
Global Megatrends and the Black Country



THE FUTURE AT A GLANCE

What does the future hold for the Black Country?	This report is designed to stimulate thinking, extend conversations and inform actions as to how the future could and should be shaped.	
	Megatrends are large, transformative global forces that are considered to endure over the medium and long-term (30-100 years).	
	Reviewing the social, technological, economic, environmental and political megatrends that are projected to have far-reaching impacts on the Black Country is a step towards identifying and addressing the opportunities and challenges of the future.	
	Based on these projections it is anticipated that the future of the Black Country will be characterised by 3Cs.	
Diverging demographic trends and growing inequalities will mean stark differences in what the future holds and how it is experienced both within and across nation states and regions.		Contrasts
The costs and benefits of globalisation will become increasingly visible and debates on the performance and legitimacy of existing social, political and economic relations will become more vital.		
Connections	Relations between people, technology and the environment will be become more important and complex. Extended work and social networks have the potential to play a vital role in addressing a number of global and local challenges.	
	A growth in interconnectivity may also lead to more surveillance and disruption from the risks posed by climate change and political instability.	
Increases in global population and incomes will lead to increased consumption and competition over access to resources.		Contests
A competition for resources, in a multi-polar world, is expected to heighten differences within and across countries and make efforts to create and sustain shared understandings and goals more difficult to achieve.		
Next Steps	To extend and deepen discussions within and across institutions and communities, as to how to respond to these megatrends and create and shape possible and preferred futures for all in the Black Country.	

FOREWORD

Planning for the future has always been a key component of any successful society and economy. Without foresight and analysis to base decision making on we can be overtaken by events and current levels of activity may well suffer. This report looks at issues facing the Black Country in the future and seeks to assist our future planning through the projections it highlights. For example by 2040 it models a major increase in the number of devices that individuals have. Technology may of course, come up with different solutions but it is clear that society's reliance on the current type of SMART technology has simply whetted our appetite and expectation for more. This report quite rightly does not come up with solutions. It simply seeks to use the technique of looking at megatrends to paint a picture. This picture and the landscape may change but what megatrends do is to help to prepare for change and development. A key role of universities is to use its knowledge base to help to create the tools to maximise planning. Megatrends are a key aspect of such a framework and this report provides an insightful approach.

I commend the report to you and know it will be a key part of our futureproofing.

Geoff Layer
Vice Chancellor
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The point of writing about the future is not to predict it. I'm not pretending to be Nostradamus. The point of such writing is to influence the present by extrapolating current trends for advancement or detriment. Nobody is good at prediction. If we were better at guessing events in a year or even a few months or weeks, our divorce rate would be zero, we would not get into stupid relationships and nobody would lose money on the stock market or the racetrack. The point of creating futures is to get people to imagine what they want and don't want to happen down the road and maybe do something about it.

Marge Piercy¹

The report, 'Global Megatrends and the Black Country' is intended to support and inform ongoing strategic conversations within and between institutions, communities and individuals, across the Black Country and beyond. This report provides a review of some of the latest data, trends and thinking on global megatrends. Megatrends occur at the intersection of many trends and represent projected changes in social, political and economic relations. Megatrends have the potential to significantly change the way people live. Therefore attempts to anticipate megatrends enable foresight into the risk, rewards and responsibilities that the future may hold. The scope of the report is global and as such seeks to extend both the temporal and spatial boundaries of what are considered opportunities, challenges and responsibilities for those living in the Black Country today. There is no one way to respond to the data and tendencies highlighted in this report, but it is argued that a response is necessary. The report does not predict the future, but represents a set of projections intended to stimulate thinking, extend conversations and inform actions as to how the future of the Black Country could and should be shaped.

THE FUTURE IN 10 MINUTES

1.1. This report on megatrends highlights the global conditions, relations and practices that the Black Country will need to negotiate in the medium and long term. Every day individuals, groups, institutions and governments anticipate and act towards the future. The **Dial 481** project aims to build on and extend such everyday sense making in order to inform and support future debates, policies and practices. Reporting on megatrends is not an exercise in predicting the future, but an attempt to consider the possible outcomes of current practices and to anticipate potential opportunities and challenges. The task is not to know the future, but to anticipate and act towards the futures of the Black Country.

Society

In 2050 the world's population will be larger, more urban and older than today. Change will progress unevenly across regions. Diverging trends will present different challenges to different regions. Significant changes in labour and social welfare patterns are expected. Relatively low income countries will be faced with demands to provide infrastructure and opportunities for their young and growing populations. Relatively high income countries, faced with increasing age dependency ratios, will need to consider the sustainability of existing systems of production and care, but also the relationship that could and should exist between the production and reproduction of society.

Technology

Innovations in technology are expected to be a disruptive force in social, political and economic relations. A fourth industrial revolution, that redraws the lines between physical, digital, and biological domains, is anticipated. Technology is likely to develop in advance of policies and regulations. The risks and rewards of technology are unlikely to be spread evenly unless anticipatory action is taken. The role that technologies can and should play in society is yet to be determined. Public debates and conflict over the uses and abuses of technology and how best to respond to new risks and opportunities are likely to be heightened as the scope and potential of technology increases.

Economy

Asia is set to become the world's economic centre of gravity, in what is projected to be a rebalancing of global economies. Economic growth is projected

to help achieve reductions in global poverty, but based on current trends, will also be linked to growing inequality and escalating environmental pressures. The costs and benefits of globalisation will become increasingly visible, but given the uneven distribution of the benefits of globalisation, opposition will become more vocal. It is anticipated that industrial revolution 4.0 will disrupt existing relations and potentially provide, and or require, different routes and ideas of progress.

Environment

It is projected that climate change and an increased demand and competition for resources will place increasing pressure on the planet's ecosystems. Tensions over climate change will grow as extreme weather, soil stress, and food and water insecurity disrupt societies. Changes in the environment have the potential to slow economic growth and pose a risk to human welfare and security. Limiting and mitigating the risks resulting from climate change will require substantial and sustained reductions in greenhouse gas emissions and the development of sustainable solutions to increased demands on the planet's resources.

Politics

Governing will get harder. The emergence of a multipolar geopolitical landscape will complicate efforts to secure multilateral agreements. A shift in global politics may be overshadowed by a more fundamental shift in the nature of power. Enabled by communication technologies, power will shift toward extended, resourceful and diffuse networks. Securing and sustaining agreement on global, national and regional issues will require a rethink on the nature and exercise of power and accountability. For those seeking to develop and enact strategies, difficulties in setting and communicating agreed narratives around a common interest, will further complicate the realisation of such strategies. Networks and coalitions will become increasingly vital in a multipolar world.

Next Steps

In sum, it is anticipated that the future of the Black Country can be characterised by **3Cs - Contrasts, Connections and Contests**. Broadly, when faced with change, agents can choose one of three broad positions, to be fatalistic, adaptable or transformative. The choice of orientation will in part depend on the values, beliefs and capacity of the agents concerned. When considering futures, the question is posed, under what conditions will it be possible for all people to have the opportunity to realise their futures in the Black Country?

THE FUTURE IN AN HOUR

2.1. Why bother with the future? Well hopefully we will all have one. It is the future where we will be spending the rest of our lives. Our dreams, plans, hopes and fears, may be shaped by our histories and present concerns, but they will all play out and be realised in our futures. Beyond such truisms, there are particular reasons to attend to potential futures.

Human Futurity

2.2. To be human is to be future oriented². As individuals or institutions, the capacity to imagine, speculate, anticipate, and plan provides everyday evidence of our futurity. A desire to know the future takes many distinct forms. Throughout history, oracles have claimed to divine prophecies and revelations in order to forewarn and provide guidance³. Today the somewhat paradox notion that the future can be both known, but created, informs the approach of those organisations seeking to know the future today⁴.

Structural Irresponsibility

2.3. In the same way that today is a legacy of past social, political, economic and technical developments, so too will the actions taken today shape the future. The modern age is marked by practices that have far reaching intended and unintended consequences. And yet, the capacity and potential legacies of today's practices and policies is not necessarily matched by a widespread willingness or ability to consider the consequences of these decisions and actions.

Neglecting the future places a structural irresponsibility at the very core of policy making, and raises questions regarding the temporal jurisdiction of the decisions taken today. If a responsibility for the present is to be considered alongside future responsibilities there is a requirement to call futures to mind and mind the future⁵. Efforts are being made in this regard. A number of public and private institutions have been studying global megatrends, not only to enhance their performance and longevity, but to identify what responsibilities they have to future generations⁶.

Contested Futures

2.4. The future is contested. The future is a domain where both claims over what the future will be and the decisions and actions that this future requires are subject to conflict. Appeals to a better

tomorrow, or the fear of what is to come, can serve as means by which policy makers attempt to justify actions to be taken today⁷. This is not necessarily a problem if both the future and the space for making claims on the future remain open. However, politics and policy making is imbued with efforts to define what is feasible by occupying the future.

Claims to foretell and know the future can wield significant influence over what is deemed a realistic future and therefore what are considered feasible actions and decisions to be taken today⁸. However, there are no future facts⁹. At best there are probabilities and tendencies and even these become less clear beyond the short term.

Claims to know the future are to be treated with some caution. Not only are such forecasts more likely to project the assumptions and interests of today, but more fundamentally, suggest a closed rather than open future¹⁰. Where the individual and collective choices that people make, intended or otherwise, are a vital factor in shaping outcomes, it is not possible to posit a closed system where all variables can be known and outcomes predetermined¹¹. People can and do respond to projected changes in order to create different conditions, relations and practices.

So Why Bother?

2.5. Attending to futures quickly reveals a tension. At a time when the long term legacy of current practices is pronounced and far reaching, not only does the appetite for a long term perspective appear limited, but claims to know the future appears misplaced.

However, rather divine the future, the task is to be future minded¹². To be future minded is to extend the horizon of what the future could be, to analyse the present in order to identify points of intervention and possibilities for action and to give due consideration to balancing current and future responsibilities¹³.

A preoccupation with current events and concerns can limit efforts to think creatively about the future. Attempts to envision the future are further complicated by unexamined assumptions that are held regarding what is a desirable future, how society works and the means by which changes can be made to create a particular future. Foresight is an approach designed to address these issues and anticipate and act towards possible futures.

Foresight

2.6. A range of approaches and tools are available to support engagement with futures¹⁴. Foresight refers to those approaches that attempt to anticipate the opportunities and threats that may arise in mid- to long- term versions of the future. Every day individuals, groups, institutions and governments anticipate and act towards the future.

The **Dial 481** project aims to build on and extend such everyday sense making in order to inform and support future debates, policies and practices. Foresight provides decision makers with extended horizons for what is possible and how these possibilities can be realised. More specifically, foresight can support decision makers identify if and how they need to adapt to new contexts OR seek to transform the environment in which they operate.

The Dial 481 Project

2.7. The **Dial 481** project uses **EVE**, a framework designed to Explore, View and Educate futures.

EXPLORE - A key challenge when thinking about futures is the sheer volume of sources and information available. The **Dial 481** project reviews and helps make sense of latest data and reports on the most important issues, trends and tendencies.

VIEW – The **Dial 481** project helps people view the implications of their futures and the assumptions and interests that inform particular views of the future. A range of methods are used to enhance an understanding of change and the mechanisms underlying events and the shaping of futures.

EDUCE - Anticipating possible futures and identifying and prioritising potential challenges and opportunities are essential to informed and effective decision making. The **Dial 481** project uses futures to design and test prototype policies and practices in order to inform the development and implementation of strategies that anticipate and realise preferred futures.

The **Dial 481** project brings future orientated approaches to life on real projects and further develops the capacity of individuals, groups and institutions to anticipate and realise their futures as part of an everyday practice.

This report represents the first phase and function of the foresight process. That is, to explore futures, to inform a strategic conversation as to how best to

anticipate and prepare for the challenges and opportunities of the future. This is a conversation and strategy that will evolve as new information on the possibilities the future may hold develops. This is not just an exercise in extending the number of years over which an agent considers its future, but also one that supports agents to make sense of a complex, changing and uncertain environment and future.

Black Country

2.8. There remains some dispute over the origins of the name and its boundaries, but what is not in doubt is that the Black Country has shaped and been shaped by a series of social, political and economic transformations.

The Black Country includes the Boroughs of Dudley, Sandwell, Walsall and Wolverhampton and covers 356 square kilometres. Home to over 1.1m people and 440,000 households, 15% of the people living in the Black Country are from Black and Minority Ethnic (BME) origins, compared to a national average of 9%. Levels of deprivation and children living in poverty are generally higher than the average for England¹⁵.

The Black Country is a polycentric region. Each of the Black Country's boroughs includes a number of historically distinct towns and villages, with ready access to the national road and rail network. The Black Country helps constitute the West Midlands Combined Authority, making up four of the eighteen local authorities and one of the four Local Enterprise Partnerships.

Shaped by its industrial past, in the 19th century, the Black Country was one of the most heavily industrialised areas in the world. During the course of the 20th century, the Black Country, together with Birmingham and Coventry, constituted a vital part of the UK's manufacturing economy and host to a number of globally known companies. In the 21st Century, manufacturing remains a vital part of the local and national economy with over 18% of all jobs still in this sector compared with 11% nationally.

The Black Country's distinct and significant heritage continues to shape the present, but what about the Black Country's future? What risks and opportunities does the future hold for the Black Country and how can anticipating futures, alongside appreciating the past, inform what the people who live, work and play in the Black Country do today.

Megatrends

2.9. Megatrends are large, transformative global forces that are considered to endure over a long period of time, from 30 years up to 100 years. Megatrends are considered to have far-reaching impacts on politics, business, culture, economies and individuals.

A number of state, for profit and not for profit organisations produce reports on megatrends¹⁶. For the purposes of this report the megatrends identified are organised within what is described as a **STEEP** framework.

- **Social** – demographic and cultural characteristics.
- **Technological** – tools and relations for completing tasks.
- **Economic** - levels of growth, relations of production, consumption and distribution.
- **Environmental** - environmental conditions and levels of resource and pollution.
- **Political** – forms of governance, prominent and or contested ideologies, and sources of power.

Reporting on megatrends is not an exercise in predicting the future, but an attempt to consider the possible outcomes of current practices and to anticipate potential opportunities and challenges. It is argued that, although megatrends may have a big influence on the future, the impact they have on particular times, places and practices will depend on a number of other factors. In the addition to the contingencies created when global forces and regional histories and conditions meet, agents also have choices over if and how they respond to each of these megatrends and their cumulative effects.

What follows is a review of the social, technological, economic, environmental and political megatrends that are projected to have far-reaching impacts on the Black Country.

SOCIAL

3.1. In 2050 the world's population will be larger, more urban and older than today. Change will progress unevenly across regions. Diverging trends will present different challenges to different regions. Significant changes in labour and social welfare patterns are expected. Relatively low income countries will be faced with demands to provide infrastructure and opportunities for their young and growing populations. Relatively high income countries, faced with increasing age dependency ratios, will need to consider the sustainability of existing systems of production and care, but also the relationship that could and should exist between the production and reproduction of society.

Diverging Global Population Trends

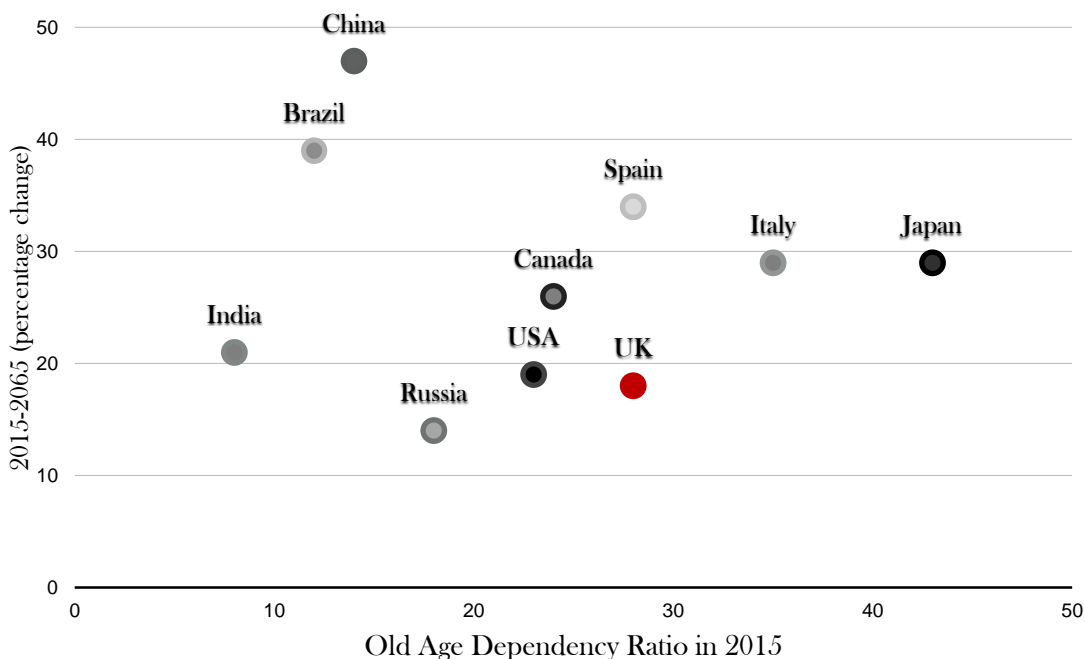
3.2. It is projected that the world's population will continue to increase, albeit at a slower rate. Today's global population of nearly 7.6 billion is expected to reach 8.6 billion in 2030, 9.8 billion by 2050 and 11.2 billion by 2100¹⁷. The world's population is ageing. In 1950, 8% of the world's population was aged 60 years or more. It is projected that in 2050, with the exception of Africa, nearly a quarter of the world's population will be



aged 60 years or more¹⁸. Globally, life expectancy at birth is expected to increase (71 in 2010-2015 to 77 in 2045-50). Global fertility is expected to fall from 2.5 births per woman in 2010/15 to 2.4 in 2025/30 and 2 in 2095/00¹⁹.

These headline figures hide significant regional differences in demographic trajectories. Europe is expected to have a smaller population in 2050 than today²⁰. Young and growing populations in relatively low income countries, contrast with ageing and stalling populations in relatively high income countries. Diverging population trends present very different problems and opportunities

Old Age Dependency Ratio Projections 2015 - 2065.



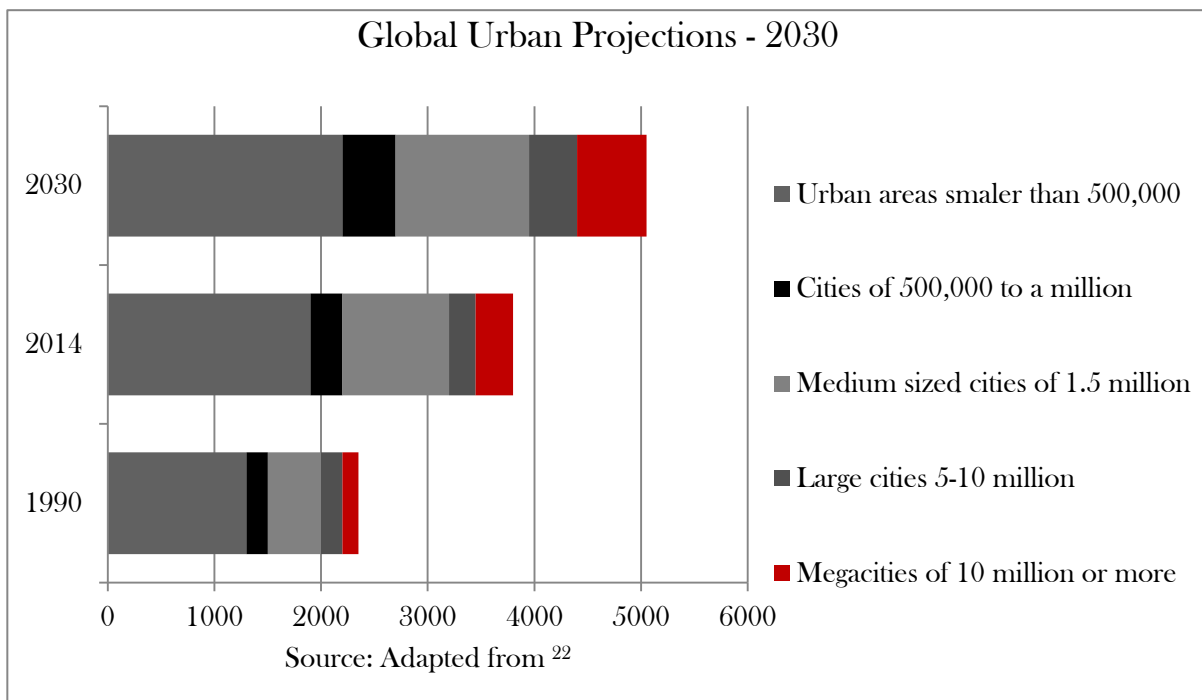
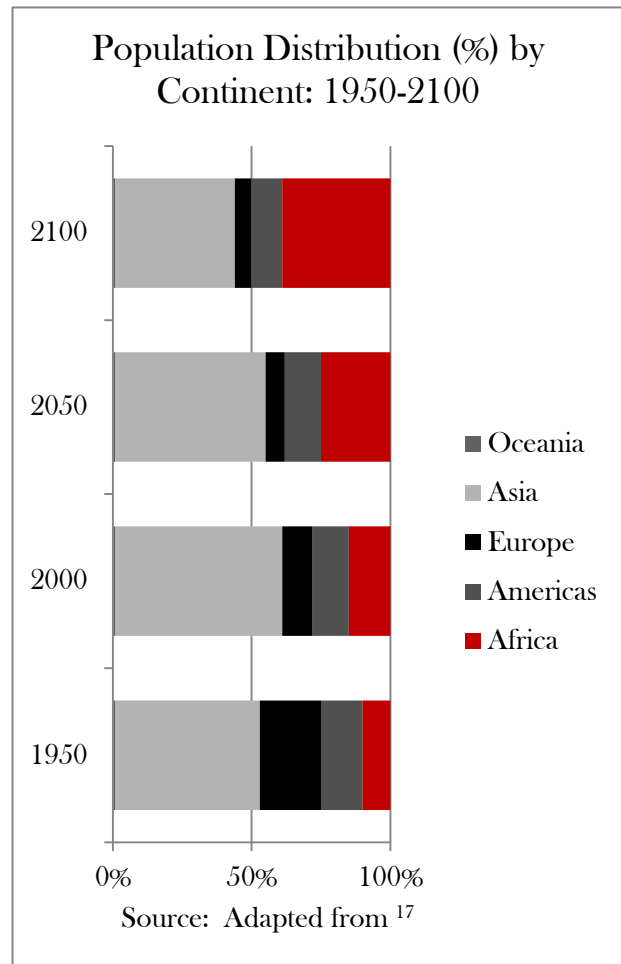
Source: Adapted from ¹⁷

to particular jurisdictions. Projections of old-age dependency ratios, defined as the number of people aged over 65 as a percentage of those aged between 15 and 64, suggest notable increases in India, Brazil and China. Ageing populations and subsequent demands for health, care and welfare services will put pressure on budgets at a time when working age populations, and related tax revenues, could be reduced. It is also expected that the meaning and representation of ageing will change within this new demographic context. In contrast, younger and growing populations will need to be fed, housed, educated and employed. An increasing supply of labour may also outstrip demand for jobs, particularly for those with university-level education. Such unequal developments are likely to increase the push and pull factors for migration for various countries²¹.

Urbanisation and Megacities

3.3. By 2050, it is projected that 67% of the world's population will be living in cities. Today, 50% of the world's population lives in cities. In the 1950s it was less than 30% of the world's population²².

It is anticipated that large scale migrations from rural areas into fast growing urban areas of Asia and Africa will drive much of this growth. The growth in the number and size of megacities, and their relative economic and social power, could rival the power of national governments. Megaprojects will be required to meet the economic and social needs and demands of these megacities²³.



TECHNOLOGY

4.1. Innovations in technology are expected to be a disruptive force in social political and economic relations. A fourth industrial revolution, that redraws the lines between physical, digital, and biological domains, is anticipated. Technology is likely to develop in advance of policies and regulations. The risks and rewards of technology are unlikely to be spread evenly unless anticipatory action is taken. The role that technologies can and should play in society is yet to be determined. Public debates and conflict over the uses and abuses of technology and how best to respond to new risks and opportunities are likely to be heightened as the scope and potential of technology increases.

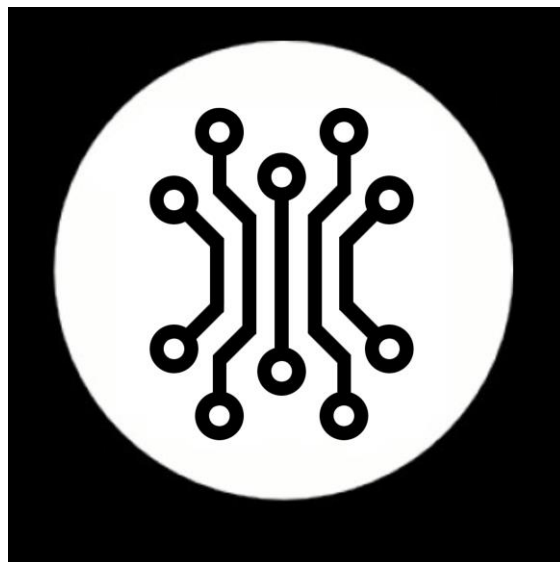
A Fourth Industrial Revolution

4.2. It is anticipated that developments in genetics, nanotechnology, biotechnology, artificial intelligence, robotics, graphene and additive manufacturing (3D printing) will generate a fourth industrial revolution²⁴. Industrial revolution 4.0 is expected to supersede the digital revolution and is characterised by a synthesis of technologies that redraws the lines between the physical, digital, and biological domains²⁵.

A new generation of machines will be thinking, sensing, moving, learning and acting autonomously. Developments in machine learning and robotics mean that these new technologies will be able to operate across a much wider part of the skill spectrum than previous forms of technology²⁶. The potential to substitute for human brains as well as hands²⁷ suggests that a technologically driven but uneven growth in productivity will continue to reshape the role and nature of work²⁸. While the anticipated developments in technology will offer new opportunities, it is also expected that there will be disruptions to existing labour markets and systems of social welfare²⁹.

Estimates on the impact of new technologies on the labour market differ with regard to the number of jobs subject to automation and the number of new jobs to be created through developments in robotics, and artificial intelligence³⁰.

Frey and Osborne estimate that almost 1 in 2 jobs could be performed by computers and algorithms within the next 10 to 20 years. This equates to up 80 million jobs in the U.S.A. and up to 15 million jobs in the U.K. at the risk of automation³¹.



In contrast, Arntz, Gregory and Zierahn suggest that in industrialised nations 9 % of jobs are expected to disappear in the future due to automation, digitization, and robotics³². With respect to the UK, projections of up to 30% of existing jobs being lost due to automation needs to be set against the potential of AI-related technologies to boost productivity and generate additional jobs elsewhere in the economy³³.

The breadth of skills and functions afforded by these new technologies means that the impact of automation is likely to be felt across all sectors³⁴. However, it is anticipated that social, creative and critical thinking skills will be relatively less subject to automation, whereas manual and routine tasks will be most susceptible to automation³⁵.

The likelihood of automation appears lowest in education, health and social work, and highest in sectors such as manufacturing, retail, transport and storage. It is projected that those most at risk from automation tend, on average, to have the lowest wage and further widen income disparities³⁶. The projected uneven impact of technologies across different sectors will have implications for the role of technologies in shaping wider social and political relations.

Bio-technologies

4.3. Developments in biotechnology have the potential to improve the global food supply and human health³⁷. Genetic engineering and biotechnologies promise improved diagnostics and treatments in efforts prevent diseases. Nano technologies are expected to have a range of medical applications, including nanoscale diagnostics, and advanced drug delivery³⁸.

Employment shares and the estimated proportion of jobs at potential high risk of automation by early 2030s for all UK industry sectors. Source Adapted from ³⁹

Industry	Employment share of total jobs	% at potential high risk
Water, sewage and waste management	0.6	62.6
Transportation and support services	4.9	56.4
Manufacturing	7.6	46.4
Wholesale and retail trade	14.8	44
Administrative and Support Services	8.4	37.4
Financial and insurance	3.2	32.2
Public Administration and defence	4.3	32.1
Electricity and gas supply	0.4	31.8
Real estate	1.7	28.2
Information and communication	4.1	27.3
Professional, scientific and technical	8.8	25.6
Accommodation and food services	6.7	25.5
Construction	6.4	23.7
Mining and quarrying	0.2	23.1
Arts and entertainment	2.9	22.3
Agriculture, forestry and fishing	1.1	18.7
Other services	2.7	18.6
Human health and social work	12.4	17.0
Education	8.7	8.5
Domestic personnel and self-subsistence	0.3	8.1
Total for all sectors	100	30

The line between natural and enhanced human performance will be blurred as functions such as strength, vision, hearing and memory are enhanced by advances in biology, pharmacology, cognitive science and communications⁴⁰. Inequities in access to such technologies have the potential to increase inequalities further, as those able to adopt such enhancements increase their performance.

Concerns over access, ethics, and the unforeseen consequences of biotechnologies, regardless of their potential benefits, will attract political opposition. It is likely that legal and regulatory frameworks will struggle to keep up with the exponential development of these technologies⁴¹.

Bespoke Services or Surveillance Regimes

4.4. The 'Internet of Things', that is, the number of, monitoring and sensing devices linked to the internet, will become cheaper, more widespread and part of everyday life. Devices such as mobile phones, cars and household appliances, will be capable of collating and sharing vast amounts of data. In 2000, 25% of the world's information was stored digitally. In 2014 it is more than 98%. It is currently projected that by 2045 there will be 20,000 times more digital information than there is today⁴².

The growth in the volume and speed of access to data enabled by these new technologies generates a number of opportunities, but also presents a range of challenges to existing institutions, relations and practices⁴³.

Number of connected devices per person	
2003	0.08
2010	1.81
2013	2.79
2015	3.41
2020	5.18
2040	10.22

Source: Adapted from ⁴²

Institutions will potentially have unprecedented opportunities to monitor individual's behaviour in order to anticipate needs, preferences and behaviours. Technology could bring benefits as new forms of digital governance promise the ability to anticipate and respond to individual needs. The same technologies may also raise concerns as they are framed as part of the growth of a surveillance state.

Growth in volume of digitally stored information	
	Exabyte of data*
2005	132
2015	8,251
2025	213,381
2035	6,1721,27
2045	178,531,657

* Exabyte is a billion gigabytes

Source: Adapted from ⁴²

Policies and practices will need to develop in order to address the conflicting pressures and tensions between balancing privacy, convenience and security. The line between what is socially, legally, and ethically acceptable and what is technically possible will be tested and possibly redrawn and will have far-reaching consequences for social, political and economic relations⁴⁴.

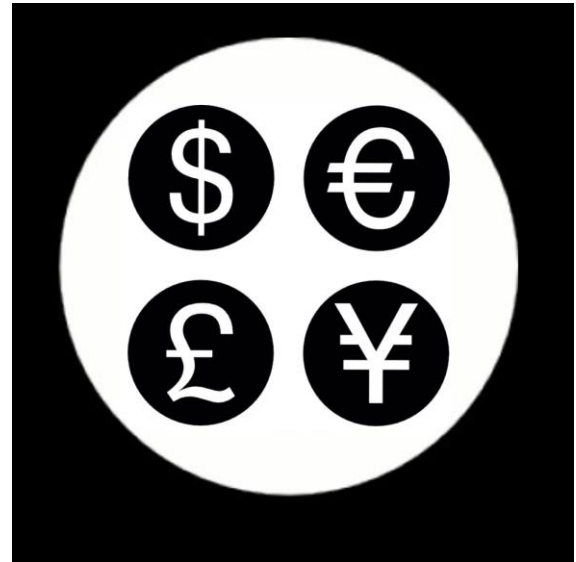
ECONOMY

5.1. Asia is set to become the world's economic centre of gravity, in what is projected to be a rebalancing of global economies. Economic growth is projected to help achieve reductions in global poverty, but based on current trends, will also be linked to growing inequality and escalating environmental pressures. The costs and benefits of globalisation will become increasingly visible and opposition vocal. It is anticipated that industrial revolution 4.0 will disrupt existing relations and potentially provide, and or require, different routes and ideas of progress.

Globalisation and Growth

5.2. Global economic output is projected to treble between 2010 and 2050⁴⁵. Economic growth is projected to help achieve reductions in global poverty and increases in well-being, but based on current trends, will also be linked to growing inequality⁴⁶ and escalating environmental pressures⁴⁷.

It is anticipated that the costs and benefits of globalisation will become increasingly visible and given the uneven distribution of the benefits, opposition will become more vocal. Despite periodic and intensified calls for protectionism and alternative economies, over the long term, it is anticipated that markets will continue across de-regulated and open economies⁴⁸.

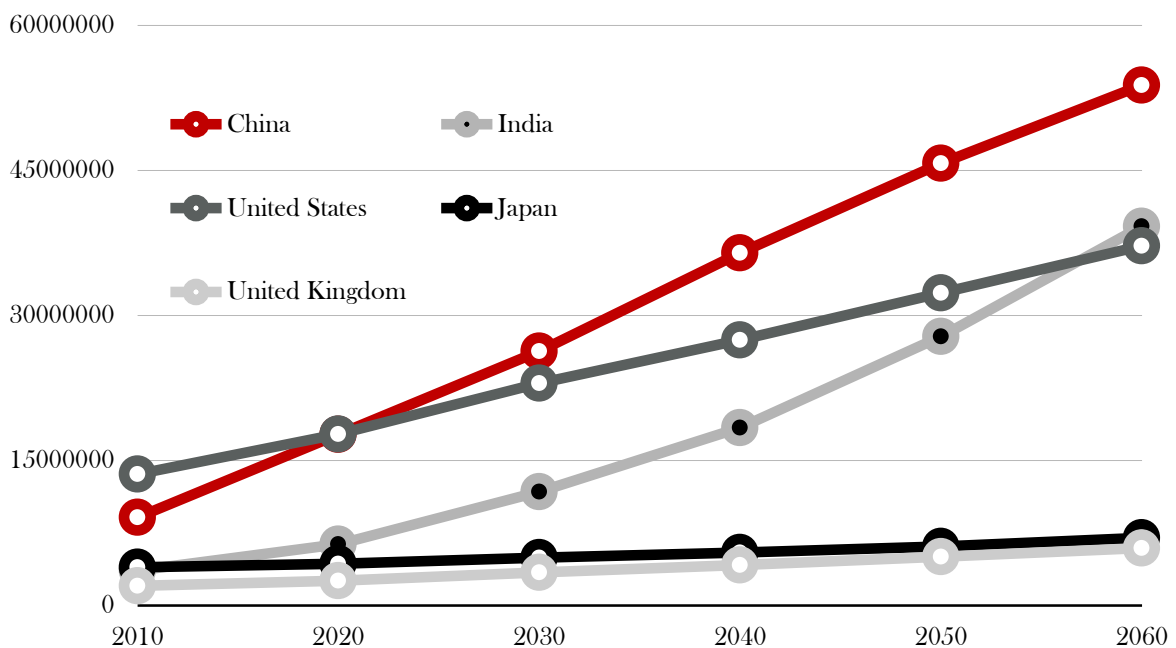


Notably, markets are likely to operate across a variety of regimes, with varying degrees of liberalism and state activism, reflecting the historical and political contingencies of particular jurisdictions⁴⁹.

New Centre of Gravity

5.3. The epicentre of global growth is shifting. It is projected that China will have the largest economy, surpassing that of the United States, a few years before 2030. In what is projected to be a rebalancing of global economies, it is anticipated that the economic centre of gravity will move towards Asia, with significant growth in a number emerging markets in Asia and Africa^{50,51}.

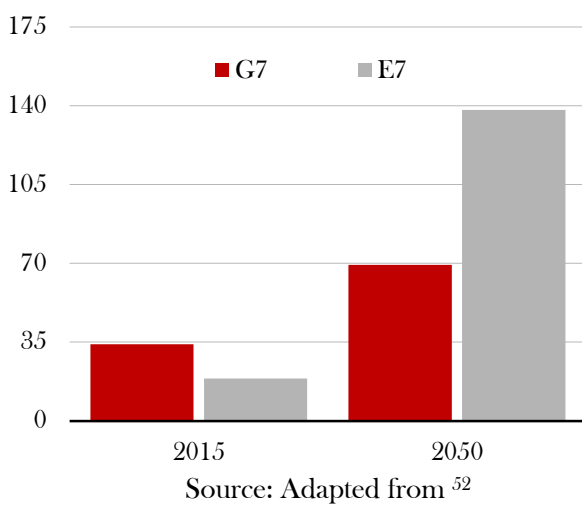
GDP Long Term Forecast - million US dollars, 2010 - 2060



Source: Adapted from ⁴⁵

Driven by structural change, fast-growing workforces and trade liberalisation, the e7¹ economies are rapidly increasing their share of global economic output, trade and investment. India and China have already doubled per capita income much faster than much smaller emerging economies in the past⁵². Relatively high income countries will continue to be confronted with shrinking workforces⁵³ and stalled or diminishing productivity. For the first time, a majority of the world's population will be deemed middle class⁵⁴. Asia is expected to account for the largest share of the global middle-class and middle-class consumption⁵⁵.

GDP of G7 and E7 countries (US dollars - trillion).



It is anticipated that the e7 economies will transition from centres of labour and production to increasingly consumption- oriented economies. The new middle classes are projected to hold increasing social, economic and political influence. Industrial Revolution 4.0 (See Technological megatrend) may present emerging market economies with 'leapfrog' opportunities as they seek to not only capitalize on new and changing technologies and markets, but take a different route to 'development'.

Government Finances

5.4. It is projected that increased cost competition among firms and fiscal competition among states will relatively diminish the capacity of states to manage the economy⁵⁶. A politics of public debt will be heightened and contested as across the globe a number of national economies are facing the prospect of increasing governmental debt⁵⁷. Based on current policies governing taxes and spending, countries such as the USA, UK and

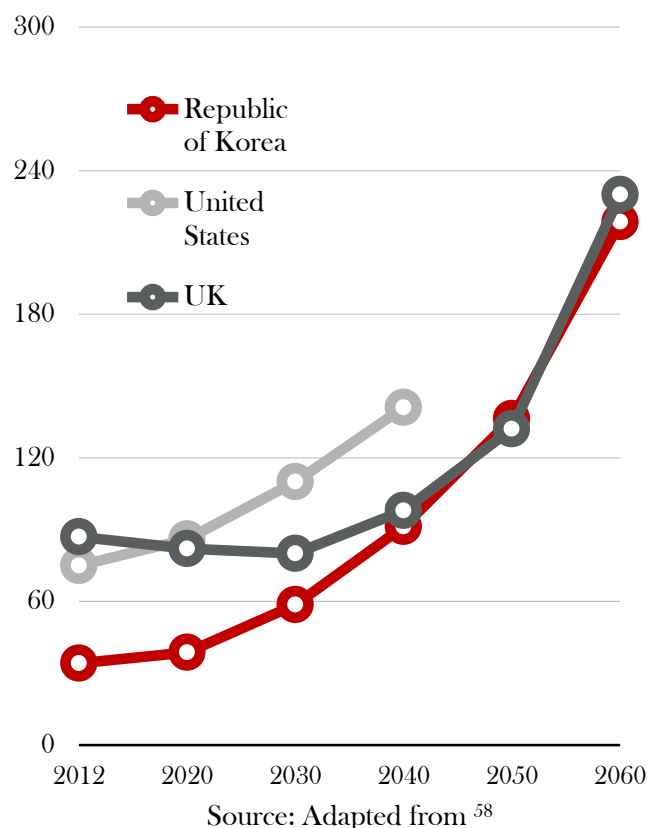
¹ e7 = China, India, Brazil, Mexico, Russia, Indonesia and Turkey

South Korea face steadily increasing debt over the next 30 years⁵⁸. Governments will face increasing challenges in attempts to provide equality, security and prosperity. The social contracts that could and should exist between states and citizens will be contested, with attempts being made to redraw the lines and locus of responsibility and risk⁵⁹.

Measures of Success

5.5. It is anticipated that pressure to develop and use additional or alternatives measures of wealth and welfare to Gross Domestic Product (GDP) will increase. As the costs and limitations of a narrow focus on economic growth become evident, debates regarding the development and use of alternative indices for measuring success and articulating goals will be extended and intensified. Drawing on the work of the EU's Beyond GDP initiative, the Commission on the Measurement of Economic Performance and Social Progress, the OECD Better Life Index and the United Nations Human Development Index, new metrics will seek to reflect the multiple factors that enhance and detract a society's welfare and quality of life⁶⁰.

Projections of Government Debt to GDP Ratios for Selected Countries.



ENVIRONMENT

6.1. It is projected that climate change and an increased demand and competition for resources will place increasing pressure on the planet's ecosystems. Tensions over climate change will grow as extreme weather, soil stress, and food and water insecurity disrupt societies. Changes in the environment have the potential to slow economic growth and pose a risk to human welfare and security. Limiting and mitigating the risks resulting from climate change will require substantial and sustained reductions in greenhouse gas emissions and the development of sustainable solutions to increased demands on the planet's resources.

Climate Change

6.2. It is projected that cumulative emissions of greenhouse gases will cause further warming and have long-lasting consequences across the climate system. The risks of abrupt or irreversible changes increase as the magnitude of warming increases. In the development of climate change projections the International Panel on Climate Change (IPCC) describe four Representative Concentration Pathways (RCPs)⁶¹.

The pathways include a stringent mitigation scenario (RCP2.6), that aims to keep global warming below a 2°C increase above pre-industrial temperatures, two intermediate scenarios (RCP4.5



and RCP6.0), and one scenario with very high greenhouse gas emissions (RCP8.5).

Across all these pathway scenarios, global mean surface temperatures and sea levels are projected to rise during the course of the 21st century. Oceans are expected to continue to warm and acidify. It is estimated that in many regions extreme precipitation events will become more frequent and intense and heat waves will occur more often and last longer. Climate change is expected to increasingly threaten natural ecosystems and biodiversity. Exacerbated by climate change and

Projected change in global mean surface temperature and global mean sea level rise for the mid- and late 21st century, relative to the 1986-2005 period

		2046-2065		2081 - 2100	
	Scenario	Mean	Likely range	Mean	Likely range
Global Mean Surface Temperature Change (Degrees Celsius)	RCP2.6	1.0	0.4 to 1.6	1.0	0.3 to 1.7
	RCP4.5	1.4	0.9 to 2.0	1.8	1.1 to 2.6
	RCP6.0	1.3	0.8 to 1.8	2.2	1.4 to 3.1
	RCP8.5	2.0	1.4 to 2.6	3.7	2.6 to 4.8
	Scenario	Mean	Likely range	Mean	Likely range
Global Mean Sea Level Rise (m)	RCP2.6	0.24	0.17 to 0.32	0.40	0.26 to 0.55
	RCP4.5	0.26	0.19 to 0.33	0.47	0.32 to 0.63
	RCP6.0	0.25	0.18 to 0.32	0.48	0.33 to 0.63
	RCP8.5	0.30	0.22 to 0.38	0.63	0.45 to 0.82

Source: Adapted from ⁶¹

pollution, rates of global habitat destruction and biodiversity loss are projected to increase and erode global water and food security. The effects of continued ecosystem degradation on poverty may lead to increased political instability and intra and inter country migration⁶².

Competition for Resources

6.3. Based on current trends, an increase in population growth that includes the levels of production and consumption found in high income countries today will be extremely problematic for the environment⁶³. By 2030, with a projected population of 8.6 billion people, the world will need⁶⁴:

- 50% more energy.
- 40% more water.
- 35% more food.

Global use of material resources is set to double by 2030⁶⁵. It is anticipated that this will increase the likelihood of pervasive and irreversible impacts on people and the ecosystems on which they depend⁶⁶. A growing population combined with increased per capita consumption, is expected to increase competition and jeopardise access to vital resources⁶⁷

The uneven geographical distribution of resources could further increase price volatility, undermine living standards and heighten geopolitical conflict⁶⁸. This is not grounds for prescribing a halting of development for some, so that others can maintain unsustainable lifestyles. Rather, it highlights the importance of identifying sustainable opportunities for all. Therefore it is not population growth per se that is the issue but the level of consumption commensurate with such growth⁶⁹.

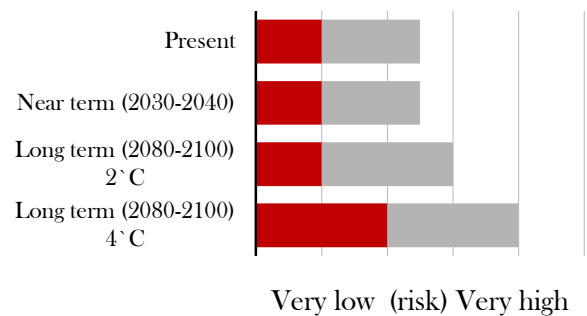
Calls for Action

6.4. Risks are unevenly distributed. Generally, the risks are increased for disadvantaged communities in countries at all levels of development⁷⁰. It is anticipated that concerns over climate change, whether observed or anticipated will foster increased demands to take action on climate change. The urgency of the demands for action will vary across regions⁷¹. Increasing pressure is likely to come from those countries currently most at risk from the effects of climate change but the least responsible for current emissions⁷².

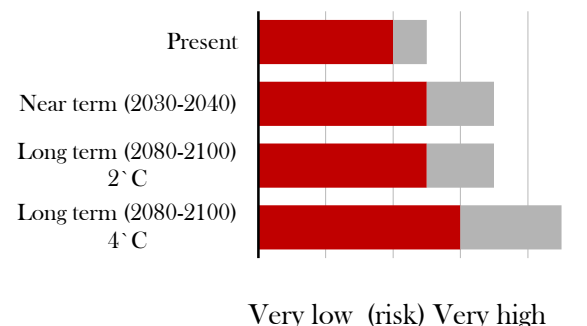
The political voice of such countries to take action on and in response to climate change will become louder in a multi-polar and polycentric world⁷³

Notably, even if the anthropogenic emissions of greenhouse gases are stopped, it is projected that many aspects of climate change and its associated impacts will continue for centuries⁷⁴.

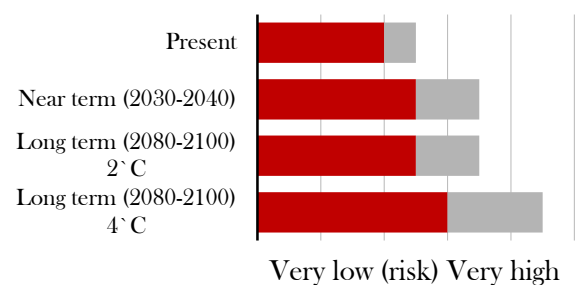
Increased damages from river and coastal floods. Source Adapted from ⁷²



Increased water restrictions. Source Adapted from ⁷²



Increased damages from extreme heat events and wildfires. Source: Adapted from ⁷²



- Risk level with HIGH adaptation
- Potential for additional adaptation to reduce risk

POLITICS

7.1. Governing will get harder. The emergence of a multipolar geopolitical landscape will complicate efforts to secure multilateral agreements. A shift in global politics may be overshadowed by a more fundamental shift in the nature of power. Enabled by communication technologies, power will shift toward extended, resourceful and diffuse networks. Securing and sustaining agreement on global, national and regional issues will require a rethink on the nature and exercise of power and accountability. For those seeking to develop and enact strategies, difficulties in setting and communicating agreed narratives around a common interest, will further complicate the realisation of such strategies. Networks and coalitions will become increasingly vital in a multipolar world.

Multi-Polar Politics

7.2. The global power index is based upon GDP, population size, military spending, and levels of technology, health, education, and governance⁷⁵. Reversing the historic rise of the West since 1750, by 2030 it is estimated that Asia will have surpassed North America and Europe in terms of global power.

The economies of Europe, Japan, and Russia are likely to continue their slow, relative declines. In contrast, countries such as Colombia, Egypt, Indonesia, Iran, South Africa, Mexico and Turkey, will not necessarily exhibit the influence of China and India, but the aggregate power of such states



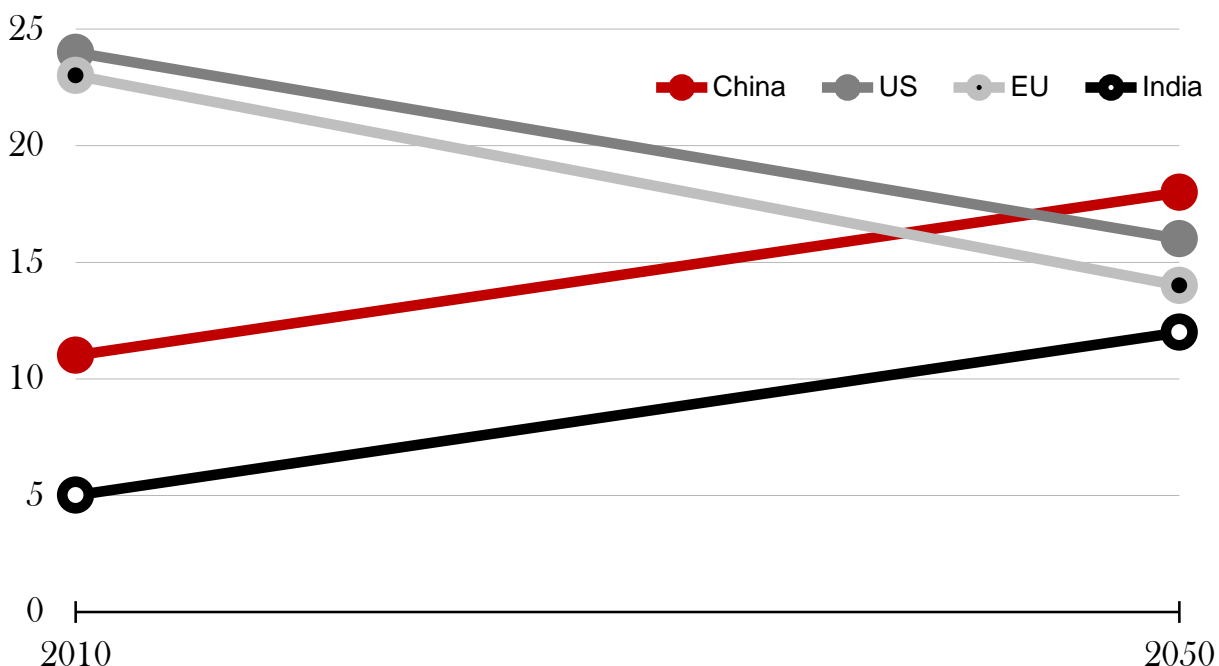
may overtake that of western industrialised states, by 2030.

It is anticipated that international institutions will still be have a role to play, but will find it difficult to adapt to a more multipolar, changing, and complex environment⁷⁶. Sustaining multilateral responses to a range of social, political, economic and environmental issues, though vital, will become harder to agree and sustain.

Dissipation of Power

7.3. The State is expected to continue to remain the dominant political actor, but one subject to a number of challenges⁷⁷. Publics will demand governments' deliver security and prosperity.

Multi-Component Global Power Index Forecast



Source: Adapted from ⁷⁵

However, flat revenues, distrust, and a pluralisation, if not polarization, of politics will create a number of challenges for politicians and policymakers. The tension between the wicked problems⁷⁸ facing society and governments' willingness and capacity to address such issues will be exacerbated⁷⁹. Complicating matters is the expectation that there will be an increase in the number and a capacity of agents who can block or circumvent social, political and economic relations⁸⁰.

Governments will have to deal with an increasing number of political actors⁸¹. For profit and not for profit institutions will continue to seek to collaborate and compete with governments in the provision of goods and services. This will raise questions about the accountability and transparency of non-state actors. An increase in the number and diversity of institutions attempting and claiming to represent constituencies to authorities is anticipated⁸². The capacity afforded by new technologies, will increase the likelihood of religious based institutions, community groups, single issue pressure groups and city mayors to build their own constituencies and coalitions. This will further complicate forms of governance⁸³.

Advances in global education and technology will continue to have the potential to empower individuals and lead to increased demands for transparency and participation in government decision-making⁸⁴. Networks and coalitions will have the potential to innovate, lever resources and play a vital role in addressing a number of global and local challenges.

A plurality of perspectives and a fragmentation of public discourses, reflected in notions of echo chambers and filter bubbles will hinder the efforts of agents to create and sustain shared understandings⁸⁵. Difficulties in forging consensus across a myriad of positions, along with an enhanced ability of small groups to veto, block and disrupt relations, will make collaboration agreements and actions difficult.

It is projected that raised public expectations, reduced levels of trust and the constrained capacity of governments will lead to continued attempts to redefine, reconfigure and reproduce the 'rights and responsibilities' of different agencies, both as institutions and individuals.

CONCLUSION

8.1. The report, 'Global Megatrends and the Black Country' provides a review of some of the latest data, trends and thinking on global megatrends. Megatrends occur at the intersection of many trends and represent projected changes in social, political and economic relations. Megatrends have the potential to significantly change the way people live. Attempts to anticipate megatrends enable foresight into the risk, rewards and responsibilities that the future may hold. The scope of the report is global and as such seeks to extend both the temporal and spatial boundaries of what are considered opportunities, challenges and responsibilities for those living in the Black Country today. The report does not predict the future, but represents a set of projections intended to stimulate thinking, extend conversations and inform actions as to how the futures of the Black Country could and should be shaped.

Three Cs

8.2. Cutting across the STEEP megatrends, it is anticipated that the future global context of the Black Country is to be characterised by:

Contrasts: Diverging demographic trends and growing inequalities will mean stark differences in what the future holds and how it is experienced both within and across national states and regions. The costs and benefits of globalisation will become increasingly visible and debates on the performance and legitimacy of existing social, political and economic relations will become more vital.

Connections: Relations between people, technology and the environment will become more important and complex. Extended work and social networks have the potential to play a vital role in addressing a number of global and local challenges. A growth in interconnectivity may also lead to more surveillance and disruption from the risks posed by climate change and political instability.

Contests: Increases in global population and incomes will increase levels of consumption and competition over access to resources. The competition for resources, in a multi-polar world, is expected to heighten differences within and across countries and make efforts to create and sustain shared understandings and goals more difficult to achieve.

A future of uneven developments, increased complexity and interdependency and heightened contradictions and uncertainty affords a number of risks, opportunities and challenges. Societies,

states, institutions, communities and individuals, will need to continue to contend with a number of systemic challenges. Each jurisdiction and agent makes its own choices about how it could and should respond to these megatrends and the combination of relations and practices it uses to achieve its given ends.

Future Orientation

8.3. There is no one way to respond to the data and tendencies highlighted in this report, but it is argued that a response is necessary. When faced with change, agents can choose one of three broad positions, to be fatalistic, adaptable or transformative.

- Fatalism is where outcomes are considered to be either pre-determined or not amenable to change by individuals. Therefore agents are left with little choice but to be subject to fate.
- Adaptation is an attempt to find ways to fit in and perform with a new environment. If the new environment is predictable, then the adjustments that need to be made are clear. However, where the future is uncertain and changing, adaptation becomes a constant process, where responsiveness and flexibility are valued qualities.
- Transformation seeks to shape global and regional change in ways that not only mitigate and manage risks but create new conditions, relations and practices. Transformative approaches do not accept trends as inevitable, but make efforts to tackle and redirect the drivers of change. Transformative approaches can seek to create new worlds, or in some instances, seek to return to a lost golden age.

The choice of orientation will in part depend on the values, beliefs and capacity (perceived and actual) of the agents concerned. Arguably, in a world where surprises are considered to hit harder and more frequently, the most successful agents will be those that are adaptive and resilient. This enables agents to better respond to changing conditions, persevere in the face of adversity and act quickly to recover after mistakes. However, not everyone has the same opportunities and capacity for building resilience and adapting to change.

If all of the Black Country is to thrive in the future, it may be necessary to go beyond enhancing agents' tenacity and adaptability and to consider how broader social, political and economic relations and practices can be configured so that both the risks and benefits are shared.

Plural Futures

8.4. The report is not an attempt to predict the future, where success is to be judged by the accuracy of forecasts against what actually happens in the future. Rather the report represents a set of projections intended to stimulate thinking, extend conversations and inform actions as to how the futures of the Black Country could and should be shaped.

The question posed, is under what conditions will it be possible for all agents to have the opportunity to realise their futures? This is an audacious task and it is not a task that could or should be undertaken by any one agent or institution. Making sense of futures requires attempts to develop an understanding of the multiple perspectives of diverse organisations and communities.

Orthodox strategic thinking suggests that the best way to address an issue and develop a strategy is to follow an orderly and linear process, working from the identification of goals and methods, through to the selection of means and their implementation. It is questionable as to whether such an orthodox approach to strategy is sufficient for responding to the degree of complexity, change and uncertainty that negotiating the future requires. Such orthodox strategies also tend to reflect and realise attempts to advance an agent's existing interests and position over time. As reflected in this report, the **Dial 481** project does not seek to advantage any one group, or seek to establish a single and universal vantage point from which to survey the future. Instead, it is argued that proposals for possible futures require the involvement, commitment and coordination of multiple stakeholders to be enacted.

The Black Country today has been shaped by the choices that have been made, both historically and globally. Futures will continue to be shaped by the accumulation and intersection of manifold decisions, relations and practices that reflect multiple interests and result in a web of intended and unintended consequences. In attempts to shape such futures, it is anticipated that a revision of the nature and operation of power and influence will be required. This is not to discount the force and influence of hard power, but to highlight how a growing interdependency means that attempts to secure stated goals will require an enhanced capacity to lever resources, sustain relationships, and share information in a more rapid and flexible manner than has been evident to date.

Where the ability to dominate constituencies or control the environment is diminished, openness to

networked forms of governance and the management and facilitation of diverse and shifting alliances will be vital to achieving desired outcomes. The ability to tend to relationships and create webs of cooperation to the mutual benefit of stakeholders will be vital. To this end, the ability to create evocative narratives and cultivate trust and credibility will be essential to the identification and sharing of overlapping, but not identical, interests and values.

When the need for collaborative working will be most vital, the prevailing tendencies that can undermine such efforts need to be noted. The power of individuals and groups to block outcomes will be much easier than efforts to co-operate and forge new policies and practices. This should not be taken to deter efforts to join and develop coalitions for change, but to highlight the challenges and value of those institutions and individuals most capable of identifying and taking advantage of opportunities to work cooperatively.

Next Steps

8.5. In a context of increased and diverse viewpoints and interests, the future potentially provides a shared point of orientation. The future is something that we all share, even if we don't all agree on what the future should be. The aim of this report has been to enable discussions both within and across institutions and communities in and beyond the Black Country as to how to respond and shape futures for all. This is considered the beginning of ongoing efforts to share assessments of current tendencies and inform debates, plans and actions that anticipate the risks, opportunities and responsibilities of today and tomorrow.

The **Dial 481** project does not seek to establish what should be done, but rather, to further develop an understanding of how we could attend to the future. This includes efforts to:

- Close the distance and tension between relatively short term political and commercial time horizons and the requirement to consider long term plans and actions;
- Identify and challenge assumptions over the nature and scope of actions that could be taken by individuals and agencies, and;
- Identify and address differences in values over what the future should be and the means by which particular futures can be achieved.

In sum, engaging with futures is not a struggle between advocates of the real and the possible, but to ask what we take to be real and what is really possible?

Global Megatrends and the Black Country

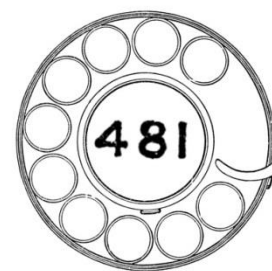
Note on methods

9.1. Exploring the Future - The following stages were completed in the production of Global Megatrends and the Black Country.

Stage I	Identify and review data, trends, forecasts and projections produced by national and multinational institutions. United Nations Specialised Agencies, World Bank, International Monetary Fund, IMF; World Health Organisation, WHO; United Nations Educational, Scientific and Cultural Organization, UNESCO; International Labour Organisation, ILO; Food and Agriculture Organization, FAO; International Fund for Agricultural Development, IFAD; United Nations Industrial Development Organization, UNIDO. The World Trade Organisation, WTO; Organization for Economic Cooperation and Development, OECD; International Panel on Climate Change, IPCC; World Economic Forum, WEF; and; National Governments' Foresight Projects and Independent Fiscal Councils.
Stage II	Identify and review megatrends reports produced by state, commercial and non-governmental organisations, e.g. National Intelligence Council, USA; European Environment Agency, Ministry of Defence, UK, CSIRO, Australia, EY and KPMG.
Stage III	Concepts and themes identified in stages one and two are used to inform a literature review of academic literature using the Web of Science database.
Stage IV	Categorise megatrends within STEEP (Social, Technological, Economic, Environmental and Political) framework.
Stage V	Identify cross cutting themes and issues of relevance to a particular constituency - Black Country.
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THE DIAL 481 PROJECT

What does the future hold? It may not be possible to know the future, but it is possible to explore futures in clear, rigorous and creative ways in order to anticipate potential risks and opportunities. The **Dial 481** project works with individuals, groups and institutions to bring future orientated approaches to life on real projects. The **Dial 481** project uses **EVE**, a framework designed to Explore, View and Educate futures.



EXPLORE - *to travel through an unfamiliar area, to learn, inquire or discuss a subject in detail.*

A key challenge when thinking about futures is the sheer volume of sources and information available. The **Dial 481** project reviews and helps make sense of the latest data and reports on the most important issues, trends and tendencies.

VIEW - *to inspect, look and see something, or to be seen, from a particular place.*

The **Dial 481** project helps people view the implications of their futures and the assumptions and interests that inform particular views of the future. A range of methods are used to enhance an understanding of change and the mechanisms underlying events and the shaping of futures.

EDUCE - *to bring out something latent or develop potential.*

Anticipating possible futures and identifying and prioritising potential challenges and opportunities are essential to informed and effective decision making. The **Dial 481** project uses futures to design and test prototype policies and practices to inform the development and implementation of strategies that anticipate and realise preferred futures.

Every day individuals, groups, institutions and governments anticipate and act towards the future. The **Dial 481** project aims to build on and extend such everyday sense making in order to inform and support future debates, policies and practices.

About the Author

Stuart Connor is a Reader in Social Welfare at the University of Wolverhampton. With a background in policy analysis, in books published to date, 'Social Policy for Social Welfare professionals', co-authored with Graeme Simpson, and 'What's Your Problem?', a recurrent theme is to not only understand the impact that policies have on people's lives, but to also explore how people can and should have an impact on policies and future practices. This is reflected in the work of the **Dial 481** project and research exploring the potential of strategic foresight to inform policy and practice.

For more information you can:

Follow the **Dial 481** project on twitter @Dial481

Email stuart.connor@wlv.ac.uk

ENDNOTES

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