The Welsh Economy and Improving GVA

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Introduction

The Welsh economy is performing poorly versus the rest of Great Britain and has done for many years. GVA per head in Wales in 2021 was £22,380 which was 74.1% of the UK figure the second lowest of the UK countries and English regions.

The Gross Value Added per head in Wales for the year 2019 was £21,295. This represented a 2.1% increase from 2018, this figure was the third lowest annual increase among the 12 UK countries and English regions.

London had the highest GVA per head at £54,686, which was significantly above the UK average, the Southeast England followed with a GVA per head of £33,999.

Regions like the Northeast and Northern Ireland were closer to Wales, with GVA per head figures of £20,935 and £23,700, respectively.

These figures highlight the economic disparity between the different regions and nations of the UK, with London and the Southeast being much wealthier than the other parts. The cost of living especially housing is substantially higher in London and the southeast of England than Wales.

Both the increases for Wales and for the UK from 2020 were the largest since records began and were mainly the result of the recovery from the COVID-19 pandemic.

Structure of the Welsh economy

The economic differences between regions, such as those observed in the UK's GVA per head, can be attributed to a variety of factors:

- **Industrial Structure**: Regions may specialize in different industries, with some focusing on high-value sectors like finance and technology, which are concentrated in London, while others may have a greater proportion of lower-value industries.
- **Investment Levels**: Higher levels of investment in infrastructure, education, and business can lead to greater economic growth. London, for example, benefits from significant investment.
- **Workforce Skills**: Areas with a more skilled workforce tend to attract higher-paying jobs, which contributes to higher GVA per head.
- **Economic Policy**: Government policies can affect regional development through tax incentives, subsidies, and investment in local services.
- **Geographical Factors**: Proximity to markets and connectivity can influence economic activity. London's position as a global city facilitates international business. The development of fast broadband reduces the need for proximity to markets.
- **Historical Factors**: Historical industrial bases can shape the current economic landscape. Regions that were once heavily reliant on now-declining industries can struggle to adapt.

These factors interplay in complex ways to create the economic landscape leading to disparities in wealth and development across different regions. Understanding these can help in formulating policies aimed at reducing regional economic disparities.

Economic growth in the 10 years to 2021 has varied vastly in different parts of the country, according to data from the Office for National Statistics.
In 2021, GDP in Wales was estimated at £79.7 billion, in current prices. GDP in Wales increased by 9.1% between 2020 and 2021 in volume measures, following a decrease of 11.5% in 2020.

In 2021, GDP for the UK is estimated to have increased by 7.5%, following a decrease of 11.0% in 2020.

All UK countries and regions reported negative growth in 2020 because of the widespread economic impact of the COVID-19 pandemic, followed by a partial recovery in 2021.

Of the four countries in the UK, Wales saw the largest increase in real GDP of 9.1% between 2020 and 2021. Scotland showed the largest decrease in real GDP in 2020 (a decrease of 11.8%) followed by the smallest increase in 2021 at 7.5%.

GDP per head in Wales in 2021 was £25,665.

Comparing Wales v UK and Southeast by Industry

Industry	United Kingdom		Wales		Southeast	
	Number	%	Number	%	Number	%
A : Agriculture, forestry, and fishing	406,047	1.1	44,562	2.9	40,872	0.8
B : Mining and quarrying	50,998	0.1	1,882	0.1	1,811	0.0
C : Manufacturing	2,585,545	7.0	153,507	10.0	277,602	5.4
D : Electricity, gas, steam, and air conditioning supply	121,189	0.3	6,535	0.4	16,933	0.3
E : Water supply; sewerage, waste management and remediation activities	268,466	0.7	16,448	1.1	44,455	0.9

F : Construction	2,221,636	6.0	95,986	6.2	309,442	6.0
G : Wholesale and retail trade; repair of motor vehicles and motorcycles	4,745,005	12.8	191,903	12.5	695,417	13.5
H : Transportation and storage	1,948,515	5.2	62,563	4.1	257,802	5.0
I : Accommodation and food service activities	2,793,750	7.5	120,559	7.8	345,090	6.7
J : Information and communication	1,663,887	4.5	35,350	2.3	304,952	5.9
K : Financial and insurance activities	1,170,550	3.1	43,755	2.8	116,932	2.3
L : Real estate activities	710,022	1.9	18,552	1.2	97,872	1.9
M : Professional, scientific, and technical activities	3,461,422	9.3	83,749	5.5	512,585	9.9
N : Administrative and support service activities	3,044,159	8.2	112,391	7.3	437,824	8.5

O : Public administration and defence; compulsory social security	1,706,737	4.6	102,990	6.7	203,131	3.9
P : Education	3,055,312	8.2	131,635	8.6	482,780	9.3
Q : Human health and social work activities	5,004,531	13.5	231,664	15.1	647,563	12.5
R : Arts, entertainment, and recreation	1,107,434	3.0	41,824	2.7	181,115	3.5
S : Other service activities	1,025,231	2.8	38,978	2.5	173,030	3.4
T : Activities of households as employers; undifferentiated goods-and services-producing activities of households for own use	71,077	0.2	1,811	0.1	16,591	0.3
Total	**37,161,513**	**100.0**	**1,536,644**	**100.0**	**5,163,799**	**100.0**

Where the difference between Wales, the UK or the Southeast of England is less than 0.5% that has been ignored.

Wales has a greater proportion of its population working in manufacturing, public administration and Health and Social services, agriculture, forestry, and fishing than either the UK as a whole of the Southeast of England.

Wales has a smaller proportion of its workforce in ICT, real estate activities, administrative and support services Professional, Scientific and Technical activities, arts, and entertainment than either the UK as a whole or the Southeast of England. The shortage of employment in higher paid sectors such as ICT and Professional, Scientific, and technical activities is one of the causes of a lower GDP.

Successful regions

The most successful regions in Europe are based around capital cities and that is also true of Wales with the area around Cardiff the most successful, but this success does not go as far as the Glamorgan and Gwent valleys that are part of the Cardiff city region or to Swansea. Outside capital cities there are successful regions in and around Hamburg, Bavaria, and Salzburg. Ireland is a special case which will be discussed later in the pamphlet.

Hamburg

The City of Hamburg has a population of over 1.9 million and the Hamburg Metropolitan Region has a population of over 5.1 million. The Hamburg economy is estimated to be 95% higher than the European average.

Major regional broadcaster NDR, the printing and publishing firm Gruner + Jahr and the newspapers *Der Spiegel* and *Die Zeit* are based in the city. Hamburg is the seat of Germany's oldest stock exchange and the world's oldest merchant bank, Berenberg Bank. Media, commercial, logistical, and industrial firms with significant presence in the city include multinationals Airbus, Blohm and VossAurubis, Beiersdorf, Lufthansa and Unilever.

Hamburg is also a major European science, research, and education hub, with several universities and institutions, including the Deutsches Elektronen-Synchrotron Laboratory DESY.

Hamburg is a significant hub for life sciences, with a large number of companies and research institutions. Here are a few notable ones:

Life Science Nord Management GmbH: This is the regional industry network for medical technology, biotechnology, and pharma in Hamburg and Schleswig-Holstein.

HENRICH Life Science R&D Consulting: They offer consulting services in life sciences and are located in Hamburg.

Bilfinger Life Science Automation GmbH: Specializes in automation solutions for the life sciences sector.

Hamburg is also home to a vibrant tech scene with numerous computing and IT companies. Here are a few notable ones:

HMC Hamburg Mobile Computing UG - Specializes in mobile computing solutions.

CS...P Systemberatung Gisbert Poppe - Offers system consulting services.

mioso - IT Solutions GmbH & Co. KG - Provides a range of IT solutions.

Concise Software - Known for building integrated software solutions.

Innowise - A custom software development company.

These companies represent just a small sample of the technology companies in Hamburg.

The University of Hamburg is a prominent public research university and is one of the largest universities in Germany, with around 40,000 students. The university offers a wide range of study programs, including bachelor's, master's, and doctoral degrees across various fields.

The university is known for its strong emphasis on research and has been recognized as a "University of Excellence" in Germany.

Upper Bavaria

The Gross domestic product of the region was 179% of the European average and the GDP per employee was 134% of the EU average. This makes Upper Bavaria one of the richest regions in Europe.

Global players, such as Audi, BMW, and Allianz have their head offices in Upper Bavaria. They ensure that the digital industry is booming in the district because they are able to connect up with digital services that are helping industries modernise. In addition to the companies that originate from Bavaria, there are also numerous major international corporations with several in the digital sector opening up branches in Upper Bavaria including Microsoft, Google, and Amazon. As well as the international companies there are SMEs helping the economy development. Companies like the Brückner Group, Dr. Johannes Heidenhain, HEINE Optotechnik, Neaspec, Trebbin and Kessel AG.

There are a number of digital starts up centres including.

- BRIK in Ingolstadt that describes itself as the port of call, meeting place and new home for entrepreneurs and creative professionals, and start-ups.
- Stellwerk18 is a digital start-up centre that supports the regional economy in terms of digitalisation requirements.
- Werk1 is a start-up centre in Munich that supports the development of start-ups with several services and there is special support for InsurTech start-ups.
- Fördergesellschaft IZB mbH is an innovation and start-up centre for biotechnology.
- InsurTech Hub Munich is the platform where corporations and SMEs from various sectors meet and can work together on solutions for the insurance industry's future.
- The ESA Business Incubation Centre is aimed at start-ups in the aerospace sector who want to take the next step in their development.
- GATE currently offers more than fifty start-ups space for commercial ideas. There are numerous additional services including a start-up coach that supports young companies during the start-up phase.
- BioM is the biotechnology industry's network organisation in Bavaria. It acts on behalf of the Bavarian Ministry of Economic Affairs and pursues various start-up projects in the BioTech and Pharma sector.
- Digital hub where international companies and start-ups from the automotive and insurance industry drive the digital transformation of products and

services forward in Munich's Digital Hubs. The Digital Hubs are a government initiative. There are twelve hubs with different industry focuses throughout Germany.

Besides the start-up centres and cluster initiatives, the international start-up community in Upper Bavaria ensures the exchange between start-ups, investors, and established companies.

Munich is a major hub for life sciences and biotechnology. Notable companies in the area include:
MorphoSys: Specializes in antibody treatments for various conditions, including cancer and psoriasis.
Medigene: Focuses on personalized cancer immunotherapies using T-cell receptors.
Immunic Therapeutics: Develops therapies for inflammatory and autoimmune conditions.
Ethris: Works on mRNA-based treatments for respiratory diseases.
iOmx Therapeutics: Develops cancer therapies targeting immune checkpoints.

Additionally, Munich hosts several major life science companies like Roche Diagnostics, GE Healthcare, and Novartis.
Munich is a major hub for technology and computer companies including:
IBM - A global leader in IT services and consulting.
Siemens - Known for its engineering and electronics, Siemens also has a strong IT division.
Microsoft - One of the "Big Five" tech companies with a significant presence in Munich.
Intel - A key player in semiconductor manufacturing.
Amazon, Apple, Google, and Meta - All have offices in Munich.
Munich is also home to many innovative startups and specialist IT companies like TechGropse Pvt. Ltd., Codewave Global, and Persistent Systems.
There are nine universities in Munich including Ludwig Maximilian university which is currently the second-largest university in Germany in terms of students; in the 2023/24 winter semester, the university had a total of 52,972 matriculated students. Of these,

10,138 were in their first year, while international students totalled 2,859 or approximately 28% of the student population.
Today, the University of Munich is part of 24 Collaborative Research Centers funded by the German Research Foundation and is host university of thirteen of them. It also hosts 12 DFG Research Training Groups and three international doctorate programs as part of the Elite Network of Bavaria.

Salzburg

Salzburg province is in the heart of Austria. It has a population of approximately 530,000 and with a population of approximately 150,000 in the capital city Salzburg. Salzburg province is traditionally divided into five regions, known as: Flachgau, Tennengau, Pongau, Pinzgau and Lungau. Salzburg economy is approximately 48% higher than the European average.

Salzburg is home to numerous corporate headquarters of national and international corporations. The economy is dominated by industries such as commerce, tourism, business-related services, and companies with high tech and high R & D intensity.

The region's economy is based upon industry, production-related services, and tourism. The contribution of agriculture and forestry's to the gross value-added is less than the Austrian average, with farmers in the region concentrating mainly on livestock breeding, dairy farming, and forestry.
In Salzburg, growth was also driven by growth in the manufacture of beverages. In Carinthia, manufacturing played a major role in the real increase in GRP of 6.7%. this was substantially due to the electronics sector. Additionally, the southern federal province benefited from the rise in tourism in 2022,
Salzburg's economy is diverse, with several key industries driving its growth:

1. **Tourism**: Salzburg is renowned for its cultural heritage, including the birthplace of Mozart and the setting for "The Sound of Music." This attracts millions of tourists annually
2. **Commerce and Trade**: The region has a strong commercial sector, with many trade and retail businesses.

3. **High-Tech and R&D**: Companies in Salzburg are known for their high-tech innovations and research and development activities.
4. **Automotive**: Porsche Holding has its headquarters in Salzburg, contributing significantly to the local economy.

The University of Salzburg is the largest educational institution in Salzburg, with around 18,000 students and approximately 3,000 employees.

The Department of Biosciences and Medical Biology is particularly notable for its innovative research in areas such as cancer, immunology, and aging. Students are actively involved in research, collaborating as part of interdisciplinary teams. The University of Strasbourg has a notable research unit called Immunopathology and Therapeutic Chemistry. This unit focuses on studying the molecular and cellular features of the immune system. The goal is to design new therapeutic methods for treating autoimmune, tumoral, and viral diseases. Research is organized around five main themes:

B cell tolerance and autoimmunity

Immunobiology and Lupus therapy

RANK and cutaneous immuno-biology

B cell response immunoregulation & Lupus

Organic nanomaterials and delivery

Advanced technology platforms.

Salzburg is home to a vibrant life sciences sector, featuring a mix of start-ups, SMEs, and established corporations. Here are some notable companies in the region:
Bilfinger Life Science GmbH: Specializes in construction projects for various industries, including life sciences.
PharmGenetix: Develops diagnostic tests and produces medication tailored to individual patients' genes.
Dentsply Sirona: The world's largest manufacturer of dental products and technologies.
Organoid Innovation Center: Focuses on state-of-the-art technologies and novel methods of 3D biology.

The University of Strasbourg offers a robust program in computing through its Department of Mathematics and Computer Science. This department provides courses from undergraduate to doctoral studies.

Salzburg is home to several major computing and IT companies including cognify GmbH that specializes in data science and software development, offering services like predictive analytics and machine learning.

MSC - martinschober.com that provides various IT services and solutions.

Porsche Informatik, which is part of Porsche Holding, this company develops IT systems for the automotive sector.

SPAR ICS: The IT division of SPAR Austria Group, focusing on software development, systems engineering, and application management.

Southern Ireland

The economy of the Republic of Ireland is a highly developed knowledge economy, focused on services in high-tech, life sciences, financial services and agribusiness, including agrifood.

Foreign-owned multinationals make up a significant proportion of Ireland's GDP. The "multinational tax schemes" used by some of these firms contributed to a distortion in Ireland's economic statistics.

Ireland contains three NUTS 2 regions Northern and Western with 105% of the European average GDP, Southern with 286% of the average European GDP and Eastern and Midland with 247% of the European average GDP.

In Southern Ireland, the life sciences sector is thriving, with many companies involved in pharmaceuticals, biotechnology, and medical devices. Notable companies include:

Pfizer - A global pharmaceutical giant with significant operations in Ireland.

Johnson & Johnson - Known for its medical devices and pharmaceuticals.

AbbVie - Specializes in biopharmaceuticals.

Sanofi - A multinational pharmaceutical company.

GlaxoSmithKline (GSK) - Focuses on pharmaceuticals and consumer healthcare.

These companies benefit from Ireland’s strong track record in project execution, talent, and compliance, making it a preferred location for life sciences operations.

Computing companies

Dell Technologies: With a significant presence in Cork, Dell Technologies is a major player in the computing and IT services sector.

Apple: Apple's European headquarters is located in Cork, employing thousands of people in various roles from manufacturing to customer support.

Startups include:

NomuPay a Fintech company founded in 2021 which offers a unified payment platform that allows businesses to accept payments and carry out disbursements across Southeast Asia, Europe, and Türkiye through a single integrated system.

Nory AI Artificial Intelligence. It provides an AI-powered operating system designed for the hospitality sector. It helps businesses with sales forecasting, labour planning, and inventory management, aiming to reduce labour costs and food waste while saving administrative hours.

These startups are making progress in their respective fields and contributing to Ireland's reputation as a hub for innovation and technology.

Ireland is home to several prestigious universities including:

Trinity College Dublin: The highest-ranked university in Ireland, known for its strong emphasis on research and a wide range of academic disciplines.

University College Cork: Known for its research output and beautiful campus.

University of Galway: Offers a variety of programs and is well-regarded for its research .

Dublin City University: Recognized for its media studies and strong industry connections.

Maynooth University: Best known for its programs in languages and literature.

Technological University Dublin: The newest university in Ireland, specializing in STEM fields

Previous Economic development projects in Wales

Despite substantial growth in the early 1900s, by the 1920s it was apparent that Wales was facing economic difficulties, largely because of its reliance on older heavy industry rather the newer, growing light industry sectors that were becoming

established in the more prosperous parts of England. Even during a boom period at the start of the 20th century, Wales had a narrow economic base dependent on the labour intensive exploitation of natural resources.

The first attempt at major economic regeneration was the Treforest industrial estate. This developed following the formation of the 'South Wales and Monmouthshire Trading Estates Ltd.' in June 1936. The aim was to establish one or more trading estates in Wales to diversify employment and to provide alternative to the coal and steel industries, which were starting to decline. Finally, an agreement was reached that the Treforest site was the most suitable for their purpose. By the end of 1937 three small factories were completed and occupied, employing sixty-nine people. The first building contract awarded was for a large factory for the British Coated Board and Paper Company Ltd (Wiggins Teape),

By 1944, almost 16,000 people were being employed on the estate. Companies which have operated factories on the Estate include: BOAC, Aero Zip, Metal Alloys Ltd, Afon Tinplate Ltd, Finetex Ltd, Ford, South Wales Switchgear, Standard Telephones and Cables, Fram Filters and KLG Spark Plugs.

From the 1940s to the 1970s, British governments steered manufacturing businesses to peripheral regions designated as needing more employment. This approach was delivered through a Regional Policy that deployed industrial location controls and financial incentives. Effectiveness varied over time but was dramatic in the 1940s, when it boosted the regional stock of secondary manufacturing to the extent that its legacy remains visible today. Between 1941 and 1948, governments authorized the construction of almost 17 million square feet of factory space in Wales.

The most successful Government regional policy was in the 1960s and 70s when it brought various government bodies to Wales: the Royal Mint moved to Llantrisant, Companies House to Cardiff, office for national statistics to Newport and the Driver and Vehicle Licensing Centre to Swansea.

In the early 1980s enterprise zones were created, by the Conservative government at Westminster, in order to stimulate the economy. Wales had three such zones, Milford, Delyn and the largest in Britain at Swansea. Initially retail was excluded from enterprise zones but in many, including Swansea, it became a significant part of the zone. In

Swansea, the term enterprise zone is used as a generic term for out of city centre shopping.
Their purpose was to stimulate private sector economic activity, thus creating employment in less well-off areas, this was to have been achieved using tax incentives, including:
One hundred per cent tax allowances for capital expenditure on industrial and commercial buildings.
Exemption from paying business rates for 10 years from the date of the building being occupied.
Simplified town planning, where planning permission was not required for new developments provided, they complied with the published planning regime for the zone.
Other benefits included exemption from training board levies and expedited custom facilities.

The reports from the Work Foundation stated 80% of jobs created in enterprise zones are displaced from other places; the prosperity the zones bring to the areas was short-lived; and each job created costs £23,000.

In early 2011 reports from the think tank Centre for Cities, and the not-for-profit organisation The Work Foundation both said the concept of enterprise zones and parks was out-dated. The Work Foundation report said, “Most of the areas that had such zones are still struggling today — places like Middlesbrough, Speke, Hartlepool and Swansea.” Most of the jobs created had simply been displaced from other areas. It continued: “Evidence from previous Enterprise Zones suggest that up to 80 per cent of the jobs they create are taken from other places; that Enterprise Zones do very little to promote lasting economic prosperity. Most Enterprise Zones create a short-term boom, followed by a long-term reversal back into depression; and Enterprise Zones are hugely expensive. “

According to a 1987 evaluation by the Department of the Environment, only 13,000 of the 63,300 jobs created in Enterprise Zones were new jobs, with the remainder displaced from within the area. It has been suggested that around 25 per cent of new

jobs were displaced from within the same town or city. This type of local displacement destabilises local economies by artificially enticing businesses into less competitive areas. The result is that other industrial parks outside become much less popular and have vacant units.

The Swansea Enterprise zone speeded up the regeneration of the lower Swansea Valley which was a good thing. At the same time, however, it created a large out of town retail centre that had a detrimental effect on the city centre. The generally negative account of the impact of Enterprise Zones in the 1980s took them off the agenda for the next 25 years.

In the 2011 Budget the Chancellor George Osborne announced a new round of enterprise zones to follow the use of the policy by the Thatcher and Major governments in the 1980s and 1990s. In total, twenty-four new zones were announced, and they subsequently became operational in 2012. Wales swiftly followed setting up Enterprise zones across Wales.

There are currently eight Enterprise Zones in Wales - Anglesey, Central Cardiff, Cardiff Airport & Bro Tathan, Deeside, Ebbw Vale, Haven Waterway, and Snowdonia designated in 2012/13 and Port Talbot Waterfront in 2017/18.

There are two ways in which the zones aim to improve the economic outlook of an area. Direct tax incentives such as business rate discounts and capital allowances as well as easier planning permissions are designed to make an area more attractive to business investment.

The option for Local Enterprise Partnerships to borrow against future business rate growth allows them to invest in infrastructure to bring about the redevelopment of an area.

When one of the most successful Financial & Professional Services centres in Wales and one of the most successful modern manufacturing centres are chosen then success in those areas is expected.

The other Enterprise zones have not been successful. In 2018 jobs in each zone were in Anglesey (502 jobs created), Cardiff Airport and St Athan (137.6), Ebbw Vale (175.5), and the Haven Waterway in Pembrokeshire (356).

Central Cardiff Enterprise Zone

The Central Cardiff Enterprise Zone is a business district located in the heart of Cardiff, close to Cardiff Central train station. The Central Cardiff Enterprise Zone has seen several notable success stories:
Capital Quarter Development: The Welsh Government's investment in the Capital Quarter has been a significant catalyst for growth. The development includes multiple Grade A office buildings, which are now fully occupied. This has attracted major businesses and created numerous jobs.
Central Square Scheme: This ambitious project, backed by Legal & General, has transformed the area around Cardiff Central Station. It includes the new BBC Wales headquarters and has attracted key financial and professional services companies.

Deeside Enterprise Zone

The Deeside Enterprise Zone in Northeast Wales is home to highly skilled, contemporary manufacturing across a diverse sector - from aerospace and automotive to electronics and pharmaceuticals, construction, food, and sustainable energy.

It included advanced materials and manufacturing across a wide variety of sectors and has World-class advanced manufacturing skills development and research by AMRC Cymru, local colleges and universities.

WDA

The Welsh Development Agency was established in 1976, set up to improve the Welsh economy by encouraging business development and investment in Wales, clearing derelict land and encouraging growth of local businesses.

The WDA had four objectives:

1. furthering the economic development of Wales
2. promoting industrial efficiency and international competitiveness
3. creating and safeguarding employment

4. improving the environment having regard to existing amenity.

It was credited with having brought in, secured and safeguarded investment with major companies such as Ford, Bosch, Panasonic, Sony, Hoover, TRW, Anglesey Aluminium, Toyota, British Airways, TRW and General Electric. It gained prominence with financial services companies such as Legal & General and Lloyds Bank bringing financial call centres into Wales.

How many of these are still major employers in Wales?
With South Glamorgan County Council, the WDA helped establish Admiral Insurance plc, which is now a FTSE 100 Company and one of the few major start up successes in Wales.

Technium

Technium was the brand name of a business incubation scheme in Wales. The scheme provided tenants with office space, business support, fast telecom links and venture finance. The concept was originally developed by a partnership between Swansea University and the WDA, which built an Innovation Centre at the university in 1986. The project led to the construction of the first Technium building, a purpose-built £2m facility to house general technology at Prince of Wales Dock, Swansea that opened in 2001.

In October 2001, the WDA decided to build five more Technium centres across Wales but badging advanced facrories as Techniums had very little success.

The Technium programme's attempt to develop indigenous businesses was described as radically different from the WDA's previous inward investment strategy, which sought to attract foreign employers to Wales.

A 2009 report on the Technium by DTZ showed that since the first Technium was opened, 151 tenant companies had been accommodated. Eighty-two were still in residence, thirty-eight had moved to other locations and twenty-two had failed. In November 2010, following a substantial review process, it was announced by the Welsh

Assembly Government that six Technium centres were to be removed from the network - Pembrokeshire, Aberystwyth, Bangor (CAST), Pencoed (Sony), Baglan, and Llanelli.

There are successes from the Swansea Technium program and companies are still developing there.

The model, where government, academia, and industry work together to create a vibrant innovation economy, is one of the new holy grails for policymakers around the world. Where it has worked it has been driven by the University and supported by Government not run as a government initiative. The key is University buy in and University support.

Criticism included the lack of any clear rationale for the roll-out of the programme beyond the first incubator in Swansea. There seemed to be little consideration of whether there was demand, either from the local business community or from the universities, for this type of building.
Finally, occupancy rates were low and the provision of business support and the take up of the support was minimal – which would be expected if, as critics have pointed out, Techniums were actually not in any way innovative in their concept or, more importantly, in their execution.
While space within each property was targeted towards innovative businesses, there was no real support provided onsite to any of the firms located there – which is a critical element of what we see in successful incubator programmes around the world, where financial and management advice is as important, if not more important, than the physical space in which the companies are based.

It has been said it was pointless concentrating public funding on commercialisation activities while the R&D base in academic institutions and private sector organisations was either declining or at best, standing still. In the end, you cannot commercialise technology if there is little relevant technology to commercialise.

The most recent innovation was the Sêr Cymru programme.

Sêr Cymru was designed to build a “strong and dynamic” scientific research base in Wales. Phase IV of the programme focuses on inspiring the next generation of scientists

and developing disruptive innovations to help solve the socioeconomic challenges faced in Wales and the wider world.

The Sêr Cymru programme was set up to ensure science plays its full part in supporting the economic and national development of Wales. The Sêr Cymru programme has adapted to align with changing research, development, and innovation drivers, which in turn have responded to economic and health issues such as the aftermath of leaving the EU and impacts of the Covid-19 pandemic. It has generated over £252 million in research income as a return for £110 million investment by Welsh Government, successfully building research capacity and capability in Wales.

The programme aligns with the Welsh Government's Economic Resilience and Reconstruction Mission, including ambitions such as retaining talent, attracting talent, upskilling, and improving connectivity.

Conclusion

We know that the Welsh economy is doing less well than the British economy.

We know that Wales has substantially less that its population share of its workforce in ICT, real estate activities, administrative and support services Professional, Scientific and Technical activities, arts, and entertainment than either the UK as a whole or the Southeast of England.

Successful economies have a mix of inward investment from international companies and local developed companies.

Major universities are very important to developing the economy.

The key growth areas of life sciences and ICT are important to successful economies.

Continuing searching for the "golden bullet" of economic development has not worked.

There have been successes and failures with each strategy but not enough successes apart from the relocation of government departments and agencies.

We need to learn from successes such as Admiral in Wales and successes in other parts of Europe.

Building advanced factories even giving them a new name such as Technium does not work.

Ireland has been very successful in bringing American ICT and life science companies and whilst the GDP benefit is exaggerated by being the European headquarters, being a European headquarters is itself very beneficial.

Actions

Five key actions

- Produce a strategy to increase ICT employment in Wales via inward investment and growing Welsh firms.
- Produce a strategy to increase life science employment in Wales via inward investment and growing Welsh firms.
- Negotiate with the Westminster government the relocation of Westminster government services, with employment at all levels, to Wales.
- Hold a summit followed by an action plan with the universities in Wales on developing companies from university research.
- Set a target that each year Welsh GDP will increase by 1% compared to the UK and plan accordingly.