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Considering a Career in

Innovation

Creating the new and improved

LIVERPOOL CITY REGION COMBINED AUTHORITY
METRO MAYOR LIVERPOOL CITY REGION
Funded by UK Government

Innovation

Contents

What is Innovation?

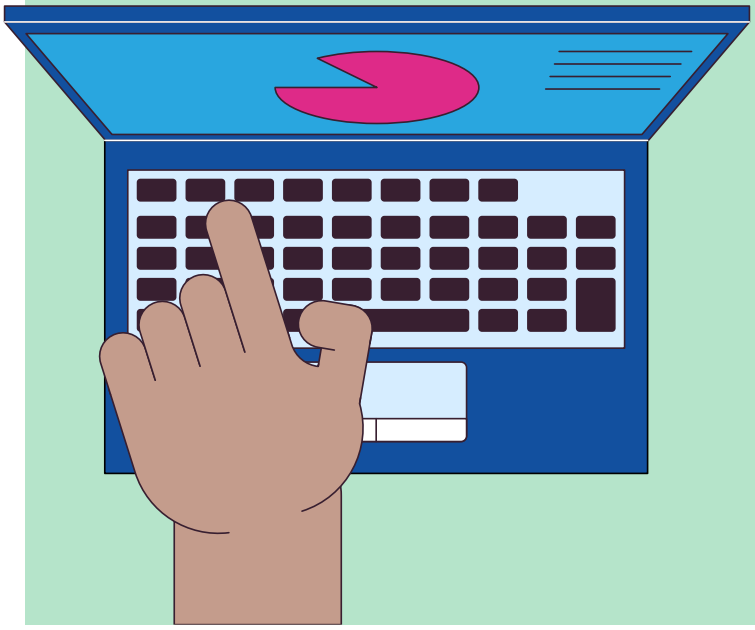
Innovation uses knowledge and skills to develop new and better products and improve processes across many industries. By providing novel solutions, innovation done properly reduces costs without compromising quality or results, streamlining life and work for the better.

Creativity and analytical skills are at the heart of innovation, as well as good business sense and an understanding of how economic value is created. By combining original ideas with technical skills and knowledge of effective techniques, innovators drive progress in many sectors.

From seamlessly adapting artificial intelligence (AI) into engaging teaching materials to developing new clean energy solutions, the sector helps us embrace the future.

As an innovator, you'll use your ability to think outside the box to solve problems, whether introducing new strategies to a local business or developing life-saving healthcare technology.

With such a broad definition, a career in innovation could see you working one or more of many sectors, including business and commercial, manufacturing, education, healthcare, research science, green energy, or farming.



Stats & Facts

Did you know?

Innovation in Liverpool City Region:

- The area's carbon footprint has seen a **40%** decrease in 20 years.
- In 15 years, the digital and creative industry has grown **55%** compared to the 17% UK average.
- We have **one of the best** digital infrastructure networks in the country.
- The region is home to over **160** life sciences companies.

Innovation in action in the Liverpool City Region

- The Materials Innovation Factory (funded by Unilever) and the Manufacturing Launchpad, (funded by Lyva Labs, Innovation UK, and Liverpool City Region) are dedicated centres for manufacturing innovation that develop new products using modern technologies and specialist scientific research.
- Liverpool City Region's Life Sciences Innovation Zone has two complementary hubs including the Sci-Tech centre in Daresbury, housing 50+ life sciences companies innovating key healthcare technologies.
- In partnership with local universities and researchers, AstraZeneca runs a key vaccine development base, bulk-producing revolutionary vaccine technologies such as the nasal flu vaccine.
- Planning is underway for the Mersey Tidal project, which would use innovative technologies to generate clean, marine energy, using Liverpool City Region's natural geographic advantages to reach Net Zero goals.
- With the help of Liverpool City Region, Glass Futures is pioneering sustainable energy solutions, using glass as a renewable energy resource at a dedicated research centre in St Helens.
- Liverpool City Region is home to the STFC Hartree Centre, containing the world's most powerful supercomputer (IBM Research), the University of Liverpool's Virtual Training Centre (VEC), the world's leading centre of virtual engineering, and Liverpool's Big Data Network, a specialist centre for researching complex data.

Innovation Good to know

What is the role of technology in innovation?

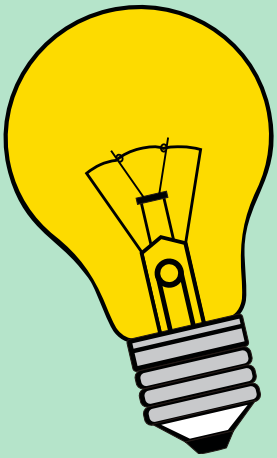
Innovation is driven by technology that helps humans solve problems more efficiently. Digital technologies increasingly play a key role in driving innovation as artificial intelligence and machine learning systems become more effective at dealing with data and information.

Innovation: required in all industries

There are improvements to be made and challenges to overcome in any sector, so innovation is needed to drive continual improvement in nearly every industry, from agriculture to education, digital communications to manufacturing.

Innovation
/definition/

A change made in the nature or fashion of anything; something newly introduced; a novel practice, method, etc. **(Oxford English Dictionary)**



What are the Career Pathways & Job Roles?

Innovation career pathways

In an entry-level job such as assistant laboratory technician or junior product designer, you'll work in a team to find solutions to issues, usually with support from a more experienced colleague.

A mid-level role could see you problem-solving with more complex digital technologies as a model maker or data technician. You could also receive further training to work in more responsible roles, such as digital marketing manager or IT solutions technician.

Further training or higher education could help you gain more in-depth knowledge of specialist topics like computer systems and technology to progress into higher-level roles, such as AI engineer or business analyst.

We have one of the best digital infrastructure networks in the country.

Innovation

Job Roles

There are hundreds of different job roles in Innovation. Here's just a sample:

Position	Role & tasks	Salary
Laboratory technician	Works for a laboratory manager, assisting with research. Sets up apparatus for experiments and research. Orders laboratory stock for research and experiments carried out by more senior laboratory staff. Understands and follows safety guidelines.	Up to **£28,000**
Model maker	Creates models for a range of industries, including architecture, engineering, stage props and sets. Involves making pieces ranging in size from small components to whole products. Uses a range of materials and technologies to produce models, such as 3D printing technology.	Up to **£31,000**
Market research executive	Uses specialist knowledge of customer behaviour to develop new products, strategies, or policies, to improve the effectiveness of a product or business. May research and develop solutions to tackle broader social problems. Interprets data to develop ideas and presents findings and solutions to clients.	Up to **£36,000**
Consultant ecologist	Uses in-depth knowledge of eco-systems to maintain the natural environment while balancing economic growth and development needs. Collects and analyses data about plants, animals, people, and the environment. Provides solutions backed-up by scientific principles to protect and preserve the natural environment.	Up to **£42,000**
Research scientist	Plans, leads, and conducts scientific experiments in a range of projects and industries. Analyses and presents data from experiments. Utilises a deep understanding of their area of research and connected fields. Uses management and leadership skills to direct technicians and other relevant staff.	Up to **£48,000**

Earn up to £70,000 per year

Position	Role & tasks	Salary
Power engineer	Develops and applies new technologies in the energy sector. Uses manufacturing and energy knowledge to think of new energy solutions or improve existing ones.	Up to **£50,000**
Product design and development engineer	Designs and produces parts or whole products in a variety of sectors, including aerospace, automotive, and commercial industries. Utilises advanced technology and tools such as 3D printing as well as traditional manufacturing methods to innovate new products.	Up to **£55,000**
Business analyst	Works with a team to improve business strategy in many sectors. Uses digital tools to propose solutions to existing problems. Recognises areas of improvement and presents clients with solutions, implementing these suggestions.	Up to **£55,000**
Operational research analyst	Helps clients make informed decisions to improve how their business is run using analysed data. Identifies issues and areas for improvement and find solutions for the affected business, using specialised techniques and digital models, interacting with relevant experts such as data scientists, economists, and management.	Up to **£60,000**
Machine learning engineer	Trains machine learning systems and innovates new Artificial Intelligence (AI) technology. Gathers data from a wide range of sources to solve problems by designing and testing successful machine learning models or artificial intelligence. Understands the stages of the machine learning process from start to finish. Confidently uses programming languages and data to solve problems.	Up to **£70,000**

Getting into Innovation

At entry-level

You can train for an entry-level position with a T-level for a specialist role such as cyber security technician or design and development technician. If you want to progress while on the job, you could complete a level 2 or 3 apprenticeship, leading to roles such as software development technician or healthcare science assistant.

At mid-level

For mid-level positions, you could take a higher technical qualification (HTQ) or degree apprenticeship, becoming a business analyst or software developer. Other options include a foundation degree in a subject that focuses on an innovative subject, such as engineering or product design.

At senior level

You will usually need a university degree in the relevant subject for roles requiring highly technical knowledge to solve problems, such as AI engineer or research scientist. You could also choose from a range of degree apprenticeships, which could lead you to roles such as digital solutions professional or civil engineer.

Subjects to study at school & beyond

- Business
- Design & technology
- Engineering
- ICT
- Marketing
- Maths
- Science

Core skills and knowledge to build

- Analytical thinking
- Attention to detail
- Communication
- Creative thinking
- Problem-solving
- Sustainability knowledge

Test Your Knowledge

(Answers on back page)

Q1. What is innovation?

A. How things are made.
B. A process restricted to the business sector.
C. Solely the work that happens in scientific laboratories.
D. Continually improving the way things are done across many different industries.

Q2. Which of the following tools are commonly used in innovation? (Choose as many as you wish)

- Artificial intelligence
- 3D printers
- Musical instruments
- Data software

Q3. Liverpool City Region's carbon footprint has decreased by 40% in 20 years. True or false?

Q4. How many life sciences companies are based in the Liverpool City Region?

Q5. Which of these companies supports Liverpool's world-beating supercomputer?

A. Glass Futures
B. IBM Research
C. AstraZeneca
D. Lyva Labs

Q6. Which of the following industries could a career in innovation find you in? (Tick as many as you wish)

- Agriculture
- Health & Life Sciences
- Engineering
- Marketing

Q7. Give an example of an apprenticeship or training course that could prepare someone for a role in innovation.

Q8. What are the skills necessary for innovation? Name three.

Q9. What role does an AI engineer play in innovation?

A. Builds 3D models
B. Gathers data for businesses and suggests improvements
C. Develops artificial intelligence systems so they can solve more complex problems
D. Uses artificial intelligence to write answers

Q10. Innovation has contributed £____ billion in less than a decade to Liverpool City Region's economy.

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Quiz Answers

Q1. D
Q2. Artificial intelligence, 3D printers, Data software.
Q3. True
Q4. Over 160
Q5. B
Q6. All of the above
Q7. Level 2 or 3 apprenticeship, such as a software development technician or life sciences assistant, or a foundation degree in an innovative subject like engineering or product design.
Q8. Creative thinking, analytical skills, sustainability knowledge (or any other from the brochure content).
Q9. C
Q10. 35

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