

External Environment Monitoring

A Light-Touch Explanation of Macro External Environment Factors in Relation to Research & Innovation in Wales.

A PESTELE (formerly PESTEL, it now has Ethical factors included, and sometimes referred to as STEEPLE) is a framework used by senior leaders to analyse and monitor macro environmental factors that have an impact on the organisation and/or the sector. The table below summarises the key elements of each factor and these are expanded on below. There is no prioritisation of factors, the order they are presented in is coincidental to the acronym.

Political	Economic	Social	Technological	Environmental	Legal	Ethical
<ul style="list-style-type: none"> • Government organisation and attitude • Devolved Nations Government • Political Stability / Instability • Attitudes to Education (Especially further and higher education) • Foreign Trade Policy • Immigration policy • Funding 	<ul style="list-style-type: none"> • Economic Growth • Unemployment Policy • Inflation, interest rates & other monetary policies • Consumer confidence • Funding 	<ul style="list-style-type: none"> • Income distribution • Demographic Changes • Labour/Social Mobility • Lifestyle Changes • Fashion Changes 	<ul style="list-style-type: none"> • New inventions & Developments • Rate of Technology Transfer • Life Cycle & Speed of Technological Obsolescence • Changes in information Technology • Changes in Mobile Technology 	<ul style="list-style-type: none"> • Environmental regulations & protection • Consumer expectations • Climate Change 	<ul style="list-style-type: none"> • Tax Policies • Employment Regulations • Competition Regulations • Governance • Equality, Diversity & Inclusion 	<ul style="list-style-type: none"> • Social Values that shape business Behaviour • What is “right” and what is not • Social Responsibility • Free speech

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Political

This factor focusses on to what degree a government intervenes in the economy. For Higher Education in Wales there are a number of varying factors compared to English Higher Education counterparts. These include the devolved Welsh Government with the devolved responsibility for education. The approach to HE in Wales is different to England with HEFCW taking a more supportive and balanced approach than England's Office for Students. This may change though with the development of the [Commission for Tertiary Education and Research \(CTER\)](#) in 2023 with its intended responsibilities across post -6 education provision in Wales:

- Protecting the interests of learners, ensuring vocational and academic learning are equally valued
- align education and training more closely with the needs of employers
- monitor performance and governance whilst protecting the academic freedom of institutions
- monitor and promote improvement in education and training providers
- take a whole system approach to research and innovation funding with an ability to provide funding to a wide range of HE and FE institutions
- to increase the availability of Welsh-medium tertiary education and to encourage individuals to learn through the medium of Welsh

In May 2021 the Senedd Cymru / Welsh Parliament elections take place with the known fact that the current Minister for Education, Kirsty Williams MS, is stepping down. She has been in post since May 2016. Another important Minister has been Ken Skates MS, Minister for Economy Transport and North Wales. The importance of the First Minister goes without saying!

The funding of research and innovation is blended with HEFCW providing QR funding for Welsh universities, and UK Research and Innovation providing UK wide funding for research and innovation on a competitive basis. The UK Government's levelling up agenda is yet to be clarified.

Economic

The impact of the SARS-CoV-2 pandemic has impacted economies globally. In December 2020 Government borrowing in December 2020 was [£2.1tn](#) (c. 99.4% of Gross Domestic Product, the highest debt ratio since 1962), and UK unemployment had risen to a [five year high at 5.1%](#). Almost 3/5 of unemployment was in the under 25s. This would be much higher with the positive impact of the Government's furlough scheme (extended to September 2021). Further and Higher Education are likely to play a significant role in reskilling the workforce, and contributing to economic redevelopment through research and innovation funding initiatives, including the £800M [Advance Research & Innovation Agency](#) that will fund 'blue-sky' research. The UK will [Associate to the EU's Horizon Europe scheme](#) (successor to Horizon 2020), Association will give UK scientists, researchers and businesses

access to funding under the programme on equivalent terms as organisations in EU countries.

The increase in global and domestic market competition for students will have an impact if student numbers reduce, as ultimately their contribution is required to sustain a university. Increased domestic competition for research funding will also present a challenge for some research communities in Wales. This combined with an upward pressure on costs (pension contributions, pay, accommodation refunds due to the pandemic etc.) also challenge university finances.

Social

Also known as socio-cultural factors, these involve the shared belief and attitudes of the population. These factors include – population growth, age distribution, health consciousness, career attitudes etc. Career aspirations and expectations, especially of Generation Z (born between mid 90s and early 2010s), have an impact on student recruitment and also the future generation of researchers. This factor can also impact on the future focus of research and innovation funding.

Technological

The technological landscape evolves quickly, and especially so in research and innovation. Keeping ahead of the curve both in development and introduction of new technologies is key to a competitive advantage for the 'UK PLC', and thus impacts on the economic factor. As the UK is a knowledge led economy, advancements in technology are one of the priorities for its future success.

Technology has also enabled a change in how we work during the pandemic and will impact how we work and collaborate in future. The expectation is that there will be reduced travel and consequently reduced costs for research and innovation projects.

Legal

Legal factors include - health and safety, equal opportunities, advertising standards, consumer rights and laws, product labelling and product safety. For research and innovation, post Brexit, employment law may present challenges in recruiting (and retaining) the best researchers from around the globe – this also links to socio-cultural factors and the perception of the UK overseas as a welcoming or a xenophobic country.

Ethical

The most recent addition to PESTEL is the extra E - making it PESTELE or STEEPLE. This includes ethical principles and moral or ethical problems that can arise in higher education. It considers things such as fair trade, slavery acts and child labour, as well as corporate social responsibility (CSR). Civic Mission falls into this category and the role of a University in Place is key to the success of the local area. In Wales, there is a higher expectation in relation to civic mission than in England.

Research & Innovation Ethics naturally fall into this category (as well as legal), and changing political and socio-cultural factors can impact on this over a longer period of time.

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