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# The impacts of research from Welsh universities

*A comprehensive review of the REF 2021  
impact case studies*

## Executive Summary

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WRITTEN BY:

THE  
POLICY  
INSTITUTE



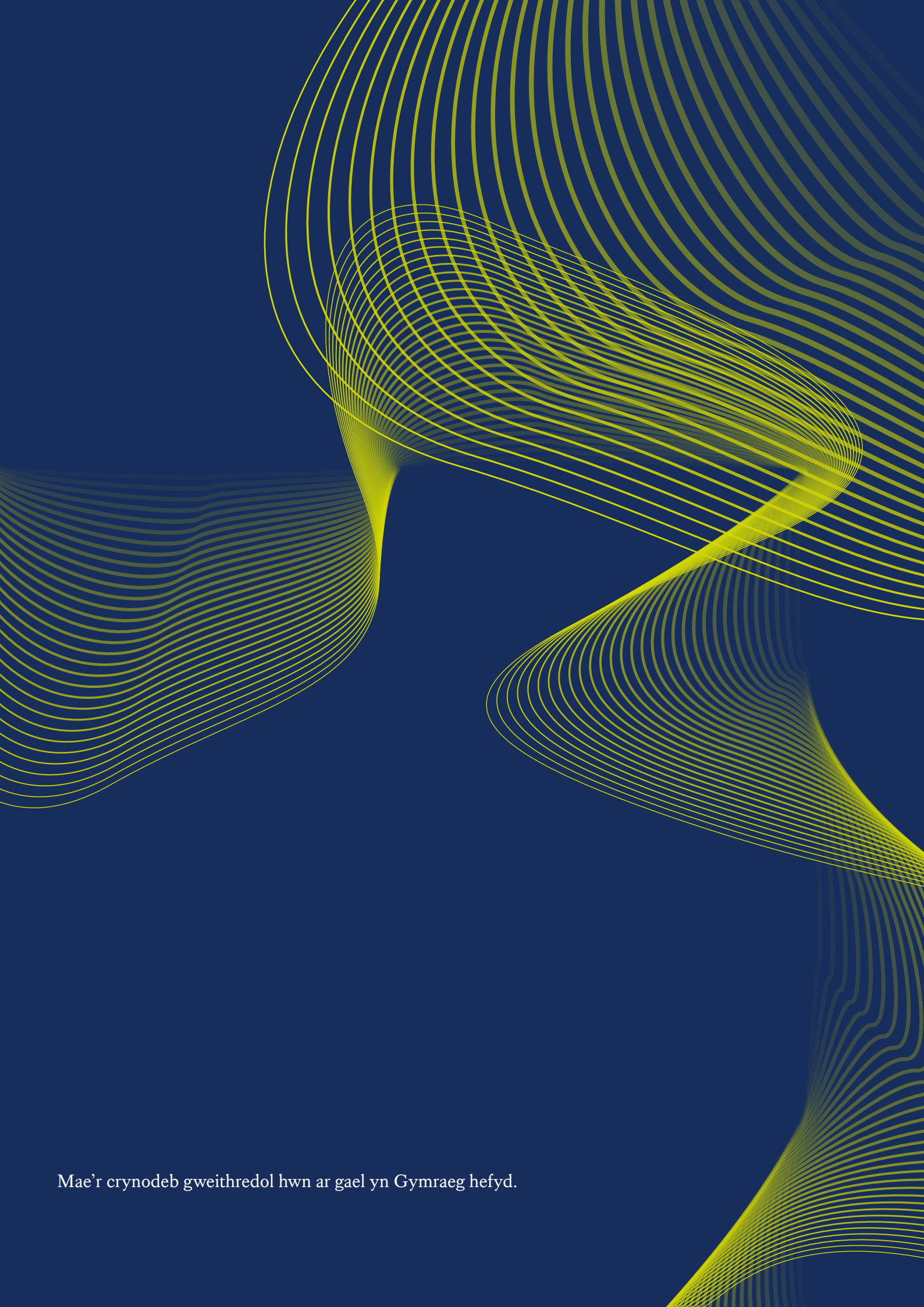
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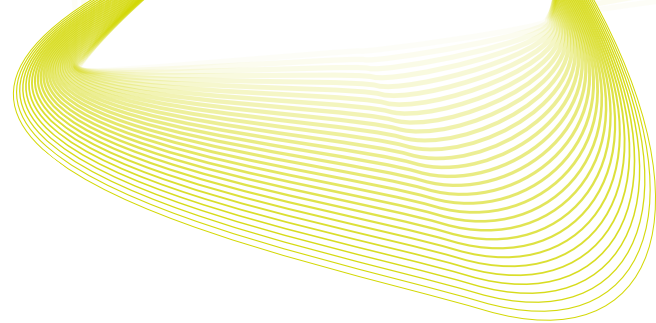
Alexandra Pollitt, Niall Sreenan,  
Daryl Leeworthy, Daniel Hughes

Jonathan Grant

Martin Szomszor



Mae'r crynodeb gweithredol hwn ar gael yn Gymraeg hefyd.



This study was commissioned by the Learned Society of Wales to better understand, promote and communicate the contribution that Welsh Higher Education Institutions (HEIs) make to wider society. In doing so it takes all 280 publicly available impact case studies (ICS) submitted by Welsh HEIs to the 2021 Research Excellence Framework (REF 2021) and – through complementary quantitative and qualitative approaches – explores the nature of the impacts produced, the mechanisms supporting this and the groups of people that benefit. The case studies present a compelling and inspirational picture of the contributions made by Welsh HEIs beyond academia and Wales’s borders.

After the assessment of impact was introduced as part of the REF in 2014 (alongside the assessment of outputs and the institutional environment supporting research), the weighting of this component was increased from 20% to 25% in 2021. HEIs were required to submit impact case studies (ICS) describing the impact of research conducted across (up to) 34 subject-based units of assessment (UOAs), arranged under four main disciplinary panels. For each UOA, expert panels assessed the contribution of research – as described in the ICS – in producing an “effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia”. While the analysis reported here is comprehensive in its coverage of the ICS submitted, it is important to note that these 280 examples represent a portion of the research taking place in Welsh HEIs and the impacts they produce (albeit, by definition, including the most high-impact work). For that reason, this report should not be taken as a picture of the sector as a whole – there will be many other contributions not captured as part of the REF exercise. It does, however, reveal the many strengths and varied impacts of research undertaken in Welsh HEIs. Assessing impact across the disciplinary spectrum also shines a light on those research areas that might typically have a lower-profile or in which less ‘traditional’ conceptualisations of impact might be more common.

Key findings from the analysis are set out below.

## Key findings

### **Welsh HEIs have a significant impact on society**

The ICS submitted as part of REF 2021 form a rich dataset. They are useful for both demonstrating the scale and nature of impacts arising from Welsh HEIs, as well as for exploring in detail the range of groups involved and diverse approaches to engaging with and benefiting the world outside academia. The opportunity to focus on HEIs in Wales in a geographically distinct analysis allowed us to read and analyse every ICS submitted, rather than relying on a limited sample, and enables us to build a nuanced picture across disciplines of the impact arising from HEIs in Wales. In doing so we are able to explore in more detail the various ‘pathways’ by which impact is produced – for example, who is involved and the activities that are undertaken. This is particularly valuable in those areas that might have fewer ‘standardised’ routes to impact (such as patenting or commercialising a technology) and we hope it can both help demonstrate the value to society of such research and inspire others to pursue novel ways of creating impact. It is also worth noting that the diversity of pathways and approaches documented in the ICS mean that impacts are realised over a longer-term period. Our analysis of these ‘time lags’ between research outputs and impact (see Section 5.3) shows some variation both within and between disciplines, but across all research provides further evidence that generating impact is not a short-term endeavour.

### **Impact from Welsh HEIs emerges from multiple disciplines and its creation is a bespoke activity involving many possible pathways.**

Although some impact topics are more strongly associated with some REF Panels – as we would expect – it is notable that in general each impact topic comprised contributions submitted to a variety of UOAs (see Figure 7) and drew on underpinning research from a wide range of research fields (see Figures 13 and 14). This illustrates the many possible routes to creating impact that were reported. We also examined cross-discipline collaboration in the research underpinning the reported impacts within individual ICS and how this varied by REF Main Panel. This analysis is reported in section 3.4.

### **Partnerships with non-academic stakeholders featured prominently in the creation of impact**

The vast majority of ICS from Welsh HEIs – 94% – reported collaboration with non-academic partners (see Section 3.2). Most commonly this involved public sector bodies in Wales or the UK more widely (43% of partnerships described), including UK and Welsh national and local government as well as arm’s-length bodies and departments. A further 29% of collaborations were with industry partners, leading to impacts in areas including education, media and communication, healthcare, and digital environments. International partnerships with non-academic stakeholders were reported in 22% of ICS.

### **Welsh HEIs produced impact in a wide range of areas with comparatively more ICS than UK HEIs as a whole in topics including ‘environmental conservation’ and ‘energy’**

We find that Welsh HEIs contributed across all 79 impact topics identified in the UK-wide analysis. This similarity to the UK as a whole is in itself an impressive achievement, given that this diversity was achieved within a much smaller number of HEIs and hence far fewer ICS. While the distribution across topics was similar for Welsh HEIs and for the wider UK, there was some slight variation in the relative proportions (see Figure 3 and Table 5). The analysis showed that comparatively more ICS from Welsh HEIs were classified in the impact topics ‘environmental conservation’ and ‘energy’, and comparatively fewer in ‘media and communication’ and ‘training and skills’. It is important to note that this latter observation is not an indication of either lower ‘quality’ or of a small contribution in absolute terms – rather it is a reflection of the specific landscape of research impact in Wales and, indeed, both topics were in the five impact topics for Welsh HEIs with the greatest volume of submissions. Overall, the most prominent impact topic was ‘Wales’, a topic for which the associated ICS were distributed across all four broad disciplinary panels (further information on this topic is provided in Box 1). ICS associated with the second most common topic, ‘training and skills’, also came from all four panels, but with larger numbers in Panels A and C.

### **The sectors in which Welsh HEIs most often reported impact were ‘human health and social work activities’, ‘education’ and ‘public administration and defence’.**

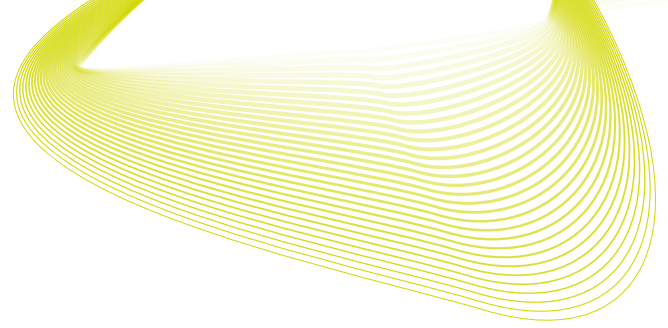
The qualitative coding revealed that impacts reported in ICS from Welsh HEIs occurred across 30 different sectors of the economy, as defined by the condensed version of the UK’s Standard Industrial Classification. Across the full set of ICS, 35% reported an impact in ‘human health and social work activities, 25% in ‘education’ and 22% in ‘public administration and defence’ (see Table 7).

### **In addition to the 70% of ICS that documented impact in Wales, research carried out in Welsh universities has impact globally. Over 60% of ICS described research that had an impact internationally.**

Research carried out in Welsh HEIs reaches far beyond Wales in its impact, with over 90% of ICS reporting an impact in the wider UK and more than 60% describing international impact (see Sections 2.4 and 2.5). The top four sectors in which impact was reported were identical in each geographical area, although this is perhaps not surprising given the substantial overlap between ICS reporting impact in each region.

### **85% of ICS from Welsh HEIs reported impact in changing processes or practices, although there was significant overlap with other types of impact – in particular changing policy and governance (51%) and economic impacts (42%). Multiple types of impacts were reported in 77% of ICS.**

The most commonly reported type of impact was that research created some kind of change in processes or practices, which featured in 85% of ICS from Welsh HEIs (see Section 2.6). This included changing practitioner knowledge or behaviour, informing new procedures and practices, and the creation and adoption of new products and services, as well as modifications to existing processes, procedures and guidelines (see Table 10). As we would expect, the sectors in which these impacts occurred reflect the sectors benefitting more widely from Welsh research, with ‘human health and social work’, ‘education’ and ‘public administration and defence’ featuring most prominently. It is worth noting, however, that



77% of ICS reported multiple types of impact, with 121 of those that reported changes in processes or practice also reporting impact on policy, while 100 ICS reported both impact on practice and economic impacts. This demonstrates how research has impact in multiple areas of social and/or economic life and how individual case studies often have multiple pathways to impact.

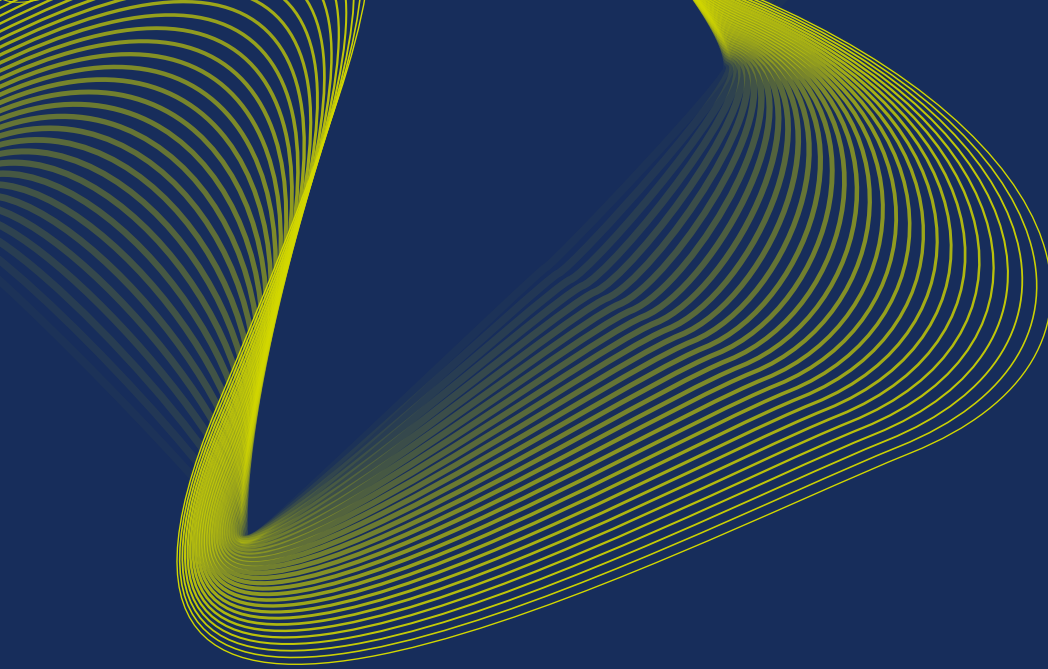
frequently included local and regional populations, and women and gender-based groups.

**Over half of ICS informed policy or governance, while 42% had an economic impact, particularly in the manufacturing sector.**

While changes in processes and practices were most frequently reported, other types of impact were also widespread in the ICS. Over half of ICS described changes in policy or governance, while one-third reported changing public debate or perceptions – again, predominantly in sectors reflective of the overall set of ICS. Economic impact was reported in 42% of ICS, but here the sectoral profile was slightly different, with manufacturing featuring most prominently – overall, 9% of all Welsh ICS reported an economic impact in the manufacturing sector (25 of the 118 – or 21% – of the ICS that reported any economic impact).

**The beneficiaries of research from Welsh HEIs were widespread and varied, including both those who benefited in a professional capacity and the wider public, in Wales, the UK and internationally.**

A wide array of people and groups benefited from the impacts reported by Welsh HEIs, with two-thirds of ICS reporting an impact on decision-makers and influencers, and just under half describing impacts on various groups within the wider public (see Section 4.1). Among decision-makers, government departments featured most prominently – overall around 20% of ICS benefited a Welsh Government department – while other groups mentioned include politicians, local government and sector-specific bodies in areas such as health and justice. Within the wider population, 25% of ICS reported benefiting children and young people, most commonly within Wales through direct engagement in schools or impacts on education policies and materials, for example. Other demographic groups referred to



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