____: jobs that are usually in an office or other building and that require mental, not physical, work

6. _____: when companies offer better conditions or salaries to try to convince workers to change to their company or industry

7. _____: a people who create or work with technologies such as virtual reality, augmented reality or mixed reality

8. _____: a company that invests money in new, high-risk businesses and becomes a part owner of the business

9. _____: people who are looking for jobs

10. _____: an online site where people look for jobs and companies look for employees

b. Complete the sentences from the article with words from the previous activity. When you have finished, scan the article to check your answers.

1. Among the most hyped roles working with AI are _____.
2. AI and other developments are also transforming jobs in _____ such as consulting, _____ or law.
3. Specialised in _____ and coding, they understand how to command AI to perform tasks or create particular outcomes.
4. Teodora Danilovic is a prompt engineer at start-up AutogenAI, which uses AI to help businesses write _____ for contracts.
5. _____ often look to roles in science, technology, engineering and mathematics as safe bets.
6. Its research found a lack of experience and technical skills among _____.
7. AI and other developments are also transforming jobs in white-collar work such as consulting, _____ or law.
8. 'Over the past few years, there has been a(n) _____ on the games sector, with everything from architecture and manufacturing through to XR companies competing for graduates who come from games,' …

5 Discussion

a. Discuss these questions.

1. Is the percentage of STEM jobs increasing in your country? What are some specific fields or jobs that are growing quickly?
2. Are people in your field using AI? If so, how? If not, how might AI be used in the future?
3. Have you used virtual reality, augmented reality or mixed reality? If so, have you used them at work or for fun?

Intermediate

6 Wider business theme – Can we adapt to the third industrial revolution?

a. Read the text and discuss the questions.

Learning from the Past: How Workers Adapted to Industrial Change

Before the First Industrial Revolution, which started in the late 18th century, most people lived in rural areas, and many worked in agriculture. With the invention of steam power and new machinery, many of those jobs disappeared, but new jobs were created as factories were built in cities. As a result, millions of rural workers moved to urban areas to find employment.

Many skilled artisans were also afraid that machines would replace their jobs, and in some cases, they were right—traditional crafts declined rapidly. However, new opportunities emerged for machine operators, mechanics, and engineers.

The Second Industrial Revolution, from the late 19th to the early 20th century, brought electricity, the telephone, and mass production. Office work became very important and created many jobs for secretaries, accountants, and managers. Factory work also expanded, and the automobile industry alone generated millions of new jobs.

What helped people adapt? Education was the key factor, and governments and businesses invested in training programs. As with any change, some people couldn't adapt, but there were many job opportunities for workers who learned new skills.

As we can see from the two previous industrial revolutions, technological advances create both winners and losers. Adaptation is possible, but it requires investment in education and a desire to learn new things. The question now is whether we can adapt to the third industrial revolution – the digital and information technology revolution that began in the 20th century and is continuing in the 21st century with quantum computing and AI.

1. How did the population distribution change during the First Industrial Revolution and what kinds of jobs did it create?
2. The text mentions the creation of office and factory jobs during the Second Industrial Revolution. What other types of jobs do you think were created during that time?
3. What industries related to the Second Industrial Revolution are there in your country? Is the number of jobs in those industries shrinking, expanding or staying the same?

Intermediate

b. Discuss your ideas about the effects of the third industrial revolution, especially IT and AI, on jobs in your country. Use the questions as a guide.

1. Which industries or fields are losing jobs? Which are gaining jobs? Do you think the result is more or fewer jobs in general?

2. How are most people learning the new skills they need in order to get or keep jobs in the future? Number the types of education according to how much you think they are involved in training people for future jobs.

   _____ high schools

   _____ universities

   _____ technical schools

   _____ online courses

   _____ company training programs

3. In general, do you think people feel optimistic or pessimistic about the future of jobs in your country? Why? How do you feel?

   Useful language

   I think that overall, the result will be …

   According to what I've read/heard, …

   Recent job reports/projections indicate that …