Scenarios for the Future

A background note for the 'Bracknell Forest – a vision for the future'
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1 Introduction

1.1 Background

Scenarios are not intended to predict the future. Rather, they are tools for thinking about the future based on four assumptions:

- The future is unlike the past, and is shaped by human choice and action.
- The future cannot be foreseen, but exploring the future can inform present decisions.
- There are many possible futures; scenarios map a 'possibility space'.
- Scenario development involves rational analysis and subjective judgement.

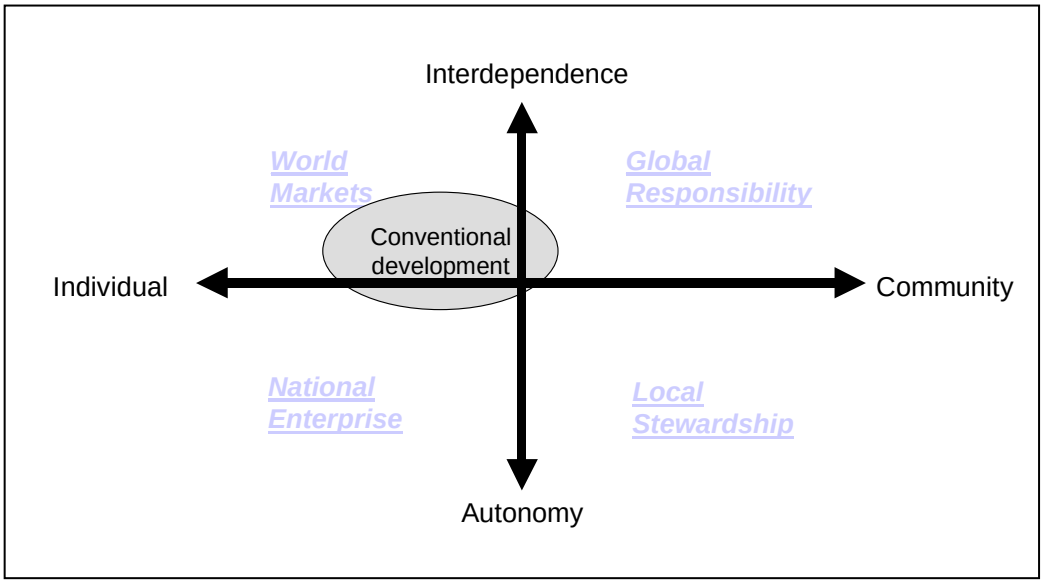
Our four scenarios, based on work undertaken for DTI by the Science Policy Research Unit (Sussex University) and adapted to take into account Local Futures' perspectives on the knowledge economy, describe the United Kingdom during the period 2010-2030. The scenarios suggest possible futures, exploring alternative directions in which social, economic and technological changes may evolve over the coming decades. Scenario storylines are built from a simple set of assumptions about the main drivers of change in the future. While they focus on broad socio-economic trends at the UK national level, the scenario framework will be used as a context for creating scenarios relevant to Bracknell Forest's own future.

1.2 Underlying drivers of change

The scenarios have been framed in the context of two underlying drivers of change: social values and systems of governance. These dimensions are taken as background conditions that define the specific features of each scenario. The social values dimension takes account of social and political priorities, as well as patterns of economic activity resulting from them. At one end of the spectrum (INDIVIDUAL), values are dominated by economic and political liberalism, the rights of the individual and the pursuit of personal freedom. At the other end (COMMUNITY) values are shaped by more communitarian ethics emphasising social networks and responsibilities, with a greater concern with common goods, social cohesion and sustainable development.

The governance system dimension represents the structure of political authority and decision-making. At one end (INTERDEPENDENCE), governance is increasingly distributed away from the national level; this is seen as occurring both upwards – to supra-national alliances such as the EU and large international organisations – and downwards towards devolved and regional governments in the UK. At the other end of the spectrum (AUTONOMY) decision-

making in both the public and private sectors is largely preserved (or strengthened) at national and regional levels, with political and cultural boundaries enforced.



2 Scenario: World Markets

2.1 Summary

People aspire to personal independence, material wealth and mobility to the exclusion of wider social goals. Integrated global markets are presumed to best deliver these goals. Internationally coordinated policy sets the framework for the efficient functioning of markets. The provision of goods and services is privatised wherever possible under the principle of 'minimal government'. Rights of individuals to personal freedoms are enshrined in law.

2.2 Scenario drivers

DRIVERS	
Social values	Internationalist; liberalist
Governance structures	Weak; dispersed; consultative
Role of policy	Minimal; enabling markets
ECONOMIC TRENDS	
Economic development	High growth; high innovation; capital productivity
Structural change	Rapid; toward services
Fast growing sectors	Health & leisure; media & information; financial services; biotechnology; nanotechnology
Declining sectors	Manufacturing; agriculture
SOCIAL TRENDS	
Unemployment	Medium-low
Income	High
Equity	Strong decline
Areas of conflict	Social exclusion; immigration/emigration; political accountability

This scenario assumes the prevalence of libertarian and materialist social values operating within interdependent and globalised governance systems. Personal and political agendas favour high levels of private consumption and mobility. Concerns over inequality or social exclusion are limited to protecting public order and minimum standards. There is a declining role for government in economic management and in the provision of healthcare, education and other social services. Pressure grows to reduce taxes, and more public services are privatised or privately managed. There is light regulation of markets, concerned primarily with ensuring fair and open competition. There is a stress on self-regulation, greater transparency and a proliferation of private sector audit and verification services. Governance structures are open and dispersed, with a strong role for international institutions. Economic, fiscal, social and defence policies are transferred increasingly to the EU level. Some EU competences, such as competition, are passed to global institutions. There is some move toward more federal political structures within the UK, but these remain relatively weak compared to international bodies. National governments share power with stakeholder organisationsand

NGOs are very responsive to public opinion. Political organisations become progressively customer-oriented in a rights-based culture, markets play a greater role through taxes and regulation is reduced, and preferred policy instruments are public private partnership and voluntary agreements. Administrative reform continues. In general, there is a convergence of political cultures across Europe and the industrialised world.

2.3 International context

International coordination deepens in areas of trade, commercial and consumer protection law, and defence and security. The main aim is to secure the institutional conditions for commerce and trade. The WTO regime extends the scope for the exchange of goods, services, labour and capital between countries. Regional currency zones emerge around the world and interest rate policy is coordinated within the Triad (the EU, US and Japan). Social and environmental governance is increasingly achieved through international legal frameworks establishing minimum standards, and implemented using market-based approaches. Key tensions are over the distribution of resources and power between rich and poor regions in the world as the gap in wealth continues to grow. Migration from the global 'periphery' – less developed countries and regions – is seen as a threat by many in the global growth cores.

2.4 Economy and sectoral trends

General

Liberal economic policy and the promotion of global competition generate high but uneven economic growth. Global flows of knowledge are increasingly important as businesses derive new ideas and sources of competitive advantage from an ever wider geographical area. The rapid adoption of new technologies in global markets increases productivity and accelerates structural change in the UK. Manufacturing is further marginalised, agriculture continues to decline. Growth is concentrated in services (health & leisure, financial services, media and information services) and high-tech sectors. Global markets for many goods and services are dominated by a few transnational companies. In other sectors there is a high specialisation in innovative niche producers. International best practice in technology and management is adopted quickly and global standards emerge for many products and services. Technical change is dominated by the pervasive application of information and communications technologies (ICT) and is consumer-focused. This continues to have profound effects on how products and services are developed, manufactured and delivered. Biotechnology in both health and food has transformative effects.

Services

The service sector grows rapidly in absolute and relative terms. The main areas of growth are knowledge-intensive service sectors that provide services to increasingly knowledgeable and discerning consumers – finance; healthcare; leisure and travel; media and entertainment; education and information services. The service sector is revolutionised through the use of electronic network technologies. ICT is a key enabler of knowledge-driven economic growth in

these sectors. ICT becomes critical in establishing strong customer relationships, for example through new methods of online research, customised marketing, and design on demand. Biotechnology and nanotechnology also begin to be used in customer focused service provision.

Manufacturing and construction

Traditional manufacturing in primary industries declines, partly as a result of competition from newly industrialised countries (China, South Asia and Latin America). Knowledge-intensive manufacturing sectors such as ICT and biotechnology continue to grow, where innovation and new technologies are drivers of rapid and widespread change. Assembly industries linked to complex global supply chains are generally small-scale. Increasingly global markets enable areas of world-class specialisation linked to a strong science and engineering base to grow, while others areas decline. The construction industry experiences high rates of growth and rapid innovation in technologies for the built environment. Increasingly exposed to competition from overseas, British companies dramatically improve their productivity. ICT technologies become an essential element of the planning and management of commercial buildings. The scale of the built environment increases with city centres being covered and conditioned environments.

Energy

The UK electricity market continues to be dominated by fossil fuels, increasingly natural gas from Russia and Central Asia. Energy prices remain stable and there is little concern for energy security and energy efficiency. Low fuel prices and the low priority attached to climate change preclude the widespread adoption of renewable energy or nuclear power. Renewable electricity generation technologies, such as wind power, become commercially viable. There is relatively slow diffusion of new power technologies like fuel cells.

Transport

The increasing importance of global connections and global flows of knowledge, together with more mobile high-skilled workers, create new demands for investments in transport. New roads are built and the railway system is radically modernised to meet the increased demand for goods and passenger transport. Road traffic on motorways is efficiently managed using transport telematics, but congestion is widespread on smaller roads. Greater use will also be made of domestic air traffic and inter-city rail, whose economics will be driven by the needs of business passengers.

Agriculture and food

Agriculture becomes increasingly concentrated, industrialised and global in scale. Farms increase in size, accelerating the adoption of technological approaches such as ‘precision farming’. EU agricultural subsidies are radically cut back, and intense competition prompt farmers to search for improved productivity. The use of genetically modified crops becomes widespread. Increasingly knowledgeable consumers differentiate between organically

produced food and functional ‘engineered’ foods . For the majority, diets improve, although there are growing problems of obesity and diet-related illness.

2.5 Employment and social issues

The demands of the global economy together with the weakening of labour regulations lead to a highly mobile labour force but also polarisation. Rapid innovation and changing markets revolutionise organisational structures creating new demands for both highly skilled and increasingly flexible workers. While professional skills are highly valued in knowledge-intensive sectors, growth continues in low skilled, low pay service employment sectors that primarily serve local markets. Large numbers of long-term unemployed and unskilled people tend to be further marginalised as benefits systems are squeezed. The ‘digitalisation’ of the economy and society deepens social exclusion as online access is needed to use most public and private services. Leisure time increases for the professional class as working hours stabilise and begin to decline. Leisure is characterised by high levels of consumption, more active life styles and rising mobility. The trend of an ageing population is balanced through a large number of immigrants from Europe and beyond who predominantly enter into low-paying service employment. Disposable household income rises steadily, but increased labour productivity leads to a slight rise in unemployment.

2.6 Regional development

Most regions benefit from stable economic growth, but regional disparities increase as London and the South East, with its financial and other services, attract the bulk of new investments. Social conditions in areas heavily dependent on manufacturing industries and deprived urban areas deteriorate. Segregation between the wealthy and the disadvantaged becomes more marked and ‘gated communities’ develop in richer and poorer areas. Planning controls are relaxed and new towns and communities are constructed on greenfield sites. The distinction between the country and the city blurs, especially in the South East. The trend to smaller households intensifies, bringing high demand for housing near centres of growth. Demand for mobility increases, but it will be matched with new investment in transport infrastructure. The trend towards longer commuting distances is offset by opportunities for tele-work but leisure travel increases.

2.7 Education, welfare and health

The State’s role in the provision of education, welfare, and health services declines. Pressures to cut tax levels result in poor quality public services. Private services run by global providers become widely available, as more people join social insurance schemes and opt out of public services. State provisions increasingly target only the very poor and most disadvantaged on a means tested basis. There is a major increase in demand for both high-tech curative and more holistic health promotion services.

2.8 Environment and sustainability

The 'marketisation' of the environment develops apace, with explicit monetary values ascribed to a wider range of resources and environmental services. Access to these services is limited through charging, or by allocating rights that can be traded. In policy there is greater emphasis on self-regulation and the role of information and accountability in the market – corporate social responsibility. Greater emphasis is given to the health-environment link, with less concern for less tangible environmental values such as biodiversity. Despite some technological innovations in renewable energy sources, a market-based climate regime fails to reduce greenhouse gas emissions.

Scenario Assumptions

Indicator	Today	World Markets 2015
GDP growth per year	2.5%	3.5%
Total investment (%GDP)	19%	22%
Economic activity in sectors (%) • Services • Production • Construction • Agriculture	 66 27% 5% 2%	 75% 20% 4% 1%
ICT sector (% value added)	3.3%	7%
Qualification age 19 (population with NVQ 2)	75%	85%
Unemployment	5%	5%
Poverty (% with income below 60% of median income)	18%	23%
Life expectancy (years lived in good/fairly good health)	67 years	68.5 years
Newly developed land (hectares per year)	6,500 ha	6,000 ha
Passenger transport average change per year passenger-kilometres	 720bn	 2% 910bn
Traffic congestion % of network at 100% stress	 6%	 11%
Primary energy consumption ave change per year tonnes of oil equivalent	 230 m	 +1.7% pa 280m
GHG emissions tonnes of CO2 equivalent	 770m	 780m

3 Scenario: National Enterprise

3.1 Summary

People aspire to personal independence and material wealth within a nationally-rooted cultural identity. Liberalised markets together with a commitment to build capabilities and resources to secure a high degree of national self-reliance and security are believed to best deliver these goals. Political and cultural institutions are strengthened to butress national autonomy in a more fragmented world

3.2 Scenario drivers

DRIVERS	
Social values	Nationalist; individualist
Governance structures	weak; national; closed
Role of policy	State-centred market regulation to protect key sectors
ECONOMIC TRENDS	
Economic development	Medium-low growth; low innovation; maintenance economy
Structural change	More stable economic structure
Fast growing sectors	Private health & education; domestic & personal services; tourism; retailing, defence
Declining sectors	Public services; civil engineering
SOCIAL TRENDS	
Unemployment	Medium-high
Income	Medium-low
Equity	Decline
Areas of conflict	Unemployment; poor public services; inequality

This scenario assumes individualistic and conservative social values, and a reinforcement of a UK national governance system. Personal tastes aim for higher personal consumption and economic freedom (lower taxes), but with a strong commitment to national cultural characteristics. Promoting the principle of individual responsibility and market liberalism, the government retreats from the provision of healthcare, education and other social services. Political power is retained at the UK level with limited further devolution to Scotland, Wales and Northern Ireland. UK's relationship with the EU becomes arms-length, with the balance of opinion favouring entrenchment of independence in economic, foreign and defence policy. The EU is viewed as a trading bloc, with the UK playing a peripheral role in economic and political integration. The traditional diplomatic and security relationship with the US is reinforced. Market forces are dominant, but the scope of markets is limited where it is perceived to be at odds with national interests. Long term economic growth is somewhat constrained by government policies that restrain international competition and protect key national industries. Social and cultural development is nationally and regionally focused, for example through the promotion of national communication and media networks. Environmental protection and sustainable development are not a main priority. Economic and

political power is consolidated in closed policy networks dominated by business interest groups (industrial organisations, professional bodies, and trade associations). Reform of government is less marked and is a generally more 'statist' approach combined with a strong 'enterprise' ideology informing policy decisions.

3.3 International context

International cooperation is limited to traditional domains such as defence, trade and immigration. There is a presumption against the pooling of sovereignty in other domains. Economic globalisation continues with growing international investment, but is constrained by the protection of national monopolies in key sectors (utilities, infrastructures, media). Framework treaties allow for a greater degree of flexibility to assert national interests. Trade grows more slowly. The European integration process comes to a standstill as national identities and interests come to the fore. The Euro suffers from a lack of coordination between national economic policies in the EU. Regional conflicts persist around the world, especially in Africa and south Asia.

3.4 Economy and sectoral trends

General

The trade-off between liberalised markets and the retention of some national control over the economy makes this a medium growth scenario over the long term. Economic and structural change slows as key British companies (utilities, pharmaceuticals, aerospace, banks, media) are actively protected in the UK economy, while their competitiveness is supported in foreign markets. At the same time, foreign direct investment continues to be important as labour markets are further deregulated and corporate taxes competitively reduced. Restrained competition slows down the diffusion of new knowledge, technological and organisational innovation, limiting productivity gains and economic development. There is low public investment in infrastructure development. The decline of agriculture and manufacturing slows, with growth primarily in services (retailing, tourism, financial services). ICTs flourish in specific sectors e.g. home entertainment and logistics, but their impact remains limited.

Services

The service sector grows moderately, especially in the areas of health, tourism and retailing. New markets develop in the area of specialised personal services for high-income groups, while services for low-income brackets tend to decline. Technology is a less important driver to growth in services. The informal service economy flourishes as more people are excluded from the mainstream job market. The transport and communication sectors suffer from low levels of investment.

Manufacturing and construction

Capital scarcity and the preservation of national monopolies in key sectors means that manufacturing is characterised by lower levels of innovation, low investment and low labour costs. The pace of technological change is moderate, but ICTs and biotechnology are still the main drivers of change. The most innovative players are SMEs producing goods and services for the national market. Service-based relationships between consumers and manufacturers develop less strongly. The construction sector juggles between low levels of investment in housing and infrastructure. Maintenance, refurbishment and conversion of existing structures is the primary activity. Traditional construction techniques continue to play a major role. Much of the sector remains labour intensive and with a fragmented supply chain.

Energy

Ensuring a supply of cheap and secure energy is the main objective of energy policy in this scenario. There is a drive to exploit domestic sources of energy, including domestic coal, gas and nuclear power by extending the lives of existing stations. The main driver for investments in energy efficiency and new and renewable sources of energy is energy security.

Transport

There is a continuing reliance on private transport with little additional provision for public transport, but moderate GDP growth limits the spread of car ownership. Due to lack in investment, Many roads operate at full capacity and congestion increases. With a relatively slow increase in international trade, air traffic grows no more quickly than other transport modes. Without new developments in the rail system, freight continues to move mainly by road.

Agriculture and food

Food prices remain low as agriculture continues to be strongly subsidised, though at a national rather than a EU level. Agricultural practices remain based on high inputs of pesticides and fertilisers. The uptake of genetically modified organisms in agriculture is patchy. Retailers have a strong influence over farmers, manifested in requirements for uniform, inexpensive products. Indigenous products remain an important part of food markets, and the traditional British diet does not change radically.

3.5 Employment and social issues

Unstable economic development means that relatively few knowledge-intensive jobs are created. There is increasing flexibility in labour markets and social market policies have limited success. The job market remains relatively open for unskilled and semi-skilled workers who continue to be in demand in manufacturing, construction and agriculture. But income disparities and social tensions grow as the minimum wage is abolished and benefit payments are reduced to a minimum level. Working hours continue to increase, especially for lower paid

workers who supplement income through work in the informal sector. The imbalance between a rising number of pensioners and fewer people in work becomes a challenge to public finances, especially because immigration is kept to a low level. Disposable income rises at slightly below historic rates.

3.6 Regional development

Current regional economic disparities persist. London and the South East experience the highest growth rates. Scotland, Wales and parts of England suffer from relative underdevelopment through the continued drift of economic activities towards the south-east. The peripheral regions rely on traditional activities, especially manufacturing, and there is lack of investment in new industries. Regions heavily dependent on international trade face lower growth prospects. Generally, regional policies are determined by decisions at the UK level. Housing demand remains stable due to medium economic growth and low social provision. Planning controls at the local level are weakened in an effort to encourage economic development. New housing development generally takes the form of additions to existing towns and villages. New developments are established in green belts and in the countryside.

3.7 Education, welfare and health

State provision of healthcare and education declines as a result of persistent under-investment. However, the NHS and state school system remain the main source of provision for most people. There is continued pressure for efficiency gains and tighter regulation of performance standards. Those who can afford it increasingly make use of privately funded services, but this remains a niche rather than a norm. Social service provision also declines with relatively low concern about social inequality and exclusion.

3.8 Environment and sustainability

Regulation of the environment continues to be a competence of national government. There is relatively little institutional change, although market-based policy instruments become the norm – principally s associated with an objective of energy and environmental security. Concerns with local amenity and environmental quality are significant, especially for the well-off. This precipitates NIMBY protests – less effective in the context of less effective planning controls.

Scenario Assumptions

Indicator	Today	National Enterprise 2015
GDP growth per year	2.5%	2.0%
Total investment (%GDP)	19%	18%
Economic activity in sectors (%) • Services • Production • Construction • Agriculture	 66% 27% 5% 2%	 68% 25% 5% 2%
ICT sector (% value added)	3.3%	5%
Qualification age 19 (population with NVQ 2)	75%	75%
Unemployment	5%	8%
Poverty (% with income below 60% of median income)	18%	25%
Life expectancy (years lived in good/fairly good health)	67 years	67.5 years
Newly developed land (hectares per year)	6,500 ha	4,500 ha
Passenger transport average change per year passenger-kilometres	 720bn	 1% 810bn
Traffic congestion % of network at 100% stress	6%	13%
Primary energy consumption ave change per year tonnes of oil equivalent	 230 m	 +1.5% pa 270m
GHG emissions tonnes of CO2 equivalent	770m	845m

4 Scenario: Global responsibility

4.1 Summary

People aspire to high levels of welfare within communities with shared values, more equally distributed opportunities and a sound environment. There is a belief that these objectives are best achieved through active public policy and international cooperation within the EU and at a global level. Social objectives are met through public provision, increasingly at an international level. Control of markets and people is achieved through a mixture of regulatory and norm-based mechanisms.

4.2 Scenario drivers

DRIVERS	
Social values	Internationalist; communitarian
Governance structures	Strong; coordinated; consultative
Role of policy	Corporatist; political, social and environmental goals
ECONOMIC TRENDS	
Economic development	Medium-high growth; high innovation; resource productivity
Structural change	Fast; toward services
Fast growing sectors	Education & training; large systems engineering; new & renewable energy; information services
Declining sectors	Fossil fuel energy; traditional manufacturing
SOCIAL TRENDS	
Unemployment	Low
Income	Medium-high
Equity	Improvement
Areas of conflict	Structural change; change of skills; political accountability & institl rigidity

This scenario assumes more communitarian and internationalist values and the globalisation of governance systems. People attach high value to balancing economic, social and environmental welfare, and see their personal interests as being connected to a strong and cooperative society. There are widely-shared beliefs that greater interdependence internationally will promote the conditions for balanced growth. National governments, increasingly operating within EU and international compacts, continue to play an important role in the provision of education, healthcare and other social service. This is a relatively high tax scenario, but with continued emphasis on harnessing progressive capital and civil society to social objectives (public-private-voluntary partnerships). Public policy plays an active role, focusing on voluntary and innovation oriented instruments. The prevailing ethos in the more closely coordinated public and private sectors is technocratic and corporatist. Governance structures become more transnational, but also more distributed in an attempt to preserve local efficiency and legitimacy. Devolution in the UK takes place in the context of more efficient delivery in more harmonised EU and international regimes. The scope for exercising

national power becomes limited with greater international cooperation resulting in legally binding standards and commitments. Consultation with civil society stakeholders becomes a more routine process at all decision-making levels, resulting in open but complex structures of governance and accountability.

4.3 International context

International coordination is set on a path towards integrated global governance systems in many domains: security, economic development, resource management and environmental protection. Institutional and legal developments take place in all these areas with emphasis on norms of cooperation and collaboration through networks of governmental, non-governmental and private sector organisations. These new multi-level partnerships begin to supplement more traditional state-based international organisations like the UN. A key tension is over the responsiveness and accountability of these global governance networks. International trade grows, but conventions guarantee that social and environmental standards are respected. Major flows of capital, technology and capacity-building towards the global South are encouraged as part of a commitment to balanced economic and social development.

4.4 Economy and sectoral trends

General

Stable economic conditions, global knowledge flows, a commitment to innovation and international competition in most sectors enable a fairly high economic growth, despite greater policy intervention in markets. Technological development is driven by user needs and geared towards eco-efficiency. The UK economy experiences rapid structural change. While energy and resource-intensive sectors decline, there is a strong growth of knowledge-intensive services and high-tech industries offering low environmental impact and high social value. Interest rates are low, producing high levels of investment, for example in public transport, new and renewable energy, water and information infrastructures. Some of the greatest commercial opportunities arise in fast-growing developing countries experiencing ‘catch-up’ as knowledge flows are increasingly international. Working hours decline and there is more leisure time. High mobility of labour, internationalised systems of education and training, and global communication systems are all engines of convergence between cultural and political systems.

Services

Knowledge-based goods and services generate the largest part of economic value. The service sector becomes increasingly integrated with other areas of the economy as goods are supplied as part of wider service packages. Service sectors experiencing rapid growth are software and ICT support; communication and media; education; leisure; and finance. Innovative services are also developed for groups with special needs, for example elderly ordisabled people. The use of ICTs is particularly strong in the education sector

Manufacturing and construction

Manufacturing industry is transformed by the combination of high investment and the drive towards global provision of resource efficient services. Innovation is concentrated overhauling infrastructures and in knowledge-intensive goods and services. Heavy manufacturing tend to re-locate to the South while, new high-tech manufacturing sectors requiring a strong knowledge base are built up in the UK. The built environment is transformed with investment in the rapid replacement of old and low-quality buildings and infrastructures. Due to strict development controls, housing construction is concentrated in existing urban centres and in 'brownfield' sites. There is a particular emphasis on training and the acquisition of skills as UK firms seek to learn advanced construction techniques.

Energy

Promoted for environmental as well as economic reasons, natural gas is the dominant energy fuel up to 2015. Thereafter, renewable energy sources become fully commercial and gain a large market share. Dominant renewable sources are onshore and offshore wind, biomass, and solar energy. There is major infrastructure investment to support the use of hydrogen. Encouraged by regulatory incentives, energy suppliers move towards the provision of integrated energy services. New energy services as well as high energy prices greatly enhance the take-up of energy efficiency measures. The perceived need to reduce carbon emissions coupled with a willingness to invest in technologies with low rates of return on capital revives a debate about nuclear power.

Transport

The modernisation and restructuring of freight and passenger transport is started, with the longer-term aim of building an eco-efficient, integrated system. Although technology (hybrid cars, low emission engines) reduces the negative impacts of traffic, a tension between the transport demands of a mobile society and environmental concerns persist. New infrastructures are developed, but with a high priority given to minimising environmental impacts. Cost of private car transport rises substantially while public transport is heavily subsidised.

Agriculture and food

Under this scenario, the objective is to balance high agricultural yields and economically healthy farming communities with high levels of biodiversity and low environmental impact. There is a limited uptake of genetically modified crops to produce tailored inputs for food and energy production. Tight regulatory controls are in place to screen for adverse environmental and biodiversity impacts. Large-scale livestock farming declines as people become more health-conscious and eat less meat. Under a reformed Common Agricultural Policy, support payments for farmers are tied to the sustainable management of rural landscapes. Substantial areas of land are taken out of production and are used to support organic production and nature conservation in the countryside.

4.5 Employment and social issues

Stable economic conditions are combined with policies to support a high skill, high wage labour force. Active training and labour market policies keep unemployment to a relatively low level. The demands of the economy for a dynamic labour force are limited by regulation, for example on working hours, conditions and fixed term contracts. A global market develops for a wider range of occupations and there is widespread professionalisation, accredited through international bodies. Income disparities are somewhat reduced. Education and training policy aims encourage equal opportunities in a job market with rapidly changing qualification requirements. However, the rapid technological change excludes parts of the population from the job market and cause social tensions.

4.6 Regional development

Greater London continues to be an area of growth, but regional development is more evenly distributed through planning controls and transfer payments. Development prospects are shaped by the existence of a highly skilled labour force, a high quality of life, and advanced communications and transport infrastructures. In regions heavily dependent on manufacturing, the management of economic transition is a challenge for national and regional policy. Strong planning controls prevent development in the green belt. Most new housing demand is met by dense low-rise development mainly on existing urban land. There is little conversion to urban land on the fringes of smaller towns and villages. There is a higher turnover of the housing stock, with a general emphasis on modern, high quality housing for socially disadvantaged groups.

4.7 Education, welfare and health

An increasingly Europeanised education, welfare and healthcare system provides a comprehensive safety net for disadvantaged groups, financed by higher taxes. Economies of scale and new technologies lead to the introduction of more tailored provision in health and education. There is a shift from care for the sick to high-technology health provision and preventative care, with an emphasis on personal responsibility. Demands for increasing numbers of professional, managerial and skilled technical ‘knowledge workers’ encourage public investment in high quality education accessible to all. The taught curriculum reinforces social and environmental values.

4.8 Environment and sustainability

Reconciling growth and sustainability is one of the guiding principles of this scenario, including significant increases in environmental quality, and major efforts in industry and planning systems to reduce the environmental footprint of economic activity. Environmental concerns are ideological and translate into practical action. Sustainability is seen from a global perspective, including maintenance of biodiversity, the protection of global commons (the atmosphere, oceans, wilderness areas) and the fair access to environmental resources. Policy is increasingly coordinated at the EU and international level.

Scenario Assumptions

Indicator	Today	Global Responsibility 2015
GDP growth per year	2.5%	2.75%
Total investment (%GDP)	19%	20%
Economic activity in sectors (%) • Services • Production • Construction • Agriculture	 66% 27% 5% 2%	 72% 22.5% 4% 1.5%
ICT sector (% value added)	3.3%	6%
Qualification age 19 (population with NVQ 2)	75%	90%
Unemployment	5%	4%
Poverty (% with income below 60% of median income)	18%	15%
Life expectancy (years lived in good/fairly good health)	67 years	69 years
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Traffic congestion % of network at 100% stress	 6%	 9%
Primary energy consumption ave change per year tonnes of oil equivalent	 230 m	 +1.5% pa 230m
GHG emissions tonnes of CO2 equivalent	 770m	 625m

5 Scenario: Local Stewardship

5.1 Summary

People aspire to sustainable levels of welfare in federal and networked communities. Markets are subject to social regulation to ensure more equally distributed opportunities and a high quality local environment. Active public policy aims to promote economic activities that are small-scale and regional in scope, and acts to constrain large-scale markets and technologies. Local communities are strengthened to ensure participative and transparent governance in a complex world.

5.2 Scenario drivers

DRIVERS	
Social values	Localist; cooperative
Governance structures	Strong; local; participative
Role of policy	Interventionist; social and environmental goals
ECONOMIC TRENDS	
Economic development	Low growth; low innovation; modular and sustainable solutions
Structural change	Moderate; towards regional systems
Fast growing sectors	Small scale manufacturing; food and organic farming; local services
Declining sectors	Retailing; tourism; financial services
SOCIAL TRENDS	
Unemployment	Medium-low (large voluntary sector
Income	Low
Equity	Strong improvement
Areas of conflict	Land-use conflicts; under-investment; environmental restrictions

This scenario assumes tolerant, community-oriented social values encouraging cooperative self-reliance and regional development. People choose to express their cultural identities and social interests through their local communities at the city and regional level. There is a stress in all domains – social, economic, cultural, technological – on the local, accountable, small-scale and adaptive. Patterns of economic growth and change are shaped by these basic priorities. There is a strong emphasis on equity, social inclusion and democratic values. The conservation of resources and the protection of the natural environment are strong political objectives. Political systems are transparent, participatory and inclusive. There are high levels of public provision for health, education and social services, funded through high levels of taxation. The family is strengthened as the primary social unit in the context of a diverse and vibrant civil society. Flows of capital and trade in goods and services is constrained, with a greater focus on local resources and development, leading to highly diverse outcomes in different parts of the UK. Decision-making power is further devolved in a more federal system of government. Purposive social and economic planning is the norm, and political and business centres tend to be inward-looking. Traditional regulation is replaced by a more

diffused structure of governance involving stakeholders throughout society. European and international economic and political institutions are seen as ineffective in a culturally and politically diverse world, and exist primarily to mediate relations between countries and regions. Economic growth is slow but considerable social and environmental improvements increase many aspects of quality of life.

5.3 International context

International cooperation is redefined to serve the goal of securing local and regional economic and political autonomy. This is mainly through coalitions with other city/regions resembling political arrangements between mercantilist city-states. Some of these alliances are stable and persistent, while others are characterised by conflict and tension. The promotion of local production, efforts to minimise the use of transport, and ethically motivated trade restrictions put a ceiling on international commerce. The EU develops as a loose association between European regions.

5.4 Economy and sectoral trends

General

Knowledge is primarily exchanged within relatively discrete local economies. Growth is low due to the primacy of local markets, limited competition and the focus on social and environmental objectives. In general, companies face lower competitive pressures while economic and technological developments are constrained by regional resources (knowledge, capital, and materials). Levels of private investment decrease and rates of innovation and technical change decline. Research and development activities are also restrained by social attitudes towards new technologies such as genetic engineering and advanced communication systems. Government attempts to coordinate the economy to meet local demand and to preserve economic independence. Tight regulation ensures that products and production systems are environmentally and socially acceptable. Economic policy encourages smaller-scale production, SMEs, cooperatives, and mutual societies prosper. The basic structure of the economy is relatively stable, but high-tech sectors and international services are in decline.

Services

Services remain the most important area of the economy, but the sector undergoes significant change. As average household income is relatively low and people tend to hold post-materialist values, the demand for services is oriented towards basic needs. Services are targeted to high-income brackets and business-related services (marketing, corporate finance, management consultancy) tend to suffer. Personal services, such as healthcare, tourism, retailing, catering, and leisure become increasingly localised.

Manufacturing and construction

There are generally low rates of investment and inonvation in manufacturing industry. Major changes occur in industrial structure with a relative decline in very large transnational companies, SMEs and technologies adapted to small-scale sustainable production being favoured. There is stress on eco-efficiency, quality and durability in consumer goods and there are longer-term 'service' relationships between producers and customers with locally-based maintenance and recycling systems. A conservationist ethic and lower demand for new developments contributes to the continued dominance of traditional housing. There is increased investment in energy and water efficiency measures as well as decentralised utilities systems (electricity, telecoms). The construction industry continues to be dominated by small firms but the skill base is greatly enhanced, leading to efficiency gains and higher quality.

Energy

Energy systems are diverse and are restructured around local energy resources, whether fossil or non-fossil fuel. A wide range of small-scale, renewable energy technologies are exploited, particularly wind, biogas, biomass, and photovoltaics. Combined heat and power systems flourish. Many of the new technologies are subsidised through funds raised by substantial energy taxes. High energy prices lead to the adoption of energy efficiency measures and encourage consumers to save electricity. The rend coupled with low economic growth leads to an absolute fall of energy demand.

Transport

The transportation sector is affected by a major slowdown in the growth of trade and demand for mobility. Environmental taxes and high energy prices increase the cost of transportation, especially air traffic. Passenger transport is still dominated by private cars but public road and rail transport structures are extended. Alternatives such as car sharing, cycling and walking increases.

Agriculture and food

The downward trend in agricultural production is reversed and farming continues to be heavily subsidised to protect both food security and local communities. The main goal of agricultural policy is to support a broader social yearning for local self-sufficiency and traditional farming practices. The major retailers lose market share to other supply routes, including farmers' markets and local shops. Sales of processed food as well as those of imported fruit and vegetables decline. Demand for meat also falls and broader support for animal rights brings an end to the transport of live animals over long distances. There is a rapid growth in organic and low-input farming.

5.5 Employment and social issues

Unemployment levels are relatively low despite historically low rates of economic growth. This is due to relative growth of labour-intensive sectors, an increase in informal employment, and publicly-funded employment schemes. There is a strong emphasis on education and training, especially to preserve traditional skills and to improve social abilities. Working hours stabilise, but do not fall due to lower rates of productivity improvement. International markets are limited to specialised professional skills. Income disparities are dramatically reduced.

5.6 Regional development

The demand for new housing declines as lower incomes and the revival of more collective social values lead to larger household sizes. The urbanisation of the countryside comes to a halt as planning controls are tightened. New buildings are located in existing towns and cities, leading to denser urban development. There is general migration away from the larger cities and a corresponding growth of small and medium-sized towns more suited to the smaller-scale local development path. Planning favours mixed residential and commercial development and decentralisation. Extensive farming generates new demand for agricultural land, which tends to conflict with nature conservation objectives. There is emphasis on avoiding the need to travel, and on walking and cycling, with local development policies ensuring that basic facilities are available close to people's homes. National rail and bus transport is publicly owned but suffers from under-investment

5.7 Education, welfare and health

There is a high level of public provision of education, welfare and health services, with an emphasis on equity and open access. Because weak economic growth limits tax income, funding for public services does not grow rapidly. This is partly compensated through the more active role played by families, neighbours and local community organisations (such as charities and religious communities) in supporting people in need.

5.8 Environment and sustainability

Sustainable development is an underlying objective of this scenario, profoundly shaping changes in economic activity, social behaviour and institutional development. Social values and political processes encourage individuals and organisations to integrate environmental concerns into all their activities. A key focus is on using technology and ingenuity to maximise the use of local and regional resources, while not damaging their long-term health. The capacity of different regions to achieve this balance varies greatly, and leads to diverse and sometimes perverse outcomes. Global and regional environmental problems receive less attention.

Scenario Assumptions

Indicator	Today	Local Stewardship *2015*
GDP growth per year	2.5%	1.25%
Total investment (%GDP)	19%	16%
Economic activity in sectors (%) • Services • Production • Construction • Agriculture	 66% 27% 5% 2%	 70% 22% 5% 3%
ICT sector (% value added)	3.3%	4%
Qualification age 19 (population with NVQ 2)	75%	95%
Unemployment	5%	5%
Poverty (% with income below 60% of median income)	18%	10%
Life expectancy (years lived in good/fairly good health)	67 years	68 years
Newly developed land (hectares per year)	6,500 ha	1,000 ha
Passenger transport average change per year passenger-kilometres	 720bn	 0% 715bn
Traffic congestion % of network at 100% stress	 6%	 5%
Primary energy consumption ave change per year tonnes of oil equivalent	 230 m	 +1.5% pa 230m
GHG emissions tonnes of CO2 equivalent	 770m	 600m

Scenario Characteristics

	World Markets	National Enterprise	Global Responsibility	Local Stewardship
DRIVERS				
Social values	Internationalist; liberalist	Nationalist; individualist	Internationalist; communitarian	Localist; cooperative
Governance structures	Weak; dispersed; consultative	weak; national; closed	Strong; coordinated; consultative	Strong; local; participative
Role of policy	Minimal; enabling markets	State-centred market regulation to protect key sectors	Corporatist; political, social and environmental goals	Interventionist; social and environmental goals
ECONOMIC TRENDS				
Economic development	High growth; high innovation; capital productivity	Medium-low growth; low innovation; maintenance economy	Medium-high growth; high innovation; resource productivity	Low growth; low innovation; modular and sustainable solutions
Structural change	Rapid; toward services	More stable economic structure	Fast; toward services	Moderate; towards regional systems
Fast growing sectors	Health & leisure; media & information; financial services; biotechnology; nanotechnology	Private health & education; domestic & personal services; tourism; retailing, defence	Education & training; large systems engineering; new & renewable energy; information services	Small scale manufacturing; food and organic farming; local services
Declining sectors	Manufacturing; agriculture	Public services; civil engineering	Fossil fuel energy; traditional manufacturing	Retailing; tourism; financial services
SOCIAL TRENDS				
Unemployment	Medium-low	Medium-high	Low	Medium-low (large voluntary sector
Income	High	Medium-low	Medium-high	Low
Equity	Strong decline	Decline	Improvement	Strong improvement
Areas of conflict	Social exclusion; immigration/emigration; political accountability	Unemployment; poor public services; inequality	Structural change; change of skills; political accountability & institl rigidity	Land-use conflicts; under-investment; environmental restrictions

Scenario Assumptions

Indicator	Today	World Markets 2015	National Enterprise 2015	Global Responsibility 2015	Local Stewardship 2015
GDP growth per year	2.5%	3.5%	2.0%	2.75%	1.25%
Total investment (%GDP)	19%	22%	18%	20%	16%
Economic activity in sectors (%)					
• Services	66%	75%	66%	72%	70%
• Production	27%	20%	27%	22.5%	22%
• Construction	5%	4%	5%	4%	5%
• Agriculture	2%	1%	2%	1.5%	3%
ICT sector (% value added)	3.3%	7%	5%	6%	4%
Qualification age 19 (population with NVQ 2)	75%	85%	75%	90%	95%
Unemployment	5%	5%	8%	4%	5%
Poverty (% with income below 60% of median income)	18%	23%	25%	15%	10%
Life expectancy (years lived in good/fairly good health)	67 years	68.5 years	67.5 years	69 years	68 years
Newly developed land (hectares per year)	6,500 ha	6,000 ha	4,500 ha	3,000 ha	1,000 ha
Passenger transport					
average change per year		2%	1%	1.5%	0%
passenger-kilometres	720bn	910bn	810bn	660bn	715bn
Traffic congestion					
% of network at 100% stress	6%	11%	13%	9%	5%
Primary energy consumption					
ave change per year		+1.7% pa	+1.5% pa	+1.5% pa	+1.5% pa
tonnes of oil equivalent	230 m	280m	270m	230m	230m
GHG emissions					
tonnes of CO2 equivalent	770m	780m	845m	625m	600m