

NOTE FROM DANNY DOURADO

Why was this piece written?

Big Door, a not-for-profit organisation for UK social mobility, develops online video to inspire young people into work.

They requested ‘an engaging break-down of each UK economic sector’ including the immediate future challenges of the industry and work prospects for today’s teenagers.

This is the copy I delivered, balancing the interesting gems with the required level of information.



“Those who can imagine anything, can create the impossible.” Alan Turing

How to Create the Impossible

In March 2016 a most unusual game of Go was played (an incredibly complex board game).

Mr. Lee Sedol, winner of 18 world titles and considered the greatest Go player of the decade, was playing against ‘AlphaGo’, an AI created by the UK-based firm DeepMind. AlphaGo became the first program to defeat a World Champion, winning 4-1. It was said to be a decade ahead of its time.

Two years later its successor, AlphaGoZero, trained *itself* to play Go in just three days. It beat AlphaGo 100 games to 0.

Computer-Assisted Everything

Artificial Intelligence refers to computer systems that can sense their environment, think, learn and then take action as a result. It is expected to have a generational-shifting impact on the UK economy, everything from Medicine, Manufacturing, Transport, Military, Energy... One prediction claims that by 2030 the uptake of AI will contribute an additional £232 billion to UK

GDP¹. With the likes of Siri and Alexa in UK homes we are already seeing the impact on consumers.

The UK has many home-grown AI companies such as Deepmind, Swiftkey (predictive texting), Babylon (remote Health consultations), Onfido (facial verification) and Improbable (video game simulations). It also acts as a base in Europe for international companies including the likes of Beyond Limits, Element AI, Google, Amazon, Ironfly Technologies, Astroscale (satellite servicing), Chrysalix (robotics) and many more.

The Government recognised the UK's unique potential as a global AI power in its 2017 Industrial Strategy White paper and set up the Office for Artificial Intelligence and Centre for Data Ethics and Innovation. A £1 billion funding package backed by 50 leading organisations was announced in 2019.

Non-government bodies helping shape this new future are the likes of the Alan Turing Institute, UK Research and Innovation, the Council for Science and Technology and the Royal Academy of Engineering.

Ghost in the Machine

Big Door wants to work with organisations in the sector to get young people working.

AI can be tricky for the new generation to envisage beyond the classic robotics. What are some other examples of AI jobs?

- Simulation Engineer – Apply knowledge of the likes of thermodynamics and quantum mechanics to test the untestable, such as sending a robot to Mars
- Games Developer – Develop AI routines for state-of-the-art video games
- Medical Tech Developer – Develop prosthetics and sensory aids
- Cybersecurity Expert – Protect Company Data from hackers that use AI
- Digital Assistant Developer – Develop the likes of Chatbots
- Machine Learning Engineer – Create programmes and algorithms that enable machines to teach themselves further
- Data Scientist - Interpret complex digital data, such as the usage statistics of a website
- Legal Roles for emerging Ethics and Laws

¹ Growing the Artificial Intelligence Industry in the UK, by Professor Dame Wendy Hall and Jérôme Pesenti

And many more.

The new generation is needed more than ever. Currently there is a bottleneck on the growth of the AI industry in the UK, referred to as the 'Brain Drain' – a lack of skilled individuals.

Artificial Intelligence jobs are skill-heavy, requiring candidates to have excellent critical thinking, attention to detail, creativity and logic as well as knowledge of software and hardware, advanced IT, data handling, numeracy, physics and many factors unique to each career.

The Future That Will Build Itself

According to UiPath's analysis of job positions, the UK creates more AI jobs than any other European nation, and is 4th in the world behind China, USA and Japan. Bridging the skill and experience gap is the most important challenge for young people:

- Digital Apprenticeships offer opportunities for being paid to study, including the likes of BT for Cyber-Security or less direct entry points such as Data Scientists.
- The AI sector deal outlines 200 government-supported doctoral studentships in AI each year, as well as the Turing Fellowship programme. Artificial Intelligence and Robotics is the ideal degree, available across the country.
- T-Levels in Digital: Digital Production, Design and Development will be introduced in 2020. Science T-Levels are to be introduced in 2021.
- Career events such as Hackathons and Code Clubs run throughout the year. Sage UK's 'Future Makers' is one example, a hands-on workshop that travels the country and offers further learning experiences for exceptional students.

#bigideasforbigcareers

SECTOR VALUE: By 2030, £230 billion

CURRENTLY EMPLOYS: 1500, highest in Europe and 4th in world

TYPES OF JOBS: Simulation Engineers, Digital Assistant Developers, Video Game Developers, Cybersecurity Experts, Machine Learning Engineers, Data Scientists, Self-Driving Car Engineers

FUTURE TRENDS: AI will outdate many jobs and generate even more high-skilled ones. Public image of AI and its ethics will change rapidly.