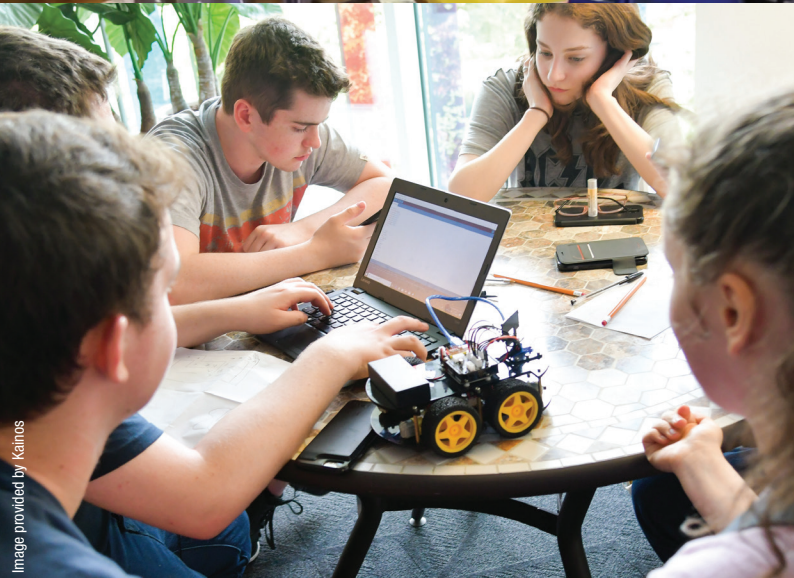
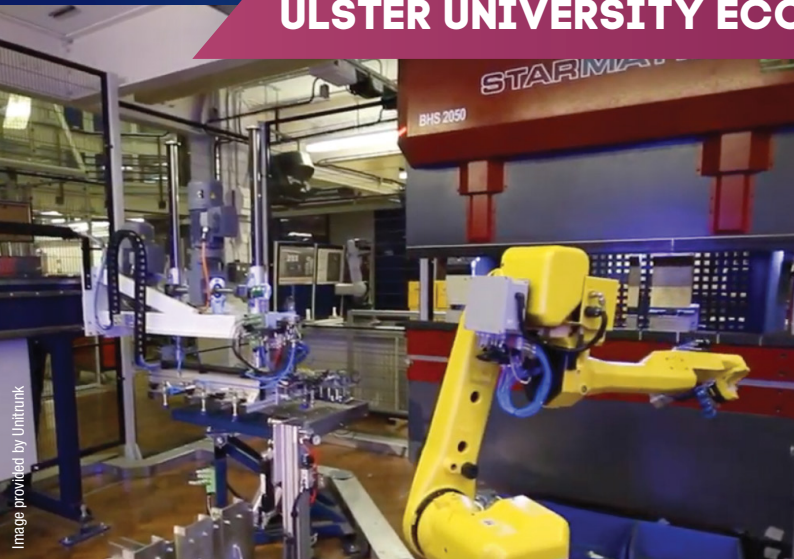


AUTOMATION IN NORTHERN IRELAND

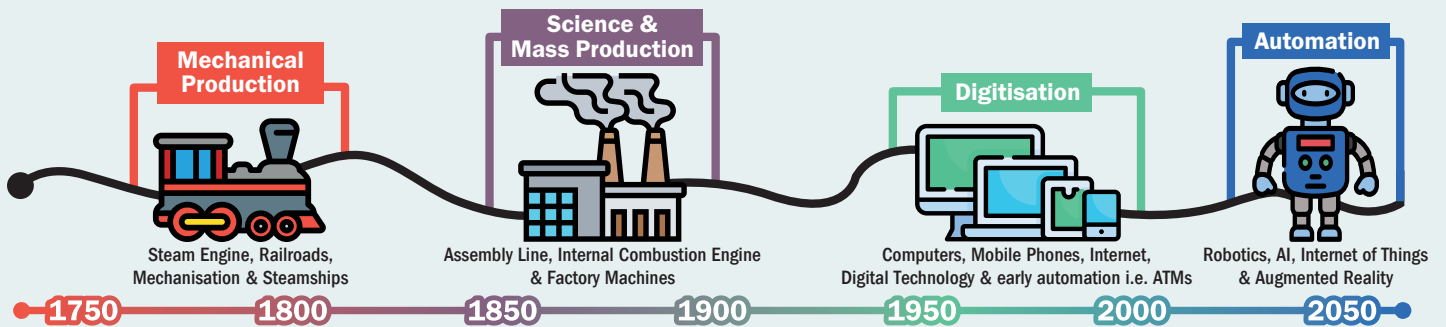
**SUMMARY OF RESEARCH BY THE
ULSTER UNIVERSITY ECONOMIC POLICY CENTRE**



WHAT IS AUTOMATION?

At its most basic level, automation is the technology by which a process or procedure is performed with minimal human assistance. Automation involves a technological solution to processes and tasks, and it is expected that mechanical and electronic equipment will continue to take a more active role in everyday life.

Automation involves better exploitation of existing and new technology by workers, thus improving efficiency and increasing the output of goods and services. Automation comprises both artificial intelligence (AI) and robotics, both of which have exhibited growing capabilities in recent periods and a new machine age is imminently anticipated. This age of automation follows other periods of significant technological developments that have occurred over the past 300 years. Similar to automation's current and potential impact, these 'periods' (revolutions) have been associated with adjustments in the composition of economies and have been transformative to wider society. This is illustrated below:



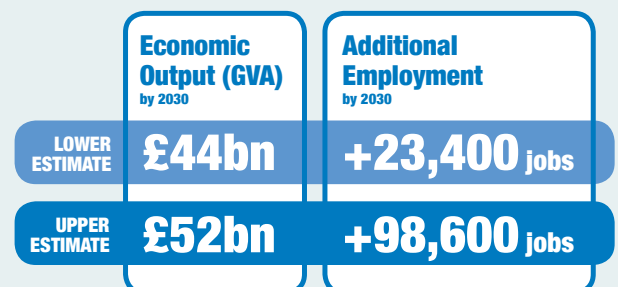
To assess the impact of automation on the Northern Ireland economy, the Department for the Economy asked the Ulster University Economic Policy Centre (UUEPC) to undertake detailed research. This booklet highlights the main findings from their detailed report.

IMPACT OF AUTOMATION

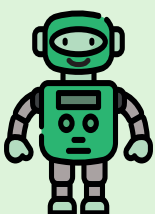
Automation will lead to a reshaping of the workplace through new skills and tasks. Although tasks may be removed from workers, UUEPC stress it does not necessarily mean that their entire job will be eliminated; rather, the nature of occupations will change to meet the new needs of an organisation. Workers may then be redeployed to other roles, meaning jobs are not inevitably lost. We can see this through Northern Ireland's economic history, where the introduction of new production processes and digital technologies has led to a net increase in employment over time.

UUEPC estimate that up to 98,600 additional jobs could be created by 2030 in Northern Ireland, and economic output could range from £44bn to £52bn in Gross Value Added (GVA) terms.

Many roles will be impacted by new technology, with tasks which were traditionally undertaken by workers to be undertaken by automated processes. It is fair to say there will be winners and losers from any automation revolution, however the research suggests that the impact will be positive overall.

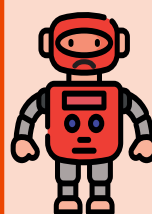


Positive Impacts



- ✓ Menial / repetitive tasks may become more automated
- ✓ Safer working environment
- ✓ Improved product quality
- ✓ Increased productivity
- ✓ Lower cost of products
- ✓ Greater competitiveness and higher standards of living

Negative Impacts

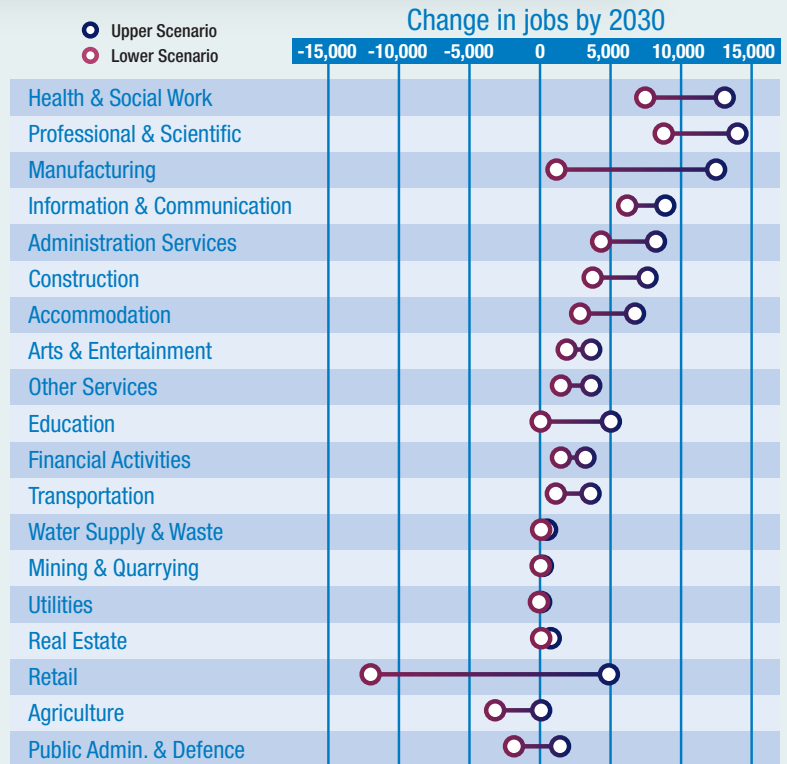


- ✗ Some workers may see their regular job tasks changing due to new technology
- ✗ Could be less availability of mid-level roles in workplaces
- ✗ Earnings potential may be eroded for lower-skilled individuals
- ✗ Substantial investment required to 'upskill' or 'reskill' employees, especially older workers

EMPLOYMENT IMPACT ACROSS SECTORS

According to UUEPC's forecasts, health & social care and professional services may experience the largest net employment gains in NI by 2030. Health & social care is the second largest employer within NI (its 135,000 jobs representing 15% of all jobs). When analysing growth in the context of sector size, the fastest growing sectors are ICT and professional services. This marks a continuation of the dominant role of the services sector in the composition of the Northern Ireland economy.

Due to the nature of forecasts being an approximate estimate, UUEPC provide a range of sectoral employment growth predictions - varying from an optimistic upper scenario to a more pessimistic lower scenario. It should be stressed that even the lower scenario predicts there will be a *net increase in jobs overall*, although the experience will vary by sector. A wider degree of uncertainty exists for the employment impact on the manufacturing and retail sectors.



IMPACT ACROSS DIFFERENT GROUPS

According to the research, automation will have an impact on economic output, employment, wages and productivity, with implications amongst skill, gender and geographic lines across Northern Ireland.

Certain roles and occupations have remained quite gender-specific in society, but the automation of such tasks could fundamentally change those roles and lead to a different gender balance in various sectors. Technology provides the opportunity to work remotely, engage in the gig economy and for additional forms of self-employment. This has implications both geographically for where people work and also with regards to issues such as childcare. How automation may affect different groups in society is shown below:

Skills / Qualifications

Individuals that have skills which are in high demand in an automated world may fare well. However, UUEPC estimate that by 2030, there is likely to be a lower net requirement for those who have no qualifications.



Sub-Regional / Local

Belfast is expected to see the fastest average annual growth of jobs, however all areas are expected to benefit from the employment growth associated with automation.

Age / Demographics

With an ageing population, future workforces will need older workers to embrace new technologies and ways of working.

Gender

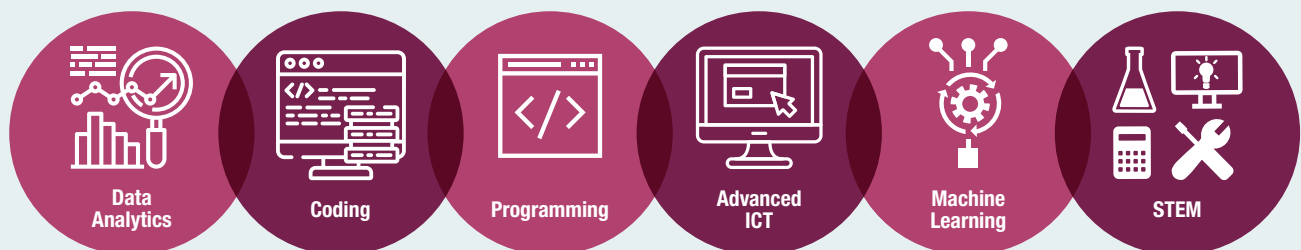
Gender opportunities and challenges differ by sector. However, automation may result in more flexible working patterns that could aid career progression for females, which may further close the gender pay gap in NI.

SKILLS TO SUCCEED IN AN AUTOMATED WORLD

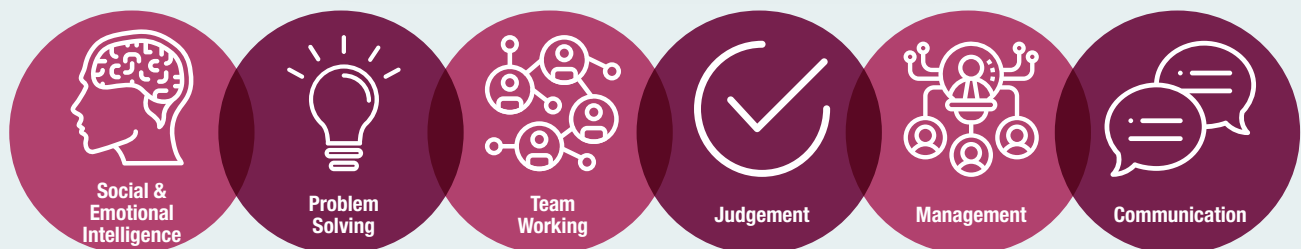
The automation revolution is well underway. Public policy has a significant role in terms of helping Northern Ireland compete in a more automated world. Appropriate investments in education and skills for those in the workforce and in education are essential in order to ensure that individuals are well equipped, flexible and resilient to technological change and that enterprises have access to appropriately skilled individuals to meet their needs.

Research indicates that a more automated workplace may lead to a demand for technical skills and knowledge, including those gained within Science, Technology, Engineering and Maths (STEM) qualifications. However, automation will also require employees to exhibit 'softer' skills in addition to this. Examples of skills required in an automated world are shown below.

TECHNICAL SKILLS



SOFT SKILLS



It is important that government, educators and businesses work collaboratively to prepare the future workforce and reskill the existing workforce appropriately. The changing nature of work and the range of careers that individuals are likely to have means that lifelong learning will become a more common feature of an individual's working life. Individuals have a responsibility to engage in lifelong learning and development to ensure that their personal skillset remains relevant in a continuously evolving economy.

Automation will lead to a reshaping of the workplace through new skills and tasks. **For further information on improving your skills visit:**

nidirect.gov.uk/skills