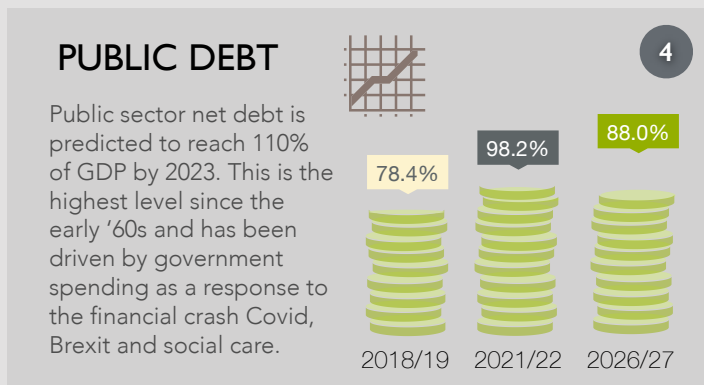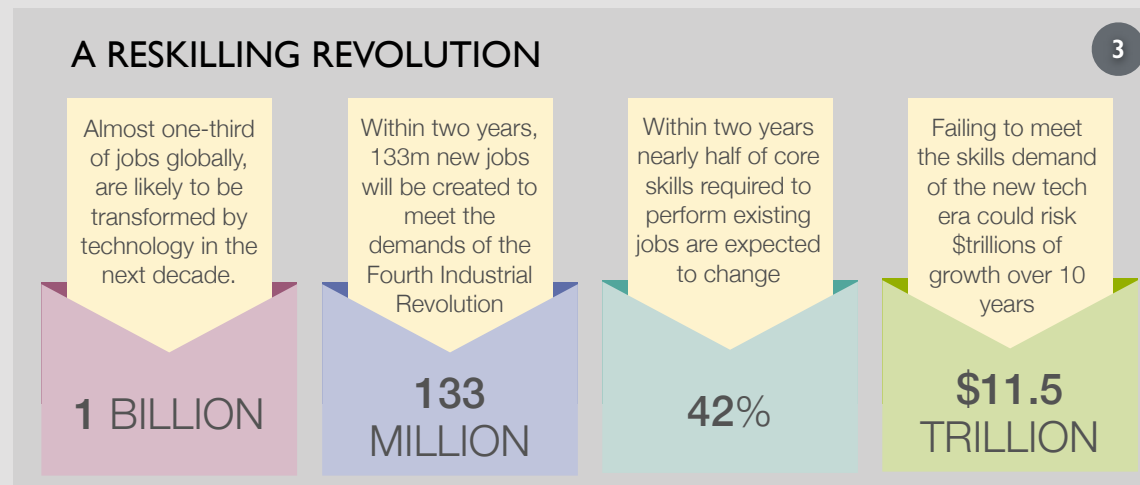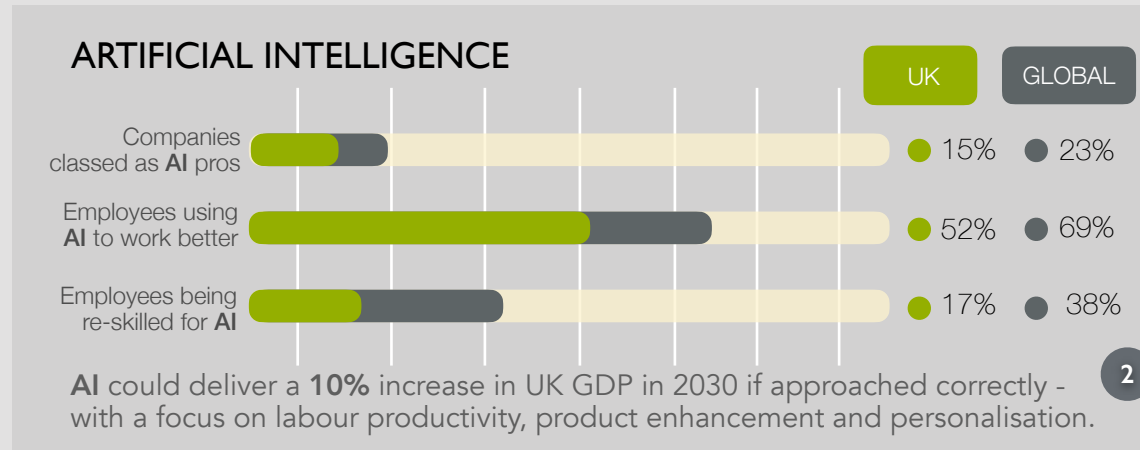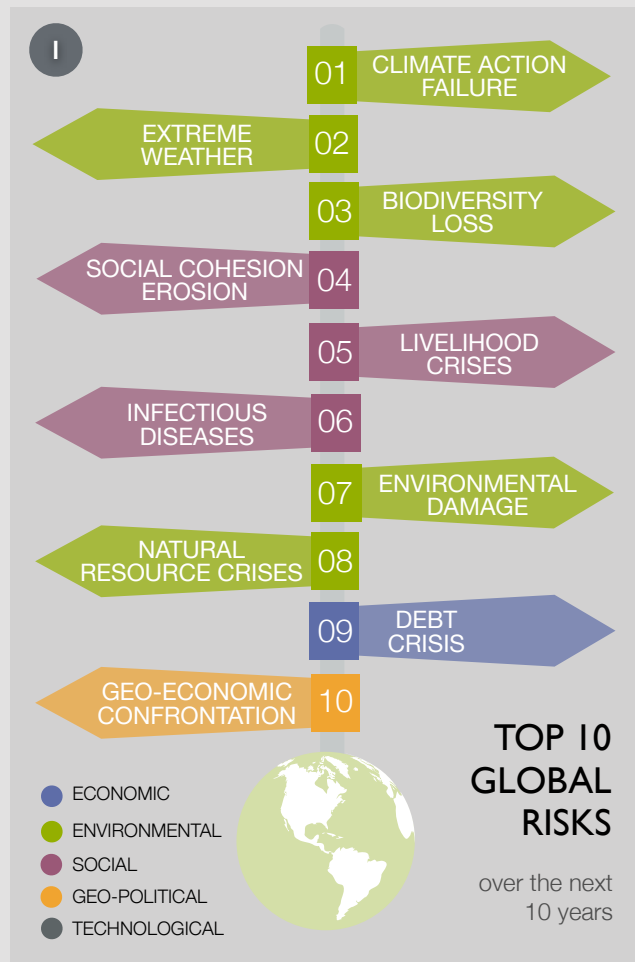# FUTURE
GROWTH

There are a number of meta trends that will drive systemic change across the economy and society: the climate and nature crises, population growth, faster technological change; global power shifts and increasing inequality.

With most future trends it is impossible to predict exactly what changes will happen or exactly how they will change the local economy. Nevertheless, it is important to understand these drivers of change and how they

might disrupt some industries and create opportunities for others. The trends will often give a good indication of what will be important over the next 10 years and how the local economy will need to change.

TOP 10 GLOBAL RISKS

01 CLIMATE ACTION FAILURE
02 EXTREME WEATHER
03 BIODIVERSITY LOSS
04 SOCIAL COHESION EROSION
05 LIVELIHOOD CRISES
06 INFECTIOUS DISEASES
07 ENVIRONMENTAL DAMAGE
08 NATURAL RESOURCE CRISES
09 DEBT CRISIS
10 GEO-ECONOMIC CONFRONTATION

- ECONOMIC
- ENVIRONMENTAL
- SOCIAL
- GEO-POLITICAL
- TECHNOLOGICAL

TOP 10 GLOBAL RISKS over the next 10 years

ARTIFICIAL INTELLIGENCE

	UK	GLOBAL
Companies classed as AI pros	15%	23%
Employees using AI to work better	52%	69%
Employees being re-skilled for AI	17%	38%

AI could deliver a **10%** increase in UK GDP in 2030 if approached correctly - with a focus on labour productivity, product enhancement and personalisation.

A RESKILLING REVOLUTION

Almost one-third of jobs globally, are likely to be transformed by technology in the next decade.
1 BILLION

Within two years, 133m new jobs will be created to meet the demands of the Fourth Industrial Revolution
133 MILLION

Within two years nearly half of core skills required to perform existing jobs are expected to change
42%

Failing to meet the skills demand of the new tech era could risk $trillions of growth over 10 years
$11.5 TRILLION

PUBLIC DEBT

Public sector net debt is predicted to reach 110% of GDP by 2023. This is the highest level since the early '60s and has been driven by government spending as a response to the financial crash Covid, Brexit and social care.

78.4% — 2018/19
98.2% — 2021/22
88.0% — 2026/27

OLDER POPULATION

The population of over 65s will continue to increase in HotSW - which is almost 90% of the projected 180,000 population increase to 2040.

Number of people aged 65+ for every working age person.

0.43 2018
0.53 2030
0.61 2040

KEY ISSUES

In reading new strategies and plans, HotSW LEP will need to keep abreast of future trends - deciding when it needs to act quickly, plan for change or track developments.

GLOBAL RISKS
The identified top global risks could all have significant implications for HotSW. These all take place against the backdrop of a changing world order - with economic and political power moving eastwards.

TECHNOLOGY
HotSW must ensure it has the skills, creativity and infrastructure to embrace new technologies. This will need public and private investment.

NEW SKILLS
Meeting future digital and green skills needs will mean fundamental changes across most jobs - harnessing data to drive value and productivity.

PUBLIC FINANCES
In the short to medium term, public spending is likely to be constrained. HotSW will need to lever in private investment' to maximise impact
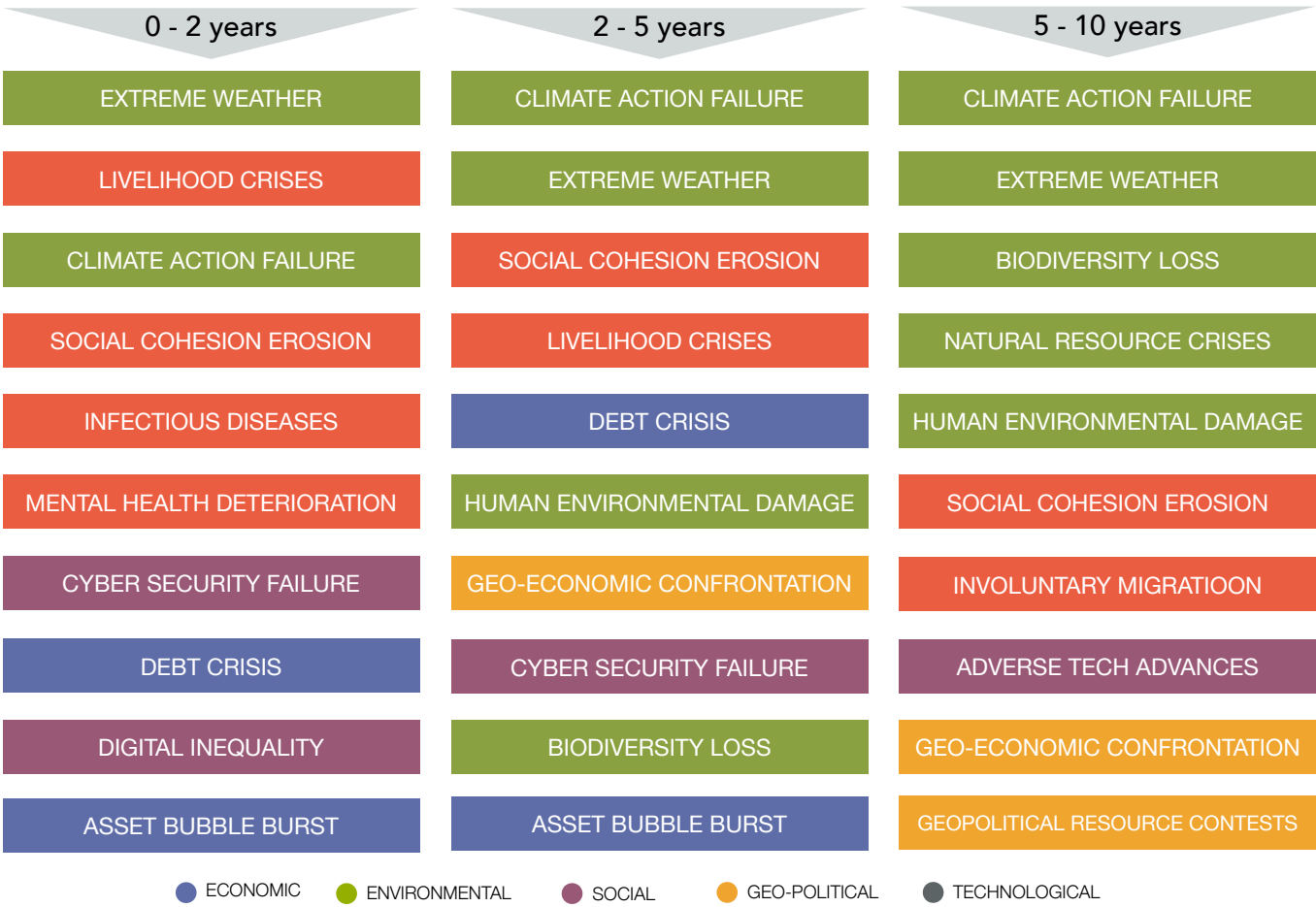
POPULATION
HotSW needs to find innovative, collaborative and cost-effective ways to manage care for the elderly - creating opportunities from that.
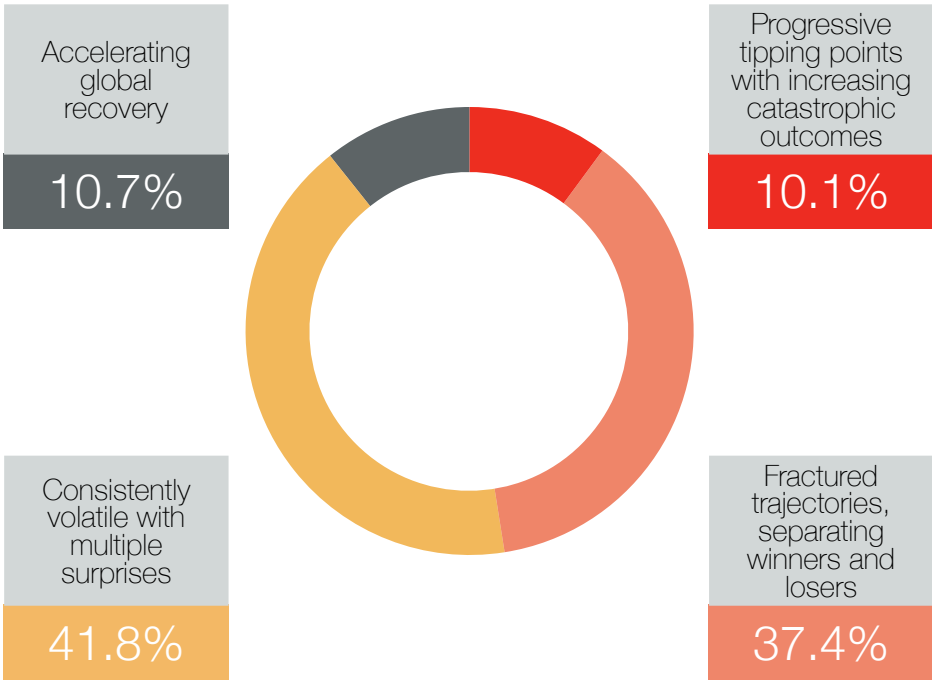
FUTURE GROWTH - global risks

Every year, the World Economic Forum (WEF) produces a Global Risks report.

In it, they report on their annual survey of business, political, academic and NGO leaders from around the world. In the 2022 report, their Risk Perception survey is based on 959 responses. The top 10 most severe risks on a global scale for different timescales over the next 10 years are shown below, along with views about the outlook for the world over the next three years.

TOP 10 RISKS - when will they become critical?

0 - 2 years	2 - 5 years	5 - 10 years
EXTREME WEATHER	CLIMATE ACTION FAILURE	CLIMATE ACTION FAILURE
LIVELIHOOD CRISES	EXTREME WEATHER	EXTREME WEATHER
CLIMATE ACTION FAILURE	SOCIAL COHESION EROSION	BIODIVERSITY LOSS
SOCIAL COHESION EROSION	LIVELIHOOD CRISES	NATURAL RESOURCE CRISES
INFECTIOUS DISEASES	DEBT CRISIS	HUMAN ENVIRONMENTAL DAMAGE
MENTAL HEALTH DETERIORATION	HUMAN ENVIRONMENTAL DAMAGE	SOCIAL COHESION EROSION
CYBER SECURITY FAILURE	GEO-ECONOMIC CONFRONTATION	INVOLUNTARY MIGRATIOON
DEBT CRISIS	CYBER SECURITY FAILURE	ADVERSE TECH ADVANCES
DIGITAL INEQUALITY	BIODIVERSITY LOSS	GEO-ECONOMIC CONFRONTATION
ASSET BUBBLE BURST	ASSET BUBBLE BURST	GEOPOLITICAL RESOURCE CONTESTS

● ECONOMIC   ● ENVIRONMENTAL   ● SOCIAL   ● GEO-POLITICAL   ● TECHNOLOGICAL

3 YEAR OUTLOOK

Accelerating global recovery
10.7%

Progressive tipping points with increasing catastrophic outcomes
10.1%

Consistently volatile with multiple surprises
41.8%

Fractured trajectories, separating winners and losers
37.4%

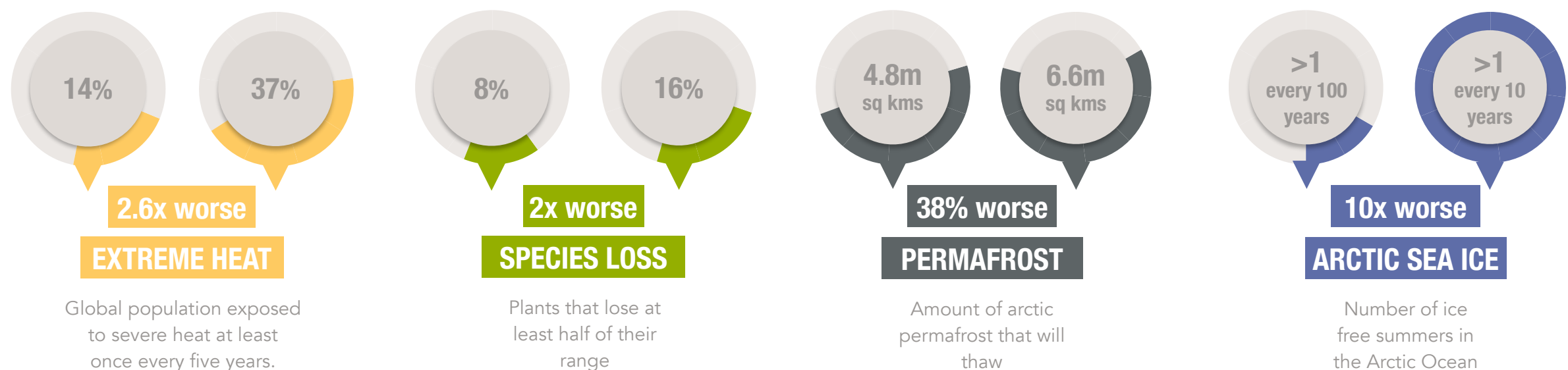Global Risk Perception Survey results

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FUTURE GROWTH - climate (1)

The need to rethink our society in the light of the climate and nature crises could not be more urgent. These are existential crises - literally. They demand huge changes of all of us - to avoid the worst consequences and to learn to live with the changes that are already baked in. Even given strenuous efforts to limit the cause of global warming, further climatic changes are inevitable in the future and the UK will need to manage the growing risks from climate change.

The IPCC has warned that exceeding 1.5C warming will push us into "a highly uncertain world" - adding that "the current global commitments are not sufficient to prevent temperature rise above 2C, let alone 1.5C. A 2C global increase would result in the average UK temperature during summer's hottest month increasing by about six degrees. The latest IPCC warns of **irreversible impacts and changes hitting harder and faster than previously thought**.

Industrialisation, increasing consumption and fossil fuel use have driven the increase in greenhouse gas emissions. Scientists agree that we need to keep emissions below 450 parts per million of CO_2. We are already at 416ppm.

HALF A DEGREE MATTERS - the difference between 1.5 and 2C rise

| 14% | 37% | 8% | 16% | 4.8m sq kms | 6.6m sq kms | >1 every 100 years | >1 every 10 years |

2.6x worse
EXTREME HEAT
Global population exposed to severe heat at least once every five years.

2x worse
SPECIES LOSS
Plants that lose at least half of their range

38% worse
PERMAFROST
Amount of arctic permafrost that will thaw

10x worse
ARCTIC SEA ICE
Number of ice free summers in the Arctic Ocean

Latest IPCC report
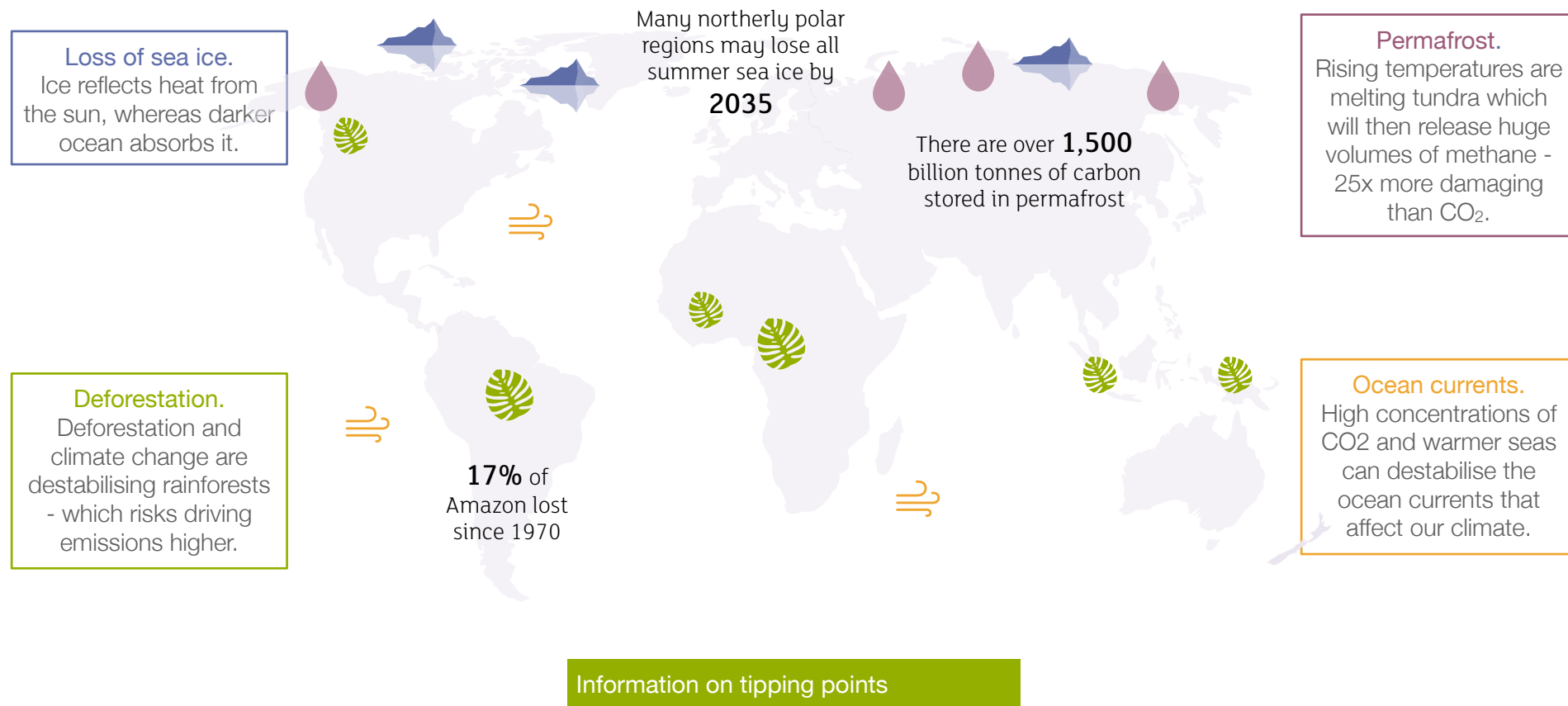
World Resources Institute

Six degree of climate emergency - review

FUTURE GROWTH - climate tipping points

The IPCC have concluded that, in order to keep the average global temperatures rise to 2°C or less, the maximum level of CO_2 (equivalent) in the atmosphere should be 450 parts per million. This is not a target - it is a maximum beyond which would bring extreme risks to humans and other species. As of January 2022, we are at 417 ppm.
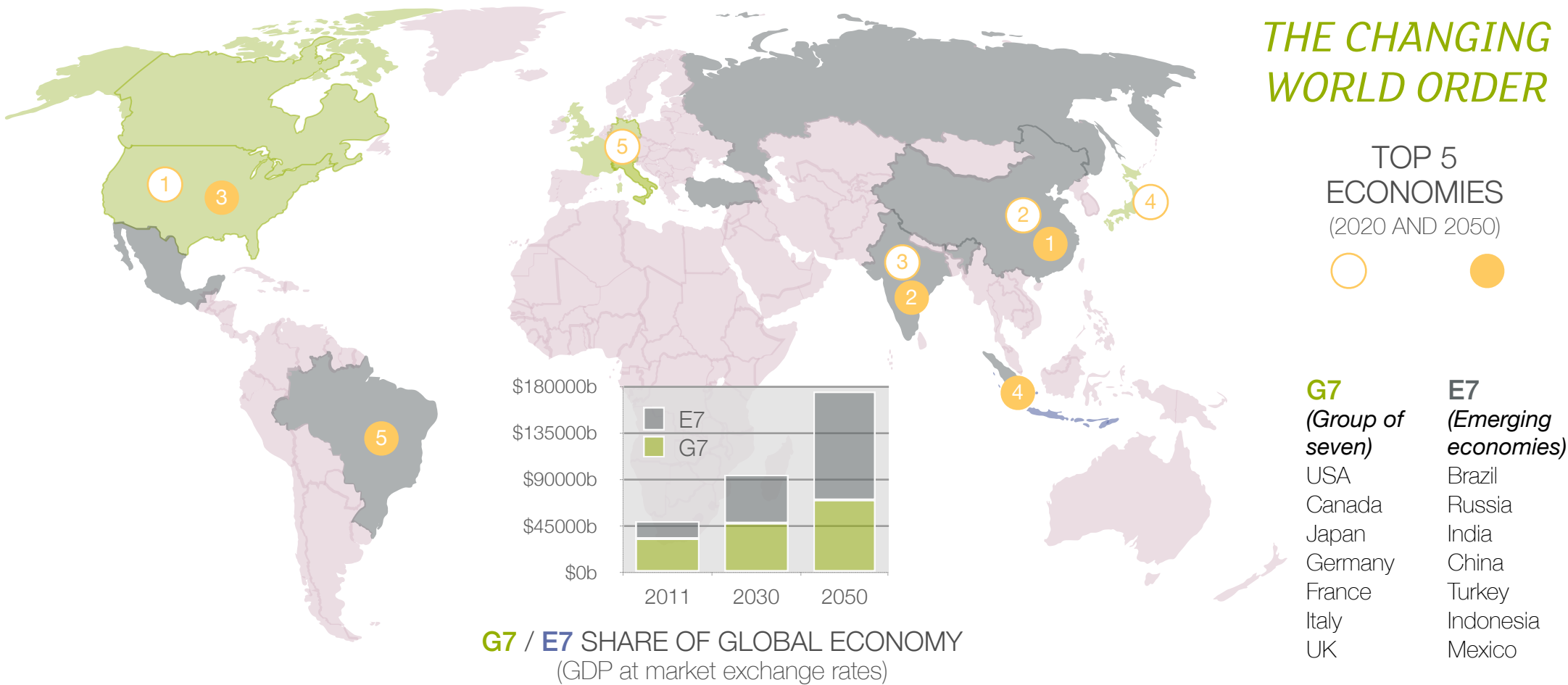
Global heating is not a linear process because of the existence of feedback loops, or tipping points. As a result of rising temperatures, some tipping points may be triggered which would accelerate heating even further. The precise point at which these events might happen is unclear.

TIPPING POINTS - increasing the risk

Loss of sea ice.
Ice reflects heat from the sun, whereas darker ocean absorbs it.

Many northerly polar regions may lose all summer sea ice by **2035**

There are over **1,500** billion tonnes of carbon stored in permafrost

Permafrost.
Rising temperatures are melting tundra which will then release huge volumes of methane - 25x more damaging than CO_2.

Deforestation.
Deforestation and climate change are destabilising rainforests - which risks driving emissions higher.

17% of Amazon lost since 1970

Ocean currents.
High concentrations of CO2 and warmer seas can destabilise the ocean currents that affect our climate.

Information on tipping points

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FUTURE GROWTH - global change

Global economic growth will be driven by emerging market economies, which will gradually increase their share of world GDP over time, leading to a doubling of the global economy by 2042. The E7 economies - Brazil, China, India, Indonesia, Mexico, Russia and Turkey - are forecast to grow at an annual average rate of 3.5% to 2050, compared to just 1.6% for the advanced G7 nations of Canada, France, Germany, Italy, Japan, the UK and the US. In the decades ahead, Asia's economies will go from participating in the flows of trade, capital, talent and innovation to determining their shape and direction.

THE CHANGING WORLD ORDER

TOP 5 ECONOMIES
(2020 AND 2050)

G7 *(Group of seven)*	**E7** *(Emerging economies)*
USA	Brazil
Canada	Russia
Japan	India
Germany	China
France	Turkey
Italy	Indonesia
UK	Mexico

G7 / E7 SHARE OF GLOBAL ECONOMY
(GDP at market exchange rates)

Chart legend: E7, G7

Y-axis: $0b, $45000b, $90000b, $135000b, $180000b
X-axis: 2011, 2030, 2050

PWC Report- the long view

PWC Report- the world in 2050

FUTURE GROWTH – trade

BREXIT has triggered a huge change in how and where the UK trades with international markets. While there is a lot of focus on trying to broker a series of individual trade deals with countries to make up for the loss of the EU as the principle trading partner, there is less focus on the fundamental questions about the openness of the economy itself. As a result of the Leave vote and the gradual imposition of barriers to trade with the EU, sterling has depreciated by about 10% - leading to higher prices and falling wages. It also stifled domestic investment and affected flows of international investment into the UK.

The next decade will shape future economic (and political) relations with the rest of the world and lay the ground for how the UK will position itself for trade with the USA, the EU and the emerging E7 economies. There will be trade and investment opportunities from the delivery of domestic policies - such as Levelling up and Net Zero - which should be seized; there is also a need to focus on the sectors where the UK has a genuine comparative advantage; and there is a need for more collaboration between industry, government and private investors.

FUTURE TRADE PRIORITIES

BUSINESS

OTHER 27%

19% — Large businesses need to source more from UK SMEs

20% — Existing exporters need to increase their international focus

34% — Businesses need to invest more in innovation and digital skills

From a PWC survey of 458 business leaders in UK and overseas. Oct 2020

GOVERNMENT

OTHER 35%

11% — More investment in infrastructure and connectivity

12% — More investment in innovation and digital skills

42% — Getting good trade deals with international markets

UK trade: the new agenda (PWC)
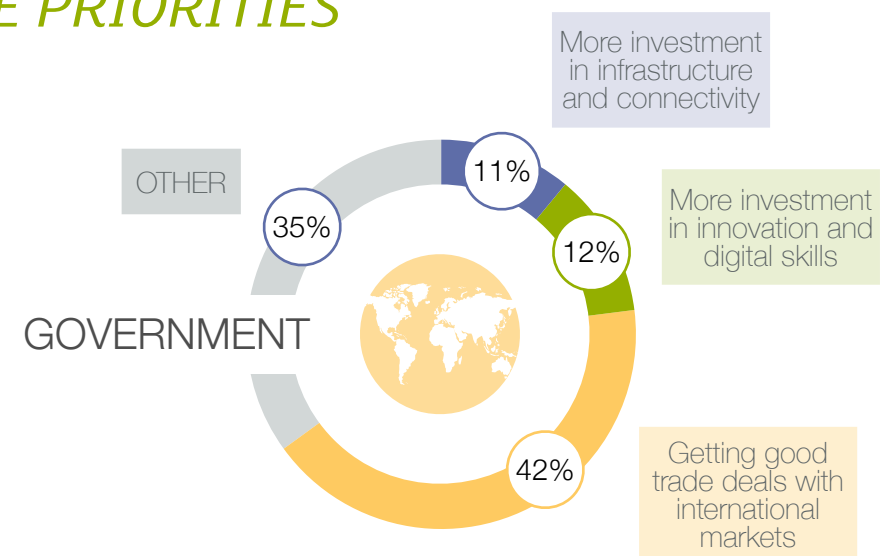
Trading places (Resolution Foundation)

FUTURE GROWTH - politics

During 2020, polls across the devolved administrations showed growing momentum for greater independence from Westminster. In 2014, polls in Northern Ireland said that 65% wanted to remain in the UK but, in 2020, support for the status quo has fallen to 34%, with 35% preferring a united Ireland outright. In Scotland, a range of surveys during 2020 have indicated that those wanting independence are ahead, on average by 7%. Support for Welsh independence has risen from 10% in 2012 to 23% in late 2020, but Wales remains less likely to choose independence.

The potential implication for the South West is whether the cost of keeping the Union together - as well as maintaining the new political landscape across the north of England - means that greater Government funding will flow to those areas. This may mean, if the levelling up focus remains on those areas, that there will be less available funding for other areas.

It's time to break up Britain

STICKING TOGETHER?
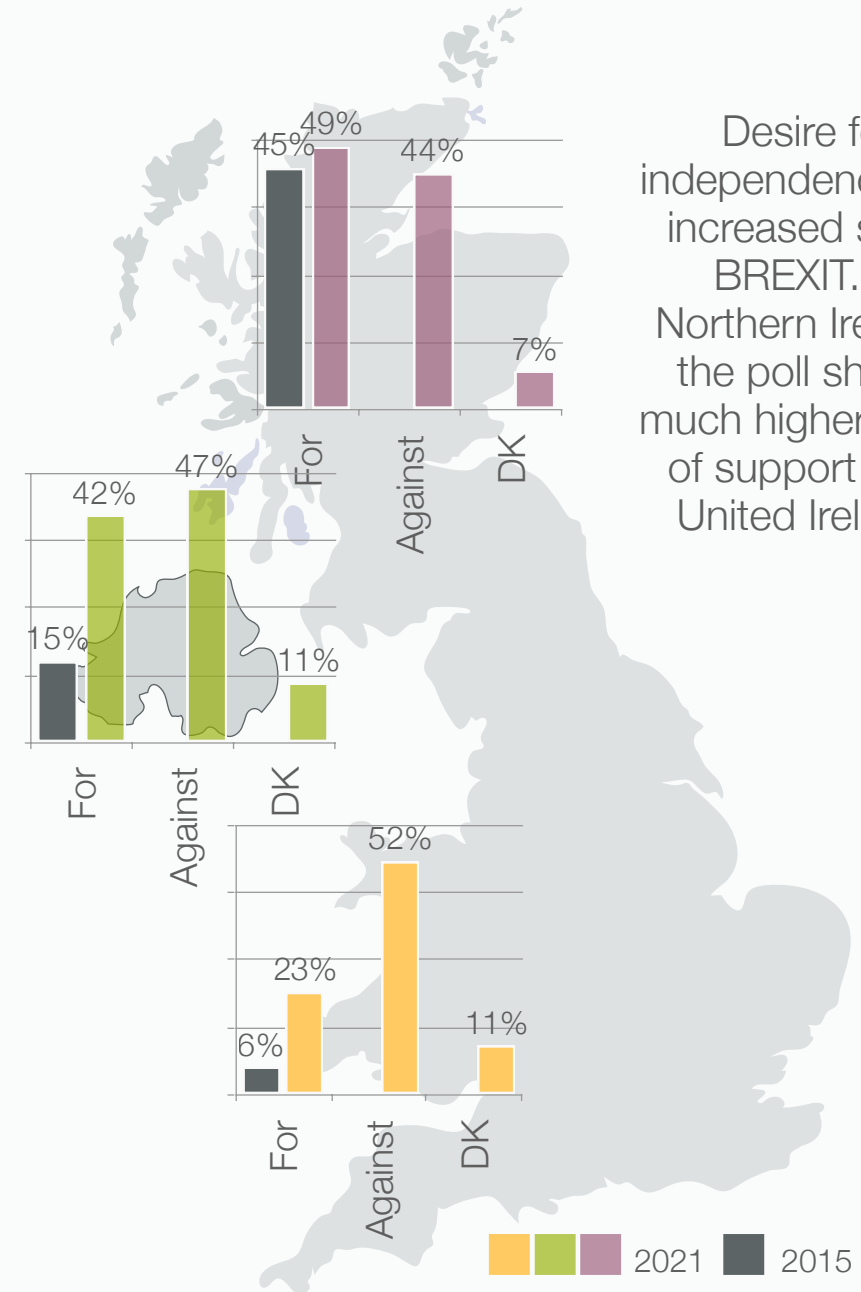
Desire for independence has increased since BREXIT. In Northern Ireland, the poll shows much higher levels of support for a United Ireland.

Scotland:
For: 45% / 49%
Against: 44%
DK: 7%

Northern Ireland:
For: 15% / 42%
Against: 47%
DK: 11%

Wales:
For: 6% / 23%
Against: 52%
DK: 11%

Legend: 2021 / 2015

SUPPORT FOR INDEPENDENCE (JAN 2021)

FUTURE GROWTH - alternative models

With the global population set to reach almost 10 billion by 2050, we need to find ways to make our resources more productive. Looking beyond the current take-make-waste extractive industrial model, a circular economy aims to redefine growth, focusing on positive society-wide benefits. It entails gradually decoupling economic activity from the consumption of finite resources, and designing waste out of the system.

Underpinned by a transition to renewable energy sources, the circular model builds economic, natural, and social capital.

Based on a groundbreaking book by British economist Kate Raworth, 'doughnut economics' is a model for creating a balanced economy. It aims to avoid a range of environmental overshoots and addresses a series of social shortfalls - and so create a safe and just operating space for humanity. Effectively the doughnut replaces GDP growth as the aim of economic policy. Economic growth becomes a means to achieve social goals within environmental limits.

NOT BUSINESS AS USUAL
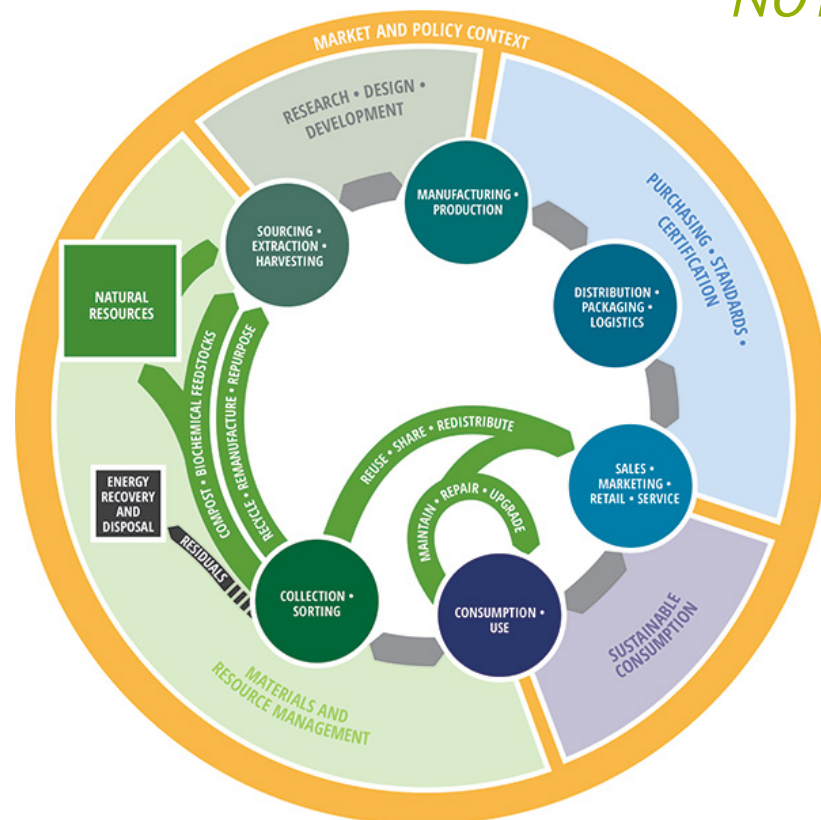
Exeter Centre for Circular Economy

Ellen MacArthur Foundation
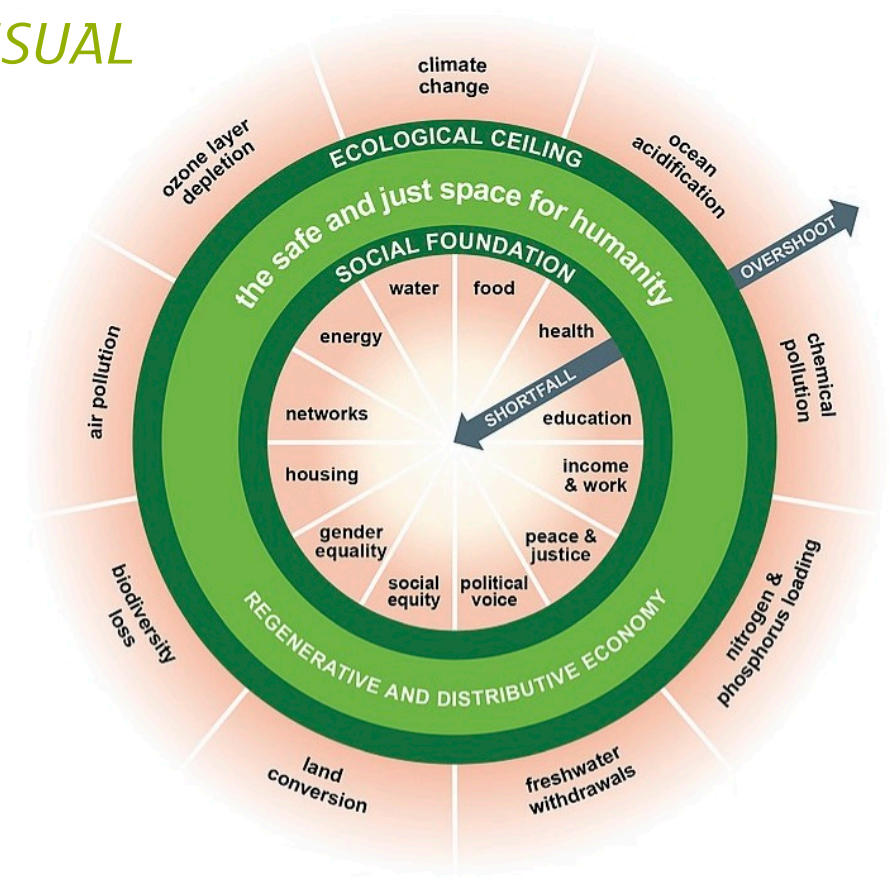
Doughnut Economics Action Lab

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FUTURE GROWTH - technologies

Digitisation is driving industries from product-based to service-based offerings. These services tend to be highly automated but also personalised through software. Integration of the physical and digital worlds using networked sensors, actuators and embedded software is changing industrial models.

Several technologies are converging and driving change in the nature of work, jobs and wealth creation. Artificial intelligence and robotics in particular will cause major changes in the jobs market and destabilise some sectors - yet they are likely to increase productivity and economic growth.

Forbes - technology trends for the next decade

Things to come - a timeline of future technology

AI

DATA
Blockchain
Big data
Photonics
Cyber security
Augmented analytics

AI
Augmented design
Digital realities
Natural language
Quantum computing

ROBOTICS
Drones
Process automation
Cobots and swarms
Autonomous vehicles

MATERIALS
3D and 4D printing
Designer molecules
Nano tech
Materials science

CLEAN
Nuclear fusion
Battery storage
Carbon sequestration
Smart power grids

HEALTH
Gene editing
Genomics
Augmented humans
Bio mechanics
Remote health

CONNECTIVITY
Internet of things
Intelligent spaces
Smart clothing
Edge computing
5G and 6G
Sensors

FUTURE GROWTH - AI

Recent research by Microsoft reveals that the UK has lower AI maturity, adoption levels and workforce skills than its competitors. To close the AI skills gap, organisations need to invest in building the skillsets of their workforce, focussing on four key steps:

◆ **Embrace AI** - employers should demonstrate the benefits of AI to their employees.

◆ **Create agile workers** - as AI changes the way we work, businesses will require people and their skills to change with it.

◆ **Re-skill employees** - business leaders need to help their teams stay on the cutting edge.

◆ **Dedication to lifelong learning** - businesses must invest in digital talent platforms that foster workforce learning.

The impact of AI will be felt throughout the economy and not just within 'tech' firms. Some sectors are likely to be impacted strongly, such as: healthcare, automotive, e-commerce, security, logistics, financial services, manufacturing and public transport.

Within firms, AI can be used for a wide range of business functions which will change the nature of work, organisational structures, skills needs and customer interactions.

AI DRIVEN BUSINESS FUNCTIONS

People, products, traffic etc

RECOGNITION

HUMAN INTERACTION

Online, phone, reception, in store etc

PREDICTIVE ANALYTICS

Planning, stock, health etc

GOAL-DRIVEN SYSTEMS

Strategy, planning, fulfilment etc

Vehicles, robotics, construction etc

AUTONOMOUS SYSTEMS

PATTERNS AND ANOMALIES

Quality control, crime, banking etc

Online, in store, manufacturing etc

HYPER PERSONALISATION

Microsoft report - AI skills in the UK

Range of AI futures articles from Forbes

FUTURE GROWTH - work and skills
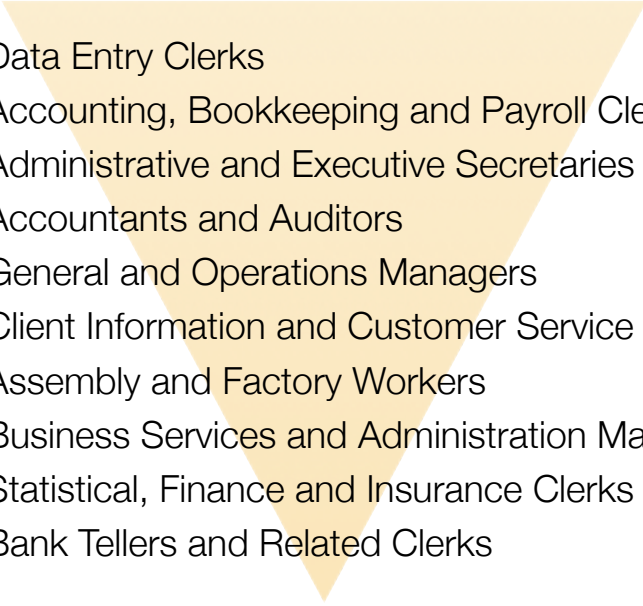
In the mid-term, loss of jobs caused by the introduction of new technologies will most likely be offset by job growth in the 'jobs of tomorrow' - the surging demand for workers who can fill green economy jobs, roles at the forefront of the data and AI economy, as well as new roles in engineering, cloud computing and product development.

It is also important to understand that the constituent activities of many jobs will go or change. A significant proportion of the workforce are in jobs that are likely to need redesign and workforce retraining. The spread of disciplines and jobs across sectors will also stimulate the hybridisation of skills.

FUTURE JOBS

1. Data Analysts and Scientists
2. AI and Machine Learning Specialists
3. Big Data Specialists
4. Internet of Things Specialists
5. Digital Transformation Specialists
6. Process Automation Specialists
7. Information Security Analysts
8. FinTech Engineers
9. Database and Network Professionals
10. Business Development Professionals

1. Data Entry Clerks
2. Accounting, Bookkeeping and Payroll Clerks
3. Administrative and Executive Secretaries
4. Accountants and Auditors
5. General and Operations Managers
6. Client Information and Customer Service
7. Assembly and Factory Workers
8. Business Services and Administration Managers
9. Statistical, Finance and Insurance Clerks
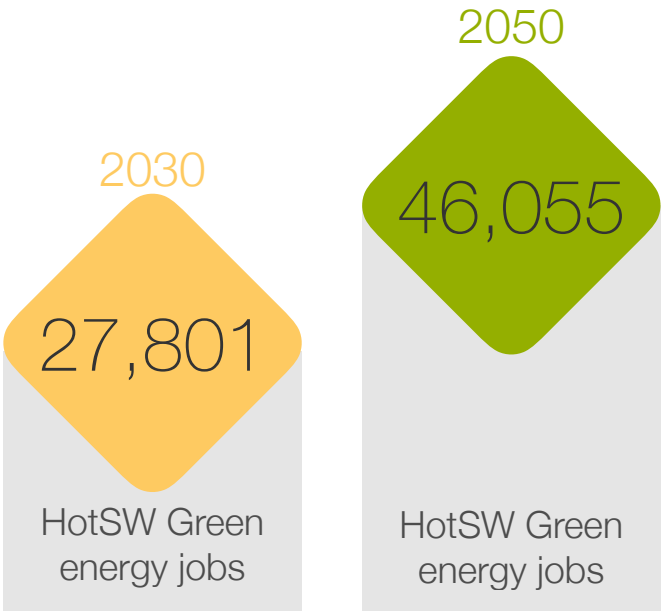10. Bank Tellers and Related Clerks

McKinsey report on automation

WEF - Future of Jobs report

WEF - Global Re-skilling revolution

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FUTURE GROWTH - green energy jobs

In 2018 there were 185,000 full-time workers in England's low-carbon and renewable energy economy. In 2030 across England there could be as many as 694,000 direct jobs employed in the low-carbon and renewable energy economy, rising to over 1.18 million by 2050. **It's crucial that there is a workforce with the right skills in place to deliver the change needed by 2050. Local areas will need to understand the skills gaps that will emerge** within each low-carbon sector and, as a result, the opportunities for re-skilling the workforce.

LGA - local green jobs report

ESTIMATED JOBS IN LOW CARBON ENERGY IN HotSW

2030
27,801
HotSW Green energy jobs

2050
46,055
HotSW Green energy jobs

2030   2050

	Low carbon electricity	Low carbon heat	Alternative fuels	Energy efficiency	Low carbon services	Low emission vehicles and infrastructure
2030	12,743	5,342	891	4,888	1,524	2,412
2050	22,612	8,039	1,511	5,155	4,268	4,451

25k
20k
15k
10k
5k

FUTURE GROWTH – public finances

Government expenditure and net borrowing in 21/22 has turned out to be lower than previously forecast. This reflects both stronger than expected receipts (largely due to faster than expected growth and tax receipts) and lower than expected spending (due to lower than expected demand for Covid-19 support packages).

Public sector net borrowing peaked at c£338m as the full extent of Covid hit society/economy – equivalent to c16% of GDP. It is expected to decline sharply over the coming years, returning back to medium-term trends. However, public sector net debt (which is a cumulative figure) is projected to continue to rise – reaching nearly £2.6 trillion by 2025/26 – representing about 98% of annual GDP, with significant implications for public spending.

LONG TERM DEBT
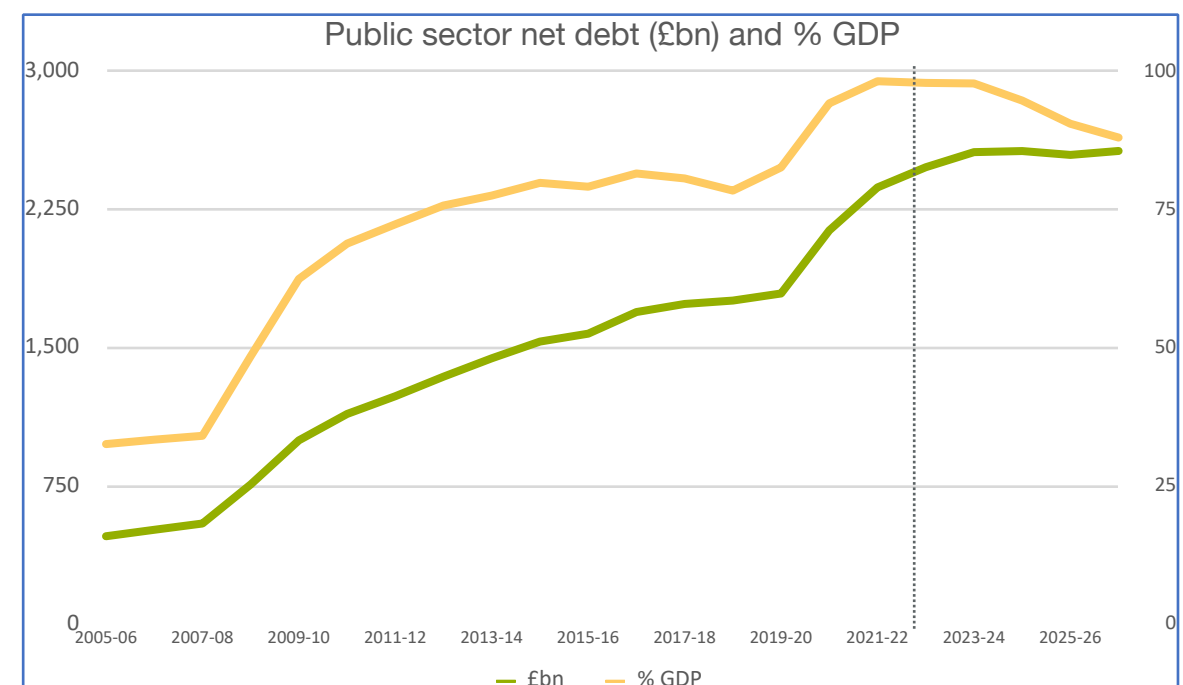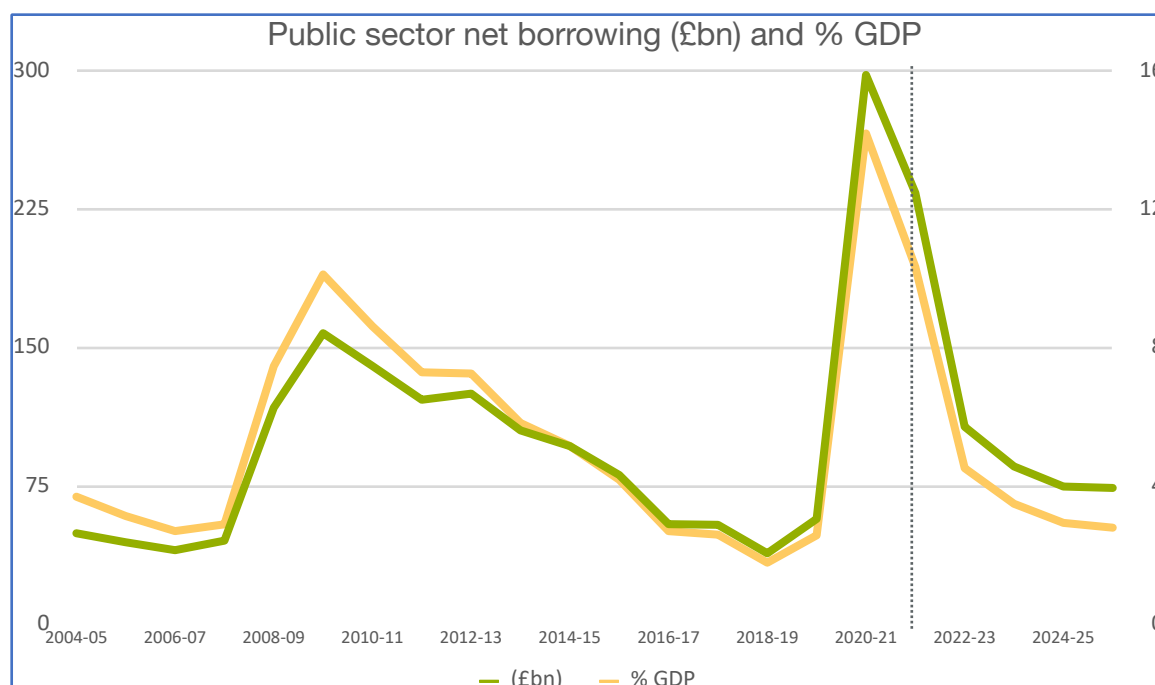
Public finances

FUTURE GROWTH – economic indicators (1)

Economic output (GDP) has yet to return to pre pandemic levels but is expected to do so at the start of 2022 and grow consistently from then onwards. Unemployment has not reached the levels forecast in the depths of the pandemic – as shown in the chart below showing the differences in forecasts made by the OBR in October 2021 and earlier in the year (March 21).

Whilst the UK economy is expected to grow relatively strongly in 2022 as a bounce-back from Covid, it is then expected to experience more subdued growth in the period thereafter. Latest OBR forecasts show average annual real GDP growth over 2023-2025 is expected to be c1.7%, compared to an average of 2% between 2010 and 2019. As always, forecasts are uncertain but some of the primary factors underpinning these subdued forecasts are sustained high energy prices and wider inflationary pressures - in themselves resulting in a gradual tightening of monetary policy i.e. higher interest rates.

A GROWING ECONOMY

UK GDP (2019=100)

Outturn — October 2021 forecast

UK unemployment forecast (% ILO definition)

Outturn -- Nov 2020 forecast — March 2021 forecast
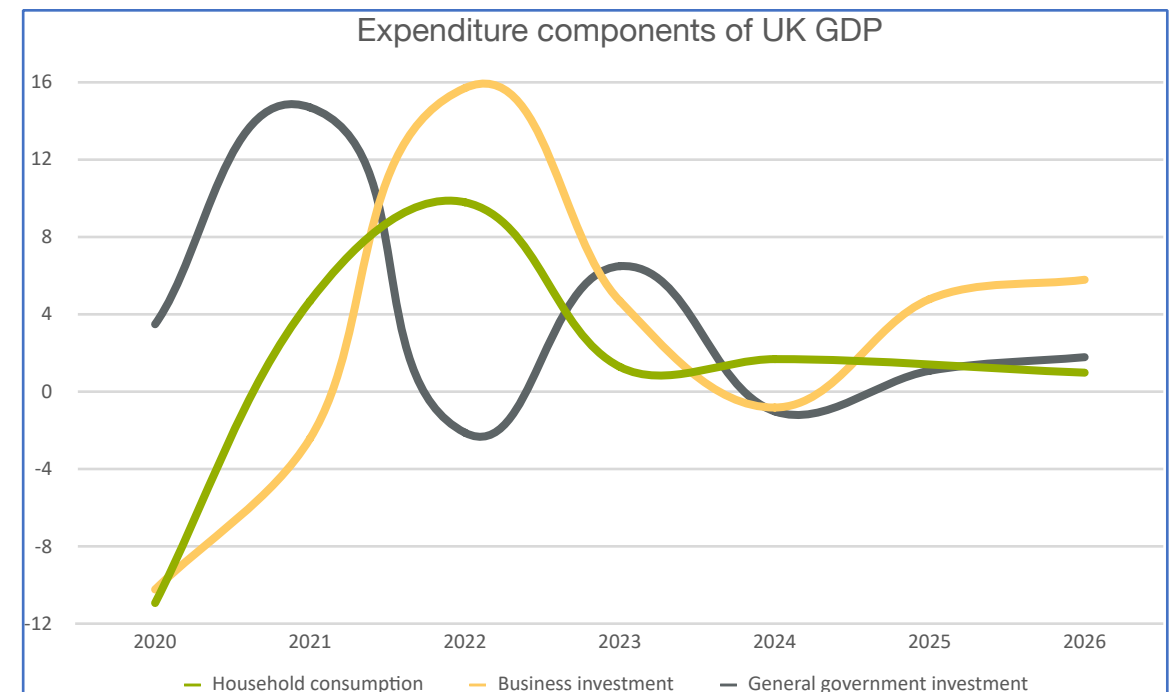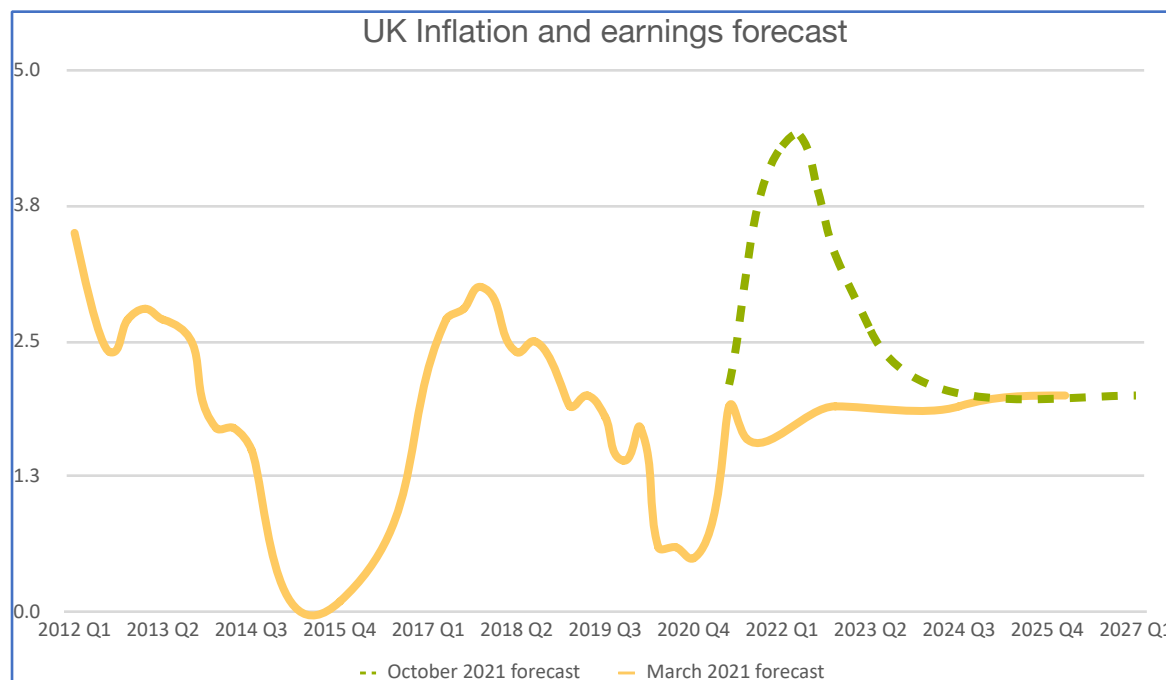
Economic projections
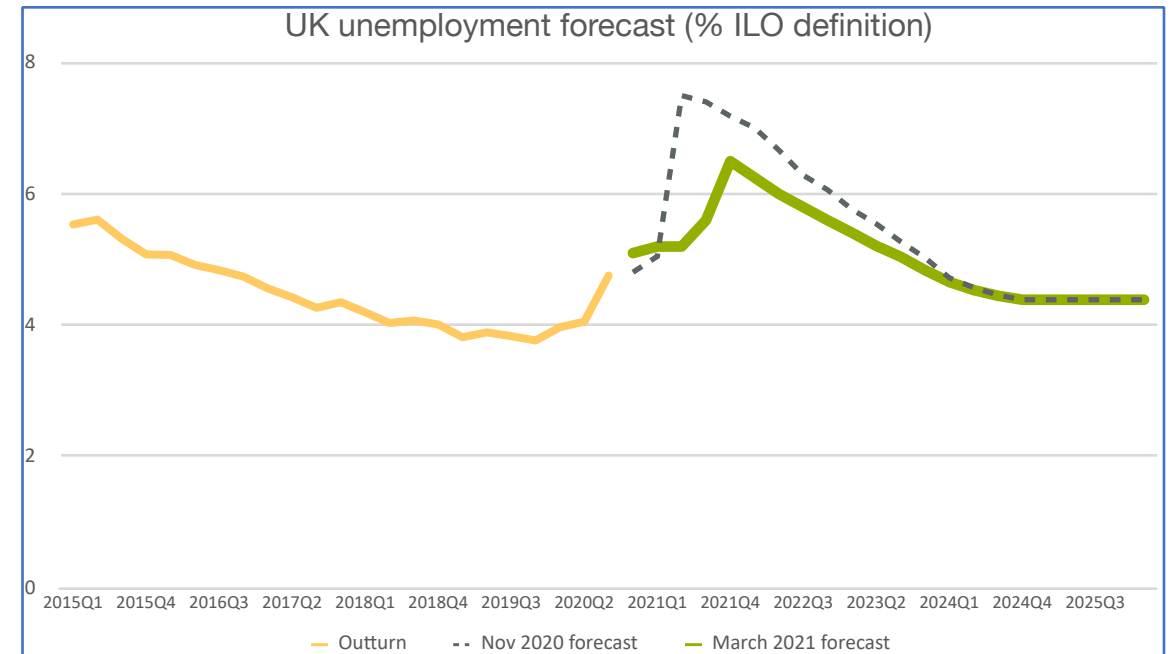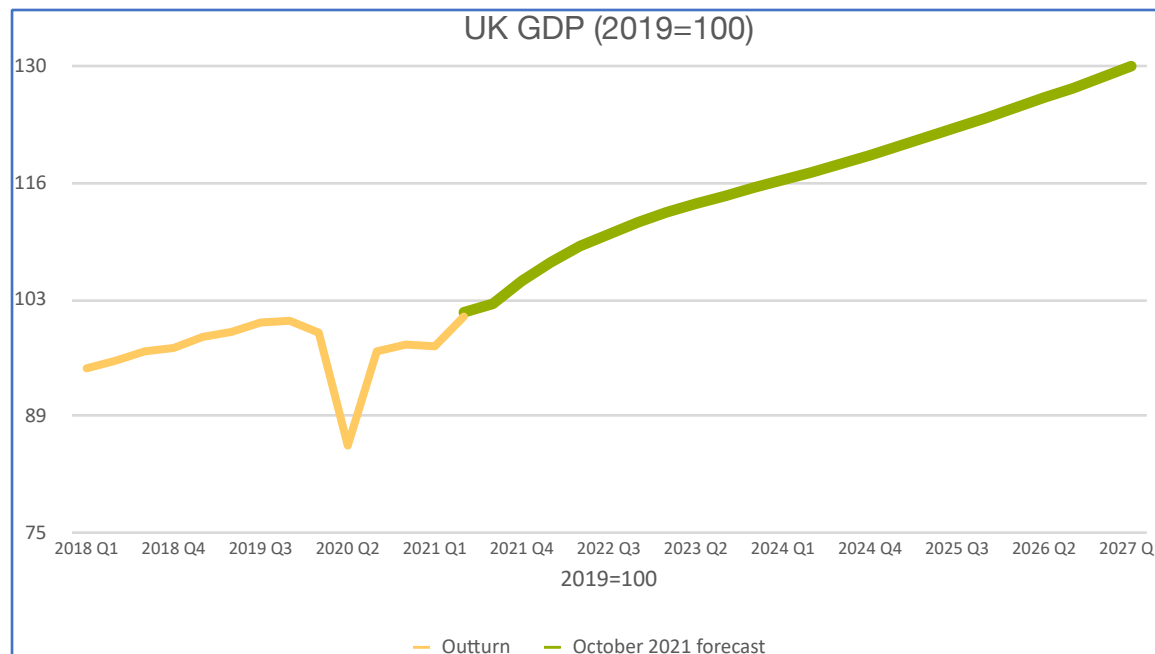
FUTURE GROWTH – economic indicators (2)

The expectation is that – given the tightness in the labour market – that average earnings will consistently exceed inflation. However, these forecasts do not necessarily reflect the spike in inflation experienced over the summer 2021. The OBR forecasts expect that wage inflation could reach c4% over the next couple of years. However, if inflation spikes (as it is now) then any real wage growth will be eroded – with implications for living standards.

Economic growth is expected to be driven primarily be a rebound in household consumption and business investment from the depths of pandemic-hit 2020. Conversely, Government expenditure – which propped up the economy through 2020 via the various Covid support programmes – is expected to play a much less significant stimulus role.

A RISK FROM INFLATION

UK Inflation and earnings forecast

- - - October 2021 forecast ——— March 2021 forecast

Expenditure components of UK GDP

——— Household consumption ——— Business investment ——— General government investment

Economic projections

FUTURE GROWTH – population

Office for National Statistics projections show that the balance of the UK population will be substantially different by 2040. There will be more people in all the older age groups - with the number of over 85s doubling to 3 million.

The demographic projections for the HotSW show that it will continue to age – extending the trend seen over recent years. Over the next 20 years (notwithstanding any major shift in inward migration), about 90% of the projected 180,000 net growth in population will be in those aged over 65. The proportion of the working age population will continue to shrink - falling to c52% of the total population. This will increase the 'old age dependency ratio'. In 2018, there were 0.43 people aged 65+ for every working age person. By 2040 this is projected to be 0.61 – with obvious implications for the economy and other issues such as the cost of social care.

In the much longer term, lower birth rates, as are being seen in Japan and Italy for example, may lead to some depopulation of rural areas - with implications for services like health, housing and transport. However, the projections for HotSW as a whole continue to show growth for the next few decades.

HotSW population projections (% of total population)

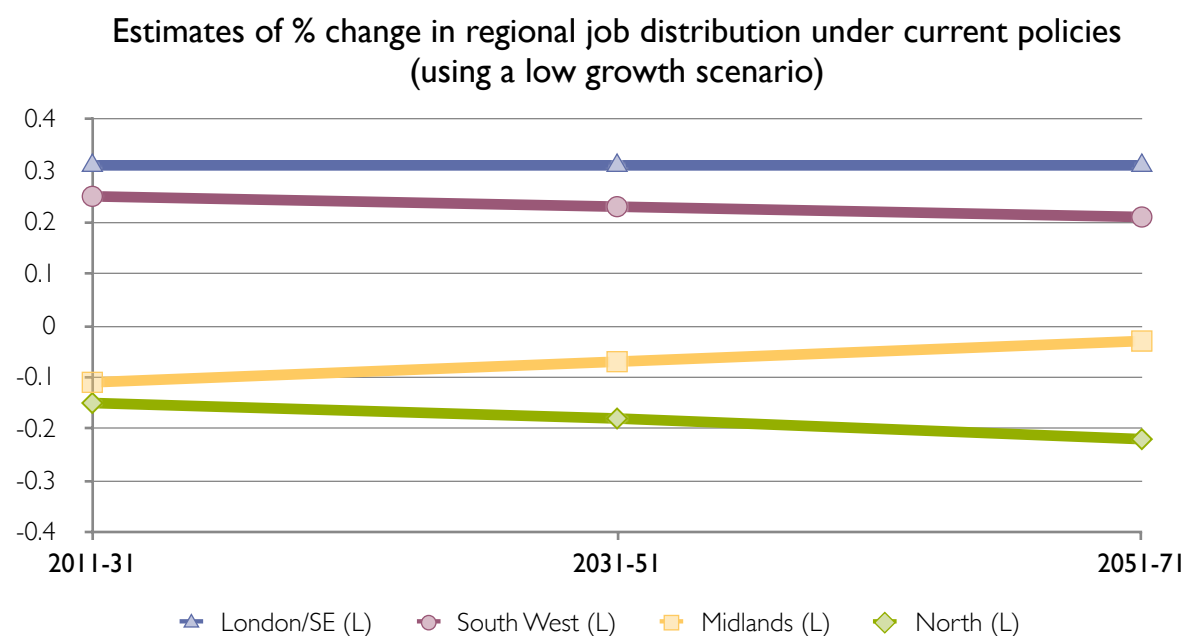HotSW projected population change 2018-2040, by broad age group
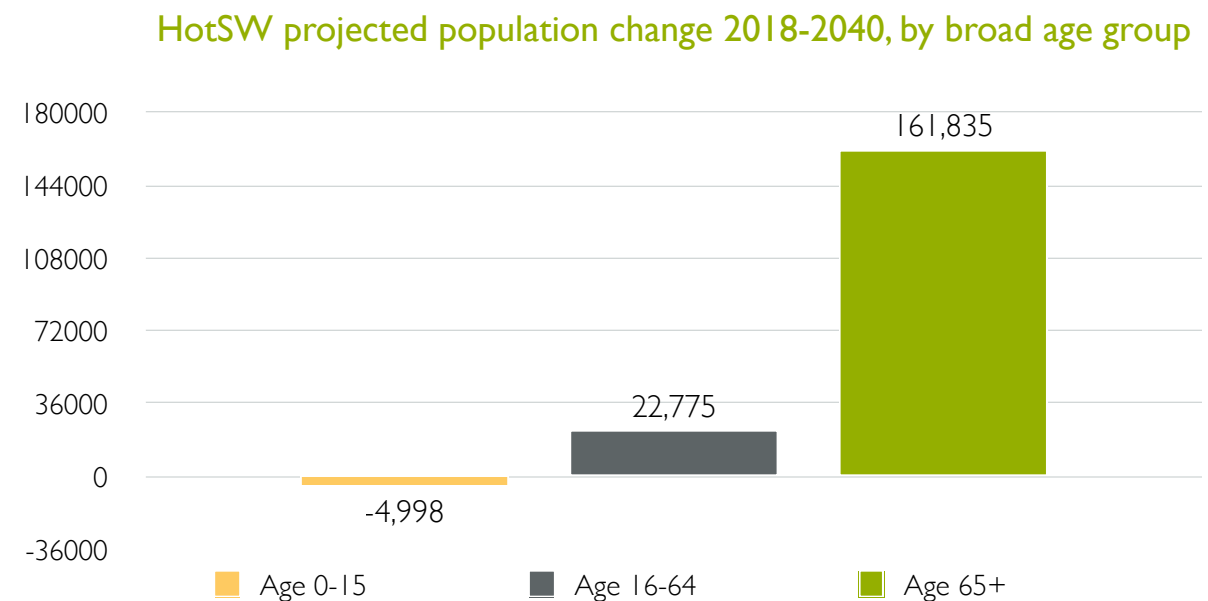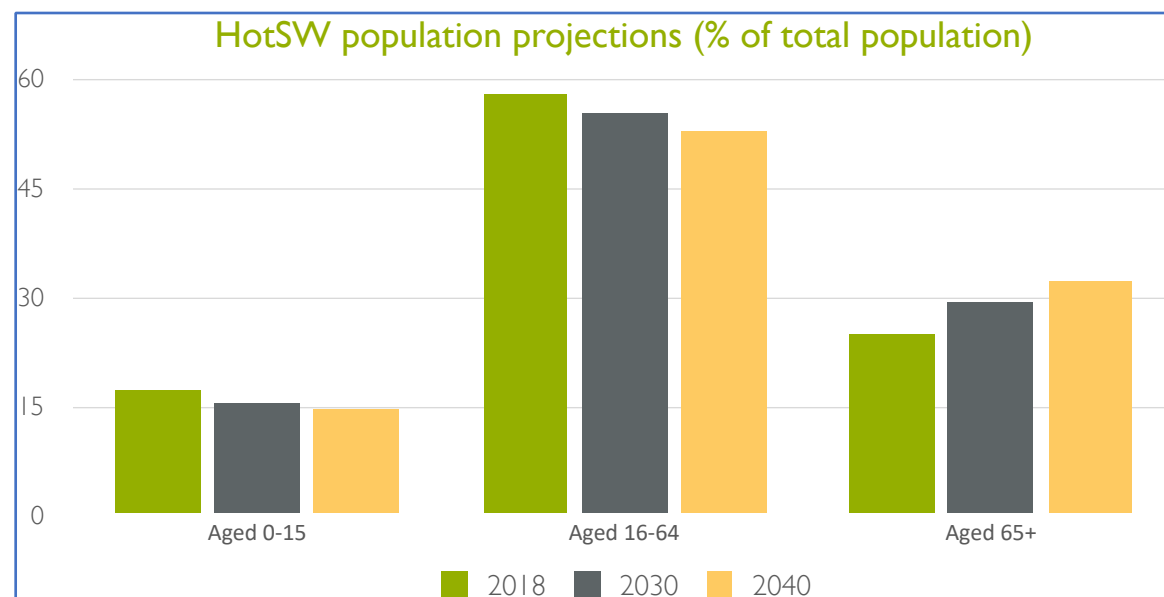
Population projections

FUTURE GROWTH - inequality

The slow recovery of unemployment and continuing benefit cuts mean child poverty will rise to its highest levels for nearly three decades. Child poverty (defined as those children in a household with less than 60 per cent of median income) is also expected to rise, pushed up by a number of adverse benefits changes. This could mean between 31 and 33% of children being in poverty by the end of the parliament, some 730,000 more than in 2020-21. By 2024-25, it is estimated that 23.0% of individuals will be living in relative poverty – up from 22.2% in 2019-20, and from 21.1% in 2020-21. An overall measure of inequality – the Gini coefficient – shows a similar picture, with income inequality set to rise further between 2019 to 2025 - to 34.97.

This chart on the left shows a prediction of broad regional employment change. Outside the challenges of closing gaps under current policy direction, arguments for restructuring and investment in the Midlands and North may prove an ongoing challenge to funding policy for decades - with possible implications for the wider SW.

REGIONAL EMPLOYMENT CHANGE

Estimates of % change in regional job distribution under current policies (using a low growth scenario)

Legend: London/SE (L), South West (L), Midlands (L), North (L)

Future regional disparities

POVERTY INCREASES BY 2024/25

33% of children living in households with less than 60% of median income

GINI INDEX rises to **35%**

23% of people living in relative poverty - up from 20% in 2020/21

Living Standards outlook

FUTURE GROWTH - notes

Thinking about the future is not an exact science, There is little definitive data to draw on.

The reason for including a 'futures' dashboard is to:

- deepen understanding of the driving forces affecting future development of policy or strategy in the area
- identify gaps in knowledge and suggest areas of new research required to understand driving forces better
- start debate amongst stakeholders about the issues and how to tackle them
- identify some of the difficult policy choices in the future
- create strategies and plans that are more resilient and adaptable to changing external conditions

In this dashboard, we use a number of credible sources ranging from research reports and articles to polling data and forecasts. In many cases, we have chosen specific issues to highlight while the full reports offers further information and insight. Each slide gives a direct link to where the report or data we have sourced is found, however over time these links may be superseded or show later data than has been used in this report.

All data used is publicly available under the terms of the Open Government Licence and UK Government Licensing Framework.

Unless otherwise stated data has been sourced, collated, analysed and visualised by Ash Futures Ltd.

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