



Llywodraeth Cymru
Welsh Government

REPORT

Future Trends: 2017

The report has been designed to support the public sector in Wales in making better decisions for the long term.

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Background

The purpose of the report

“ Public authorities in Wales make decisions on a daily basis. Each of those decisions has the potential to have a significant effect on people’s lives. ”

(Making Good Decisions, Welsh Government 2017)

Forecasting the future is an extremely difficult task. Nevertheless, to make effective decisions now that are good for the long term as well as for our immediate needs, we must use the data we have to attempt to find patterns and trends for the future. No one would wish to discover that the policies or plans we make in the Welsh public sector today have resulted in adverse unintended consequences or wasted investment. We also need to take advantage of any opportunities that identifying future trends might offer.

Thinking insightfully and habitually for the long term does not always come very naturally; so there is much scope for us in Wales to take a collective lead in the intelligent use and interpretation of data sources to enable us to take that longer view. This first Future Trends Report is an important first step in building that capability.

The report identifies key future social, economic, environmental and cultural trends for Wales, under 6 themes that impact the business of all aspects of government and public administration:

- Population
- Health
- Economy and infrastructure
- Climate change

- Land use and natural resources
- Society and culture

This document highlights some salient aspects of the data presented in the slides; the slides themselves constitute the full current resource of analytical information to be considered by public bodies.

As well as identifying future trends in these areas, this report and the work that will follow it have also a wider aim in terms of helping to change the way we all think about decision making and long term planning. For many reasons, governments, both local and national, have traditionally tended to focus on individual policy areas when seeking to deliver benefits to the population. This report is an attempt to take a wider, as well as a longer view, bringing together trends that we might previously have considered in isolation and, for the first time, examining carefully the interactions and interdependencies between them. By making connections between future trends in different areas of government, we can hope to see both opportunities to exploit and risks to avoid.

Whilst this is the first statutorily published Future Trends Report for Wales, we view it as a first step in initiating important work to build a continually improving resource, further developing the accessibility of the material and the ability of the public sector to use it well. That work will only be successful if it is collectively owned and managed by all the organisations needing to build a better understanding of the factors that should influence their decision making. Welsh Government will now work with our colleagues across the wider public sector, with academia and with other interested stakeholders to develop a resource that we can all make regular, active and effective use of.

The structure of the report

This report comprises 3 elements: parts A and B of this document and a number of data slides belonging to each of the 6 areas covered.

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Part A identifies the key future social, economic, environmental and cultural trends that may affect Wales. These are presented under the following 6 themes:

- Population
- Health
- Economy and infrastructure
- Climate change
- Land use and natural resources
- Society and culture

Under each theme, there is a series of supporting slides available on the Welsh Government website. It is important to note that the 6 themes above will not act in isolation, rather we should expect significant overlap between them. This overlap will become important under Part B, when we start to seek connections between the trends. Part B provides some initial analysis of the influencing factors that could impact on the future trends identified, and explores the interactions between and potential combined effects of the trends.

Future development of the resource

This 2017 report will be the beginning of a continuously evolving and improving Future Trends Resource. Throughout this year and beyond we aim to build on this initial report, by developing a live online facility that will be more readily accessible, enabling public bodies and others in Wales to stay well informed and effective in their long term planning. This report will be the start of a conversation, in the public sector and beyond, as to how we can best respond to the opportunities and challenges of likely long term social, economic, environment and cultural trends.

Part A: Where may we be going? Key future

trends affecting Wales

1. Population

Global population growth looks set to continue until a potential plateauing at around nine billion by the middle of the century. The majority of this growth will be outside Europe and North America, with Africa displaying the highest population growth potential. It is possible that Africa will become the most populous continent by 2030, overtaking the populations of either China or India.

Europe's population may start to decrease soon. Within Europe, the UK population may exceed that of either France and Germany by 2050 and could become the largest country in Europe other than Russia. This growth would in part be driven by inward migration. However, the exit of the UK from the EU could have a significant impact on this trend.

Wales' population is also projected to increase over the next 20 years, possibly by around 5%. Around half of this growth could be due to natural change (births and deaths) and half due to in-migration from the rest of the UK or internationally. According to Census data for Wales, around 40% of inward international migration in 2011 was from EU countries. The UK's exit from the European Union could lead to more controlled migration in the future and a subsequently lower population growth rate. The economic demands for inward migration are likely to remain however, so immigration will still likely continue to some extent.

Over the next 20 years, the percentage of over 65s in Wales is set to increase from around 20% to around 25% of the entire population. The population aged over 75 in Wales is also projected to increase from 9% of the population in 2014 to around 13% in 2030. The number of young people (aged under 16) is projected to increase up to 2023 and then fall slightly up to 2030, although continuing to account for around 18% of the population over this period.

Life expectancy increases in Wales look set to continue, although there is a lot of uncertainty around the extent of increase. Over the next 50 years, estimates range from very little increase in overall life expectancy, to a potential rise of around 15%.

The number of households in Wales is projected to grow faster than the overall population. This would lead to smaller household sizes.

For more detailed information see [Future Trends 2017: population](#).

2. Health

Overall life expectancies and 'healthy' life expectancies are increasing in Wales. However, there are significant differences between the most and least deprived. In terms of overall life expectancy, there is a difference of around 8 years between the most and least deprived areas, while the difference in healthy life expectancy is around 18 years. There is no clear trend of these differences reducing in the future.

In terms of different types of illness, there are mixed trends. Some illnesses such as heart conditions and arthritis demonstrate a slight decrease over the last 10 years, while others such as diabetes, and mental illnesses have displayed increases. Mental illnesses have demonstrated a noticeable increase, rising from 9% of adults reporting being treated in 2009 to 13% by 2015. Cancer rates have shown little change, although numbers have increased due to the growing and aging population.

With an ageing population, there could be, if current rates persist, a marked increase in dementia sufferers. By 2025 there could be 50,000 people aged 65 or over living with dementia in Wales, with nearly a quarter of them aged 90 or over.

There is mixed trends in healthy lifestyle behaviours in Wales. Using demographic trends it is projected that smoking levels will continue to reduce, while obesity levels and the number of people eating less than five portions of fruit and vegetables per day look set to increase slightly.

For more detailed information see [Future Trends 2017: health](#).

3. Economy and infrastructure

There has been a long term trend of global economic growth of around 2% per year. However, where this growth is likely to occur is set to shift in the future. In 2015, the estimated total GDP of the G7 countries (the US, Japan, Germany, the UK, France, Italy, Canada) was \$34.1 trillion. In the same year, the estimated GDP of the E7 countries (China, India, Brazil, Russia, Indonesia, Mexico, Turkey) was just \$18.8 trillion. By 2050, it is estimated that the total GDP of the G7 countries will have roughly doubled to \$69.3 trillion. However, it is estimated that the total GDP of the E7 countries will see an over sevenfold increase to \$138.2 trillion (pwc, 2016). This appears to be illustrative of a general shift in the focus of economic growth away from western countries and towards Asia and, to a lesser extent, Sub-Saharan Africa.

The global shift of economic growth away from more mature economies has meant that the UK has, over the last 50 years, slipped down global GDP leagues in terms of the overall economy size as less mature economies catch up with those that developed earlier. However, this does not mean that growth will stop in developed countries. Importantly, the overall size of a countries' economy is less important for wellbeing than the income per head, and by this measure the UK displays better resilience. However, since the recession in 2008, a productivity slowdown has sharply reduced growth rates. UK and Wales have been particularly affected.

Across a basket of economic indicators, Wales has been broadly keeping pace

with the rest of UK since devolution, after falling behind in 1990s.

Wales's performance on GVA is less positive than on other measures, reflecting both demographic factors (including a higher dependent population relative to other parts of the UK) and the lack of 'economic mass'. However, over recent years, the labour market in Wales has performed well compared both to other parts of the UK and to the past.

Across developed countries economic growth has been reflected in a shift towards a service-based economy. Over the long term, manufacturing's role has been decreasing in most developed economies, but the fall in the UK has been greater than in most other countries. Since the recession, this trend has reduced.

Wales has great untapped growth potential to generate energy, including from renewable sources. There is currently significant growth in the community level low carbon energy sector in Wales.

The provision of broadband infrastructure is developing rapidly after a slower start relative to the rest of the UK. This was in part due to Wales' demographics and the high level of rural households that are harder to connect to conventional wired broadband. The rapid increase in mobile internet infrastructure looks set to continue, which should help to reach those households that cannot currently access higher speed internet.

Current trends suggest that, despite growth in rail use, private vehicles are set to remain the dominant mode of transport in Wales in the short to medium term at least. The expected advent of autonomous or driverless vehicles in the next 10 to 15 years could in turn have implications for our transport systems.

For more detailed information see [Future Trends 2017: economy and infrastructure](#).

4. Climate change

Global climate change is a complex field of study, but there is overwhelming consensus that the science underpinning the research and findings are sound. The Intergovernmental Panel on Climate Change (IPCC) is the international body that assesses the science of climate change and was established by the United Nations. In their last Synthesis report (2014) they highlighted that “climate change is happening and the impacts on human and natural systems are already widespread and measurable. The signs of human influence on the climate have been clearly observed and current emissions of greenhouse gases are the highest in human history”. Warming of the global climate system has been clearly documented and the current rates of change being observed are unprecedented over timescales of at least tens of thousands of years.

The combination of the warming that has already occurred, together with at least some further warming (as projected by the latest climate change evidence), means further adaptation to climate change will be required, including for Wales and the UK. Even in the best case scenario, there are likely to be significant national as well as global impacts beyond those already observed. Global temperature increases are likely to exceed the 2 degree threshold, unless significant and rapid action is taken globally.

There are potentially significant impacts to Wales from exceeding the global two degrees threshold. The latest UK Climate Change Risk Assessment identified the following areas for priority action:

- Flooding and coastal change risks to communities, businesses and infrastructure.
- Risks to health, wellbeing and productivity from high temperatures.
- Risk of shortages in the public water supply, and for agriculture, energy generation and industry, with impacts on freshwater ecology.
- Risks to natural capital including terrestrial, coastal, marine and freshwater

ecosystems, soils and biodiversity.

Infrastructure across Wales is already exposed to a range of climate hazards, which are projected to increase both in frequency and severity. Such infrastructure could include transport networks, underground infrastructure, energy and digital infrastructure and public water supplies. Impacts on some assets have the potential to cascade on to others as part of interdependent networks. Flooding poses the greatest long-term risk to infrastructure performance from climate change, but the growing risks from heat, water scarcity and slope instability caused by severe weather could also be significant.

For more detailed information see [Future Trends 2017: climate change](#).

5. Land use and natural resources

Wales' biodiversity and habitats will be under ever greater pressure, mirroring the global situation. Whilst there have been improvements in recent years, particularly in water quality and some elements of air quality, many of our natural resources and the resilience of Wales' ecosystems are continuing to decline (SoNaRR 2016). It is likely that ecosystems across Wales have insufficient resilience to the challenges that they face, and this could impact on their capacity to provide services and benefits into the future.

Potential trends for animals, plants and other organisms vary enormously across species, with some species increasing and some decreasing. However, long-term combined trends for species are downwards.

The decline in heavy industry has resulted in a reduction in emissions of some pollutants, such as particulate matter. Other sources of air pollution, such as transport, agriculture and domestic heating, have become more of a concern.

By 2050, average river flows in winter may rise by 10-15%. However, in the

summer and early autumn they could reduce by over 50% and as much as 80% in some places. Droughts and flood events may become more common. Climate change may also affect the rates of groundwater recharge.

Soil carbon has been stable in improved land for 30 years. Recent increases in soil carbon in woodland until 2007 have now stabilised with no further increase detected. However, a significant decline in soil carbon in habitat land over the last 10 years has been detected and further work is needed to identify possible reasons for this. Soil acidity has continued to decrease in habitat land and woodland reflecting the decline in acidic deposition over the last 3 decades. However, soil acidity is increasing again in improved land perhaps reflecting low levels of lime applications needed to maintain soil conditions under intensive management.

Soil nitrogen levels are stable in improved land and woodland whilst a recent observed decline in soil nitrogen in habitat land is likely to be beneficial for native vegetation.

There has been good progress in waste reduction in Wales, but there is more to do.

Housing need in Wales is growing due to the number of households increasing faster than the number of available properties. In contrast, there is likely to be less suitable land available for development as flood plains and other lower lying land becomes increasingly prone to flooding.

For more detailed information see [Future Trends 2017: land use and natural resources](#).

6. Society and culture

Well-being is increasingly seen as an over-arching outcome for public services.

There is a diverse and growing evidence base, along with reasonable agreement internationally on the important factors, with inequalities in well-being driven by a range of personal characteristics, social factors and economic factors.

The use of the internet continues to grow and social media continues to be an increasing form of communication, with people in Wales more likely than the rest of the UK to use social networks. However given the demographic and geographical mix in Wales, digital skills lag behind the rest of the UK.

The number of households in Wales looks set to increase significantly. For example, the number of single person households is predicted to rise by over 30% in the next 20 years. Recent trends in house building indicate that the number of properties available may not keep up with this rise in households. Growth in population and housing will not be uniform across Wales.

Whilst poverty levels are a little higher in Wales than the rest of the UK, in terms of overall wealth, levels are higher in Wales than in most areas outside the South of England.

Poverty levels remain stubborn, particularly for working age. Poverty amongst older people has reduced in recent years. Generally, the percentage of the Welsh population in persistent poverty appears to be slightly falling, although there has been an increase in the amount of under 18s in persistent poverty over recent years.

The Institute for Fiscal Studies (IFS) project the official rate of relative poverty after housing costs in the UK will rise from 21% in 2014–15 to 24% in 2021–22. Most of this increase is explained by earnings growth benefiting middle-income households more than lower-income ones. Relative child poverty in the UK is projected to rise significantly from 29% in 2014-15 to 36% in 2021-22, while relative poverty among pensioners and working-age adults without dependent children is projected to see little change over the period to 2021–22, ending at

around 15% and 18% respectively.

Wales is becoming more diverse as a population although the sense of Welsh identity is broadly stable. Around 85% of those born in Wales self identify as Welsh.

The numbers of Welsh speakers declined in the 2011 Census and there remain challenges in ensuring young people retain the language post-compulsory education. More recent data suggest there has been an increase in those who speak Welsh but not fluently, and Welsh speakers of the future are far more likely to have learnt Welsh at school than at home.

For more detailed information see [Future Trends 2017: society and culture](#).

Part B: What could this mean? Influencing factors behind the future trends and some potential impacts in Wales

Influencing factors: What should we ask ourselves?

There is always a great deal of unavoidable uncertainty when considering the future. The future trends identified under Part A are informed projections of past and current trends, using the best data and information available. Under Part B, we can start to understand what may affect these trends going forward in Wales. Provided below are some examples of factors that could influence the identified future trends. The breadth and depth of our understanding of these factors will develop as we in the public sector in Wales collectively build our future trends resource.

Political factors

The exit of the UK from the European Union may be the most immediate and potentially most disrupting factor to these identified trends. It is probable that this process will have a significant and wide ranging impact on Wales, potentially impacting on economic growth and migration to Wales from both Europe and beyond.

Future healthcare policies and funding will also have a direct impact on future health trends, including those potential preventative policies concerning lifestyle illnesses and mental health.

There are also risks to the economic growth rate given the increasing potential for politically led 'de-globalisation'. Decreasing global trade patterns and the potential for increased protectionism could have a significant effect on both the mix and extent of various industries in Wales.

Economic factors

A relative downturn in the UK/Welsh economy compared with other countries may impact on migration levels, including both immigration and emigration. The pattern of future infrastructure investment elsewhere in the UK may also have an influence on future growth in Wales. For example, it is possible that the proposed HS2 rail line from London to Birmingham could impact on Wales' future competitiveness by attracting additional growth and investment toward the London to Birmingham corridor.

Economic growth rates could affect the amount of investment made in the research and development of new technologies, both globally and in Wales and the UK.

Social factors

Behavioural change among the Welsh population will be an unknown and potentially significant influence on how these trends unfold. For example, health-affecting lifestyle behaviour such as alcohol intake, smoking and exercise could have an effect on the rate of increase of both overall life expectancies and 'healthy' life expectancies.

Technological factors

Advances in technology could have a major influence on how future trends develop. Future technological advances such as artificial intelligence (AI) and increased automation could have significant impact on the structure of the economy. There are risks to the future wellbeing of the population connected with the possibility of significant job losses that such technological developments could bring in the absence of social changes to compensate – it is estimated that up to two thirds of current jobs are at risk from automation (IPPR, 2016). It is not only manual work that is threatened by automation. It is estimated that 30% of audits globally are already undertaken by some form of AI (IPPR, 2016).

As yet unknown advances in healthcare technologies could significantly impact on levels of both overall life expectancies and healthy life expectancies in Wales. Breakthroughs in treatment for illnesses such as cancers could dramatically impact on survival rates. A potential negative impact on health could be an increasing bacterial resistance to antibiotics. Pharmaceutical companies will continue to develop potential solutions, with the possibilities of new strains of antibiotics being created. However, the consequences of a future ineffectiveness of antibiotic treatment would be extremely serious.

There is the potential for technological advances to dramatically improve the effectiveness and availability of low carbon energy. Mass production of current

technologies such as solar power and energy storage may also help to dramatically increase the deployment of low carbon energy.

If the more pessimistic prediction for climate change occurs, there is a possibility that 'climate fixing' technology such as bioengineering may be employed to lower CO₂ levels in the atmosphere and levels of warming. The deployment of such technologies would have potential significant unknown effects and may not help to combat such effects as the acidification of the oceans. Advances in household, transport and energy technologies could have a transformative effect on population behaviours, even over fairly short timescales. The 'Internet of Things' (where household appliances and devices are connected to, and can be accessed over the internet) has started to become a reality for many over recent years.

Legislative factors

There is a raft of current legislation that may affect Wales in the future, as well as, of course, future legislation that has not yet been drafted or even conceived. However, one example of significant legislative change can be found in relation to climate change. Last year the United Nations Paris Agreement was ratified, setting the global legal context for climate change. The international context around climate change has now changed with a roadmap in place for global decarbonisation, setting a new long-term target for net zero global emissions in the second half of this century and key legislative requirements at all levels.

Under the Environment (Wales) Act 2016, Wales will be looking at future emission reduction scenario pathways. The Environment Act sets a legal target of reducing emissions by a minimum of 80% by 2050 and places a duty on the Welsh Ministers to set a series of interim targets and to set carbon budgets. The budgets will set limits on the total amount of emissions emitted in Wales over a 5 year period and will act as stepping stones, ensuring regular progress is made towards the long term target. To achieve this challenging target, Wales will

require a major decarbonisation of energy generation and transportation infrastructure with accompanying behaviour shifts in the population.

Environmental factors

There are a wide range of climate change scenarios and models. All are dependent to some extent on the level of future CO₂ emissions and the sensitivity to climate change of ecosystems, habitats and networks. The next 20 years may be crucial in determining which of the various longer term warming scenarios will occur.

As the impacts from climate change become more prevalent, there may be an increasing risk of climate related disruption to global and regional economic networks. These could take the form of disruptions in crop production, or an increasing risk of flooding. The sensitivity of the climate to the rising levels of CO₂ in the atmosphere will be key to the extent to which infrastructure might be disrupted. The more pessimistic scenarios also have the potential to impact significantly on population growth and migration levels, given the possibility of increased risk in terms of failures elsewhere in food production/ transportation and access to other resources, along with associated global conflicts.

There are some potential climate related risks that could impact negatively on health trends, not just in Wales but globally. One example is the greater risk of extreme hot weather events, the incidences of which are unpredictable. Climate change could also bring increasing risks of newly emerging infectious disease. Likewise, future air quality levels could be a major associated influencing factor. In contrast, there are also likely to be some opportunities presented by a warming trend. For example, the amount of energy required to maintain warm homes would reduce.

The level of sensitivity of Wales' biodiversity and habitats to climate change will be the key to how natural resources trends may evolve. There are risks from

climate change in the frequency and the magnitude of extreme weather and wildfire events. Climate change is influencing the expansion or contraction of some species' ranges and populations, and the increasing frequency of extreme climatic events, predicted in many climate change scenarios, may have serious implications.

Stimulating a conversation about Wales' future

This initial report seeks to identify the key future trends that may affect Wales now and in the future. The report should be seen as providing useful context for decision makers to draw on, helping them to better understand the wider impacts of their decisions and deliverability of their objectives.

However, to make best use of this information, we all need to consider how these trends might affect each other, what their combined effects might be, and how those combined effects might impact on Wales and on our delivery of public services to people and communities.

This report has set out various trends under the 6 themes, but none of these will act in isolation.

We encourage decision makers to use the information in this report to stimulate conversations as part of their decision making process and to share with others the questions that arise from them. To initiate such discussion we have identified some questions below, and hope that colleagues across the public sector will join in the exercise.

Some questions we might wish to consider:

1. Given the uncertainties brought about by the UK's exit from the European Union, and the trend toward a service economy and away from

manufacturing, what conclusions might be drawn about their influence on the Welsh economy? Are there opportunities around 'green' growth and the low carbon economy?

2. The trends around climate change point to increasing temperatures and subsequently increasing pressures on the habitats, biodiversity and ecosystems on which we all depend, as well as increasing flood risk. What might be the combined effect of these trends alongside others identified, such as a growth in population, and an increasing need for housing?
3. Given the trends identified in this report, what actions will need to be taken to achieve a healthier Wales? For example, what impacts may result from an ageing population, with an accompanying increase in old age related diseases such as dementia, especially when combined with the mixed trends in healthy lifestyle behaviours? How much of the increase in life expectancy will be healthy or disability-free and what might it mean for areas such as housing, transport, urban design and planning?
4. Considering the trends identified in this report relating to the distribution of wealth and prosperity, with improvements in prosperity levels for older people but some persistent poverty trends overall, how might our plans need to change to help us achieve the goal of a more equal Wales? What potential impacts could result when those trends are combined with the increasing risks to health and wellbeing from climate change?
5. The report identifies the growth of digital technologies, such as social media, and the potential for new models of service delivery and interaction with and within communities. What does this mean for social cohesion in communities across Wales? How will communities react to the potential unintended, less desirable, effects of technology on well-being and security?
6. The report identifies some mixed trends around the Welsh Language, with an increase in young people speaking Welsh, but an overall slight decrease in Welsh being spoken in Wales over recent years, and with more Welsh speakers now non-fluent than fluent. How will this impact on service provision, on the use of language in communities and on community cohesion?

Annex A: Background information

Future Trends reporting: a requirement of Well-being of Future Generations Act

The Well-being of Future Generations (WFG) Act 2015 is about improving the social, economic, environmental and cultural well-being of Wales. To make sure we have a shared purpose and are focusing on our future, the Act establishes 7 National Well-being Goals and sets out, under the Sustainable Development Principle, 5 ways of working to drive change in the way public bodies contribute to the goals. As part of the approach to working for the long term, Welsh Ministers must, during a period of 12 months beginning with the date of a general election, publish a report that contains:

- a. predictions of likely future trends in the economic, social, environmental and cultural well-being of Wales, and
- b. any related analytical data and information that the Welsh Ministers consider appropriate.

(Source: Article 11, the Wellbeing of Future Generations Act 2015)

The WFG Act also requires the report to take account of any action taken by the United Nations in relation to the UN Sustainable Development Goals and to assess the potential impact of that action on the economic, social, environmental and cultural well-being of Wales. Assessments of the risks for the UK from climate change must also be taken into account.

The UN Sustainable Development Goals

On 1 January 2016, the world officially began implementation of the 2030 Agenda for Sustainable Development – the transformative plan of action based

on 17 United Nations Sustainable Development Goals – to address urgent global challenges over the next 15 years.

It is through the action taken to achieve the 7 well-being goals by the public, private and third sector in the Well-being of Future Generation Act that Wales will make its contribution to the achievement of the United Nations Sustainable Development Goals.

The Well-being Goals for Wales

The Well-being Goals within the Well-being of Future Generations Act, at an outcome level, show the kind of Wales we want to see in future. They have been directly informed by the United Nations Sustainable Development Goals and are therefore key to the delivery of the global Sustainable Development agenda in Wales.

The 7 Well-being Goals for Wales are:

- A Prosperous Wales
- A Resilient Wales
- A Healthier Wales
- A More Equal Wales
- A Wales of Cohesive Communities
- A Wales of Vibrant Culture and Thriving Welsh Language
- A Globally Responsible Wales



Progress reports for the UN Sustainable Development Goals are available online. Further iterations of this report will further develop a narrative on how action taken against the UN SD Goals may have impacted on Wales and our efforts to improve wellbeing.

Organisations covered under the Well-being of Future Generations Act

A total of 44 public sector organisations are currently included under the WFG Act, and therefore should be using the Future Trends Report in their long term planning. These organisations can be classed under the following public bodies:

- Welsh Ministers

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- Local authorities
- Local health boards
- Public Health Wales NHS Trust
- Velindre NHS Trust
- National park authorities
- Fire and rescue authorities
- Natural Resources Wales
- The Higher Education Funding Council for Wales
- The Arts Council of Wales
- Sports Council of Wales
- National Library of Wales
- National Museum of Wales

In addition, there are a number of town and community councils that will have to follow certain duties under the WFG Act and these could also make use of the report.

Annex B: Additional resources

The following links provide further reading on topics related to this Future Trends Report under each theme.

General reference – Future Generations

[Future Generations Commissioner for Wales](#)
[Transforming our world: the 2030 Agenda for Sustainable Development](#)
[Global Sustainable Development Report 2017](#)

Population

UK government Foresight projects:

- [Future of an aging population](#)
- [Future of cities: Overview of evidence](#)
- [Skills and lifelong learning: Learning across the lifetime](#)

[National Population projections](#), Office for National Statistics - 2014-based population projections for Wales and other UK countries by single year of age and gender

[Local authority population projections](#)

Health

[Measuring Inequalities 2016](#) - Public Health Wales

[How will the receipt of social care change in the future?](#) – Institute of Fiscal Studies

Economy and infrastructure

UK government Foresight project:

- [Technology and innovation Futures 2017](#)

[Connected Nations 2016](#)
[The World in 2050 \(PWC\)](#)

Climate change

UK Climate Change Risk Report 2017 Evidence Report

UK Climate Change Risk Report 2017 Evidence Report: Summary for

Wales - Latest reports compiled for the independent UK Committee on Climate Change providing evidence enabling the assessment of the risks and opportunities for the UK and for Wales from climate change.

AR5 Synthesis Report: Climate Change 2014 - The intergovernmental Panel on Climate Change

UK Climate Projections 2009 (UKCP09), Met Office - The UK Climate Projections (UKCP09) provides projections of the future climate that are based on the current understanding of the climate system and have been prepared as a vital resource that can be used to support climate adaptation planning and research. A project to update the climate projections is ongoing. In the meantime, UKCP09 continues to provide a valid assessment of future UK climate over land, and it can still be used for adaptation planning.

Land Use and natural resources

The State of Natural Resources Report (SoNaRR) 2016 - Provides a wealth of evidence and data on the current state of the natural environment to enable assessment of future resilience of areas within Wales.

National Risk Register for Civil Emergencies, UK government

Society and culture

Living Standards, Poverty and Inequality in the UK: 2016–17 to 2021–22, Institute of Fiscal Studies

National household projections for Wales, including breakdowns for local

authorities and national parks within Wales.

Other background data sources used for this report

StatsWales

Office for National Statistics

UN Population database

The European Environment State and Outlook 2015: Assessment of Global Megatrends - European Environment Agency (2015)

Horizon 2035 - future demand for skills: initial results - Centre for Workforce Intelligence (2015)

Big Picture Challenges - The Context - Centre for Workforce Intelligence (2013)

The technology horizon: Preliminary review on technologies impacting the future health and social care workforce - Centre for Workforce Intelligence (2013)

World Energy Outlook 2016 - International Energy Agency

Welsh Government National Survey 2016:

- **Investigating predictors of speaking Welsh** (Future Generations Indicators 36 and 37)
- **Investigating predictors of feeling safe in local area** (Future Generations Indicator 25)
- **Investigating predictors of feeling able to influence local decisions** (Future Generations Indicator 23)
- **Investigating predictors of community cohesion** (Future Generations Indicator 27)
- **Investigating predictors of job satisfaction** (Future Generations Indicator 20)
- **Investigating predictors of material deprivation** (Future Generations Indicator 19)

Five Megatrends and their Implications for Global Defence and Security,
pwc 2017

Future Proof: Britain in the 2020s, IPPR 2016

Hood, A. and Waters, T. (2017) Living Standards, Poverty and Inequality in the UK: 2016-17 to 2021-22 -

A report for the Institute for Fiscal Studies (IFS)

Third sector data hub - WCVA

Futures toolkit for policy makers

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