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Skills for the Future of Work

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Background

In 2019-2020 the Careers Service reviewed research and thinking on the future of work, how it may affect our students and graduates, and the way the University prepares them for the future. This informed the creation of a [curriculum toolkit](#) on student development, employability, and careers, and on equipping students for the future of work, supplying examples of how this can be developed and surfaced in the curriculum. ^{1, 2}

The Covid-19 pandemic has accelerated many of the trends shaping the future of work, and the need to prepare students and graduates for a dynamic and uncertain labour market has become more pressing. This paper summarises key insights and poses questions for consideration.

Trends informing the future of work

Reports show that technological change is one of seven major forces influencing the future of skills and work, alongside the environment, urbanisation, growing inequality, political uncertainty, globalisation, and demographic change. The Near Future Teaching project illustrated how these could combine to create a range of future world scenarios and considered how this might inform and influence our future learning and teaching. ^{3, 4}

Environment
and climate
change

The global climate crisis will see a disruption in the labour market with millions of jobs lost but more created. The International Labour Organization (ILO) estimates that in working towards a circular economy, a net total of between 7 and 8 million new jobs will be created by 2030. While some areas will lose e.g. through changes in manufacturing and plastics bans, others will gain e.g. through green technology and agricultural reform. These changes will demand different skills in the workforce, requiring broad skill sets as well as specialist disciplinary knowledge, and the ability to collaborate in multidisciplinary teams. ^{3, 5, 6, 7}

Growing
inequalities

Accelerating automation and the fallout from Covid-19 may entrench and deepen existing inequalities across labour markets, with the impact felt disproportionately on marginalised groups and the young, particularly those in low-wage, precarious jobs. For example, contraction in retail, leisure, and hospitality has severely limited the opportunities available to those who typically work in these sectors and who may need to adapt to emerging roles and fields. ^{8, 9}



Urbanisation	Rapid urbanisation will create challenges for cities, and the need to achieve long-term sustainability with minimal environmental impact. If managed effectively, cities can become beacons for innovation and creativity, promoting economic growth, and presenting new opportunities for agile, mobile, and adaptive individuals. Conversely, cities in the developed world may shrink in response to labour market changes, with a predicted 1 in 5 jobs 'lost' in UK cities by 2030. ^{3,7}
Technological change	There is ongoing debate about the impact of technological advances on the world of work. Optimists anticipate the emergence of 'new' sectors as technology drives productivity, with a more pessimistic outlook anticipating technological displacement and unemployment. Despite this debate, technological change has already made its influence felt on the labour market through digitalisation, digitisation, AI, the growth of 'big data', and recent changes to support remote working. Research suggests the half-life of technical knowledge is falling, so organisations are prioritising skills such as adaptability, resilience, and an appetite for lifelong learning. ^{10, 11, 12, 13, 14, 15}
Political uncertainty	Following the 2007 financial crisis, the World Uncertainty Index, which measures economic policy uncertainty across 143 countries, has been rising. The uncertainty from political change, such as Brexit, and surfaced inequalities have fuelled tensions and, in some areas, generated anti-establishment feelings, with implications for business and individual decision making. ¹⁶
Globalisation	Economic shifts are redistributing power, wealth, competition, and opportunity between developing and developed nations. Rapidly-developing nations that have large working-age populations and can invest in business and education, will continue to see job creation with more companies shifting skilled work from developed nations. Technological advances risk contributing to a growing divide between developed and emerging nations, with migration anticipated to continue to cause pressure on economies. ^{6, 12, 17}
Demographic change	Demographic changes such as growth in the aging population in developed nations, and a decrease in the proportion of the working-age population, are creating labour market shifts, for example growth in health and social care opportunities. Other implications include the need for individuals to have career management skills to navigate multiple transitions throughout their working lives, to develop skills for emerging sectors as jobs become redundant and to operate successfully in a multi-generational workforce. ^{3, 6, 18}
	The impacts of these trends will vary across regions, sectors, and individuals, sometimes disproportionately and Covid-19 has accelerated many of them. For example, sectors such as hospitality, sport, and leisure may now be vulnerable to automation, while growth is anticipated in green energy and medical technology.
	Equally, students and graduates may be individually affected based on factors such as their discipline of study, country of origin, ethnicity, or socio-economic status. This will increase the importance of developing students' attributes,

their career management skills, and their ability to understand labour market trends to effectively navigate personal and societal changes, planning for an uncertain future.

Future skills requirements

Many organisations are considering the skills needs of the future, resulting in a plethora of taxonomies and frameworks which seek to anticipate and define the skills, competencies and attitudes required, some viewed through a specific lens, for example:

- The **World Economic Forum** identified widespread skills gaps among working-age populations citing a particular emphasis on critical thinking, problem solving, analysis, and self-management (including resilience and flexibility).¹²
- The **OECD** highlights the growing importance of digital skills to reflect and accommodate changing work practices.¹⁹
- **Skills Development Scotland's Skills 4.0** takes a holistic view of meta-skills; 'the timeless, higher-order skills that create adaptive learners and promote success in whatever context the future brings'. 12 skills areas are clustered under self-management, social intelligence and innovation.²⁰
- The **ILO's Skills for a Greener Future** outlines core skills required across the labour market and those for higher-skilled occupations to deliver a low-carbon economy, noting 'of particular importance will be core (or soft) skills, which can confer a comparative advantage as they can be transferred across occupations'.²¹
- A **DFID** report on 21st Century Skills considers both global and regional demand, recognising important variations resulting from different developmental contexts.²²
- **UNESCO's** Education for Sustainable Development Goals set out a range key competencies to drive sustainability.²³

In spite of the uncertainty about the precise nature of the future, there is broad agreement about the likely skills requirements.^{3, 24, 25, 26, 27, 28, 29} These include:

- higher-order cognitive skills such as creativity, problem solving, critical and systems thinking;
- collaboration skills including teamwork, communication, and emotional intelligence;
- digital skills – all individuals will need basic skills, with some needing advanced skills for specialist roles in technology;
- a range of mindsets including resilience, motivation, self-confidence, flexibility, and an enterprising outlook;
- self-management skills encompassing career management and lifelong and agile learning to support multiple career transitions;
- access to up-to-date information about the changing labour market.

There is much to stimulate discussion about the requirements of our graduates as they move into life beyond University. Curriculum Transformation creates a unique opportunity to consider the distinctive shape of the skills and attributes of Edinburgh Graduates. (For an exploration of the role of graduate attributes, see the Curriculum Transformation briefing paper 'Graduate Attributes'.)

Considerations

Economic recovery from the Covid-19 pandemic is likely to be protracted and uneven, and the 'stickiness' of societal changes are difficult to predict, but the broader super-trends and skills needs around the workplace and evolving labour market will continue.

Our choice of teaching and learning approaches takes on a new significance in this context and presents a stimulus for the University in how we support our students and graduates. Considerations include:

- How do we create a clear, consistent, and positive narrative around the future to motivate and empower our students?
- What learning environments, and teaching and assessment methods best support the development of the necessary skills and attributes?
- How can we enable the development of relevant mindsets including resilience, motivation, and self-confidence?
- What should be addressed within and outside of the formal curriculum? Who is responsible/accountable?
- How do we remain responsive and adaptive to changing requirements?
- How do we align this with other institutional agendas such as Student Support, Diversity and Inclusion, and Wellbeing?

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