WorkReady

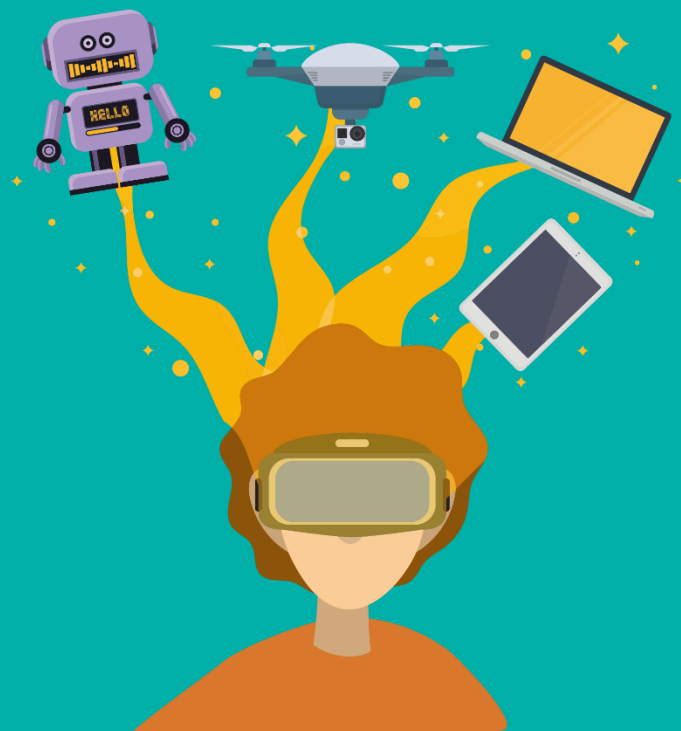## Technology and the future world of work

KPMG
Summer 2020

The Talent Foundry

Technology in the future

How to use this booklet: parent notes

These activities have been designed for children to use in schools. They have been developed in response to the international Covid-19 pandemic in March 2020 and aim to support our schools to provide educational activities for children of key workers in school during the period of UK-wide school closures.

All of these activities have been adapted from existing materials developed as part of KPMG's Corporate Responsibility programme.

This booklet aims to encourage your students to think about the role of technology in the future world of work. As a business, KPMG uses technology to solve problems on a daily basis and this will only evolve as your students reach working age.

Throughout the booklet you will see:
Activity: a 'do it now' activity for your students. Answers and solutions, where applicable, are often on the next page.

Further Thought: questions to provoke deeper thinking and discussion about the content in this booklet.

Technology in the future

Introduction: In the future, jobs will require people to understand and use technology as part of their daily roles. This work booklet aims to increase your awareness of the importance of technology and how it really helps to fix problems by making things faster, easier and safer.

Technology is unavoidable in the future and as it evolves, companies need more talented people to innovate them. Can technology inspire you to be a future inventor or creator of tomorrow's world?

What skills do you need to be successful in technology?

☑ **Problem solving:** solving business problems is a constant in technology

☑ **Team orientated:** being a team player is important to be successful

☑ **Positive attitude:** being curious, passionate and enthusiastic to learn about new technologies!

Studying a broad, well-rounded range of subjects including maths, science, English, languages and music can help you prepare for a career in technology!

A-Z of technology

Activity: Can you think of a word that is linked to technology for every letter of the alphabet? It can be a brand, a product, a programme or a concept. The first 3 are done for you.

A – *Apple*

B – *Bluetooth*

C – *Cyber security*

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

Further thought

1. How much do you rely on technology in your day to day life?
2. Can you think of an example where technology makes your life easier?

Tech timeline

First Barcode scanner

Google

Microsoft Hololens

First ATM

Activity: can you put these technologies in order of the year they were invented?

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

First Digital Audio Tape

First Laptop

First Drone

Oyster card

First iPhone

Internet

Tech Timeline - answers

Activity: can you put these technologies in order of the year they were invented?

1. ATM - 1969

2. First barcode scanner - 1974

3. First laptop - 1981

4. First digital audio tape - 1987

5. Internet - 1990

6. Google - 1997

7. Drone - 2002

8. Oyster card - 2003
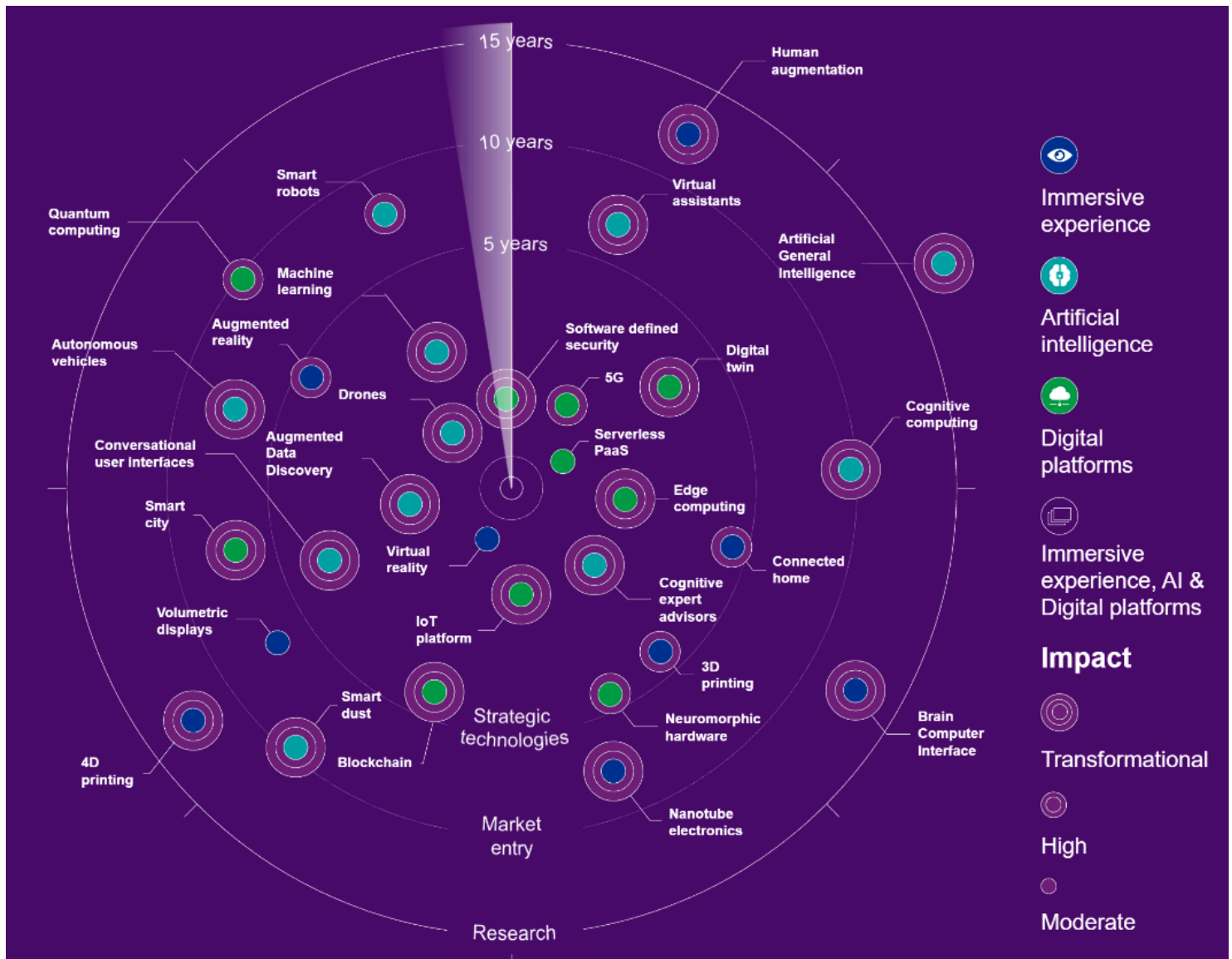
9. iPhone - 2007

10. Microsoft Hololens - 2017

Further thought
1. Are you surprised by any of the answers above?
2. Which technologies are older/newer than you thought?
3. Can you think of a piece of technology that has been invented since the Microsoft Hololens in 2017 and what is its purpose?

Emerging tech radar

KPMG's **Emerging tech radar** shows new and emerging technologies that we can anticipate to be in use in the next 5, 10 and 15 years. The centre of the circles is **now**.

Further thought:

1. Are there any technologies on the diagram that you have already heard of?

2. Are there any technologies that are new to you?

3. What technologies would you expect to see emerging in 20 years?

Tech definitions

Activity: complete the table below, filling in the technology from the words below and seeing if you can think of a use for this technology.

Technology	Definition	Use?
	An urban area that uses different types of electronic sensors to collect data and then use insights gained from that data to manage resources and services	
	A software agent that can perform tasks or services for an individual based on commands or questions	
	An artificial intelligence (AI) system that can learn from its environment and its experience and build on its capabilities based on that knowledge	
	A field of research that aims to enhance human capabilities through medicine or technology	
	When multiple smart devices are integrated together creating an environment that can be automated and easily controlled	
	A vehicle that can guide itself without human conduction	

Human augmentation   **Smart robots**   **Smart city**

Virtual assistants   **Autonomous car**

Connected home

Tech definitions - solutions

Technology	Definition	Use?
Smart city	An urban area that uses different types of electronic sensors to collect data and then use insights gained from that data to manage resources and services	*E.g. a city collecting data on how people use recycling bins*
Virtual assistants	A software agent that can perform tasks or services for an individual based on commands or questions	*E.g. Amazon Alexa ordering online shopping for you*
Smart robots	An artificial intelligence (AI) system that can learn from its environment and its experience and build on its capabilities based on that knowledge	*E.g. a cleaning robot that cleans an office in a set route each day, remembering where to turn corners etc.*
Human augmentation	A field of research that aims to enhance human capabilities through medicine or technology	*E.g. a company uses human augmentation to develop a product that restores hearing without requiring an external hearing device*
Connected home	When multiple smart devices are integrated together creating an environment that can be automated and easily controlled	*E.g. a home with smart lights that can be controlled by a smart virtual assistant such as Alexa*
Autonomous car	A vehicle that can guide itself without human conduction	*E.g. self driving ambulances so paramedics can tend to a patient in the back of the vehicle*

Further thought: what other uses did you think of?

Using tech to solve problems

Here is a real life example of how KPMG uses technology to solve a client problem. In this case, the client is the NHS, in particular the ambulance service. Here is an outline of the problem:

The problem – it takes too long to get stroke patients to hospital

When working with stroke patients every second counts. Every second 32,000 brain cells die when someone has a stroke.

When someone has had a stroke, paramedics have to think about several things:

— Optimal treatment to stabilise

— Hospital

— Traffic conditions

— Clinical guidelines
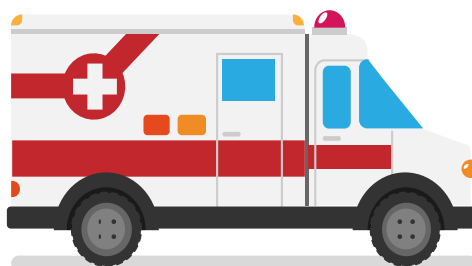
— Previous decisions made

The solution

KPMG's Artificial Intelligence (____) decision making system helps the ambulance service by stopping the _____ and ambulance staff making _____ themselves about which hospital to drive to and which route to take. The _____ takes into account multiple _____ including: distance to hospitals, traffic, specialism of _____ at the hospitals in dealing with _____ patients and availability of beds at nearby hospitals. This reduces the amount of _____ travelling to hospital and _____ the chance of stroke patients surviving.

AI	time	decisions
paramedics	system	staff
factors	stroke	increases

The solution - answers

KPMG's Artificial Intelligence (**AI**) decision making system helps the ambulance service by stopping the **paramedics** and ambulance staff making **decisions** themselves about which hospital to drive to and which route to take. The **system** takes into account multiple **factors** including: distance to hospitals, traffic, specialism of **staff** at the hospitals in dealing with **stroke** patients and availability of beds at nearby hospitals. This reduces the amount of **time** travelling to hospital and **increases** the chance of stroke patients surviving.

AI	time	decisions
paramedics	system	staff
factors	stroke	increases

Further thought
1. What other technology could KPMG have used to solve the problem?

Project: Client brief

Activity: Respond to the problem below using technology.

> **The government have approached your business for support in how to use technology to improve the resilience of the emergency services.**
>
> - Please choose one emergency service (e.g. the police, NHS, fire service etc.) and consider how they could utilise innovative, cutting-edge technology to improve their work.
>
> - Complete the **attached project plan** to explain your idea, as well as **producing a presentation** using any media you like (PowerPoint, Word doc, poster, video, audio, animation, etc.)

Guidance

Reading and completing this WorkReady workbook will provide you with ideas about different emerging technologies, and how to respond to a client brief.

1. Your solution should utilise **at least two** different technologies from the emerging technology radar on page 7 and one other technology of your choice.
2. Your presentation should include a detailed run through of your business plan.

As well as this, your presentations will need to tell your client (the government):
- How do your solutions respond to the client brief?
- What technologies did you choose to incorporate, and why?
- Why are your solutions better than those of competitors?
- How will you ensure that your solutions are 'future-proof'?
- Remember – the most innovative and unique solutions will be awarded extra points!

Useful websites

Business planning: https://www.bbc.co.uk/bitesize/guides/zrjfnrd/revision/1
Technology and business: https://www.bbc.co.uk/bitesize/guides/z7jfnrd/revision/1
General GCSE business resources (if you are studying Business GCSE, select your exam board; if not, you can browse across the different resources under each exam board): https://www.bbc.co.uk/bitesize/subjects/zpsvr82

How to write a business plan

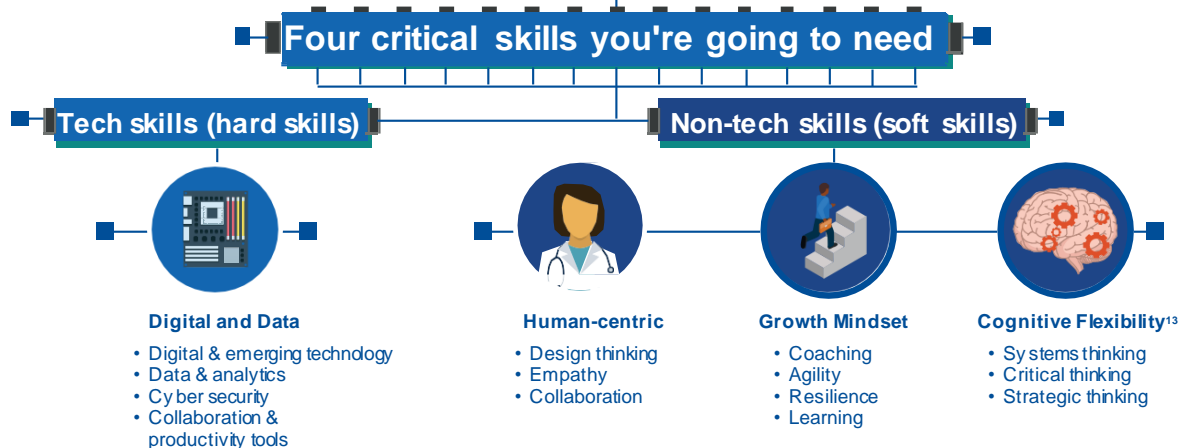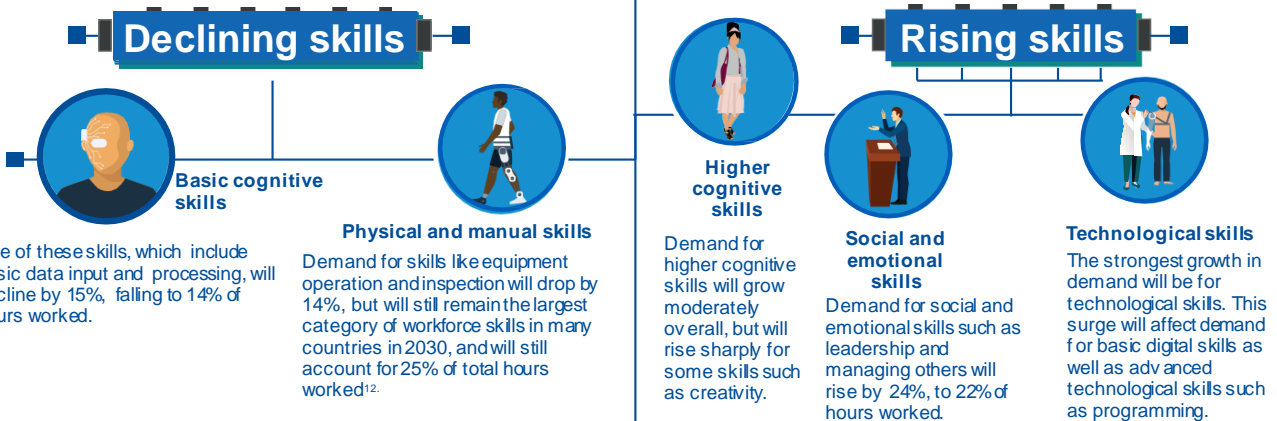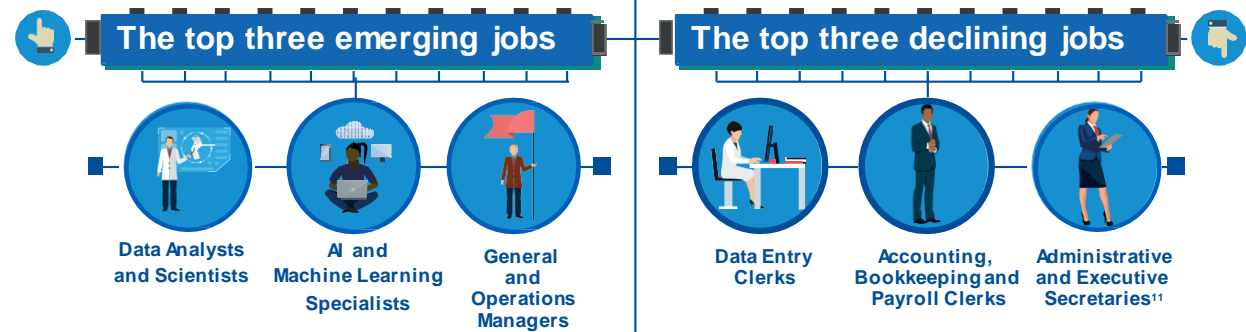**Activity:** Read this guide before completing the blank template on the next page with your own ideas.
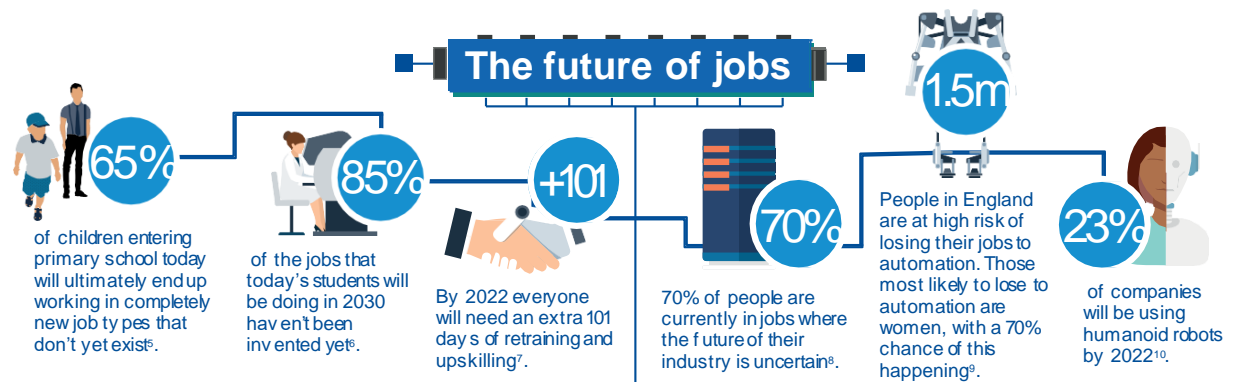
Business plan	What to include
Give us an overview of your business idea.	• Your business/product name • Summary of business idea or 'elevator pitch' • Product aims: (List three to five goals that you want to achieve through your businesses product, try to use the SMART principles) • Strapline (this is a catchy phrase which will help emphasise the key thing about your product, the bit that makes your product stand out) • Longer term objectives for the product (think about how you can make the business idea sustainable. I.e. impact to continue after initial funding is spent)
Tell us more about your product and how it responds to the brief.	What are you going to produce? - a product, a service, or both? • Describe the product/service you are going to create (you can always show us a drawing or picture of what the product will look like to help explain) • Describe the different ways you could implement your product/service • Where will you be distributing or providing your product/service? i.e. nationwide, in a local community. • Describe your mission - what is the need for your new product? • (What is unique about your product, why is it an improvement on existing products and services already on the market?) • What are the main barriers to your product's success and impact? (E.g. technology, regulations, cost, employee skill sets, access to funding, location, etc.)
Who is your target audience? Who are your competitors and how do you compare?	• Who are you aiming your product/service at? • Why does your target audience need your product/service? • Who are your main competitors? (Explain what your strengths and weaknesses are in comparison to these businesses) • What threats could your business idea face? (External factors that could affect how well your business idea does, how you would prepare for these?) • Market Research: show evidence of what you have found out about the market.
What is your marketing strategy?	• What is your USP (unique selling point)? • How will you market your product/service to your audience, and why have you chosen this method? How much will this method cost? • What is the name and logo of your product or service and how does it represent your brand?
What are the operations and logistics considerations?	• What job roles will be needed within your business and why? • Will there be any training or special qualifications needed? • How do you plan to get your new technology product to market? (Think about resources and supplies required and outline the main equipment needed.)
What is the projected cost of your business idea?	Tell us more about the costs of implementing your product/service. • How much will the product/service cost to produce (production costs, materials) • How much will you need to pay your employees? • Marketing costs (e.g. advertising, promotion, branding, website development) • Where will your employees be based? How much will your premises cost? It is fine for these costs to be an **estimate** but should help you create a budget for the implementation of your business idea.

Your business plan

Business plan	What to include
Give us an overview of your business idea.	
Tell us more about your product and how it responds to the brief.	
Who is your target audience? Who are your competitors and how do you compare?	
What is your marketing strategy?	
What are the operations and logistics considerations?	
What is the projected cost of your business idea?	

The future of jobs

The future of jobs

65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist[5].

85% of the jobs that today's students will be doing in 2030 haven't been invented yet[6].

+101 By 2022 everyone will need an extra 101 days of retraining and upskilling[7].

70% 70% of people are currently in jobs where the future of their industry is uncertain[8].

1.5m People in England are at high risk of losing their jobs to automation. Those most likely to lose to automation are women, with a 70% chance of this happening[9].

23% of companies will be using humanoid robots by 2022[10].

The top three emerging jobs

Data Analysts and Scientists

AI and Machine Learning Specialists

General and Operations Managers

The top three declining jobs

Data Entry Clerks

Accounting, Bookkeeping and Payroll Clerks

Administrative and Executive Secretaries[11]

Declining skills

Basic cognitive skills

Use of these skills, which include basic data input and processing, will decline by 15%, falling to 14% of hours worked.

Physical and manual skills

Demand for skills like equipment operation and inspection will drop by 14%, but will still remain the largest category of workforce skills in many countries in 2030, and will still account for 25% of total hours worked[12].

Rising skills

Higher cognitive skills

Demand for higher cognitive skills will grow moderately overall, but will rise sharply for some skills such as creativity.

Social and emotional skills

Demand for social and emotional skills such as leadership and managing others will rise by 24%, to 22% of hours worked.

Technological skills

The strongest growth in demand will be for technological skills. This surge will affect demand for basic digital skills as well as advanced technological skills such as programming.

Four critical skills you're going to need

Tech skills (hard skills)

Digital and Data
- Digital & emerging technology
- Data & analytics
- Cyber security
- Collaboration & productivity tools

Non-tech skills (soft skills)

Human-centric
- Design thinking
- Empathy
- Collaboration

Growth Mindset
- Coaching
- Agility
- Resilience
- Learning

Cognitive Flexibility[13]
- Systems thinking
- Critical thinking
- Strategic thinking

Final thoughts

1. Are you surprised by any of the information above?
2. Would you consider a career in technology?

Take our personality quiz!

Activity: please answer the questions below, circling A, B, C or D to see what role you might be best suited to.

1. You are asked to come up with an idea to present the next day. Do you:

A Plan how to approach the task

B Draw ideas, to present

C Brainstorm ideas with your friends

D Read the news to help you think of ideas

2. You have to solve a puzzle written in code. Do you:

A Think of people who could help you solve the puzzle

B Have a go at teaching yourself the code

C Think carefully on your own about how to solve the puzzle

D Read about how code is created

3. Why do you think projects often fail?

A People don't plan properly

B People don't think about how technology can solve their problems

C People don't think creatively

D People don't check their ideas with other people

4. If you had to choose one group of subjects, which would you choose

A History and Geography

B Art and IT

C English and drama

D Math's and science

Mostly **A's** Organisational Master: You keep everything under control – ever considered being a project manager?

Mostly **B's** Tech Expert: You could build the next big thing, perhaps technology development could be for you?

Mostly **C's** Creative Genius: You find creative solutions to problems, how about digital strategy?

Mostly **D's** Analytical Wizard: You can draw out insights from any information, perhaps you'd enjoy a career in data analytics?