Department for the Economy
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Skills Research Digest
Quarter 3 2019

Contents

The **Skills Research Digest** monitors recently published skills and labour market research relevant to the work of the Department for the Economy and to the strategic and policy issues that we face in Northern Ireland.

In each case, we provide a short summary of the key points and web links to the full article or report*. A full list of sources can be found at the end of the publication.

Highlights this quarter include:

- A broad spread of activity on inclusion, widening access and diversity – for gender, disability, race and social background; in higher education, skills development and in the workplace.

- Continued focus on artificial intelligence and automation, and the impact of technologies on the future of skills and work – and look out for the latest on 'platform work', covered in three reports.

- The word 'Brexit' appears 16 times in this edition, a symptom of the mounting concerns for its impending impact on skills and jobs.

* Links are correct at the time of publication, however it is likely that some will break over time. The list of sources has more general links, which should help the reader to track down the original report.

Preparing Young People for Work

16–19 EDUCATION

The OECD published *Improving work-based learning [WBL] in schools*, **analysing WBL as an element of both general education and vocational programmes.**

- The workplace is a powerful learning environment, where technical skills can be learnt from expert practitioners using real-life equipment, while key skills such as teamwork and communication are also acquired.
  - School-mediated WBL offers students the opportunity to transition from school to work, and offers employers a means of recruitment.
- General education didn't traditionally include a focus on job-specific skills or WBL, but it has been introduced in recent years and is now an option in many places.
- There is limited evidence on the costs and benefits of WBL in general education, but there are some valuable policy messages for countries and schools.
  - Working part-time while in full-time upper secondary education is beneficial under certain conditions and for certain student groups, and should be facilitated.
  - Given the benefits of work exposure and concerns about its decline, policies should promote school-mediated WBL within general education programmes.
  - These should be targeted at students who can benefit most, e.g. those who haven't had workplace exposure or who don't intend to pursue post-secondary education.
  - WBL needs adequate quality assurance mechanisms and should be credit-bearing.
  - Information and data about participation in both part-time work and WBL should be collected.
- School-mediated WBL should be mandatory in all vocational programmes, and employers should be willing to take on students, to ensure that qualifications reflect real labour market demand.
  - Learning in school and work should form a package, aligning theory and practice – the right mix will depend on the nature of the programme, the target destination and the student population.
- Challenges for realising the benefits of WBL include: engaging employers; promoting equitable access; connecting learning at work and in school; and structuring placements.
  - The report looks at ways of addressing these challenges, including through case studies.

The Centre for Vocational Education Research (CVER) published *Socio-economic inequality and academic match among post-compulsory education participants*.

- Academic match occurs when student quality matches the quality of the qualification that they take.
  - 'Undermatch' occurs when a student's achievements at age 16 would permit access to more highly ranked qualifications than the ones they actually choose.
  - 'Overmatch' occurs when students choose to study for more highly ranked qualifications despite their prior achievements being below those typically seen at that level.
- Students from socially disadvantaged backgrounds are more likely to be exposed to academic undermatch compared to their more advantaged peers; this effect is greater among the highest achieving students.
- Undermatched students are also more likely to be found in schools with lower proportions of high achieving students and higher proportions of disadvantaged students.
  - Among the highest achieving students, 80% of the identified socioeconomic gap in academic match can be explained by such differences in the schools attended.
- Significant masses of undermatched students are also more likely to be found in rural districts with higher rates of youth unemployment and higher proportions of poorly educated residents.
- The study establishes a positive relationship between academic matching and labour market income returns.
  - Non-university participating girls who were one standard deviation less undermatched earned 17% more at age 25, while non-university participating boys earned 5% more.

Academic match is also discussed in a Centre for Economic Performance (CEP) report on p7.

SCIENCE, TECHNOLOGY, ENGINEERING & MATHS (STEM)

The National Centre for Universities & Business published *Talent 2050: Engineering Skills and Education for the Future – Final Report*, exploring future engineering needs in the UK 'for a globally competitive skills and diversity mix'.

- The engineering industry has long been concerned about skills shortages and a lack of diversity; a new approach could help move thinking away from the current approach.
  - The Talent 2050 study identifies areas of potential disruption, explores potential changes to ensure relevant and effective education, and recommends changes.
- STEM initiatives have helped to increase the supply pipeline from education, but demographic trends and migration effects have outweighed the impacts.
- The supply of STEM and digital skills from schools is not meeting rising demand; more focus is needed on retraining staff.
  - Digital skills, including artificial intelligence (AI), and environmental protection need to be fully integrated in an industrial strategy that embraces interdisciplinary working, and they need to be at the heart of future education more widely.
  - The education system needs to embrace technology for learning, including smartphones, to prepare the next generation to access, filter and apply knowledge that is available online.
- Significant barriers and bottlenecks persist, and the sector's poor record on diversity has not been adequately addressed.
  - Engineering needs to reach beyond existing STEM employees and change the perception of recruitment from the 'leaky pipeline' to a 'reservoir of talent', ready to learn.
  - A more inclusive approach should be considered, where recruitment or enrolment is based on the potential to gain the right skills rather than previous attainment.
- Intersectoral mobility and cooperation are needed.
  - Ensure upskilling and reskilling are fully supported for those in work, both within the sector and bringing complementary skills from other sectors, regionally tailored and applicable to SMEs.
  - There needs to be more collaboration between the national and regional public sectors, educators and employers – to share resources, agree priorities and support employees, the self-employed and those without employment.

CESifo published *Exposure to More Female Peers Widens the Gender Gap in STEM Participation*, using Danish data to investigate how secondary school peers affect male and female higher education (HE) STEM choices.

- A 10ppt increase in the proportion of female secondary school peers lowers women's probability of enrolling in STEM studies by 1.4ppt – equivalent to a 6.4% decrease from the baseline.
  - For men, a similar change in the gender composition raises STEM enrolment by 0.9ppt (2.4%).
- The evidence indicates that a higher proportion of female peers affects the gender gap in secondary school grade point average, and may therefore foster the gender gap in STEM preparedness.
- Women with STEM-educated mothers are unaffected by the gender composition of their peers.
- The long-run results on labour market trajectories show that a 10ppt increase in the proportion of female secondary school peers lowers women's probability of working in STEM occupations by 4% and increases the gender wage gap by 5%.
  - These results imply that secondary school peers and their influence on choice of degree subject have lasting and economically significant consequences for job segregation and earnings.

EMPLOYABILITY & CAREERS

The Learning & Work Institute published *National and international case studies: Youth Commission report 4*.

- The Youth Commission is considering the current education and employment prospects for young people and proposing new ideas for ensuring all young people have access to opportunity.
- As well as comparing England's performance with other countries across a number of key measures, it draws key lessons from national and international case studies on:

- How to deliver high quality apprenticeships (Switzerland)
- How to ensure vocational and technical education have sufficient depth and breadth (Danish Production Schools; integration of further education (FE) and academic study, Glasgow)
- Ways to widen access to work (JOBLINGE, Germany; Generation NE, Newcastle)
- How to ensure economic security and chances to progress (US and UK cities of learning and radical reskilling programmes)
- How to make sure young people get the English, maths, digital and other life skills they need (second chance schools in France and Spain, i-BEST (US) and the Citizens Curriculum in the UK).

The Youth Commission will run for around one year.

CVER published *Labour market outcomes disaggregated by subject area using the Longitudinal Education Outcomes (LEO) data*.

- Labour market outcomes (in terms of daily earnings, proportion of the year in employment and benefit dependency) appear to vary considerably across different subject areas, and for different aim types and levels within the Regulated Qualification Framework.
  - This is in part as a result of the choice of counterfactual, which captures an 'average' return using learners with qualifications at the level below.
  - This approach doesn't take into account that learners tend to self-select in specific subject areas, depending on their characteristics; transitions between completely different subject areas are unlikely to happen due to admissions criteria.
- However, gaining vocational qualifications in most subject areas is associated with positive earnings differentials across all qualification aims, for both men and women.
  - For qualifications in engineering, construction and business & law, the magnitude of the association is particularly strong, especially for women.
  - In contrast, qualifications in arts & media are frequently associated with negative earnings differentials for men across all qualification aims.

CVER also published *The value of progression in further education*, looking at different vocational qualifications disaggregated by subject area of study.

- In the majority of subject areas, the degree of specialisation increases as individuals move up in the qualifications framework.
  - Comparing outcomes of individuals on particular subject pathways against anyone in possession of the adjacent level of qualification may not fully reflect the options available to students and the associated expected gain from progressing to further study.
- When considering earnings trajectories within the same subject areas:
  - Earnings differentials associated with construction, engineering and business & law are strong and positive, but lower compared to analyses where the counterfactual is the average student.
  - Positive earnings differentials are associated with progression in arts & media, health and retail subject areas.
  - In particular, the analysis indicates positive earnings differentials associated with BTEC qualifications (Level 2 and Level 3) in arts & media for men, as opposed to nil or negative differentials in the previous analysis.

The OECD and WorldSkills published *Youth Voice for the Future of Work*, exploring what 15,000 18–24 year-olds in 19 countries think about their futures as working adults.

- In the UK: -20% are positive about how well their school prepared them for adult working life – far more say 'not well' than 'very/quite well'.
  - Germany's is the only other negative score (-12%); the average is 26%; Indonesia scores 86%.
- The 'net positive job confidence' score – those who agree they will be able to find a job they really want, minus those who disagree – is 39% (11ppt below OECD average, 33ppt below Turkey and Mexico, but 37ppt higher than Japan).
  - 66% say they know what they need to do to get 'the job I really want'.
- 49% worry that technological change will threaten their prospects of getting the kind of work they want (7ppt below average, 30ppt below Turkey, 31ppt above Japan).

- 55% worry they won't be able to secure permanent, full-time jobs in future due to technological developments; however 71% are excited about the prospect of being able to work flexibly.

- 69% feel confident they 'have what it takes to retrain' when they are older if their future job is automated (5ppt lower than Canada, 12ppt higher than France).
  - 35% think they would have to retrain many times due to technological developments (8ppt below average; 33ppt lower than China; 33ppt higher than Germany).

The Institutional Landscape

THE FURTHER EDUCATION & SKILLS SECTOR

The University & College Union (UCU) published *Transformative Teaching and Learning in Further Education: Summative report for the University and College Union – Transforming Lives and Communities project*.

- The research was in two phases:
  - Data were gathered from 150 learners, teachers, managers, employers, community and family members across 35 institutions, illustrating the nature of 'transformative teaching and learning' and the distinctiveness of FE.
  - Two surveys were undertaken with staff and students looking at how FE impacts on learners' identities, and to better understand learners' and teachers' experiences.

- Transformative teaching and learning experiences are largely hidden because their impact falls outside the metrics that drive FE policy and underpin funding in the UK.

- FE has many beneficial and transformative effects that aren't sufficiently recognised by funders and policymakers:
  - It can re-ignite the spark of learning in people 'failed' by schooling
  - It can nurture individuals in pursuing their career aims
  - It builds stronger families and communities by challenging intergenerational inequality
  - Colleges can act as educational environments that foster social cohesion.

- The narratives of students whose lives are transformed do not convert into additional funding for colleges and yet, in many cases, these narratives involve people becoming independent, active citizens who actively contribute to society and to tax revenue.

- Government policy neither recognises nor supports such transformative teaching and learning; if anything, market structures and funding militate against educational environments conducive to transformative teaching and learning.

- A narrow 'human capital' view of the purpose and function of FE fails to take account of the kind of broader social benefits that are so powerfully articulated in the narratives of FE students.
  - It also effectively squanders the potential dividends that colleges could provide if the social benefits they produced were acknowledged and funding reflected and rewarded this.

- There is an urgent need for an enlightened and innovative politics of education that challenges unjust educational structures and that looks to new policies and procedures aimed at redefining what is at stake in the struggle for a better and more humane educational system.
  - Such a system would position FE not just as a provider of skills for the national economy but as a force for local social cohesion and the renewal of educational opportunities as a key strategy in the achievement of social justice.

City & Guilds and NOCN Group published *Close the gap: Proposing a map for UK Technical & Skills Education to 2024 and beyond*; **the analysis is based on UKCES 2016 'Working Futures' projections, with figures updated to 2019.**

- Over the last 40 years, there has been a progressive shift in the types of jobs needed in the UK economy.
  - Manufacturing has declined from 24% of the workforce to 8%, while the proportion of jobs in professional, scientific and technical roles has grown from 4% to 9%.

- Retail is currently going through 'seismic' structural change, with the Government estimating that one million jobs will be affected by 2025.

- The next five to ten years will see major and increasing skills gaps in associate professional, scientific and technical occupations – the 'Missing Middle'.
  - There will be a significant oversupply of people with no qualifications or only Level 1 – the 'Low Skills Bottom' – and an oversupply of mismatched Level 6 achievements, due to increased numbers going into HE.

- Young people coming through the formal education system only represent around 2.1% of the workforce – policy change focused purely on this group will take nearly 50 years to make any significant impact.

- Lifelong adult learning is a crucial priority, and the main investment priorities seem to be:
  - Upskill to Level 2 as a minimum – provision that is flexible enough to recognise different patterns of engagement and attainment will be required.
  - Upskill a percentage from Level 2 to Level 3 as the next step to progression to Levels 4 and 5.
  - Move people up from Level 3 to Level 4 and 5 qualifications or apprenticeships and, in some cases, degree-level apprenticeships.

- Current reforms in England have focused on apprenticeships, 16–19 technical education, Level 2 English and maths, and devolution of some of the adult skills budget.
  - Different reforms are taking place in Northern Ireland, Scotland and Wales, risking further fragmentation of the UK skills landscape; careful attention should be given to how these parallel systems will develop and coexist.

- The report makes 13 proposals, including:
  - Establish a single national vision and strategy for skills at all ages and a 'single, simple, integrated, agile and economy-led technical and skills development system' for Entry Level to Level 6.
  - Retain some broader provision for 16–19 year-olds, in addition to A and T levels: Level 1 qualifications should be presented in a single, coherent offer to build 'work readiness' and a platform for further learning; Level 2 progression qualifications should be a legitimate goal and a step into employment/apprenticeships.
  - For adults, modularised Level 1–6 accreditation – particularly qualifications at Levels 2–5 – would be aimed at moving people up the ladder of success and filling the gap of the 'Missing Middle'.
  - Use the T Level brand for all qualifications up to and including Level 3, then 'Higher T Level' for Level 4+.
  - Day-to-day operation of the post-18 technical and vocational education and training (TVET) system and coordination of funding streams should happen at the local level, i.e. combined authorities and Local Enterprise Partnerships.

The proposals only apply to England, despite the report referring to a 'UK' TVET system. However, the findings have wider relevance.

The British Council and the Association of Employment & Learning Providers (AELP) published *[Unrealised potential: the role of independent training providers [ITPs] in meeting skills needs](…)*, **focusing particularly on ITPs' potential role in newly emergent economies.**

- The role of ITPs – private or charitable non-state providers of technical training – is an often unrecognised and poorly understood area of TVET.
  - ITPs play an increasingly important role in supporting TVET priorities; they often contribute to the UN Sustainable Development Goals, particularly with regard to the elimination of poverty, the provision of quality education, and revitalising global partnerships for sustainable development.

- The UK system of embedding ITPs within the formal TVET system is relatively unusual in world terms, and might have a role to play in newly emergent economies.

- Many ITPs are using what is a relatively new model of delivery: they identify and meet the skills needs of employers, but programmes are run mainly in work-based settings by state-funded – but not state-run or state-owned – learning providers.
  - ITPs' innate flexibility often puts them in a position to fill niches in public policy that both the state and an unregulated market economy can have difficulty in responding to – e.g. attracting and re-engaging disadvantaged youth.

- ITPs contribute to wider TVET systems by collaborating with other providers and with employers – and with governments.

- However, the relatively low status of TVET generally, and the lack of recognition of ITPs within these systems, means that there is still much more that can be done to harness their potential.

HIGHER EDUCATION: APPLICANTS & STUDENTS

England's Office for Students (OfS) published *Associations Between Characteristics of Students* (ABCS) – new, experimental statistics that identify groups of students by how likely they are to access or continue in HE.

- Users can select either a single characteristic (e.g. ethnicity) or multiple characteristics (e.g. ethnicity plus gender) to see how these affect which 'access' and/or 'continuation' group students will appear in:
  - Access Groups 1–5: where Access Group 1 is the *least* likely to enter HE, and Access Group 5 is the *most* likely to enter HE.
  - Continuation Groups 1–4: where Continuation Group 1 is the *least* likely to continue in HE, and Continuation Group 4 is the *most* likely to continue in HE.

- The OfS also published *Associations between characteristics of students: How do outcomes differ when accounting for multiple student characteristics?*, setting out the methodology for the ABCS measures.

- The report provides examples of where the measures have highlighted groups with poor outcomes that may not have been identified when only looking at single characteristics, including:
  - 43% of males are in Access Groups 1 and 2, compared with only 23% of females.
  - 97% of white, male pupils who received free school meals are in Access Group 1, compared with only 29% of white males.
  - While only 39% of black or black British Caribbean young people are in Access Group 5, 73% of female black Caribbean young people are in this group, compared with only 3% of males.
  - 29% of all students aged 51+ at the start of their course are in Continuation Group 1; however, 91% of those who reported having a mental health condition are in Continuation Group 1.
  - Only 11% of female students aged 21–25 are in Continuation Group 1, compared with 35% of male students aged 21–25.
  - 50% of all students from a black or black British African background aged 21–25 are in Continuation Group 1; when this is restricted to those who are local or distance learners, it increases to 91%.

The Higher Education Policy Institute (HEPI) published *What do students think about contextual admissions?* – findings from a HEPI/YouthSight poll of 1,000 full-time UK undergraduates.

- 73% think it is harder to achieve good exam results if you grow up in a disadvantaged area, rising to 81% at Russell Group universities.
  - 72% think HE admissions should take account of applicants' backgrounds.

- 47% support lower offers, while 45% oppose them; at the most selective universities, it's 57% vs 36%.

- 28% think contextual admissions would make it 'harder for students like me' to enter HE; 53% disagree.

- 65% don't know if their own university makes contextual offers; only 16% are certain that it does.

- 54% think those with lower grades would be able to keep up with the course requirements; 38% don't.

HEPI published *Two sides of the same coin? Brexit and future student demand*, a policy note.

- A previous analysis published a few months after the EU referendum suggested that Brexit would lead to a net drop of around 11,000 incoming students, but over £185m more fee income as a result of:
  - 31,000 fewer incoming EU students each year (-57%), representing a loss of fee income of £40m, due to the changes to fee and loan entitlements

- 20,000 more non-EU students (+9%) and EU students (+10%) each year, representing an increase in fee income of over £225m, due to the change in the value of the pound.
- Although nothing has since happened to counter these predictions, there is one historical precedent to suggest they may have been too pessimistic:
  - The Thatcher Government's removal of subsidies for international students from outside the then EEC increased fees from £940 a year to at least £2,000 for arts undergraduates and £3,000 for science students.
  - Initially numbers fell, but eventually there was an 'explosion' in international students.
- Today, the fees for EU and other international students look set to match one another again, but at a high rather than a lower level.
  - The Conservatives now want to erase the distinction between EU and non-EU students, whereas Labour wants to treat EU students more generously.
- There continue to be twice as many non-EU as EU students, with institutions foreseeing continuing considerable growth among the former, and the Government's strategy aiming to double current numbers to 600,000 by 2030.
- Increasing fees for people living in EU countries that have no or minimal fees for their own institutions may be different to raising fees for non-EEC students in the 1980s.
  - However, there are good reasons why people want to study at UK universities that continue to apply – the relative attractiveness of UK HEIs is partly, at least, in the control of the sector, individual institutions and government.

HEPI and Unite Students published *The New Realists*, an in-depth study of the UK student population.

- Current applicants and students are the most diverse ever; they need a broad, inclusive and flexible experience that meets their needs.
- 62% want to find a job they are passionate about and 59% seek financial stability, compared with 19% who prioritise travelling, 13% who want to be wealthy and 13% who want to achieve a senior position in their chosen field.
- 68% of students say they will face more challenges than their parents.
  - 90% say it is harder for their generation to buy property, 78% to find a job.
  - 59% disagree with the idea that there is less chaos and risk in the world than 20 years ago.
- HE is seen as a way to insure against future instability, but also as a period of transition.
  - 69% say they believe going to university is the only way to get the life they want; 49% that becoming an independent adult is crucial to a successful university experience.
- 17% report having a mental health condition (up from 12% in 2016); 26% say they often or always feel lonely.
  - However, those with a mental health condition are more likely to think it's a part of who they are (47%) than a problem to solve (37%).
  - 46% still feel that there is a stigma attached; only 53% have told their university.

The full data set and supporting audio recordings of student conversations are available here.

See also the UUK report on students and graduates on p10.

The Centre for Economic Performance (CEP) published *Inequalities in Student to Course Match: Evidence from Linked Administrative Data*.

- The research used detailed administrative data from schools, universities and tax records for around 140,000 UK students.
  - Two measures of match were used: one based on the academic attainment of students, and one characterising university courses by the median earnings of graduating students.
- A significant proportion of students are mismatched to the course they attend.
- Results imply there may be less mismatch in the UK than the USA.
  - This may be due to the UK's 'relatively generous' financial system and the lack of a significant price variation between courses, meaning poorer students cannot make a price–quality trade-off.

- The UCAS applications and admissions system, which allows students to apply to up to five courses for a small fee, may also be a factor.

- However, there are still significant socioeconomic status (SES) gaps in match, with low SES students more likely to undermatch and less likely to overmatch on academic achievement.
  - Disadvantaged students attend less academically selective courses and they also enrol in lower-earning courses across the attainment distribution.
  - This has important societal implications: if low SES students are attending courses with lower returns, this will impact their future earnings and undermine the potential for HE to have a positive impact on social mobility.

- Secondary school attended plays a key role in accounting for the SES disparities.
  - The inclusion of school effects eliminated half the gap measured – factors such as peers, parental sorting and information provided by the school are the likely key drivers for improving student-to-course match.

- The earnings-match measure also highlights gender gaps.
  - Women tend to choose courses that are as academically selective as men, but with lower associated earnings.
  - For both high-attaining and low-attaining women, subject choice plays a key role, but for high-attaining women, even where they enrol in a similar field as men, they still appear to study at institutions with lower average graduate earnings.
  - This has implications for the gender pay gap, suggesting that HE plays an important role.

- Providing information, advice and guidance (IAG) in a targeted way that tries to break down existing barriers of understanding and perceptions, should result in more informed choices.

See also the report by CVER on p1.

The OfS published *Final Evaluation of the Office for Students Learning Gain Pilot Projects*, evaluating 13 Learning Gain pilot projects involving over 70 HEIs, initiated by the Higher Education Funding Council for England (HEFCE) in 2015.

- Learning gain is understood as a 'change in knowledge, skills, work-readiness and personal development, as well as enhancement of specific practices and outcomes in defined disciplinary and institutional contexts'.

- Measuring learning gain is complex and contested, and there is no simple 'silver bullet' metric, despite appetite from the Government and the media.

- Nearly 30 approaches were piloted, which identified and captured three dimensions of learning gain:
  - Cognitive gain is best captured through existing attainment data; additional work in this area should focus on improving assessment, marking and alignment with quality frameworks.
  - Soft skills and personal development are most efficiently captured through surveys; development or adoption of an instrument needs a clear rationale and needs to be embedded within the existing quality, accountability and performance frameworks.
  - Work-readiness data are usefully captured through careers registration and are already being widely scaled up across the sector.

- Among the other findings:
  - Measures need a clear rationale for their development, use and audience; they should be developed in partnership with students, support student learning and have a dissemination plan for communicating findings with relevant audiences.
  - Measuring learning gain within institutions is complex and takes extensive staff time to organise; it can take five years to run a longitudinal project – this needs to be built into any future projects.
  - Contextual factors such as subject-level differences, institution type and student characteristic differences impact the transferability of measures of learning gain.

The OfS also published Higher Education Learning Gain Analysis (HELGA): Can administrative data be used to measure learning gain? *– the HELGA strand has not succeeded in finding a single such measure.*

The OfS published *Analysis of degree classifications over time: Changes in graduate attainment from 2010/11 to 2017/18*, expanding on a report published in December 2018.

- In 2017/18, across the 148 providers considered, 13.9ppt of first class degree attainment can be unexplained* by changes in the graduate population since 2010/11 – an increase of 2.4ppt from the unexplained attainment in 2016/17.

*'Unexplained' means that changes in attainment over the period cannot be accounted for by changes in the characteristics of the graduating cohort in terms of the variables included in the statistical modelling.

HIGHER EDUCATION: WIDENING PARTICIPATION

The European Commission published *Social Inclusion Policies in Higher Education: Evidence from the EU – Overview of major widening participation policies applied in the EU 28*.

- In spite of widening participation being high on the policy agenda in Europe for nearly 30 years, the 2018 progress report on implementation of the Bologna process confirms that inequalities in educational attainment still persist.
  - Students from low socioeconomic and migrant backgrounds and those with chronic illnesses or disabilities are still under-represented.
  - Gender imbalances continue to exist, particularly in some disciplines.
  - Students from some under-represented groups are more likely to discontinue their studies and leave HE without a degree.
- 16 typical policy instruments are used across the EU member states to promote social inclusion; they can be categorised by the four main policy types:
  - Regulations explicitly governing access and social inclusion, covering: accreditation criteria; admission; recognition of prior learning
  - Financial policies, including: need- and merit-based grants; family allowances; tax benefits for parents; student welfare support; incentives for institutions
  - Organisational policies: improving competencies for students; differentiation/introduction of (new/shorter) study programmes; more flexible provision
  - Information policies, including: special support for specific groups; special regulations and programmes for refugees; monitoring of students; dissemination of research on barriers to access.
- Conclusions include:
  - Countries differ regarding the definition of under-represented or disadvantaged groups of students and only a few countries have explicit widening participation strategies.
  - In general, funding incentives are the most frequent type of policy used, while organisational policies are mostly used to better adapt provision to a more diverse student population.
  - Most countries have taken steps to make HE opportunities as transparent as possible but there is still a lack of information on indicators that would provide an insight into social inclusion trends in HE.
  - Only a few countries make use of structured evaluation frameworks that allow them to assess the impact of individual policy initiatives.

The Institute of Labor Economics (IZA) published *'First in Family' [FiF] University Graduates in England***, exploring the role of 'intergenerational educational mobility' in access to university, subject studied, institution attended and risk of dropout.**

- FiF graduates are those who went to university and achieved a degree but whose parents did not.
- The study is based on large-scale, quantitative evidence using a nationally representative survey linked to administrative education data.
- Findings include:
  - FiF young people represent 18% of a recent cohort, comprising almost 66% of all university graduates.
  - Ethnic minorities and those with higher levels of prior attainment are more likely to experience intergenerational educational mobility and become a FiF.
  - FiF students are *more likely* to study law, economics and management and to choose potentially 'high-earning degrees', and *less likely* to study other social sciences, arts and humanities than those whose parents are university graduates.
  - FiF students are less likely to attend Russell Group universities and more likely to attend 'other' universities.

- □ FiF students are more likely to drop out.

- ■ Universities and schools should ensure that all students have access to high-quality information on the costs and benefits of HE, and universities should consider offering support and interventions such as mentoring to FiF students.

GRADUATES & GRADUATE EMPLOYMENT

Universities UK (UUK) published _Students and Recent Graduates Research_, the results of a ComRes poll of 767 undergraduates and 1,500 recent graduates across the UK.

- ■ Only 34% said they had decided to go to university to get a higher salary.
  - □ 79% agreed that the Government should do more to promote the broader benefits of university study, irrespective of potential salary.
  - □ Reasons for going to university included: interest in their chosen subject (56%); enjoying studying and learning (48%); and a first step in building a career (50%).
- ■ Students said they had benefited from:
  - □ Developing skills such as time management, social skills and teamwork
  - □ Access to academic tutors and experts and libraries
  - □ Improving levels of confidence and becoming more independent
  - □ Making new friends and developing beneficial social networks
  - □ Awareness of social issues and debates.
- ■ In terms of choosing a career, 53% cited work-life balance as their top consideration, 42% earning potential and financial benefits, and 39% the opportunity to take on a variety of interesting work.
- ■ The top three areas they wish they had known more about before applying to university were:
  - □ Career information to help in their choice of subject (39%)
  - □ The career experiences of past graduates in their subject and institution (38%)
  - □ The cost of living while studying (37%).
- ■ 84% would recommend university to others as a worthwhile experience.
  - □ 86% said university had given them the opportunity to think about what they wanted to achieve in the future; the same proportion said that university had helped them learn to be independent.

See also the HEPI/Unite Students report on p7.

The Scottish Government published _Post Study Work Visa Options: An International Comparative Review_, outlining the UK system and comparing it with Australia, Canada, New Zealand, the Republic of Ireland (RoI), Germany, the Netherlands, USA, France and Sweden.

- ■ Countries in the 'global competition for talent' are increasingly developing competitive migration policies aimed at attracting and retaining international students, in particular the post-study work offer.
  - □ Post-study work offers are effective in attracting and retaining international students – the more flexible the programme, the higher the uptake.
  - □ The UK's current post-study work offer compares poorly with competitors.

In September the UK Government announced it would introduce a new system; it was broadly welcomed.

Universities UK International (UUKi) published _International Graduate Outcomes 2019: What do international graduates do? Medium term destinations and career outcomes of EU and Non-EU graduates from UK Universities_.

- ■ It provides the results of an iGraduate survey of over 16,000 international alumni from 58 participating institutions, and is the first study specifically to explore the career outcomes of EU and non-EU graduates who studied in the UK
- ■ Key findings include:
  - □ 90% are satisfied with their learning and support experience at university.
  - □ 69% say they progress more quickly in their career than peers educated elsewhere.
  - □ 83% say their degree helped them get their job.

- 53% of those working in their home countries believe they earn above or well above average compared to peers educated elsewhere.
- 77% say they are more likely to do business with the UK as a result of studying in the UK, and 81% intend to build professional links with organisations in the UK.
- 77% of postgraduate research graduates intend to collaborate with the UK for research purposes.

Prospects Luminate published _Graduates in self-employment and microbusinesses_, drawing on the latest Destinations of Leavers from Higher Education data from the Higher Education Statistics Agency (HESA).

- The number of self-employed workers in the UK increased from 3.3m (12.0% of the labour force) in 2001 to 4.8m (15.1%) in 2017.
  - There is also a growing focus on graduate entrepreneurship both as a career path for students and as an economic driver in its own right.
- The report distinguishes between those who are self-employed and work alone, those who are self-employed but work with others ('proprietors and freelancers'), and those who work in microbusinesses (fewer than ten employees).
- 9,210 graduates were self-employed, 20% of them masters' graduates.
  - The proportion of masters' graduates fell to 11% among those working for microbusinesses.
- 55% of self-employed and entrepreneurial graduates were male, although 58% of all graduates are women.
- Unsurprisingly, entrepreneurial graduates tend to be older than the average graduate, with 10% of new graduate proprietors and freelancers over the age of 40.
- 40% of the self-employed, proprietors and freelancers had embarked on their career before graduation.
- Self-employed graduates tend to be domiciled in the south of England, particularly London (18.0%), where a large proportion of self-employed graduates also end up working (27.3%).
  - Microbusinesses more closely mimic the general population of graduates in terms of original domicile, and are most likely to be located in Westminster, Kent, Herts and Birmingham.
  - Northern Ireland, where 3.7% of all graduates are from, is the domicile of just 1.6% of self-employed graduates, 2.9% of proprietors and freelancers but 4.4% of graduates who work in microbusinesses.
- Nearly 50% of the self-employed work in construction, engineering or the arts.
  - Proprietors and freelancers are involved in a wider spread of industries, with a particular focus in business and finance.
  - Many graduates in microbusinesses are in non-graduate level jobs with small retailers, but also in small professional and technical businesses such as architects and law firms.

IZA published _Do Internships Pay Off? The Effects of Student Internships on Earnings_, based on longitudinal data from graduate surveys in Germany.

- The research looked at the causal effect of student internship experience on earnings later in life, for students at German universities who had undertaken mandatory internships as part of their course.
- Findings include:
  - There were positive and significant earnings returns of about 6%, particularly pronounced for individuals and areas of study that are characterised by a weak labour market, and for those studying humanities and social sciences.
  - Graduates who completed an internship faced a lower risk of unemployment during the first year of their careers, suggesting a smoother transition to the labour market.
  - Positive returns were similar for female and male graduates, and for those with different socioeconomic backgrounds and academic performance.

The Association of Graduate Careers Advisory Services (AGCAS) published _What Happens Next? 2019: A report on the first destinations of 2017 disabled graduates_, based on responses from 330,080 graduates and postgraduates, 13.7% with a disability or learning difficulty.

- Findings include:

- At all qualification levels a higher proportion of graduates disclosed a disability than last year; most had a specific learning difficulty.
- Disabled graduates were less likely to be in full-time work, more likely to be self-employed and more likely to be unemployed than non-disabled graduates.
- The gap between those with and those without disability grew with increasing qualification level.
- Those with a social communication or Autism Spectrum Disorder were most likely to have chosen their current role to earn a living, not to fit a chosen career plan or path.

HIGHER EDUCATION: TEACHING, RESEARCH & INSTITUTIONS

The House of Lords Science & Technology Select Committee published *Science research funding in universities* – the report of an inquiry.

- Traditionally the dual-funding system has supported the research community well; but stagnation in Quality-Related (QR) funding since 2010 has led to a deficit that universities have had to plug through cross-subsidies.
  - This has occurred alongside a decrease in the percentage of research costs universities are able to recover from funders.
  - The Government must address this deficit and commit to increasing QR funding each year by at least the rate of inflation.
- England's Augar Review did not did not take a holistic approach to university funding and made no attempt to assess the potential impact of reducing student fees on the funding of research.
  - Any Augar recommendations that are accepted must be implemented as a full financial package, including an increase in teaching grant.
  - At the same time, given the complex nature of cross-subsidies used by universities, the OfS is not the right body to determine the value of teaching grant for different subjects.
- The Government should commit to associating the UK with Horizon Europe as soon as possible to provide researchers with certainty post Brexit, and UK universities must continue to receive the same amount of funding they currently receive from the EU.
  - The Government must fund on the basis of research excellence and should consider carefully the ratio of funding between discovery research and applied research.
- The UK will not reach its target of investing 2.4% of GDP in R&D by 2027 unless funding for research in universities is secured and the UK can attract researchers from overseas.
  - Post-Brexit immigration laws must not hinder the ability of UK universities to recruit and retain researchers.
  - Remaining committed to international research collaborations following Brexit will enable the UK to continue to attract the best talent from around the world.

UUK published findings from a survey of 75 HEIs, looking at how well prepared they are for a no-deal Brexit.

- 52% are fully prepared and 48% are 'very slightly' prepared for no deal.
- 80% are very/extremely concerned about the impact no deal would have on their institution; 34% believe student recruitment would be impacted most, and 27% access to research programmes and funding.
- 50% have experienced a change in demand from EU students, 55% have experienced a change in the level of collaboration with overseas partners and 60% have lost existing or potential staff to overseas institutions.
- 93% have encouraged EU staff and students to secure pre-settled and settled status.

HEPI published *The white elephant in the room: ideas for reducing racial inequality in higher education*, a collection of six essays by senior HE figures.

- The report makes a number of policy recommendations, including:
  - Make research grants to universities conditional on their participation in the Race Equality Charter.
  - Fund new PhD places for black and ethnic minority (BME) candidates.
  - Recognise and reward informal work by BME staff, such as mentoring BME students.

- Ensure diversity practitioners in institutions have senior management diversity champions.

UUKi published *International facts and figures 2019* – 'a snapshot of the international dimensions' of HE in the UK.

- The paper presents collated data published by bodies such as HESA, HEPI and the OECD, including:
  - The number of international students studying in the UK, where they come from, their level of study and subjects studied
  - International academic and non-academic staff in the UK, their home nations and what they do
  - The UK sector's provision for outward student mobility
  - The UK's transnational education offer
  - International research collaborations and funding
  - Levels of engagement and collaboration by region.

IZA published *Does Class Size Matter in Postgraduate Education?*, examining the impact of class size on postgraduate grades.

- The study is based on data from one of the largest schools of a Russell Group university in the UK; it also recognises there has been a recent policy change aimed at reducing class size.
- Findings include:
  - Large class size has an adverse impact on grades overall; there are concerns about increasing the student-to-staff ratio and achieving poorer student performance as a result.
  - The policy aimed at reducing class size has had a favourable impact on grades, and has reduced the probability that postgraduate students fail in their programme of study.

IZA published *The Remarkable Unresponsiveness of College Students to Nudging and What We Can Learn from It*, a study of the impact of online and text-message interventions to improve achievement of students in a Canadian university.

- Over a five-year period, a range of online and text-message interventions were used to 'nudge' 25,000 students across three campuses in the University of Toronto.
- Students were assigned to interventions in six categories:
  - Goal Setting: they were asked to think and write about their future
  - Mindset: they read stories about how others adopted positive perspectives to overcome challenges
  - Online Coaching: they were given advice for academic success
  - Online and One-Way Text Coaching
  - Online and Two-Way Text Coaching: they received follow-up texts with tips, reminders and contact with a virtual coach
  - Online and Face-to-Face Coaching.
- There were some improvements from coaching-based interventions on mental health and study time, but none of the interventions significantly influenced academic outcomes, even for those students more at risk of dropping out.
  - Students study around five to eight hours fewer each week than they plan to; coaching interventions made some students realise that more effort is needed to attain good grades but, rather than working harder, they adjusted their grade expectations downwards.
  - Coaching interventions increased self-reported study time by about two hours a week; there were also changes to students' perceived study-to-grade relationship and interest in studying, but not on their level of procrastination.
  - Students appreciated receiving follow-up text messages and virtual coaching support after completing an online exercise, and coaches made them feel more supported and happier.

WORKFORCE ISSUES

Advance HE published *Onwards and Upwards? Tracking women's work experiences in higher education: Year 3 Report*, a five-year longitudinal study of women from the UK and RoI who participated in the Aurora leadership initiative.

- Aurora is Advance HE`s leadership development initiative for women, created in 2013 in response to research that showed there were fewer women in the most senior HE positions than ten years earlier.
- The Year 3 study used data from 1,500 women, including 658 who were just starting the programme.
- Findings include:
  - Women are willing to challenge the status quo in their institutions and become more proactive in supporting others.
  - Institutions or departments with a silver Athena SWAN award are significantly more likely to offer the conditions for success (Athena SWAN provides a set of gender equality principles for institutions and a framework for gender equality action planning).
  - Change is very gradual, but women reported increasing confidence, self-awareness and knowledge to keep pressing for changes.
  - BME respondents are less likely to have supportive networks and have fewer successful promotion experiences.
  - Staff in both Northern Ireland and the RoI tend to report less positive conditions for women than those in England, Scotland and Wales.
  - The somewhat more negative perception of family-friendly policies is a phenomenon of the island of Ireland relative to the island of GB, rather than the RoI relative to the UK.

***Interdisciplinary Science Reviews* published *Creating a more supportive and inclusive university culture: A mixed-methods interdisciplinary comparative analysis of medical and social sciences at the University of Oxford* [open access].**

- The aim of the study was to gain an understanding of how to accelerate women's advancement and leadership while creating a more supportive and inclusive university culture for all faculty and staff.
  - Oxford University participates in the Athena SWAN Charter.
  - In 2011, the National Institute for Health Research (NIHR) introduced a policy linking its biomedical research funding to demonstrable commitment to gender equality through Athena SWAN awards.
  - When the study was conducted in 2014, all of the medical sciences departments had been developing and implementing action plans to achieve Athena SWAN awards; none of the social sciences departments or Oxford colleges had done this.
- A C-Change survey was undertaken with almost 5,000 faculty and staff, covering 12 dimensions of organisational culture: vitality; self-efficacy in career advancement; institutional support; relationships/inclusion/trust; values alignment; ethical/moral distress; leadership aspirations; work-life integration; gender equity; black and minority ethnic equity; institutional change efforts for diversity; institutional change efforts for faculty support.
- Among the findings:
  - Women reported less positive perspectives than men on six of the dimensions in medical sciences and ten in social sciences; the highest levels of gender disparity in both faculties were around gender equity and self-efficacy in career advancement.
  - More women than men in both faculties reported intent to leave the university due to dissatisfaction.
  - Both women and men were more positive about the culture in medical than in social sciences; they reported similar perceptions of work-life integration and institutional change efforts for faculty support.
  - A significantly higher proportion of medical science faculty staff reported positive mentoring experiences, regardless of gender; a significantly lower proportion intended to leave the university due to dissatisfaction.
  - The more positive culture in medical sciences can be attributed to the widespread implementation of Athena SWAN action plans linked to NIHR funding incentives; although a direct causal link cannot be quantified, Athena SWAN appears to be the most salient independent cultural variable.

IZA published *Students are Almost as Effective as Professors in University Teaching*.

- Overall, student instructors were found to be almost as effective as more senior instructors.
  - However, student instructors appear to be more harmful to: students in non-mathematical and non-first-year courses; lower-ability students; students exposed to many student instructors throughout their studies.

- Possible reasons for the effectiveness of student instructors include:
  - They are better able to relate to fellow students; they have more recently studied the course material, which may also make them better at explaining it; and they may work harder than senior instructors, who perhaps feel they are wasting their time teaching tutorials.
  - Course coordinators have worked to accommodate student instructors' lack of knowledge and experience, for example by providing detailed tutor manuals,.
- Hiring moderately more student instructors would not harm students, and might be worth considering as a cost-saving measure; however, exclusively using student instructors would most likely have a negative impact on student outcomes.

IZA published a related paper, Are Professors Worth It? The Value-added and Costs of Tutorial Instructors*, in November 2018 – see* Skills Research Digest Q4 2018*.*

The Workplace

RECRUITMENT

The Institute of Student Employers (ISE) published the *Annual Student Recruitment Survey 2019* of 153 of its employer members *[the full report is available on request from ISE]***.**

- Employers in the UK recruited 21,877 graduates (up 10% from 2018) and 6,218 young people for school leaver programmes (up 7%).
- 11,224 apprentices were recruited: 52% were non-graduates, 25% graduates and 23% existing employees.
- Employers hosted 6,734 interns (down 4%) and 2,560 work placement students (down 7%).
- There were significant increases in recruitment in finance and professional services and in the public sector, particularly in policing and education.
- Recruitment was down in energy and engineering by 1% and in legal sectors by 3%.
- There were shortages in graduates for engineering, IT programming and development, and technical and analytical roles, and a shortage of electronic engineers, quantity surveyors, prison officers and actuaries.

APPRENTICESHIPS & TRAINEESHIPS

The OfS published *Degree Apprenticeships Motivations Research*, the results of a survey of 269 current degree apprentices, looking at why they undertook the qualification.

- 207 were taking Level 6 programmes (bachelor's degree); 49 were taking Level 7 (master's).
  - 31% of the Level 6 respondents had come directly from school, sixth form college or other education route.
- The top motivation was to gain a degree while earning a salary (91%).
  - 82% at Level 6 and 71% at Level 7 said that cost was very or somewhat important in choosing the programme.
- 38% at Level 6 would have opted to do a traditional degree if they hadn't chosen the degree apprenticeship.
  - 25% wouldn't have pursued any other form of qualification or training, suggesting they are serving a previously unmet need.
  - 50% of those at Level 7 who wouldn't have pursued an alternative qualification had worked for their current company for over ten years.
- 90% at Level 6 and 78% at Level 7 agreed/strongly agreed that a degree apprenticeship would help them advance more quickly in their career than if they had completed a traditional degree.
  - Level 7 respondents tended to be older and were more likely to have other motivations, such as retraining to keep pace with labour market skills levels or helping their career progression.
- Employers were pivotal in providing them with information, advice and support.

- Level 6 respondents were more likely to see the qualification as a way of 'kickstarting' their career; they were also more likely to aspire to self-employment.
- They were more likely to look to friends and family for advice and support.

UUK published _The Future of Degree Apprenticeships_, based on desk research and extensive engagement with stakeholders, focusing mainly on developments in England.

- Degree apprenticeships have attracted controversy:
  - The employer-driven shift to higher levels could impact upon resources available for other provision.
  - As they are longer and require a certain level of quality, they are often in higher funding bands.
  - Questions have been raised about the value of leadership and management apprenticeships, the inclusion of the degree, the offer of opportunities to existing employees, and quality.
- Driven by employer demand, the key skills addressed include: leadership and management; digital skills; engineering; public sector employment, such as nursing, social work and policing.
- Employers greatly value degree apprenticeships, which give: equal status alongside graduates; an internationally recognised qualification; reassurance of high-quality provision; and important knowledge and skills, including transferable skills.
- When employers are committed, degree apprenticeships can significantly increase opportunities and grow a more diverse talent pool.
- Priority should be given to developing initiatives like the Co-op's pre-apprenticeship programme.
- Students and their parents have little understanding of degree apprenticeships, but are very enthusiastic once they are explained.
- There are four main recommendations:
  - A government campaign to promote the benefits of degree apprenticeships to employers and the public; a UCAS application system as straightforward as it is for undergraduate degrees.
  - Government investment in initiatives to support social mobility, lifelong learning and growth among under-represented groups.
  - The system should develop to meet current and future demand for higher-level skills in areas such as digital technology, management and public services, to boost regional economies.
  - Make it easier for employers to include a degree within their apprenticeships where they see it adding value; streamline processes and reduce unnecessary costs in the system.

The Quality Assurance Agency for Higher Education (QAA) published _Characteristics Statement: Higher Education in Apprenticeships_ – guidance explaining the common features of HE qualifications delivered via an apprenticeship.

- It compares practice and policy across the UK and has been benchmarked to the UK Quality Code for Higher Education.

The Confederation of British Industry (CBI) published _Learning on the job: Improving the Apprentice Levy_, setting out 'urgent steps' to make the levy 'fit-for-purpose'.

- The report focuses on policy in England, however it highlights that UK-wide operation of the levy has been challenging for firms with a presence in Northern Ireland, Scotland and Wales.
  - It is vital that there is more transparency about where and how levy money is spent; the fund should be used to create a skills system that is more responsive to business needs across the UK.
  - The UK and devolved governments should work more closely together to ensure the levy has a positive impact on raising skills levels across the UK.

The Open University (OU) published _Access to Apprenticeships_, exploring access to and availability of apprenticeships for people with disabilities _[an email address is required to access the full report]_.

- The report is based on a survey of employers in England, however its themes are likely to be relevant for the other UK nations.
  - Employers recognise that they often do not have the expertise or resources needed to support apprentices with disabilities and that more support is required.

- Recommendations include: enhancing recruitment support; providing more transparent IAG; and improving education and training for employers.

Cedefop (European Centre for the Development of Vocational Training) published *Cedefop's analytical framework for apprenticeships*, **identifying features that appear to work in more than one system, and summarising key shared elements.**

- The framework consists of ten areas of analysis, each of which is further broken down into operational descriptors:
  - Distinguishing features
  - Place in the VET system
  - Governance
  - Offer, content and quality assurance
  - Cooperation between VET providers and employers
  - Participation of and support for employers
  - Requirements of and support for teachers and in-company trainers
  - Financing and cost-sharing mechanisms
  - Apprentices' working and learning conditions
  - Monitoring and evaluation.

The European Commission published *Study on the representation of apprentices in vocational education and training (VET)*, **examining opportunities for apprentices to contribute to policy discussions about apprenticeships at national and EU level.**

- Apprentice representation structures were mapped across 37 countries including all EU member states, Candidate and European Free Trade Association countries.
  - 68 structures of apprentice representation were identified; they were classified as: 'direct/indirect: wider scope' and 'indirect: consultation through wider bodies', with the UK demonstrating examples of all three (six countries had no representation structures for apprentices).
- It is important to make sure that apprentices are represented in decision-making processes related to the governance of apprenticeships, with clear representation mechanisms, as this motivates development and provides a sense of purpose.
  - At an organisational level (e.g. student associations and unions, youth organisations, trade unions, VET providers and companies), ensure that all apprentices have access to representation structures, and that they participate at the same level as other groups (e.g. other students, young people, young workers or employees).
  - Promote the benefits and share experience of good practice.

SKILLS POLICY

Northern Ireland's Department for the Economy (DfE) published *The strategic integration of skills & innovation policy in Northern Ireland: An international small economy perspective*.

- Skills and innovation have long been the core of advanced economic growth, and their importance will continue to grow, driven by:
  - The impact of disruptive technologies on the future of work
  - Skills-biased technical change, with mid-skilled jobs particularly at risk
  - The changing nature of globalisation, increasingly dominated by knowledge-intensive sectors
  - Intense global competition, particularly from China and other emerging markets.
- Common policy themes characterise the way governments are seeking to position their economies to capture opportunities and manage risks:
  - Increased focus on ongoing training – the traditional linear model of education is insufficient given the rapid pace of change.
  - Connecting skills and industry – the market is not working effectively in many economies to match skills supply and skills demand.
  - Coordination of skills policy across multiple domains – a whole-government approach is needed.

- Innovation – governments and businesses are increasing their commitment to R&D and innovation, again requiring a coordinated approach.

- Nine case studies (Denmark, Estonia, Finland, Ireland, Israel, New Zealand, Scotland, Singapore and Switzerland) as well as general small economy analysis, offer the following insights.

Skills policy

- There is a broad-based commitment to upgrading the quality of the skills and education system, with an increasing focus on vocational education and 'multiple pathways'.

- The link to industry is increasingly important to ensure that the skills are relevant and sufficiently specialist; there is increased investment in skills mapping and forecasting.

- There is greater flexibility in provision, for example through voucher-based systems.

Innovation policy

- Successful small economies have been increasing their investment in R&D.

- Government-funded R&D is important, but needs to be supplemented by business-funded R&D.

- Innovation needs to be organised around strategic clusters and the presence of 'deep capabilities', with government investment in R&D complementary to private investment.

- Strong research universities are important, for example to provide absorptive capacity for ideas and knowledge generated offshore, a pipeline of strong human capital, and research capability providing an anchor for clusters.

- Policy needs to be directed at building a strong innovation ecosystem that supports the growth of innovative firms.

- Three elements of effective strategic integration of skills and innovation policy can be identified:

- A clear statement or understanding of the central role that skills and innovation play in the overall competitive positioning of the economy, along with a clear sense of the resourcing and policy implications.

- A 'whole of government' policy approach to skills and innovation, for example deliberate use of social insurance, labour market policy and immigration policy, to support skills and innovation policy.

- A common approach is to organise the policy focus through strategic priority clusters that are seen to be the growth engines of the economy.

- There are some important similarities between Northern Ireland and other small advanced economies in terms of their exposures and their underlying context, but its skills and innovation performance is relatively modest.

A number of insights for Northern Ireland are identified, along with specific implications and recommendations.

Hays published *Global Skills Index 2019: The Global Skills Dilemma – How can supply keep up with demand?* with Oxford Economics *[an email address is required to access the full report]*.

- The index rates 34 countries on seven indicators: labour market participation; labour market flexibility; education flexibility; talent mismatch; overall wage pressure; wage pressure in high-skill industries; and wage pressure in high-skill occupations.

- Two pressures face workforces worldwide: talent mismatch is worsening, and there is a global threat of wage stagnation.

- Factors impacting these pressures include the rapid growth of technology, the rise of outsourcing, globalisation and uncompetitive labour markets.

- Recommendations include:

- Invest in education, lifelong learning and reskilling programmes as a priority for governments and businesses – develop skillsets for workers that are less vulnerable to outsourcing, automation and globalisation.

- Employers should actively motivate staff to take advantage of flexible working and geographically distant opportunities, thus encouraging more people to participate in the workforce and supporting employers to widen their pool of candidates.

- Firms should embrace diversity in the workforce in all its forms – resolving the division with gender-dominated occupation will help reduce the gender pay gap and increase the talent pool.

The Digital Health & Care Institute, one of eight innovation centres in Scotland, published *Spotlight on Careers in Digital Health and Care: Addressing Future Workforce Development Needs***, commissioned by Skills Development Scotland (SDS).**

- There is a general lack of awareness of the existing career opportunities and job roles in the sector.
  - New job roles are emerging at the interface of humans and technology in translating data, knowledge and information.
  - Distinctly human soft skills, not replicable by technology, are increasing in importance.
- Seven recommendations include:
  - Strategic collaboration between employers and the education and skills system, to influence the curriculum, create education/career pathways and embed placements and internships in degrees.
  - Raise awareness of career options and the core skills and capabilities required.
  - Create a core education and training provision, allowing for specialisation later and for more flexible movement between job categories.
  - Create opportunities to upskill and reskill staff and attract new talent from other sectors.

The OECD published *Job polarisation and the middle class: New evidence on the changing relationship between skill levels and household income levels from 18 OECD countries*

- Labour markets across the OECD have polarised in recent decades, with the share of middle-skill occupations declining in relation to high- and low-skill occupations.
- However, contrary to assumptions, changes in the size of different occupations have had only a small impact on the share of working adults who belong to middle-income households.
  - Rather, the distribution of different occupational groups across income groups has changed significantly in recent times.
- The work composition of the middle-income class has changed substantially, with a shift towards high-skill occupations, up from 35% in the mid-1990s to 47% in the mid-2010s; the share of those holding a middle-skill job has declined from 41% to 32%.
- Occupations of different skill levels are increasingly failing to deliver the income status traditionally associated with them – on average, the proportion of high-skill workers in the upper-income group has fallen from a quarter to a fifth.
  - At the same time, there is an increased probability that middle- and low-skilled workers will be in the lower income class.
  - At household level, the presence of two earners is less likely to ensure middle-income status; couples involving only low- and middle-skill workers are increasingly likely to be in the lower income class.
- These changes might help explain some of the social frustration that has been at the centre of recent political debate.

SKILLS GAPS & SHORTAGES

The Edge Foundation published its fifth edition of *Skills Shortages in the UK Economy***, which summarises findings from a number of reports.**

- It includes data from:
  - The Open University Business Barometer 2019 *[see below]*
  - 2019 Global Talent Trends (LinkedIn Talent Solutions)
  - Time for Action: skills for economic growth and social justice (Learning & Work Institute)
  - Youth Voice Census Report 2019 (Youth Employment UK)
  - Which occupations are at highest risk of being automated? (Office for National Statistics)
  - Jobs for the Future: protecting the labour market in the face of the AI revolution (OxPolicy)
  - Opportunity knocks? (Centre for Cities).
- It also includes a spotlight on health and social care.

The OU published its annual [Business Barometer July 2019](#), investigating the extent, nature and impact of UK skills shortages, based on the views of 950 senior business leaders in UK organisations [an email address is required to access the full report]**.**

- Findings for businesses in Northern Ireland include:
  - As a result of skills shortages, businesses spent £80.2m on recruitment, training and temporary staff costs, equating to £10,030 per organisation (lowest in the UK – £30,470 in London).
  - 63% reported a skills shortage, down 11ppt from 2018 (63% UK, up 1ppt); 57% expect to see an impact on revenues as a result (47% UK).
  - 32% of spend is going towards boosting the skills of workers hired at a lower level (26% UK).
  - Employers spend much less on recruitment fees than those elsewhere in the UK (18% v 35%).
  - 46% struggled to recruit for graduate roles.
- 26% in Northern Ireland, Scotland and Wales don't know how their government is spending apprenticeship levy funds; 21% say they have not seen any benefits from the levy.
  - 40% would like more financial support for apprenticeships; 16% do not know how to access the help that is available.
- 59% of UK respondents expect the skills shortage to worsen after Brexit.

The Chartered Institute of Personnel & Development (CIPD) published [Migration: A practical immigration system for post-Brexit Britain](#).

- It sets out findings and recommendations from a survey and series of roundtables with employers, exploring solutions to the challenges they are likely to face from future immigration restrictions.
- The proposed mechanisms for enabling employers to employ low-skilled EU workers – a Youth Mobility Scheme for 18–30 year-old EU citizens and a temporary 12-month visa – are inadequate.
  - The two routes should be merged to create a visa that would allow EU citizens to live and work in the UK for a maximum of two years to study or work without a job offer, irrespective of age.
  - This would make the UK more attractive and go some way to counteract the increasing attractiveness of other EU labour markets.
- Lower salary thresholds – below the current proposal of £30,000 – could be set for some jobs on the shortage occupation list, while removing the current exemption for some public service organisations.
  - There should be no regional variations in salary thresholds – a UK-wide system would be more popular and easier to administer.
  - This would be simpler and fairer, while still enabling many public service occupations to benefit from a lower salary threshold; it would also encourage organisations to grow the local talent pool and support some wage growth.
- The skill threshold should be removed, as it will be of no practical use in screening out overseas workers given the salary threshold.
- Employers are alarmed by the range of costs they will incur for recruiting workers via the skilled route, including a sponsorship licence, a skills surcharge and a visa; the Government's working plan to consider a 'tiered' sponsorship system is supported.
- Intra-company transfers should be extended to include intermediate-skilled workers.
- Funds generated from the Immigration Skills Charge on employers should be directed towards the apprenticeship levy, which in turn should become a broader training levy in due course.

Nesta published [Which digital skills do you really need? Exploring employer demand for digital skills and occupation growth prospects](#), based on a study of 41m job adverts.

- Policymakers consider digital skills to be a top priority for investment; they are seen to offer people greater employability and job resilience.
- However, analysis shows that not all digital skills will be equally important in the future.
  - Occupations that have poor prospects are more likely to require a digital skill than those that are most likely to grow by 2030; investment in skills development should take this into account.
  - Some occupations that are currently not digitally intensive, e.g. teachers and chefs, are expected to grow in the next 10–15 years.

- Some skills that pay relatively well are more closely associated with jobs that are expected to shrink.

- Digital skills most likely to be needed in growing job sectors are those that are used in non-routine tasks, problem solving and the creation of digital outputs.
  - Five promising digital skills: animation; multimedia production; design in engineering; building and maintaining IT systems and networks; and research and quantitative data analysis.

CESifo published *Do Digital Skill Certificates Help New Workers Enter the Market? Evidence from an Online Labour Platform*.

- Newcomers often face difficulties breaking into labour markets – even highly educated and skilled workers can struggle to land their first jobs when they don't have a work history.
  - It is difficult for prospective employers to be sure of such unproven workers' productivity.
  - This is particularly the case in online labour markets, where buyers and sellers of digitally deliverable freelance work are matched remotely through online platforms, and employers have to evaluate unknown workers, often from unfamiliar backgrounds.

- Several online labour market platforms have introduced voluntary skill certification schemes to help skilled but unvetted newcomers break into the market.
  - Workers take computer-based skills assessment tests, which grant them digital skill certificates, also known as 'digital badges' or 'micro-certifications'.
  - The certificates don't increase their productivity, but demonstrate their ability, leading to greater employer confidence and increased earnings.

- However, the findings show that skill certificates – at least as they are implemented on the platform under study – are not very useful.
  - They have a statistically and practically significant positive impact on freelancer earnings conditional on winning a project, but their impact on the likelihood of winning a project is limited.
  - At the same time, experienced workers who have already accumulated a significant work history on the platform do not benefit from skill certificates.
  - Combined, these effects leave a fairly narrow range of workers who are likely to benefit significantly from obtaining skill certificates: early-career freelancers, who have won their first few projects and broken into the market, but who still lack a more extensive work history.

- If the tests were more challenging, it would allow high-ability newcomers to separate themselves from low-ability ones, improving matching and making the market more efficient.
  - It would also enable them to improve labour matches in situations where public qualifications schemes are too slow to keep up with rapidly changing skills demands, and to help people such as immigrants improve their position in the labour market.

The European Commission published *Skills mismatch and productivity in the EU*, analysis describing a relationship that is not as straightforward as expected.

- Three different dimensions of skills mismatch are analysed:
  - Macroeconomic skills mismatch – when the skills distribution differs between the available workers and those that are hired
  - Skills shortages – when employers have difficulties filling vacancies
  - On-the-job skills mismatch – the 'overqualification' or 'underqualification' of a worker and the requirements for their job.

- In the EU, although there are significant differences across member states, skills shortages and overqualification are on the rise, underqualification is on a long-term declining trend, and macroeconomic skills mismatch is following more complex patterns over time.
  - It is more desirable to have underqualified workers than high unemployment or inactivity rates among less-skilled workers; underqualification can be a sign of successful labour market integration of less-skilled workers, e.g. through non-formal vocational training courses that do not necessarily lead to higher formal qualifications.
  - Reskilling is often as important as upskilling – it can involve shorter, more flexible training programmes, and is useful for workers who want to reorient skills to new labour market demands.

- Theoretical predictions on the relationship between skills mismatch and labour productivity depend on the dimension considered.

- There is a negative relationship between macroeconomic skills mismatch and productivity, and a positive relationship between skills shortages and productivity.
- On-the-job skills mismatch: when comparing a mismatched with a well-matched worker in the same job, overqualification raises productivity and underqualification reduces it; comparing a mismatched with a well-matched worker at the same qualification level, overqualification reduces productivity and underqualification increases it.

- There is a positive link between skills supply and productivity; however, higher skills need to be job-relevant to realise their full potential, and skilled workers need to be matched with jobs that use these skills.

- Options available to policymakers looking to address skills mismatch include:
  - Reduce the share of less-skilled workers, e.g. prevent early school leaving; provide opportunities to upskill and reskill; fight skills obsolescence through active labour market policies; accessibility of vocational training and HE for adults.
  - Address demand-side issues, e.g. via wage setting practices, labour market and welfare policies.
  - Labour market intelligence, e.g. provide information about job outcomes of specific training programmes; report on expected skills needs for growing sectors; involve social partners in the development of education and training curricula.
  - Adopt effective immigration policies for specific higher skills and short-term needs.
  - *Overqualification*: ensure the quality and labour market relevance of education and training programmes; promote regional development of skills-intensive industries; and foster the creation of jobs that can effectively exploit available workers.
  - *Underqualification*: reduce the share of low-qualified workers in the population by preventing early school leaving and providing adequate upskilling pathways.

Skills Development Scotland (SDS) published *Circular economy skills demand in Scottish manufacturing 2019*, a study in partnership with Zero Waste Scotland to understand the level of awareness businesses have of circular approaches and skills.

- The circular economy has huge potential and is increasing in its importance to the economy.

- Businesses need more training and support to help them understand the circular economy.
  - Knowledge and skills are needed to enable them to develop innovative approaches, e.g. for designing products and sourcing new materials.
  - The skills needed in order for businesses to adopt circular practices include in-house/operational (repair, maintenance, reuse), technical and systems skills.
  - Circular economy education and skills provision should focus on industry leaders and pioneers.

SDS published *Reskilling and upskilling in an ecommerce context: An international review and recommendations* produced by INDEZ Ltd.

- Ecommerce is the buying and selling of goods or services online; global ecommerce is a vast, growing business area and requires agility for any upskilling and reskilling approaches.
  - Most ecommerce businesses require a range of individuals with a wide range of skills.

- The research reviewed the approach to reskilling and upskilling in the UK, China, Germany and the USA.
  - In China, around 33% of all universities run courses in ecommerce, and successful online companies offer extensive reskilling and upskilling training programmes.
  - In Germany, there is a national plan to deliver one-year and three-year ecommerce apprenticeships.
  - The USA has the largest ecommerce upskilling market in the world.
  - The UK has some FE and HE provision in ecommerce, particularly in England, plus work-based learning opportunities and apprenticeships.
  - However there are currently no standalone ecommerce college or university courses or apprenticeships offered in Scotland, and recruitment difficulties are curbing growth and development.

- Seven recommendations, particularly for Scotland but more widely applicable, include:
  - Gather statistics to provide a baseline of current upskilling and reskilling interventions

- ▫ Record and share case studies of upskilling and reskilling opportunities
- ▫ Provide an online platform for businesses to access skills development resources
- ▫ Provide courses at various levels and develop qualifications
- ▫ Conduct research to confirm the demand for an ecommerce apprenticeship.

TRAINING & DEVELOPMENT

Kineo (part of the City & Guilds Group) published _Learning Insights 2019 #2: A risky business_, findings from a survey of 500 employees and 100 employers in 13 countries, examining the use of 'contingent' workers.

- ▪ Contingent workers include short-term contractors, temporary staff, trainees and freelancers.
  - ▫ 84% of UK employers use contingent workers and 50% expect to increase their use of these workers in the next three to five years.
- ▪ 24% of employers that are predicting an increase in revenues say their biggest skills gaps will be among contingent workers, however only 22% plan to focus their training and development on them.
- ▪ There is a lack of training and development provision for contingent workers.
  - ▫ 21% of employers say training for contingent workers is ineffective and 20% don't provide any training for them.
- ▪ On-the-job training is the main type currently carried out with contingent workers (28%).
  - ▫ 26% believe better delivery platforms would improve take-up of training, 25% suggest better quality, more engaging content and 25% say micro-style learning would be more effective.

The second of three reports, plus supporting guides, to be published before the end of 2019; the first was published in June (see Skills Research Digest Q2 2019_)._

Cedefop published _The changing nature and role of vocational education and training in Europe – Volume 7_.

- ▪ The volume is subtitled 'VET from a lifelong learning perspective: continuing VET concepts, providers and participants in Europe 1995-2015'.
  - ▫ It concentrates particularly on the linkage between initial VET (IVET) – usually part of a highly regulated school system – and continuing VET (CVET), which is more heterogeneous.
  - ▫ It provides an overview of how CVET is understood across Europe and of adult participation in learning in Europe since 1995; it looks at the main changes in provision in enterprises and by types of training institution.
- ▪ The discussion is contextualised by a new look at VET system types across European countries, and three economic sectors are then explored in more detail: retail sales, ICT and metalwork & manufacturing.
  - ▫ The countries compared are: Austria, Estonia, Italy, Norway, Poland and England.
- ▪ The statistical overview of trends in adult participation indicates that, within the last decade, CVET provision at European level has not risen by much, but is at least moving in a positive direction.
  - ▫ There is a slightly greater incidence of firm-based non-formal education and training, and slightly increased average hours spent on CVET courses.
  - ▫ Such a result seems out of step with the emphasis on developing the lifelong learning society, raising a question as to whether there is a saturation effect in place.
- ▪ The main tendency seems to be an increase in the number of adults in IVET, with many countries reporting new VET pathways for adults or simply an increase in adult learners in existing VET programmes.
  - ▫ This often goes hand-in-hand with an increased emphasis on the accreditation of prior learning and is frequently related to the implementation of European lifelong learning policy.
- ▪ Issues of access to HE through vocational qualifications are specifically addressed in countries that have long-standing traditions of VET: Denmark, Germany, France, Austria and the UK.
- ▪ There is a visible trend that CVET is increasingly understood as being integrated into a lifelong learning perspective, and it seems that there is no longer any clear distinction between IVET and CVET.

- Both tend to offer the same qualifications, and systems to validate prior learning and qualification frameworks have helped to bring together the two systems.

- However, it seems that, within the general trends of decreasing distinctions between IVET and CVET and between national education systems, there are signs of unexpected widening of gaps, with national VET systems bolstering inequalities in access to skills.
  - The experience of countries that have managed to open up their VET systems to more lifelong learning might serve as a good starting point in understanding diversity and change.

The European Training Foundation (ETF) published *Global inventory of regional and national qualifications frameworks 2019 – Volume I: Thematic chapters*.

- Learning outcomes underpin most European education and training systems, as well as those in many other industrialised countries around the world, and are making significant inroads in developing or transition countries.
  - Internationally, regional qualifications frameworks and the World Reference Levels – an emerging global tool to describe and compare an individual's skills and qualifications – use learning outcomes as their conceptual basis and common language.

- At the same time, entirely new systems and symbols of accreditation and credentials are gaining ground, resulting in the rise of digital credentials.

- Perhaps the most pressing – and certainly the most rapidly evolving – challenge qualifications frameworks must face, is that of digitisation of economies and societies.
  - Digitisation deserves attention in its own right because it has emerged as arguably the most important driving force in the economy today, including by requiring people to continuously update their skills.

- The report's thematic focus is evidence of the degree to which three core areas are dominating the direction of reforming policies: digitisation; recognition of prior learning; and outcomes-based approaches to managing education and training.
  - The chapters cover: the new World Reference Levels; digital credentials and interoperability; the role of learning outcomes in governing and reforming education and training; recognition, validation and accreditation of prior learning; recognising prior learning of migrants and refugees; accessing and acquiring skills and qualifications.

The report was written jointly by Cedefop, the ETF, UNESCO and the UNESCO Institute for Lifelong Learning.

The Institute for Employment Studies (IES) published *Understanding the conditions for successful mental health training for managers: A randomised control trial to evaluate two training methods*, **commissioned by the Rail Safety & Standards Board.**

- Two different formats were tested for training line managers in supporting staff with mental health problems – face-to-face and e-learning, run by the mental health charity, Mind.
  - The impact on participants was evaluated straight after training and six weeks later.

- Both training formats led to sustained changes in participants' knowledge about mental health and in their preparedness to act on mental health problems.
  - E-learning was more cost effective; however, participants preferred the face-to-face format and were more likely to recommend it to a colleague.
  - Some aspects of learning, e.g. confidence to talk about mental health, faded over time; 'refresher' training could be used to address this.
  - Participants felt that a critical mass of trained people would bring about real change in their industry.

OLDER WORKERS & LIFELONG LEARNING

The Centre for Social Justice (CSJ) published *Ageing Confidently: Supporting an ageing workforce*, **the fifth report in its Future of Work Programme.**

- Evidence suggests that the UK is not responding to the needs and potential of an ageing workforce: while the employment gap between younger and older workers has decreased over the last two decades, in 2018 less than half of the UK population were in work the year before they were eligible for the state pension.

- Of the 3.3m economically inactive people aged 50–64, over one million have been made involuntarily workless.
- Some have been pushed out due to redundancy, lack of appropriate skills, being unable to balance caring responsibilities and work, and ill health.

- An increase in the Old Age Dependency Ratio (OADR) and a greater demand for public services along with an increase in state pension costs raise questions about the sustainability of our social security system.

- The report makes several recommendations to provide older people and employers with the support needed to unlock the potential of this demographic and enable older people to access the benefits of work.

- They include:
  - Enhanced healthcare support through improvements in occupational health, training in mental health first aid and further support for those aged 55+ from the Work & Health Programme
  - Increased access to flexible working
  - Increased access to training opportunities through a proposed Personal Learner Account
  - Implementation of employee-tailored Mid-Life MOTs
  - The initiation of an 'Age Confident' scheme that includes guidance regarding workplace flexibility, workplace adjustments, age discrimination, training and Mid-Life MOTs
  - Assuming the above are implemented, accelerating the State Pension Age increase to 70 by 2028 and to 75 by 2035, keeping the OADR in the sustainable range of 20 to 25 over the next 20 years.

IZA published _Does Employing Older Workers Affect Workplace Performance_, the first study of its kind based on figures for Great Britain.

- There have been sharp increases in economic activity rates among those aged 55+ in the UK over the past 20 years; however some employers remain uncertain about the benefits of employing older workers.

- 2004–11 Workplace Employment Relations Survey data for Great Britain were used to establish the association between changes in age shares and age diversity.
  - There is no significant association between changes in the proportion of older workers employed and changes in workplace performance.
  - There is some evidence that both a higher percentage of older employees and a higher percentage of younger employees result in a reduction in labour productivity, but this does not follow through to financial performance.

- Employers should therefore be open to increase their employment of older workers.

The Learning & Work Institute and the FE Trust for Leadership (FETL) published _Healthy, Wealthy & Wise: Implications for workforce development_, expert think pieces and responses to its 2017 report on the impact of adult learning across the UK.

- The think pieces cover: a systems approach to ensuring learners achieve; understanding dual professionalism; inclusive learner pathways; personalising learning; enabling social change; the impact of adult learning in transforming public services; Careers Advancement services; democratic engagement; promoting education for sustainable development.
  - Authors include Paul Donaghy of the Northern Ireland Impact Forum and careers guidance expert Dr Deirdre Hughes.

- The report also includes a summary of discussions that took place at events in Cardiff, Birmingham, Belfast and Edinburgh.

The report aims to contribute towards setting a new agenda for adult learning workforce development in the UK. The report and accompanying blogs will be published on the Electronic Platform for Adult Learning in Europe (EPALE) – the 'go-to' site for anyone working in the sector.

The Learning & Work Institute published _Adult Participation in Learning Survey 2018_; the survey of 5,000 adults across the UK has been taking place since 1996.

- The latest report shows the lowest participation rate in the survey's history, with just 35% of adults saying they have participated in learning during the previous three years (-2ppt on 2017).
  - The highest participation rate was recorded in 2001 (46%).

- 19% were in learning at the time of the survey.
- The participation rates for the UK nations are: England 35%; Scotland 34%; Wales 40%; Northern Ireland 30%.
  - Within England, the regional gap has doubled since 2017, with lowest participation in the south west at 29% (-5ppt), and highest in the West Midlands at 43% (+3ppt).
- Just 18% of adults who left education at 16 or under have participated in learning in the last three years (-3ppt), compared with 45% of those who left education at 21+ (-1ppt).
- 41% of BME respondents had participated in learning, compared with 34% of white respondents.
- 40% of full-time employees had participated in learning, compared with 17% of people out of work and not seeking employment.
- Older adults are far less likely to participate in learning; with each additional year of age, the likelihood of an individual participating falls by 1.3%.
- 37% hadn't participated in learning since they left full-time education; of these, only 16% said they would participate in the future.
  - Among adults currently participating, 77% expect to do so again.
- 48% of adults in higher social grades (AB) have participated in the last three years, compared with 20% of adults in lower social grades (DE); this gap has widened by 3ppt.
- Social grade, age, terminal age of education and working status are all significant predictors of participation, with social grade the most important.
  - Likelihood of participation increases with each step 'up' in social grade category, so that those in social grade AB are 2.3–3.6 times more likely to have participated than those classified as DE.

The report also includes data on motivation to learn, location and type of learning, accredited learning, funding methods, barriers, enablers, sources of advice and perceived benefits.

Nesta published ***What Motivates Adults to Learn? A rapid evidence review of what drives learning new skills in the workplace***.

- The review focused on two main lines of enquiry:
  - Conceptual factors that impact on adult workers' motivation to learn generally, and in relation to learning digital skills
  - The evidence base of approaches and policy interventions that have demonstrated impact.
- Both extrinsic and intrinsic factors have an impact on learning behaviour.
  - Extrinsic motivations can be influenced (e.g. by encouraging employers to support employee learning), but need to be matched by a degree of intrinsic motivation.
- There are five key 'career adaptability' resources: concern (extent of future planning); curiosity (exploration of possible selves, understanding of fit between self, occupational roles and opportunities); control (sense of personal responsibility); confidence (self-belief in ability to implement choices and achieve set goals); and commitment (opportunities provided to engage in meaningful projects).
- Numerous external factors impact on participation and progression in learning, including: opportunity, access, training quality, career engagement and social contexts (e.g. peer support).
  - Behavioural analysis illustrates how intrinsic and extrinsic motivations interact with external factors to determine learning behaviour.
- There is very little experimental evidence of impact, but the available evidence suggests a stronger policy focus on flexible career learning could realise benefits.
  - Career learning is defined as a process of self-reflection, supported within a dialogical learning environment, which enables individuals to actively shape and develop their career goals and actions on a lifelong basis.
  - Career learning needs to be inclusive and cover middle- and lower-skilled roles as well as higher-skilled ones.
- New and innovative ways of reaching into workplaces have become an urgent imperative, particularly interventions and policy levers that enable learning, such as enhanced service provision, fiscal measures, regulation and guidelines and/or legislation.

The Learning & Work Institute published _Cost and outreach pilots evaluation: Interim report_ – England's Department for Education is using career learning pilots to test innovative approaches to lifelong learning and inform the design of its National Retraining Scheme.

- Cost and outreach pilots are running in five areas to engage adults in learning that is 'economically valuable' to them and/or the local economy, and to test:
  - which approaches to outreach are most successful at engaging adults in learning
  - whether offering a course fee subsidy makes a difference to the uptake of learning.

- Among the findings:
  - 93% of respondents said they took up learning for work reasons, either to progress in their current line of work or to move into a substantially different job, mainly to move on from low-skilled work.
  - Those who were employed were most likely to have heard about learning opportunities from their employer – implying an endorsement – or a learning provider's website.
  - Outreach needs to be perceived by learners as personally relevant, particularly when messaging is linked to individuals' professional development plans and career aspirations.
  - Most IAG was in the form of signposting and practical information; some learners said they would have welcomed more substantive IAG.
  - 75% of those who were aware of the course subsidy said that it was a factor in encouraging them to take up the learning opportunity; this was more likely if the course was fully rather than partially subsidised.
  - 33% of the cohort overall either weren't aware of the subsidy or weren't influenced by it in their decision to take up the course; however, the subsidy did raise the profile of the course and brought it to their attention.
  - 70% of learners incurred at least one kind of cost in addition to fees, such as books, travel, childcare or negative impact on earnings due to taking unpaid leave for their course; although such costs were a challenge for a small number, overall they were accepted.

- Implications for the National Retraining Scheme _[and more widely applicable]_ include:
  - To successfully engage adults seeking to retrain, any scheme needs to address both barriers related to attitudes, as well as more practical barriers related to personal circumstances.
  - The range of career-related motivations cited illustrates the diversity of messages that need to be conveyed as part of any outreach activity.
  - Learners responded positively to becoming aware of learning opportunities in the workplace, either implicitly through seeing promotional materials or explicitly through employer encouragement to participate in training; this emphasises the importance of employer engagement.
  - Feedback from some learners indicates that they would have welcomed more substantive IAG, highlighting the importance of having a more in-depth and well-communicated offer for people who need it.

Pearson published its inaugural _Global Learner Survey_ of 11,000 16–70 year-olds in 19 countries, including 1,000 people in the UK.

- The survey revealed eight key trends:
  - A DIY mindset is reshaping education: with ready access to technology and a changing global economy, people are patching together their education from a menu of options and they believe that self-service learning will become even more commonplace as people seek education across their lives.
  - The 40-year career is gone, replaced by 'bite-sized' lifelong learning and diverse career paths.
  - People expect digital and virtual learning to be the new normal in the next decade: from online degrees, AI tools and smart devices, people see the future of learning made easier and more engaging with technology.
  - Confidence in educational institutions is wavering: education is failing their generation, not preparing them for work, is too costly or out of reach.
  - Some young workers think you can do OK in life without a college degree.
  - China and India are leading the world in upskilling, driven in large part by the influence of technology and automation on their jobs, while the US and UK lag behind.

- Learners believe soft skills will give them the advantage over automation: the skills that make us uniquely human – creativity, originality, problem solving and the ability to learn – are actually the hardest to learn, and learners say they need help mastering them.
- People now cite social media and bullying as contributing factors to school safety concerns.

- Findings for the UK include:
  - 56% thought that more pupils would attend virtual schools in the next ten years (74% in the US).
  - 77% believed social media had made the school environment more difficult for pupils – the second highest after Australia (79%); only 46% felt that social media helped people to learn (88% in China).
  - 51% felt that university didn't prepare them for their career – the only country that scored over 50%; 73% felt that a degree gave students an advantage in getting a job, the lowest in the survey.
  - 74% agree colleges and universities should offer better options for working adults, and 55% that the world is shifting to a model where people participate in education over their lifetime.

As a companion to the survey, Pearson also released Opportunity for Higher Education in the Era of the Talent Economy*, a guide to the survey's implications and opportunities for HE.*

Cedefop and Lifelong Learning Platform (LLLP) published: *Implementing a holistic approach to lifelong learning: Community Lifelong Learning Centres as a gateway to multidisciplinary support teams*.

- The briefing paper aims to share recommendations on ways to establish lifelong learning systems at local, regional and national levels, elaborating on the current context of learning in Europe and raising awareness of highlights and existing practice.
- There is broad consensus among research and practice communities that building bridges between formal, non-formal and informal education is a requisite for a holistic lifelong learning approach.
  - There needs to be a balanced emphasis on academic achievements, skills and competences, social-emotional development, education for future jobs, citizenship education and wellbeing.
- A highly beneficial way of tackling community educational needs as easily as possible could be to set up community lifelong learning centres.
  - They offer learning opportunities from cradle to grave and act as gateways to more specialised services and multidisciplinary teams.
  - Numerous studies make the case for more social interactions at early ages, while there is an increasing recognition at EU policy level of the importance of combining services for marginalised groups.
- A number of these models already exist or are being tested in Europe, including in Denmark, Hungary, Latvia, Sweden and Lithuania, to name but a few.

The paper outlines some of the key characteristics of the various models being developed and sets out key messages from a Policy Forum in May held by Cedefop and LLLP.

LLLP is an umbrella group for 42 European organisations active in the field of education, training and youth.

IZA published *Numeracy and Unemployment Duration*, based on survey data from Germany and evidence from literature.

- Low numeracy was found to be strongly related to a longer unemployment period for under-33s, but not for older adults.
  - The absence of a relationship between numeracy and unemployment duration for older workers might be driven by a 'locking-in effect' for those with high numeracy, as they tend to commit more often to intensive training programmes.
  - Numeracy could also be more important as a signalling device for the younger cohort than for the older cohort.
- Recommendations include collecting and/or using basic numeracy skills data in research on labour market outcomes, as they are relatively straightforward to measure in surveys and are a good proxy for general problem solving skills required in many jobs.

THE FUTURE OF WORK

PwC published _Upskilling Hopes and Fears_**, findings of a survey of 22,000 workers in 11 countries, including 2,000 in the UK, asking their views on the impact of technology on jobs.**

- 53% believe automation will significantly change or make their job obsolete within the next ten years; 28% feel this is unlikely.

- 77% would learn new skills now or completely retrain to improve their future employability.

- 61% are positive about the impact of technology on their day-to-day work, but only 33% are given many opportunities to develop digital skills outside their normal duties.

- 50% believe 'automation presents more opportunities than risks'; 20% believe the opposite.

- 60% think technology will improve their job prospects; 26% say it will impede their prospects; 14% think it will make no difference.

- College- and university-educated respondents are the most optimistic about technology and their future employment prospects.

- Younger respondents prefer to develop proficiency in a specific technology, while older respondents are keen to build proficiency at learning and adapt to new technologies as they develop.

- 34% of those without education or training beyond secondary school say they are not learning any new digital skills, compared with just 17% of college or university graduates; 38% are getting no training opportunities at work compared with 20% of graduate workers.

CIPD published _Megatrends: is work in the UK really becoming less secure?_**.**

- There is a perception that atypical forms of work – e.g. the gig economy, zero-hours working – are making the UK's labour market less secure.

- In fact, a range of evidence proves that the so-called 'casualisation' of work in the UK has been overstated:
  - Atypical working in the UK remains exactly that – atypical: the proportion of people working atypically in the UK labour market has been stable for the past 20 years.
  - The UK has a low share of non-permanent employment compared to other major economies – permanent employment remains the norm for most people and jobs are just as stable as they were 20 years ago.
  - Most of the UK's workers feel secure, with most people entering non-permanent work out of choice rather than necessity; protections for temporary workers have increased.

- However, there are still millions of employees in the UK, many of them in permanent positions, who report some degree of insecurity: fear of not getting another job as least as good, cuts in wages or being discriminated against in the workplace.
  - To date, policymakers' efforts to create 'good work' have disproportionately focused on atypical workers, at the expense of more holistic interventions that would benefit the entire labour market.

- The broad aim should be creating labour markets and promoting workplace practices that provide the best match between what people want at different stages in their life and the employment options available.
  - The Government has announced its intention to legislate to introduce a right for workers to shift to a more predictable work pattern.
  - Other policy areas that need to be addressed include: HR support to enable smaller firms to introduce more complex employment models; more ambitious and innovative lifelong learning support; stronger enforcement; the role of trade unions in providing services for the self-employed; and a continuing focus on improving rather than banning zero-hours contracts.

The Institute for Public Policy Research (IPPR) Centre for Economic Justice published _The Future Is Ours: Women, automation and equality in the digital age_**, arguing that automation presents an opportunity to narrow gender inequalities.**

- An acceleration of automation could increase productivity and enable higher pay in currently low-paid roles dominated by women.
  - New jobs will be created that could provide high-quality opportunities for women.

- Automation could create a society with more time for life outside of the workplace, which could relieve women of the 'double shift' of paid and unpaid work that many face, and rebalance unpaid work between genders.
- However, realising this opportunity will require a managed acceleration of automation.

- Automation should be accelerated to increase productivity in low-pay sectors, led by workers, including women.
  - Recommendations: women to make up 50% of boards by 2025, even if legislation is required; a new social partnership body – Productivity UK – to support 'everyday' firms to adopt automating technologies; and measures to increase pay with productivity, including raising the minimum wage.

- The benefits of higher productivity must be shared by all.
  - Recommendations: an expansion of employee ownership trusts and share options included in pay gap reporting; extending automatic enrolment below the current threshold; and a Citizen's Wealth Fund to ensure everyone benefits from increased returns to capital.

- Future new jobs must be made accessible to everybody.
  - Recommendations: support for carers to retrain; 'use-it-or-lose-it' paternity leave; all jobs to be advertised as flexible by default; tech firms required to demonstrate progress to gender-equal workforces; and educational institutions to report on subject-choice gender balance.

- We must ensure that technologies are not biased against particular groups.
  - Recommendations: to prevent bias in automating technologies that rely on algorithms and platform-generated data, the Centre for Data Ethics & Innovation to have powers to inspect anti-discrimination audit trails and to assess how the 2010 Equality Act could be strengthened.

IZA published _Robots at Work: Automatable and Non Automatable Jobs_, aiming to improve understanding of the future automation of work in the EU.

- The study focuses on patent data, and suggests that by 'following the money' it is possible to identify the jobs that will be automatable in the next decade.

- Three types of jobs are classified: fully automatable jobs, 'polarised automatable' jobs, and jobs not expected to be automated.

- The share of jobs is estimated that are expected to be automatable over the next decade in the EU and across 25 individual countries.
  - Aspects of 47% of jobs are expected to be automatable and 35% of all jobs to be fully automatable.
  - Thinking skills and people skills will become increasingly important for the 'fourth industrial revolution'.

The Austrian Federal Ministry of Labour, Social Affairs, Health & Consumer Protection published _The impact of digitalisation on labour market inclusion of people with disabilities: Lessons from two case studies on Austria and platform work_, by the Centre for European Policy Studies (CEPS).

- Digitalisation is drastically changing labour markets, and some studies suggest that people with disabilities could be primary beneficiaries.

- However, the effects of digitalisation and platform work on labour market inclusion for people with disabilities are quite difficult to generalise, largely due to the substantial differences between those with disabilities.

- **Digitalisation** mostly provides increased opportunities for people with disabilities, particularly for those with mobility or other physical disabilities.
  - Both new and traditional jobs, aided by improved assistive technologies and new forms of work intermediation, carry great promise for many people with disabilities.
  - However, those employed in manual labour, call centres and other roles may find that their skills are less in demand.

- The primary risks associated with digitalisation seem to be as follows:
  - People with disabilities may not benefit from all the economic and social gains associated with digitalisation, which could deepen the socioeconomic gap; the risk is especially acute if attitudinal barriers remain unaddressed, and employers fail to recognise new opportunities for inclusion.

- For the most part, gains from digitalisation offer the clearest benefits for people with mobility or other physical impairments, or sensory disabilities; those with intellectual disabilities or mental illness may continue to be excluded.

- **Platform work** has the potential to improve access to labour markets due to its flexibility and lack of access barriers, making it a potential tool for those with health limitations or caring obligations.

  - Those with disabilities may lack awareness of platform work, digital skills or suitable technologies; it may also not be suitable for those who prefer the security of more traditional employment.

  - Platform work seems most promising for those wanting part-time, highly flexible working opportunities from home, and won't replace full-time employment in terms of renumeration or social inclusion.

The Foundation for European Progressive Studies published _The Platformisation of Work in Europe: Highlights from research in 13 European countries_.

- On the one hand, platform work is a practice mainly engaged in by people with other sources of income, as a supplement to earnings from another job, often a full-time one.

  - This trend may well be associated with an increase in the hours spent working, with negative implications for work-life balance, leading in turn to a growth in the demand for buying household services in the market, and hence driving further growth in the platform economy.

- On the other hand, the digital management practices associated with platform work extend broadly across the labour market and are not restricted only to platform work.

- Taken together, these findings indicate that it is neither possible nor useful to isolate platform workers as a distinct group on the labour market with problems that could be addressed by regulations that are specific to platform work.

  - On the contrary, issues highlighted are broadly pervasive and can only be addressed effectively at a more general level.

- These issues fall into two broad categories:

  - Issues related to the general spread of casual, precarious on-call work: low wages, particularly in countries with no minimum wage; even where it does exist, it needs to be enforced or raised or both.

  - Issues related to the increasing use of digital management practices across the labour market: data collection and its potential misuse; substitution of customer ratings for qualified supervision and peer assessment of quality; threats to equality of opportunity posed by algorithmic bias; increased use of digital interfaces between workers and their managers, clients and colleagues.

- To these, we can add a third dimension: the possibilities opened up by these digital management practices for positive uses of platform technologies, both for economic growth and for social benefit.

The International Labour Organization (ILO) published _Time to Act for SDG 8: Integrating Decent Work, Sustained Growth and Environmental Integrity_.

- Sustainable Development Goal 8 exhorts the international community to: 'promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all'.

  - It lies at the heart of the 2030 agenda, straddling its economic, social and environmental dimensions.

  - Failure to make headway will impede progress towards other SDGs; and progress on the other SDGs is a precondition for progress towards SDG 8.

- The report:

  - charts progress towards its 12 targets; comparing countries by income group

  - maps 'dynamic interlinkages' between SDG 8 targets and those of other SDGs

  - describes a 'positive spiral' of policy interventions and institutional support that can enable countries to achieve the SDG by 2030.

- In terms of decent work, the evidence suggests that most countries still have a long way to go, with persistent gender wage gaps and decent work deficits.

  - Women, young people and those with disabilities are at a great disadvantage and face severe challenges, even in countries with low unemployment.

- Decent work is both a major outcome and a driver of a human-centred agenda for inclusive growth, which is about ensuring that each member of society can participate in the creation of economic value and enjoy the benefits of growth.
  - Progress on SDG 10 (reduced inequalities) is key to ensuring that productivity gains translate into higher incomes and wages for all.
  - By increasing opportunities for on-the-job learning and by empowering women and girls, inclusive growth coupled with decent work enhances the diversity and sophistication of a country's knowledge base, and of the economy.
- An upward policy spiral implementing the Decent Work Agenda goals offers a tested approach to promote SDG 8.
  - The integrated approach embraces three distinct elements: national employment policies; labour standards and labour market institutions; and social dialogue, partnerships, enhanced capacities at the national level and robust monitoring mechanisms.
  - The policy spiral includes pro-employment macroeconomic and sectoral policies, together with measures to promote wages, skills, technology and innovation.

The report includes examples of national practices that demonstrate that, with the appropriate design and implementation of policies, strong progress towards SDG 8 can be achieved.

ARTIFICIAL INTELLIGENCE (AI) & AUTOMATION

Recruitment consultancy Robert Walters and data publisher Vacancysoft published *Harnessing the power of AI: The demand for future skills*, analysis of hiring trends for industries embracing AI in the UK.

- The pace of change and presence of AI and digitisation is evident in job vacancy growth.
  - Specialist data science & analytics roles increased by 160% within medium to large companies in the UK between 2015 and 2019.
  - Data scientist roles have become mainstream professional positions, with vacancies increasing 110% a year since 2015.
  - Data engineering vacancies are averaging 86% year-on-year growth.
  - In the meantime, job growth for information security has levelled out after an active recruitment period in the lead-up to the GDPR deadline.
- Professional services firms are also hiring increasing numbers of data professionals.
  - Vacancies for general data professionals have increased by 79.5% since 2015, with key areas of growth including data scientists and engineers.
  - IT professionals dedicated to data management seem to be the fastest growing area within large or global entities, with volumes increasing ten-fold in three years.
- A new, niche sector of specialist AI companies is emerging, accompanied by significant venture capital funding growth, which has seen an almost seven-fold increase in five years.
  - There has been substantial growth in specialist positions within the AI 'ecosystem', including machine learning, NLP, geospatial analysis, AI research and applied data science.
  - Specialist vacancies have increased from 445 in 2015 to over 4,000 estimated for 2019.
- While the data point towards a sustained AI job boom, political uncertainty makes 2020 projections difficult to ascertain; a hard-border Brexit could contract the candidate market, resulting in AI growing at a more laboured pace.

Nesta published *Gender Diversity in AI Research*, findings from a large-scale analysis.

- Just 13.8% of AI researchers are women, compared to 15.5% for STEM subjects, with numbers decreasing over the last ten years.
- The proportion of AI papers co-authored by at least one woman has not, in relative terms, improved since the 1990s.
  - Apart from the University of Washington, none of the top 35 institutions for AI research has more than 25% listed as being authored by women.
- Only 11.3% of Google's employees who have published their AI research on arXiv – a repository used by the AI community – are women; the figure for Microsoft is 11.95% and for IBM, 15.66%.

- The UK lags behind the international community for percentage of females authoring AI research, coming 23rd out of the top 34 countries publishing on arXiv, behind countries such as Norway, Turkey and Malaysia.
- Publications on machine learning and societal topics in the UK in 2012 and 2015 tend to be more applied and socially aware if they have at least one female co-author.

The World Economic Forum and Business for Social Responsibility (BSR) published _Responsible Use of Technology_, a 'white paper' proposing a new framework for managing and governing new and disruptive technologies such as AI, robotics, blockchain and biotechnology.

- It makes the case for both ethics-based and human rights-based approaches, with active participation from technology companies, governments and other stakeholders across the entire technology industry value chain.
  - Three phases of the technology value chain are set out: design and development; deployment and sale; and use and application.
- Three major implications arise:
  - System-wide approaches encompassing the entire value chain are needed.
  - Company-only action will not sufficiently address the challenges – policy, legal and regulatory approaches are needed too.
  - Companies will be unable to meet their responsibility to respect human rights if states neglect their duty to do so.
- A three-part framework is outlined for companies, to enable them to establish business strategies that embed the responsible use of technology into their core.

The Responsible Development, Deployment & Use of Technology project aims to produce a framework and suite of implementation tools.

IZA published _Testing the Employment Impact of Automation, Robots and AI: A Survey and Some Methodological Issues_, examining the relationship between new technologies and employment.

- This technological revolution is probably the first to occur at such an accelerated pace involving all industrial sectors – studying its mechanisms and consequences, particularly for labour market dynamics, is crucial.
- The study included an examination of the impact of technology on the number of employees, tasks required and wage/inequality effect.
  - According to different studies, high-skilled and non-routine jobs seem to be relatively safe or even expanding, while routine, low and middle skills appear to be more at risk.
  - The few available studies for developing countries suggest that emerging economies will be significantly affected by robots and automation, possibly more so than developed economies.

IZA published _Skills-Displacing Technological Change [SDT] and Its Impact on Jobs: Challenging Technological Alarmism?_, based on data from the new European Skills and Jobs Survey.

- SDT is defined as technological change that may render workers' skills obsolete.
- The study looked at the incidence of SDT across all 28 EU countries and the characteristics of workers who experience SDT.
- Findings include:
  - 16% of employees in the EU are affected by SDT: 90% of those affected say their skills have improved in their current job, compared to 83% of non-SDT workers.
  - SDT mainly affects workers with a higher stock of human capital in higher-skilled jobs, and tends to be accompanied by greater provision of training and workplace learning, which also increases dynamic upskilling – EU employees affected by changing technologies are far more likely to experience skills enhancement as opposed to skills erosion/deskilling.
  - Automation can make a positive contribution to the task content and skills complexity of jobs and can also be associated with higher wages.
  - SDT employees tend to have higher levels of education and are more likely than non-SDT workers to have been promoted by their current employer; they are more likely to work in larger organisations and in roles that involve teamwork, on-the-job learning and non-routine tasks.

- Workers affected by SDT experience greater job insecurity, however, although only 5% are fearful it will lead to imminent job loss.

EMPLOYMENT: RIGHTS, RESPONSIBILITIES & WAGES

CEP published _Trade and deskilling: how the post-referendum sterling depreciation hurt workers_, examining the negative impact of Brexit on the wages and training of UK employees.

- The rapid depreciation of sterling and rise in import prices following the EU referendum has had a sizable negative impact on UK workers.
  - The 'cost shock' that made intermediate imports more expensive required an adjustment by employers, with workers bearing the burden in the form of lower wages and training in the most heavily hit sectors.
  - A 1% increase in the price of intermediate imports led to a reduction of between 0.35% and 0.55% in hourly wages and cutbacks of between 0.5% and 0.7% in the proportion of workers receiving job-related education and training.
  - This 'deskilling' impact on workers in industries that rely on specific foreign sources for intermediate inputs could translate into a long-term negative impact on human capital, worker earnings and productivity.

CIPD published _Building inclusive workplaces: Assessing the evidence_, based on a review of the literature on diversity and inclusion (D&I).

- Inclusion is conceptually distinct from diversity:
  - Inclusion is part of how an employee experiences their workplace, grounded in theories of how we evaluate our social environments, where we 'fit' within them, and what 'groups' we feel we belong to.
  - Diversity refers to the differences represented within an organisation.
- Everyone is 'different' in some way, so taking an approach where organisations consider how they value and support employees as individuals is the first step to becoming more inclusive.
  - This may require a departure from thinking about diversity just in reference to protected characteristics.
- Diversity is often considered to be the 'predictor' of workplace outcomes (for example, firm performance), and diversity metrics are used to evaluate D&I strategy.
  - While this is undoubtedly useful in galvanising action, further action needs to be taken to address the barriers to inclusion.
  - Inclusion must be elevated to a core outcome measure that gives insight into employee experience; it could be reframed as the predictor of organisational and employee outcomes, with diversity metrics used to highlight where inclusion is falling.
- There appears to be no robust research into the impact of initiatives that seek to create inclusive climates or cultures, or that evaluates which organisational practices result in inclusion.
  - While there's a large body of research linking diversity to performance, there's similarly far less research on how to effectively increase diversity.
- Inclusion is a complex concept that interacts with diversity and equality – both issues that extend beyond the workplace.
  - Social mobility, education and socialisation all contribute to structural and power inequalities in societies.
  - Organisations need to carefully diagnose the barriers to inclusion, with inclusivity assessed at multiple levels to effectively map where resource and attention can best be focused.
- Organisations need to take a systemic approach to inclusion; inclusion is about creating an environment where everyone is appreciated for being individual.
  - This means putting systems and practices in place that tackle bias and structural issues that result in different perspectives failing to be valued if they are different from the status quo or from the 'majority'.
- Taking action requires careful strategy and considered delivery, but organisations and employees have much to gain from being more inclusive.

- Creating a positive environment where everyone can influence, share knowledge and have their perspective valued is key for employee satisfaction, retention and wellbeing.
- Being inclusive allows different perspectives to be heard, irrespective of the nature of that difference, which can only help business make better decisions and understand their customers.

The Global Institute for Women's Leadership at King's College London and public service union the FDA published *Flexible working: myth or reality?*, based on a survey of 1,599 FDA members.

- The civil service has committed to becoming the most inclusive employer in the UK by 2020 and has put flexible working at the centre of its plans.
  - 76% of respondents agree that 'there is a culture of flexible working visible at all levels in my organisation'; among those who have submitted a formal request, 92% have had it accepted.
- However, flexible working currently isn't working as well as it might; among the findings:
  - Senior and fast stream employees are most likely to say that flexible working isn't encouraged at their grade, and least likely to apply, particularly if they are male.
  - Flexibility is still seen in many areas as the preserve of the working mother, resulting in considerable associated stigma.
  - The success of requests is down to line managers' discretion, with evidence of inconsistent approaches due to poor training and capability.
  - Many civil servants work long hours, which can be a barrier to flexible work; colleague resentment can also be an issue.
  - Flexible workers are more likely to worry about work when not working, and to allow it to spill over into other areas of their life; many are expected to be always available.
  - Many part-time workers receive no adjustment in their workload, and often can't take their day off due to work pressure; increased remote working often leads to blurring of the boundaries between work and home.
  - Flexible working can affect career progression, workplace relations and managers' perceptions, particularly due to a 'lack of visibility' for home workers and/or a perception that they are less committed.

The Work Foundation published *Embedding work and related outcomes into social prescribing: Overcoming challenges and maximising opportunities*.

- There has been increasing interest from policymakers in 'social prescribing' as a way of improving public health and wellbeing, including in supporting individuals to find and/or retain work.
  - Work – particularly 'good' work – can be important for self-esteem and personal fulfilment.
  - The aim was to investigate whether the changing policy emphasis has influenced social prescribing in practice, and inform policymakers about the realities of social prescribing as a route to work.
- Key findings include:
  - A growing evidence base suggests that social prescribing offers a number of benefits, including the acquisition of learning, new interests and skills, and improvements to physical health.
  - Social prescribing services mainly provide an indirect (rather than direct) route to work, first addressing more basic needs via non-work activities which can lead to education, training and volunteering.
  - There was some evidence of a potential 'cultural issue' around a lack of recognition of the role work plays in improving health and wellbeing.
- Five recommendations include: improving awareness of 'work as a health outcome' among social prescribing stakeholders; and carefully developing work and related outcomes for social prescribing services.

Eurofound published *On-location, client-determined, moderately skilled platform work: Employment and working conditions* by CEPS, based on desk research and interviews with platform workers in Belgium, France, Germany and Poland.

- Platform work – the matching of supply and demand for paid labour through online platforms – is a relatively new form of employment that is small in scale but growing in importance and diversity.
- All interviewees were self-employed as platform workers, with responsibility for their own working conditions and access to social protection.

- However, platform work was mainly a sideline, and nearly all were also either employed or had their own business.
- In general they felt completely autonomous from the platform, which is a facilitator to connect them with clients, leaving the agreements with them and the clients.
- Clients are in a strong position when agreeing and supervising tasks: although the workers determine the tasks to apply for, clients determine which worker obtains the task, mostly relying on reviews.
- The earnings for client-determined work are mostly higher than for other types of platform work, and are charged either at a fixed pre-agreed amount or by the hour.
  - Workers have some margin in setting their rates, as clients are more interested in their ratings; some also increased their rates after successfully completing several tasks.
  - Those charging by the hour had occasional disputes with clients, as the assignment took longer than anticipated.
- All interviewees declared their income, but, for some, their earnings were below the tax threshold.
- Platform workers use skills gained through formal training and informally.
  - Their platforms don't provide training, although some offer general tips and information.
  - Those owning their own business can follow training courses offered by their trade associations, but it was generally several years since they had last participated in any training.
  - They see little need to attain new skills, as they prefer to apply for tasks that they can complete obtaining a good review.
- They don't use platform work to advance their career, but as an interesting diversion and an opportunity to earn some additional money or remain active; for some, it is a stepping stone to self-employment or used to grow their business.
- None of the interviewees knew of any opportunities for representation as a platform worker, but some would welcome representation to improve social protection.

IZA published _The Decline of Overtime Working in Britain_.

- The share of overtime hours within total hours worked in Britain has declined from 4.8% in 1999 to 2.9% in 2018; this equates to 321,000 full-time jobs.
- The investigation examined the decline with a particular focus on full-time and part-time males and females, testing for economic, structural and cyclical influences.
  - For the largest overtime group – full-time male workers – the decline in weekly overtime hours has accelerated since the recession; the pay gap between full-time males and females has narrowed as a result.

CESifo published _Gender Differences in Wage Expectations: Sorting, Children, and Negotiation Styles_, providing the first large-scale evidence in this area.

- A study of over 15,000 German students from all regions, universities and study fields found a significant and large gender gap in wage expectations across all subgroups and along the entire distribution, closely resembling actual wage differences.
- In terms of life-cycle wage developments, females expect flatter wage trajectories, with an initial gap of 14% increasing to 27% at the age of 55.
  - The accumulated life-cycle gap in expected wages amounts to more than €500,000; this 'perceived return to being male' is close to the actual return of obtaining a university degree.
- A large portion of the overall gap in expected wages relates to academic and occupational sorting patterns; a much smaller part is related to IQ, perceived or actual ability and personality traits.
  - The overall pattern of results confirms previous findings on the importance of sorting into certain majors, industries or occupations.
  - Except for a wage penalty of having children before the age of 30, women seem to underestimate the extent and importance of child-related career breaks.
- While initial wage claims closely relate to expected wage outcomes, females envisage substantially less scope for wage negotiations than males.
  - Differences in anticipated negotiation styles explain 13-14% of the gender gap and thus hold similar importance as differences in choice of degree or occupational sorting.

- The findings have implications for our understanding of wage-setting processes, expectation formation and economic modelling.
  - In particular, they suggest that expected wages drive actual wage differences and persistent gender wage gaps; and that reluctant negotiation behaviour leads to lower subsequent wage expectations.

International Comparisons

The European Commission published its annual _Education and Training Monitor 2019_, plus 28 country reports.

- EU and country progress is measured on six EU Education & Training 2020 targets, including:
  - The share of early leavers (aged 18–24) from education and training to be less than 10% (10.6% in 2018, unchanged from 2017).
  - The share of 30–34 year-olds with tertiary education attainment to be at least 40% (40.7%, up 0.8ppt).
  - 82% of recent graduates from upper secondary to tertiary education (aged 20–34) who are no longer in education or training to be in employment (81.6%, up 1.4ppt).
  - At least 15% of adults (aged 25–64) to participate in formal or non-formal learning (11.1%, up 0.2ppt).
- Investment in education across the EU was unchanged in 2017 at 10.2% of total public spend.
  - EU member states invested an average 4.6% of GDP in their education systems – 32% of spend on pre-primary and primary education; 41% on secondary, post-secondary and non-tertiary education; and 15% on tertiary education.
- The lead theme for this report was 'teachers and teaching'; it also has analysis on entrepreneurship education, digital education and multilingualism.
- Most of the UK report looks at the nation as a whole and England specifically, with comments about the different systems in the devolved nations.
  - On Brexit, the report states: 'The consequences … for UK higher education are unclear but policy responses to address the potential loss of EU research funding and reduced student inflows will be needed'.

Additional material can be found on a dedicated webpage.

Cedefop published _Overview of National Qualifications Framework [NQF] developments in Europe 2019_.

- In the form of a table, the paper sets out for each EU country: the scope of its NQF; the number of levels; level descriptors; the legal basis and stage of development; whether it is linked to the European Qualifications Framework (EQF).
  - The UK entry is split into England & Northern Ireland, Scotland and Wales.
- Cedefop uses five stages to monitor NQF development and implementation, which are seen as continuous, circular and iterative:
  - Conceptualisation and design
  - Official establishment/formal adoption
  - Early operational stage
  - Operational stage
  - Evaluation, impact and (re)design.

The OECD published its annual compendium of statistics _Education at a Glance 2019_, providing data on the structure, finances and performance of education systems across OECD countries and a number of partner economies.

- In includes more than 100 charts and tables, as well as links to additional information on the educational database, and provides key information on:
  - the output of educational institutions
  - the impact of learning across countries

- access, participation and progression in education
- the financial resources invested in education
- teachers, the learning environment and the organisation of schools.

- The 2019 edition includes a focus on tertiary education with new indicators on: tertiary completion rates; doctoral graduates and their labour market outcomes; and tertiary admission systems.

- There is also a dedicated chapter on UN 2030 SDG4, which aims to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'.

Individual notes are available on all the countries, including the UK, which it generally treats as a single system.

HEPI, which hosted the UK launch of *Education at a Glance*, published *15 things worth glancing at*, highlighting some of the 'stand-out facts', including:

- The UK is above average among OECD countries for the number of Bachelor's students but below average for the number of masters' students.

- The problem of young people not in education, employment or training (NEET) is now 'pretty much under control'.

- The UK is relatively very good at extracting value from the skills that people have, so there is no widespread problem of 'overskilling'.

- The UK is top of the G7 countries for education spending, so, overall, the challenges our system faces may have less to do with money and more to do with other things.

- The UK is an outlier in terms of the relative spend on academic education and vocational education: we spend more per student on the former even though the latter can cost more to deliver successfully.

- Women earn less than men across the OECD, even within the same fields of study – so pay differentials are not just down to women and men choosing different routes.

The European Commission published *The Organisation of the Academic Year in Europe – 2019/20, Eurydice Facts & Figures* with data on 38 countries, including differences between university and non-university study programmes.

QAA published an updated *Qualifications can cross boundaries: A guide to comparing qualifications in the UK and Ireland*, developed with partners including the Northern Ireland Council for the Curriculum, Examinations & Assessment.

- The guide, which also draws comparisons with European HE frameworks, now includes apprenticeships for the first time.

Government

NORTHERN IRELAND

The DfE published *Northern Ireland Skills Barometer: Summary report*, produced by the Ulster University Economic Policy Centre.

- The baseline macroeconomic forecast is for the Northern Ireland economy to create 39,130 jobs over the period 2018–28.
  - This is a relatively subdued job outlook – the economy created almost three times as many jobs in the pre-recession decade.
- Under a 'high growth' scenario the Northern Ireland economy will create 85,380 jobs over the coming decade.
  - Job growth (expansion demand) in this scenario will be driven by high-skill sectors such as ICT and professional services.
  - This translates to high growth in science and technology occupations, with the ICT sector growing by 50%, and most additional jobs in professional, scientific and technical services.

- Net replacement demand will provide more than double the number of job opportunities, mainly in sectors such as health, retail and manufacturing.
  - It is important to note that sectors don't have to be growing rapidly to provide job opportunities.
- Managers, professionals and associate professionals account for almost 50% of total employment growth; science and technology professionals will grow by almost 33%; and lower-skilled occupations face a more subdued growth outlook.
- Of the net requirement from education and migration over the coming decade, 33% of job opportunities will require a degree-level qualification (Level 6+), while only 10% will require qualifications below Level 2.
  - 40% of education leavers entering the labour market have at least an undergraduate degree (Level 6); 14% are qualified to Level 2 or below.
- Only 48% of those entitled to free school meals achieved at least five GCSEs at A*–C (including English and maths) compared with 77% of non-free-school-meal pupils.
- Only 10% of FE qualifiers achieve higher than Level 3, demonstrating the limited supply of people studying higher level vocational qualifications focused on professional and technical skills.
  - In most other OECD countries a much higher proportion of students enrol in these types of courses, and they are valued by firms and students as highly as university qualifications.
- STEM-related subjects are most under-supplied at graduate level – engineering & technology, mathematical & computer science and physical/environmental sciences.
  - The most over-supplied subject groups are education, social studies and medical-related subjects.

The report includes a number of policy implications and recommendations; a detailed slide pack was also published.

The DfE published a research bulletin on *Skills Demanded by the Digital IT Sector*.

- In 2018, the majority of Northern Ireland's 28,000 IT workers were concentrated in transport & communication (11,000) and banking & finance (7,000); almost 33% were spread across other sectors.
  - Jobs and output in the sub-sector of computer programming & consultancy have more than doubled since 2010, well surpassing industry averages.
- The 2019 Skills Barometer *[see above]* shows that, under a high-growth scenario, the demand for IT workers is expected to be high, with over 1,500 required annually over the next decade.
  - 70% of these are expected to need qualifications at Level 6 (degree level) and above.
  - Only 8% of future demand will be at Level 2 (GCSE level) and below.
- The model estimates an annual shortfall of 200 students or immigrants with computer science degree-level qualifications; other STEM-related subjects will also experience shortages.
  - Only 37% of students from Northern Ireland who studied computer science elsewhere in the UK returned for employment over the five years to 2016/17.
- The Burning Glass 'web-scraping' tool found over 13,000 job postings for IT workers in Northern Ireland in 2018 – around 10% of the total and an increase of 1,000 on two years earlier; 90% were in Belfast.
  - However, the Northern Ireland market only accounted for 1.4% of IT postings in the UK.
- IT workers will be important to all six sectors identified in the draft Industrial Strategy for Northern Ireland as being, or having the potential to be, world class; they will be particularly critical to digital & creative technologies.
  - 81% of the job postings for IT workers in Northern Ireland in 2018 that stated a minimum level of education specified degree-level qualifications, compared with 46% of all Northern Ireland job posting.

Government, businesses and education providers are working together to come up with solutions to address supply gaps, e.g. careers leaflets on the skills in greatest demand; IT academies run by the Assured Skills Programmes; Invest Northern Ireland's Skill Growth Programme; the recently formed CBI Digital Forum.

It may be interesting to compare this report with one reviewing the status of education, skills and jobs for Scotland's Digital Technologies, published in September by SDS.

The DfE published *Barriers to Participation and Progression in Education and Employment for those at risk of becoming involved with Paramilitary Organisations in Northern Ireland*, **by the Institute for Conflict Research.**

- Paramilitarism and organised crime mainly impact on the lives of 16–24 year-olds in three ways:
  - Radicalisation for the purpose of political violence
  - Recruitment for involvement in criminality
  - Victimisation through threats or paramilitary style attacks.

- Particular risk factors include: the normalisation of political violence in local tradition and narratives; and persistent distrust of the police and the state more generally.
  - Social and economic marginalisation also leads to involvement in paramilitaries as a lifestyle choice and source of income when legitimate options may be limited.

- Many have experienced early traumas – such as child abuse, domestic violence and parental offending – that are linked to poor wellbeing in later life and reduced resilience to the influence and coercive control of paramilitary groups.
  - Such traumas are often linked to increased substance and alcohol abuse and addiction; drug use, in particular, brings young people into contact with paramilitary organisations.

- Four further groups of young people are specifically vulnerable: those who are looked after/care-experienced; those experiencing homelessness; those growing up in areas of paramilitary group influence; those involved with the criminal justice system.

- The overwhelming majority of young people affected are male.

- The main barriers to participation and progression in education, training and employment are poverty and economic barriers, with the latter persisting into adulthood.
  - The chaotic lives of these young people result in education, training and employment often being overshadowed by the need to secure a stable home environment.

- There are increasing levels of special educational needs, which schools and FE colleges are ill-equipped to meet.
  - There is also stigma and fear around accessing support services, which staff are not trained to address.

- Intergenerational unemployment is having a negative impact, undermining the place of home as a learning environment, exacerbated by the general reduction in manual job opportunities for young people.

The report makes a number of recommendations to respond to the specific needs of this demographic.

ENGLAND

[No relevant material sourced for this quarter's release.]

SCOTLAND

The Scottish Government published *Scotland's Future Skills Action Plan*, **to 'ensure Scotland has a skilled and productive workforce which is resilient to future economic challenges'.**

- The plan takes forward the recommendations in the Enterprise & Skills Strategic Board's strategic plan published in October 2018 *[see* Skills Research Digest Q4 2018*]*.

- Four themes are: increasing system agility and employer responsiveness; enhancing access to upskilling and retraining opportunities; ensuring sustainability across the skill system; and accelerating the implementation of the learner journey review.

- Key actions include:
  - Increase the Flexible Workforce Development Fund (available to employers paying the apprenticeship levy) from £10m to £20m/year from 2020/21.
  - Address skills gaps and shortages as a central part of the response to Brexit.
  - The national skills, qualifications and FE and HE funding bodies to develop a clear definition of meta-skills and apply a joint skills alignment planning model.

- Work with the CBI and Scottish Trades Union Congress to identify upskilling and reskilling opportunities through the Scottish National Retraining Partnership.
- Build on work on Skills Investment Plans in each region as part of City and Growth Deals.
- Publish a Climate Emergency Skills Action Plan.

The Scottish Government's _evidence and analysis annex_ to the above Action Plan highlights the challenges for skills in Scotland.

- Skills gaps tend to be more prevalent than in the rest of the UK.

- There has been a steady decline in employees receiving job-related training over the past 15 years.

- There are persistent sector-specific skills gaps affecting businesses (e.g. in manufacturing).

- There is a relatively high level of underutilisation of graduate skills.

- As the workforce ages, the need to provide retraining and upskilling opportunities for older workers will rise substantially.

- Occupational and skills segregation have created gender and disability gaps.

- Future employment demand is forecast to be mainly in jobs at medium to high skill levels.

- Issues with an impact on skills gaps and skills shortages include: Brexit, tackling climate change, digital innovation and automation.

The David Hume Institute published _Wealth of the Nation: Who Will Do the Jobs?_, examining future labour supply challenges for Scotland.

- Scotland is facing a potentially serious future shortage of workers:
  - Employment rates are at a near-record high.
  - The birth rate is lower than all other parts of the UK and 29 of the 36 OECD member countries.
  - The pension-age population is projected to increase by 265,000 by 2041, while the working-age population is only projected to rise by 38,000; the health and social care sector is likely to be particularly affected by labour shortages, exacerbated by the ageing population.
  - Migration to Scotland, already lower than to England, has been falling in recent years, and there is enormous uncertainty over the impact of Brexit on future immigration rates.
- To mitigate the challenge – although participation rates could be increased, e.g. male rates are below historical highs, and technological change may alter some demands for labour – immigration must be a priority; a Canadian-style system is proposed.
  - Both high-skilled and lower-skilled occupations rely heavily on migration from overseas.

The CBI published _The CBI/KPMG Scottish Productivity Index_, the first of a new annual report.

- The publication tracks performance in business practices, skills and training, health and wellbeing and infrastructure and connectivity.
  - Scotland is currently behind other parts of the UK or international competitors in nine out of 15 key indicators, although progress is being made in some areas.
- 24 recommendations, many related to skills, include:
  - Set a target for 100% of the workforce to have basic digital skills by 2025
  - Prioritise investment in management and leadership skills
  - Place lifelong learning at the core of a responsive, flexible skills system
  - Collect data centrally on business–school engagement; companies should start or expand their business engagement with schools
  - Encourage sales and marketing training
  - Companies should map workforce skills and training provision with employees to enhance on-the-job coaching and prepare for the future.

SDS and Scottish Enterprise published _Skills review for the offshore oil & gas decommissioning sector in Scotland 2018/19_, including the challenges and opportunities for skills provision and shortages.

- Eight recommendations include:

- Improve understanding of the supply and demand for the skills used in decommissioning
- Include decommissioning in energy skills passport developments
- Map in more detail the skills and competencies required for decommissioning
- Identify where existing courses could benefit from incorporating decommissioning content
- Investigate the feasibility of a course in strategic project management for decommissioning.

WALES

The Welsh Government published *Wales 4.0: Delivering Economic Transformation for a Better Future of Work*, **the report of the Review of Digital Innovation for the Economy & the Future of Work in Wales.**

- The Welsh Government's strategies and policies to date are all valuable, but are based on the economics of now.
  - With stakeholders, industry and individuals, it must adopt a more holistic, joined-up and bold approach: 'Wales 4.0'.
- Recommendations include:
  - Set an ambitious vision for Wales 4.0 and ensure that digital innovation is seen as a responsibility of all Welsh Government ministers and officials; the vision should be informed by a national conversation with citizens.
  - Support the creation of six Industrial Innovation Clusters (IICs), each with a lead body, to develop Industrial Transformation Roadmaps that identify current strengths and the potential for advancing digital innovation at a regional, national and international level.
  - Establish an AI Institute for the Future Economy to help position Wales as a digital nation and facilitate a more integrated approach to the application of leading-edge research in AI.
  - Integrate existing business, skills and innovation support to form a single business diagnostic and transformation process; extend existing forms of innovation support to businesses.
  - Align the Welsh Government's International Strategy and marketing activities to the principles of Wales 4.0 and the IICs, as part of an outward-looking approach.
  - Conduct reforms aimed at building capacity within post-compulsory education so that it is able to bring about the change required in preparing for the future of work in an age of lifelong learning.
  - Develop a new Skills Framework for Wales and institute a series of capacity-building projects to create multiversity institutions.
  - Establish a new Lab for Work@Wales4.0 as a central resource for industry, government and social partners to gain insight on future trends.
  - Introduce a Future Economy Commission reporting to ministers and with membership drawn from international business leaders and experts.

IPPR Scotland published *A 21st century skills system for Wales: Challenges and opportunities*.

- Ten key challenges and opportunities are identified, including:
  - An older population that is ageing markedly from now through to the end of the 2030s
  - The uncertainty surrounding Brexit
  - Narrowing existing economic inequalities and strengthening the economy
  - Delivering on the opportunities created by ongoing reforms to skills governance
  - Developing stronger employer engagement
  - Developing a system that serves a distinct geography and supports the language and culture.

The report follows similar reports for Scotland and Northern Ireland, and has also been funded by the Further Education Trust for Leadership (FETL). The second phase will look at what needs to change and what needs to stay the same.

REPUBLIC OF IRELAND (RoI)

The Economic & Social Research Institute (ESRI) published *Evaluating Post Leaving Certificate [PLC] Provision in Ireland*.

- The PLC is the largest full-time FE (post-secondary non-tertiary) programme in the RoI.

- Its purposes are to provide VET for young people, act as a bridge to HE and provide a second-chance route for adult learners.
- The PLC has had a positive impact on providing educational opportunities for a diverse group of learners and enhancing their access to employment and HE.
  - Around five years after course completion, PLC participants were 16% more likely to be in employment than similar individuals who entered the labour market directly after completing their Leaving Certificate.
  - PLC participants were 27ppt more likely to have participated in HE compared to direct labour market entrants.
- Challenges and areas for improvement include:
  - There is currently relatively little input of information on skill gaps and employer demand to job-specific courses – they need to be able to respond better to changing labour market conditions.
  - Courses that are more focused on progression to employment, as opposed to further or higher study, need a much stronger emphasis on skill formation, employability and work experience.

Skillnet Ireland published _Innovation Capability Development in Ireland: Understanding and enhancing innovation capability and performance_, conducted by Trainers' Learning Skillnet and the Irish Institute of Training & Development.

- Innovation is defined as 'implementing new ideas', and training for innovation as the combination of creativity and implementation skills.
  - Innovation is recognised as being of critical importance by organisations in the RoI, however 69% do not provide specific innovation training for employees.
- Conclusions include:
  - Structured, specific evaluation of innovation training is required.
  - To support genuine innovation, related training must involve both 'soft' skills linked to creativity, ideation, etc., and 'hard' skills linked to concept development, project management and implementation.
  - Leadership support at an organisational level is necessary for innovation and innovation training to be effective and an innovation strategy is crucial for it to be successful.
  - More coherent programmes are needed to support innovation in SMEs and not-for-profits.
  - Government and semi-state bodies should maintain a focus on innovation and innovation capability development.

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