# Where next for the Welsh economy

# Mike Hedges

# August 2021

The National Assembly for Wales opened its doors for the first time over 20 years ago, and a lot has happened since then with the Welsh and world economies.

When the Assembly opened in 1999 online retail was in its infancy. It was another eight years before the first iPhone, and five years before YouTube came online. Computer games generated a fraction of the income of today and the Sega Dreamcast, the world's first Internet-ready console, was a year away from being launched. Jobs such as influencer, professional computer games player and Uber driver did not exist.

Since then, employment has become less secure and reliable. In May 2018 the TUC published figures showing that 3.8 million people – 11.9% of the workforce – are now stuck in precarious forms of employment such as zero-hours contracts, low-paid self-employment or agency work.

In 1999, Welsh Government economic policy was a continuation of the Welsh Development Agency policy of enticing mainly Far Eastern and American investors with grants, offering high skills at relatively low wages compared to other advanced industrial nations, and access to EU markets. Not all attempts to attract foreign direct investment were successful, LG being the classic example where despite a grant to LG of £200 million, around £30,000 a job, the expected employment did not materialise.

Why should things especially post pandemic not change at least as much? More importantly, what can we in Wales do differently to create a more successful economy? We cannot predict the new types of employment and which industries will grow but we can help to create an environment that allows Welsh companies to start, grow and prosper. I believe we should, like other successful countries and regions, use our universities as economic drivers, benefitting from the skills and knowledge their graduates and postgraduates possess, and encouraging future-focused innovation.

There are very successful medium-sized European cities which have economic strategies linked to their universities that have created successful future-focussed economies using their universities.

In the early 2000s the Welsh Government brought in a Technium project which was meant to bridge the gap between academia and commerce. Whilst the initial one in Swansea had some success, the scheme overall was an expensive failure. The most detailed explanation comes from the evaluation by DTZ which noted a number of key flaws to the whole concept:

*"The first was the lack of any clear rationale for the roll-out of the programme beyond the first incubator in Swansea. One must wonder why the Welsh Development Agency had then gone ahead with building Techniums across Wales before a 'working prototype' had been fully tested?*

*Secondly, there were no explicit objectives for the Technium programme and it would seem that the only rationale was to build as many of these as possible before the European funding ran out. Certainly, 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.*

*Thirdly, it would seem that the monitoring and evaluation of the programme by Technium managers was practically non-existent which, given that many of those involved had very little experience of managing such projects, is not surprising."*

The difference between government-led and university-led and government-supported could not be clearer. Where it has worked, universities act as the primary driver of initiatives which governments at all levels support, but don't directly manage.

We also need to acknowledge the importance of Wales' urban areas as engines of economic growth, learning and creativity.

Successful towns and cities have always been at the heart of economic development and the creation of prosperity. Initially as marketplaces for the exchange of goods, then as business centres, and more recently as centres of enterprise, knowledge, culture, learning and innovation.

More specifically, it is the larger cities and urban areas that generate large scale employment and wealth. In Britain we only need to look at London, or on a world scale New York and Tokyo, to see that is true. Then there are the less well known cities across Europe, such as Mannheim in Germany and Aarhus in Denmark, which I discuss in detail later, that generate employment and wealth for both the cities and the surrounding areas.

All urban areas need to achieve their economic potential and enjoy sustainable growth and rising prosperity for the area. However, a fairer sharing of prosperity is essential. Wealth and opportunity often exist side by side with poverty and isolation. Sometimes only a few streets away from wealthy neighbourhoods are the left behind.

The diverse skills and backgrounds of all people needs to be used, thus enabling everyone to fulfil their potential and excluding no one. This is important for a caring and inclusive society. This also makes sound economic sense, as it will help to increase the long-term growth potential of the economy as more and more people contribute.

Successful places need to be able to attract, then retain, businesses and this must be based on understanding their requirements. An analysis of successful and less successful places suggests the following four factors are key to economic success:

**A culture of enterprise and innovation** – where places adapt quickly to new opportunities, and everyone can share in the possibilities and rewards of business success. This includes embracing the opportunities presented by the revolution in life science, information and communications technology, and artificial intelligence.

**Access to investment, including venture capital** – essential for businesses to start up, grow, and to deliver jobs and opportunity for all.

**People equipped with the skills employers need, as well as with motivation and opportunity to work** – a culture of lifelong learning enabling people to fulfil their potential and maximising employment opportunities; enabling a flexible response to changing opportunities; and encouraging companies to come to and remain in towns and cities.

**An efficient and reliable transport system** – enabling efficient delivery of raw materials to industry and of goods to market; providing access to jobs; making towns and cities better places to live in; and helping tackle social exclusion.

Economic and transport planning needs to be based on the Welsh regions. We need to build on the strengths of the universities and see them as economic drivers. Too many students, including many brought up in the area, move away on graduating and often never return.

We need science parks attached to universities so that we can use them as innovation hubs and to specialise in key economic sectors such as life sciences, artificial intelligence, and ICT. We also need an entrepreneurship and innovation centre that can provide a founder and incubator platform for students, young entrepreneurs, and investors.

We need access to capital, not just at the start up stage, but at the two important growth stages of small to medium sized enterprise, and then medium to large. Too often medium sized enterprises sell up to companies outside the area, and the economic benefits reduce, or disappear.

Working with the Universities and Further Education colleges we need to look to upskill our population: education should not end at 16, 18 or 21. Education and re-skilling needs to take place throughout life. Someone aged 65 retiring today, who left school at 15 in 1971, would have seen huge and unexpected changes including wholesale closure of coal mines, and closure and cutbacks in the steel industry and petrochemical industry.

They will have seen the ICT revolution that has led to wholesale job losses and deskilling of previously highly paid engineering jobs. A revolution that also led to ICT jobs being created and other technological change, such as renewable energy, fast broadband, and the growth of home working. There have also been lifestyle changes such as the opening of gyms, personal trainers, a huge fast food, and restaurants expansion, along with a huge increase in students and staff in higher education. Why should the next 50 years not produce the same level of change?

On transport we need to give people an alternative mode of transport to the car by:

- reopening railway stations
- creating bus rail interchanges
- having bus services linking residential areas with work and leisure areas
- providing safe cycle routes without gaps.

I intend to examine how two European cities, Aarhus in Denmark and Mannheim in Germany promote entrepreneurship and have GVAs above the European Union average. I will also consider some of the barriers to the growth of medium sized businesses and barriers to micro and small businesses growing into larger businesses.

Mannheim is Swansea's twin city but that is where the similarity ends. The economic data for the two areas makes interesting, and as a Swansea resident, depressing reading. In Mannheim metropolitan region its GVA is 147% of the European average but in Mannheim city it rises to 210%, compare that to the Swansea Metropolitan region on 75% and the Swansea local authority area on 79%.

The city of Mannheim has been referred to as the first "Smart City" where they have been successful in connecting each household within the city to a smart energy network. Bus stops state when the next bus is arriving and have signs indicating where traffic jams are. Furthermore, in both the city and region, you are able to reach everything simply via bus, tram, or train.

Mannheim's University, which is one of the leading research institutions within Germany, plays a key role in its economy. The research institutions of the University closely collaborate with several national and international partners. Some examples are the Mannheim Centre for European Social Research and the Centre for European Economic Research. Mannheim Business School is Germany's number one business school offering world class management education.

An institution affiliated with the University is the Mannheim Centre for Entrepreneurship and Innovation (MCEI) that provides a founder and incubator platform for students, young entrepreneurs and investors. The institute is supported by the Mannheim Institute for Mittelstand and SME Research (IfM) and the Chair of SME Research and Entrepreneurship at the University of Mannheim. Several successful startups have already been launched at the University of Mannheim or been initiated by former students, for example (according to local media sources), Payback (€500m exit to American Express), Delivery Hero (raised $1.4b funding), AUTO1 Group (raised $200m funding), StudiVZ (€85m exit to Georg von Holtzbrinck Publishing Group), Simfy (raised €30m funding), Goodgame Studios (initiating IPO), SavingGlobal (raised $32m funding), Synchronite (sold to LivePerson) and movilizer (sold to Honeywell). The Metropolitan Region is more and more becoming a draw for multimedia and high-tech service providers, and major corporations such as ABB, BASF and Roche Diagnostics have set up there.

The above helps explain why Mannheim was ranked eleventh in the top fifteen of the most inventive cities worldwide.

Mannheim also has not lost its historical manufacturing base with the successor to Karl Benz's automobile manufacturing companies, Daimler AG, headquartered in Stuttgart, having a large presence in Mannheim and it is in Mannheim that diesel engines and buses are assembled.

The city is also home to major, multinational corporations such as ABB, IBM, Roche, Unilever, Phoenix Group, and several other well-known companies. There are also numerous emerging medium-sized companies, for example Fuchs Petrolub and Pepperl & Fuchs, which operate internationally.

The creative industries are firmly established, with the famous Mannheimer Schule and the National Theatre. Mannheim also has a long-standing cultural tradition.
The Popakademie, Germany's first university for pop music and music business, is internationally renowned. Music festivals such as Maifeld Derby and Time Warp underpin Mannheim's position as a city of music. There is also the atelier of the fashion designer Dorothee Schumacher, and her creations are presented at international fashion weeks.

With the aim of contributing to an environment where many more creative businesses can arise, the Mg: Mannheimer Gründungszentren supports business founders. The centre advises during the foundation process, provides office space, and helps start-up companies overcome the challenges they face.

I believe the role the University plays in supporting the development of start-up companies is crucial to the prosperity of the area. Also, the idea of having key industrial sectors and supporting them, building on local expertise and areas where expertise has been developed over several years. Mannheim has also kept its manufacturing sector especially based around Mercedes Benz.

The second city, in population, in Denmark is Aarhus and the second city in Wales is Swansea. Whilst Swansea is part of the West Wales and Valleys and the Swansea metropolitan area has according to Eurostat a GDP per capita of 75% of the European average, Aarhus has 107% of the European average so what can Swansea learn from Aarhus and its economy.

Greater Aarhus is a major player in the in the global wind energy market. It is home to some of the world's biggest manufacturers of wind turbines and constitutes the world's most advanced knowledge centre regarding wind turbines. It has suppliers and subcontractors that cover the entire supply chain and the sector benefits from a solid political backing of wind energy on local, regional, and national level. The wind business cluster here has a history of cooperation between manufacturers, suppliers, scientific communities, and public authorities

The equivalent for Swansea is the Tidal lagoon where Swansea being the first tidal lagoon can become the world's biggest manufacturers of tidal turbines, but it needs cooperation between manufacturers, suppliers, scientific communities, and public authorities just as Aarhus has achieved with wind turbines. The Westminster government needs to invest in tidal power using Swansea before it becomes another idea that is taken up by other countries.

Aarhus University a university founded in 1928 and is Denmark's largest, with a total of 44,500 students as of January 2013. In ranking lists of the world's best universities, Aarhus University is placed in the top 100

The largest research park in Aarhus is INCUBA Science Park, focused on IT and biomedical research. The organization is owned partly by Aarhus University and partly by private investors and aims to foster close relationships between public institutions and startup

companies. IT and biomedical research are two of the current growth industries across the World.

In Aarhus is the headquarters of Arla Foods the largest producer of dairy products in Scandinavia and the fourth largest dairy company in the world with respect to milk volume, seventh with respect to turnover. Arla Foods has three major brands: Arla, Lurpak and Castello cheeses that are sold worldwide**.**

Whilst there is a successful food park in Cross Hands within the Swansea City region that adds value to the 'Garden of Wales' and for those that buy its produce. It is well placed with high quality suppliers based nearby thus reducing food miles for production. An area of growth must be to process more of the food locally, I suggest Felindre as a possible location, and to get more of the economic benefit of processing the food as well of the benefit of producing it.

The Welsh economy has consistently been just over 70%, in terms of wealth generated, of the British average and whilst this does not equate to standard of living because of lower living costs it is indicative of the strength of the Welsh economy. In 2012, according to ONS provisional data, headline gross value added (GVA) in Wales was £47.3 billion, making the Welsh economy the tenth largest of the UK's twelve ahead of only Northern Ireland and the North East of England. By 2015 according to ONS Wales had dropped to last place with a GVA of just 71% of the UK average.

With very low unemployment in Wales then the reason for low GVA in Wales is the salaries, hourly rates and working hours of people working in Wales. According to OCN Wales has 4.37% of the United Kingdom working population so any OCN classification where we have less than that we are "underweight" and any with over 4.37% we are "overweight".

The employment area where Wales is most underweight is Information and communications at 1.75% of the UK employment, other areas where Wales is under 3% are Mining and quarrying and, Finance and Insurance activities. Areas where Wales is above 5% include agriculture, forestry and fishing, manufacturing, Electricity, Gas, steam and air condition supply, Water supply, sewerage waste management and remediation activity, public administration and defence and Human health and social work activities. As expected, Wales is about average on things such as retail, construction and, accommodation and food services.

The major need is to rectify the lack of employment in the relatively high paying information and communication sector. Currently the Swansea Bay City Deal based upon the council areas of Neath Port Talbot, Swansea, Carmarthenshire, and Pembrokeshire focuses on digital technology, health and well-being, energy, and advanced manufacturing. ICT plans include Swansea city and waterfront digital district, centre of next generation digital services and technology centre, Digital infrastructure creative digital cluster and factory of the future. The above is intended to bring in almost £100 million of private investment into the city region. I believe that the City Deal is the right innovative proposal for our region, and it will help diversify the economy of our region by supporting growth in innovative industries including ICT.

The European Union looked at the 34 best performing areas in ICT, activity analysing business activity, research, and development and, innovation in the ICT sector. The most successful areas in Britain were Inner London East (3), Cambridgeshire (5), Oxfordshire (19), Edinburgh (20), Berkshire (26), Surrey (29) and Hampshire (31). These are all affluent parts of the Southeast of England except for Edinburgh.

Looking at parts of the UK that have developed successfully in areas such as ICT and biological sciences.

Silicon Fen is the British version of Silicon Valley and has been described as the second largest venture capital market in the world. It is estimated that over 250 active start-up companies were directly linked with the university and altogether they were estimated as worth over£5 billion. Silicon Fen was created in 1970s when a Science Park was formed by Trinity and other Cambridge colleges, and it has become what is often referred to as the 'Cambridge Phenomena'. Many of the world's most influential and largest companies have offices or headquarters in Cambridge and this has created large scale high paid employment in the area. What Cambridge has achieved is a mix of inward investment and local start-up companies that have grown bringing employment and prosperity to the area.

With ICT a city or region does not have to be big to succeed. The study by the European commission that identified the top 34 ICT hubs also underlines the importance of smaller regions. For example, Darmstadt which is a city of 150,000 people ranks number seven.

We know that ICT development can take place anywhere, there is no geographical constraint and with the provision of super-fast connectivity in Wales, it means that Wales can compete. We also have excellent universities producing highly skilled and motivated graduates in ICT many of whom have historically moved away to find well paid work.

Our challenge is to emulate Cambridge and the other areas and provide a successful ICT hub, this is why the Swansea Bay city region is so important to us. With the average IT and telecommunications salary just under £50,000 a year this will increase the GVA in Wales and the Swansea Bay city region. Equally important is the starting salary which according to Ben Broughton, director of Premier Group Recruitment, "junior developers starting their first jobs after university typically earn £24,000 to £26,000 in London, and £21,000 to £23,000 in the southern England, Midlands or Manchester areas. For infrastructure support jobs (such as those working with desktops or networks), typical first jobs for graduates pay around £22,000 to £24,000 in London (approximately 10% higher if the job is in the finance sector), and £19,000 to £21,000 in southern England, the Midlands and Manchester."

Whilst the following parts of England have chosen technology as the engine to drive their economy, many in Wales see economic success coming from the support economy, tourism, and agriculture.

In Scotland we have seen the success of the computer games industry in Dundee. Abertay University found political and financial backing to create a new department offering the first

computer games degree in the World in 1997 and went on to be the home of a successful computer gaming industry, including the worldwide bestseller “Grand Theft Auto”.

The Oxford Science Park is a science and technology park located on the southern edge of the city of Oxford and is owned by Magdalen College, Oxford. The park maintains strong links with the University of Oxford and currently contains over 60 companies including Sharp Laboratories of Europe and trip advisor. From start-ups to multinationals, from drugs for cancer to devices for kidney disease and artificial intelligence for drug discovery, there is a vibrant R&D and commercial ecosystem at The Oxford Science Park.

The eastern end of the M4 corridor is home to a large number of technology companies, particularly in Berkshire, Swindon and the Thames Valley. Reading is home to many information technology and financial services businesses, including Cisco, Microsoft, ING Direct, Oracle, Prudential, Yell Group and Ericsson. Vodafone has a major corporate campus in Newbury, Maidenhead is the home of Hutchison 3G UK's headquarters and Tesla Motors' UK head office.

Silicon Fen, also called the Cambridge cluster, is the area around Cambridge focussing on software, electronics, and biotechnology. More than 1000 high-technology companies established offices in the area during the five years preceding 1998. Successful businesses include Advanced RISC Machines and Cambridge Display Technology. In 2004, 24% of all UK venture capital was received by Silicon Fen companies

This has given rise to start-up companies in a town previously only having a little light industry in the electrical sector and is usually dated to the founding of the Cambridge Science Park, an initiative of Trinity College, Cambridge University and moved away from a traditional low-development policy for Cambridge.

Silicon Gorge is a region in South West England in which several high-tech and research companies are based, specifically in the triangle of Bristol, Swindon and Gloucester. The Bristol and Bath region is acclaimed as one of the liveliest technology hubs in the UK. The area with a strong tradition in aerospace and the creative industries, is now known as a hotbed of digital talent. They have four universities that churn out a continuous stream of graduates. Major technological companies including KETS quantum security, Trackener, open bionics and brightpearl are based here.

East London Tech City is the term used for a technology cluster of high-tech companies located in East London. Its main area lies broadly between St Luke's and Hackney Road, with an accelerator space for spinout companies at the Queen Elizabeth Olympic Park.

A cluster of web businesses initially developed around the Old Street Roundabout in 2008. From 2010, as the cluster developed, both local and national government supported its growth, Cisco, Facebook, Google, Intel, McKinsey & Company and Microsoft are among the companies that have invested in the area.

Leamington Spa and the surrounding area, known as Silicon Spa, is a significant global centre for the video game industry, with a higher than average proportion of digital media companies involved in games development, digital design and publishing, and over a thousand employed directly in game development. Companies based in or around the town

include Third Kind Games, Super Spline Studios, Lab42, DNA Interactive, Fish in a Bottle, Ubisoft Leamington, Pixel Toys, Supersonic Software and Midoki. Codemasters are based in the countryside outside Leamington and were the initial impetus behind the cluster, providing many of the staff for the companies that have developed. In 2013, Sega's mobile platform studio Hardlight Studio set up in Leamington, and Exient opened a satellite studio.

Each of these areas are different but they all have the following characteristics which lead to their success.

- High quality universities
- A ready supply of new graduates
- A critical mass of technology companies
- R+D taking place.
- Large number of start-up companies

We know that high technology including bio sciences and ICT pay well above median salaries for the UK. We know that Wales has high quality universities and a ready supply of new graduates. If Bristol, Reading and Leamington Spa can be successful in creating the environment for technology companies including many start-up companies there is no reason why this cannot be replicated in parts of Wales.

**Recommendations**

Follow the examples given above and working with the Universities in Wales develop and support more science parks on the M-Spark model on Ynys Mon run by Bangor University.

Make the science parks University led and Government supported.

Develop a culture of enterprise and innovation.

Have entrepreneurship and innovation centres associated with universities

Ensure access to investment including for the growth of companies as well as for start-ups.

Improve skills in Wales.

ICT, life science, and financial services need to be seen as the key economic drivers.

Create a government department of Economy and Education.

A strategy to add value to agricultural produce

Efficient and reliable transport system