

# Flexible work practices

The background is a solid teal color with a pattern of diagonal lines in various shades of light blue and teal, creating a textured, geometric effect.

# Flexible work practices

The 'home office'

## Summary

The development of superfast communications technology and shifts in the labour market as a result of automation may make flexible working practices more feasible and attractive, with more people working remotely or from home.

## What we know now

There has been rapid growth in home working since 1998. By 2014, 4.2 million or 14% of the total working population were home-workers. Home-workers tend to be older, with three quarters in higher skilled roles and 63% self-employed.

## 2030 projection

By 2019, 95% of Essex premises should have superfast broadband connectivity and trends point to 5.5 million homeworkers in the UK by 2030, changing the pattern of work in Essex considerably.

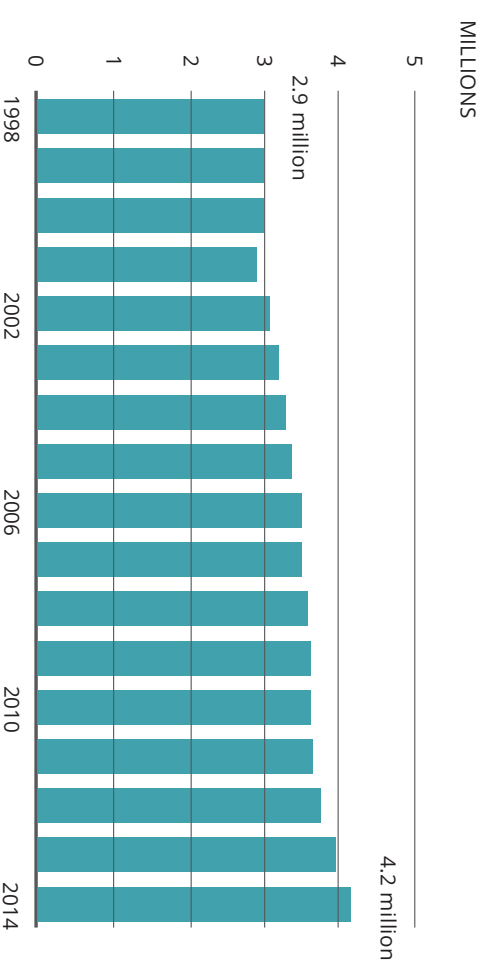
## Opportunity/Risk

High

Source: Met Office

## Home-working and self-employment— new drivers of growth?

THE NUMBER OF HOME WORKERS HAS INCREASED FROM  
2.9 MILLION IN 1998 TO 4.2 MILLION IN 2014



Source: ONS

The background features a series of diagonal stripes in various shades of pink and red, creating a dynamic, textured effect. A solid white horizontal bar is positioned in the center, serving as a backdrop for the main text.

# Changing demands for skills

# Changing demands for skills

Tech, creativity, empathy, and problem solving

## Summary

Rising demand for tech natives and reduced labour market requirements may shift the landscape for skills, with creative, problem-solving and digital skills valued highly.

## What we know now

UK has the largest internet based economy as a proportion of GDP in the world (Boston Consulting). Two-thirds of businesses believe tech knowledge is key, but 19% of employers in South East LEP reporting skills shortages found basic IT skills lacking in candidates (British Chambers of Commerce; NESS, 2013).

## 2030 projection

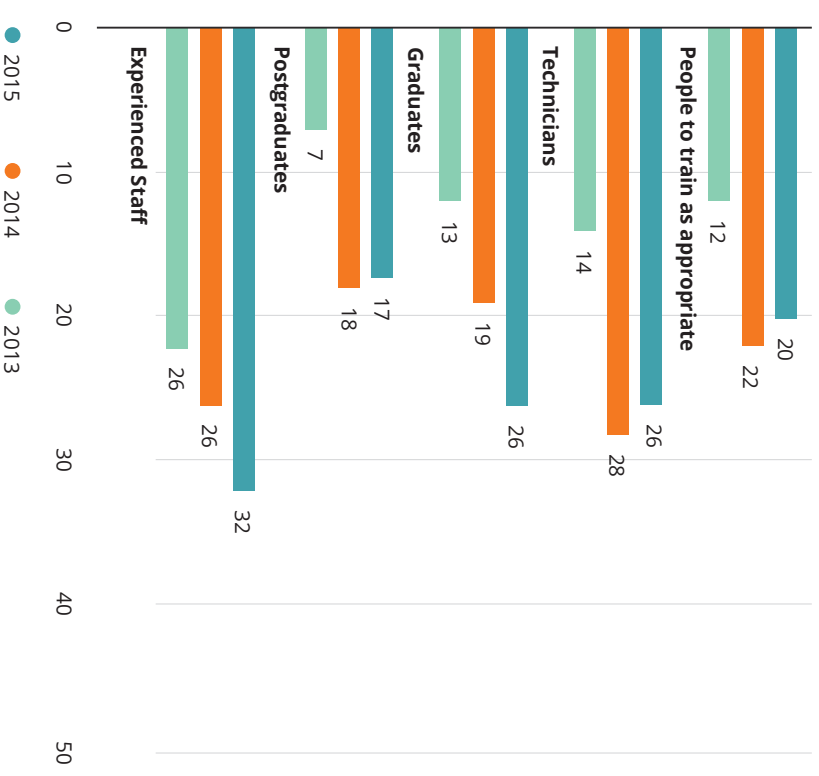
Lack of high-tech skills and employer-facing qualifications reaches crisis point as occupations disappear. Massive pressure for retraining. New employer-led training providers develop market in tech skills. Universities respond by developing partnerships to deliver more flexible, employer facing qualifications through online delivery platforms and enterprise hubs. Social, empathetic, problem-solving skills are at a premium.

## Opportunity/Risk

High

## How can our education system meet demand for high level skills?

CURRENT DIFFICULTIES IN RECRUITING PEOPLE WITH STEM SKILLS AND KNOWLEDGE (%)



Source: CBI/Pearson Education And Skills Survey 2015

The background features a solid purple field with a pattern of diagonal stripes in various shades of light purple and lavender. The stripes are arranged in a way that creates a sense of depth and movement, with some appearing to recede into the distance.

# Changing structure of work

# Changing structure of work

The self-employed to overtake public sector workers?

## Summary

Significant changes are predicted in workplace patterns, such as older people shifting career paths as they live longer, greater self-employment, and re-skilling in adult life. There will be challenges managing transitions between work and ensuring adequate skills provision.

## What we know now

One in seven working people are self-employed.

Self-employment has been found to account for more than half of all jobs growth between 2008 and 2014. At the moment, 10.3% of the working age population in Essex is self-employed (NOMIS, 2015).

## 2030 projection

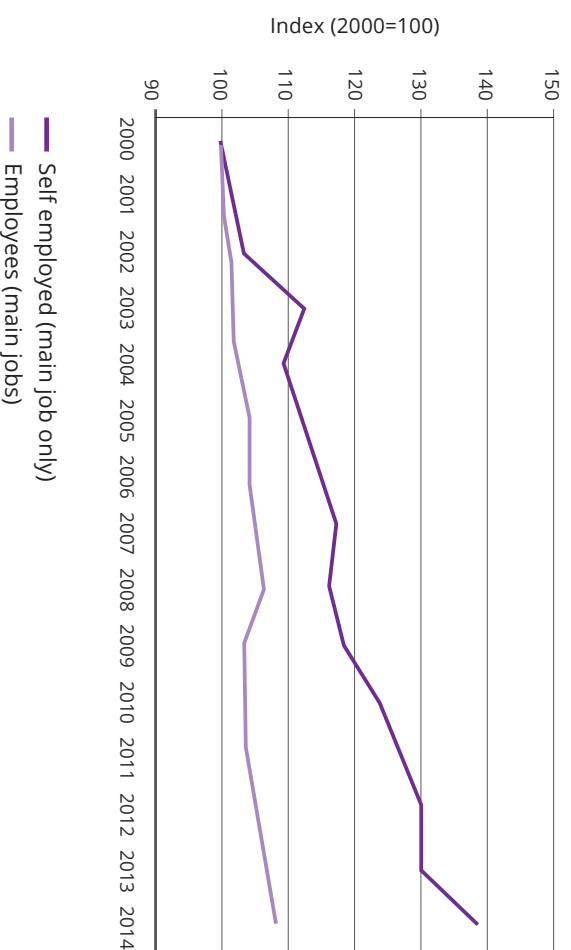
Self-employment becomes a more dominant form of work for younger generations, creating demand for new collaborative communities, flexible workspaces, niche enterprise networks and learning provision to replace traditional company structures.

## Opportunity/Risk

Medium

## Growth of self-employment — demand for new forms of collaboration and learning?

GROWTH IN EMPLOYMENT VERSUS SELF-EMPLOYMENT





# Housing Tenure Shift

# Housing Tenure Shift

Private rentals to overtake mortgage holders in the 2020's?

## Summary

Younger people are increasingly reliant on short-term private rents. Property values continue to rise. The gap between those unable to get onto the property ladder and property-owners may widen, hampering social mobility.

## What we know now

Half of 20-39 year olds live in private rented property, up from 20% in 2000. First time buyers have been hit by rising house prices and withdrawal of higher Loan-to-Value mortgages – increasing average deposits to £50,000. Housing completions have fallen markedly in the last five years. As of January 2016, the average house price in Essex was over £232,000, up 9.5% on the previous year (HPI, 2016).

## 2030 projection

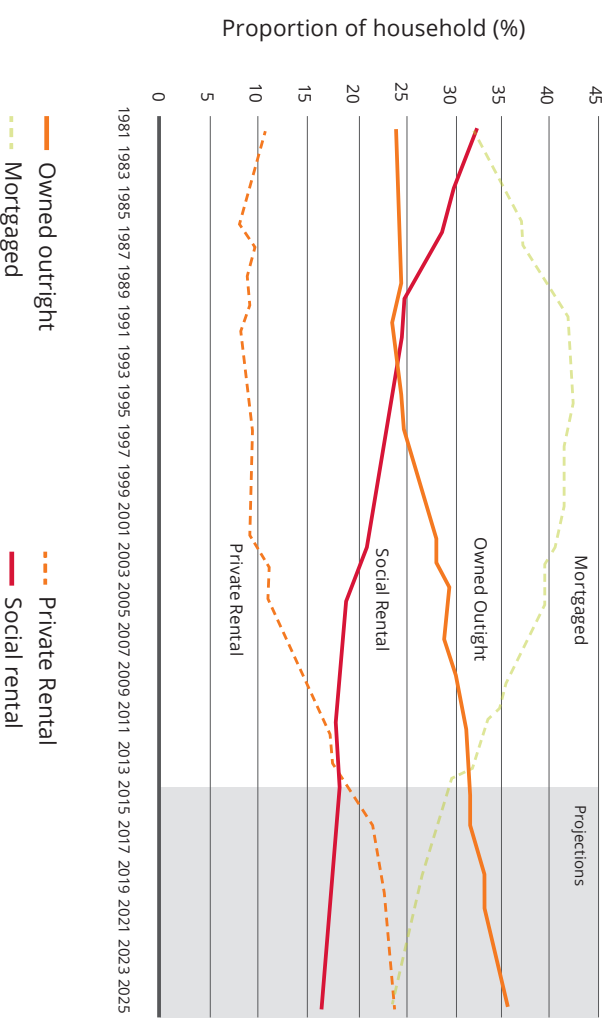
On current trends nearly 30% of households and the majority of 20-39 year olds will be renting privately by 2030. This could well limit social mobility as property wealth and the associated benefits are locked in and create new housing demand.

## Opportunity/Risk

High

The era of "Generation Rent" will see growing numbers locked out of property ownership

### PROJECTIONS FOR UK HOUSING TENURE, SHARE OF HOUSEHOLDS



Source: PWC



# Gridlock

The image features a solid orange background. A pattern of numerous thin, parallel diagonal lines in a lighter shade of orange is scattered across the left and center portions of the frame. A dark orange rectangular box is positioned in the upper-middle section, containing the word "Gridlock" in a white, bold, sans-serif font.

## Summary

As increasing demand is expected over the next 30 years, pressure on transport infrastructure is likely to increase. High demand could lead to the introduction of capacity management systems such as tolls and segmentation, as well as smart traffic management systems.

## What we know now

Essex has the third highest road traffic use in Britain with more than a million trips each day. The A12, M25 and M11 have widely recognised issues with reliability, with congestion common on sections of the A127, A130 and A414. Between 2013 and 2030 total passenger vehicle miles in the UK are expected to increase by 32%.

## 2030 projection

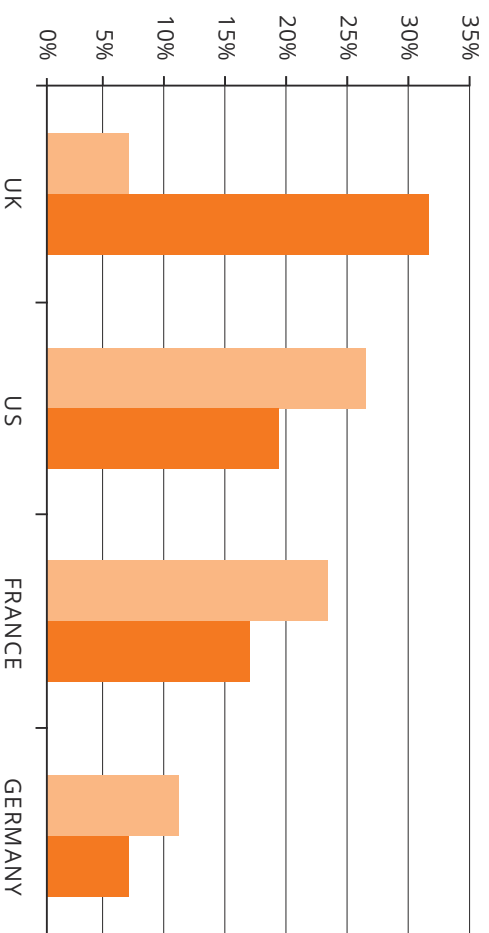
Congestion exacerbated by lack of investment starts to damage the economy or Essex capitalises on smart technologies and behaviour change to reduce demand, while also making the political and economic case for key investment.

## Opportunity/Risk

High

## Can we use technology to tame the traffic?

GROWTH IN CAR PASSENGER VEHICLE-MILES,  
HISTORIC 1994-2011 AND FORECAST 2013-30





# Shifts in energy production and usage

# Shifts in energy production and usage

Replacement energy systems needed

## Summary

Less reliance on carbon sources of energy and an increase in renewable energy may lead to either micro-generation and/or a new generation of nuclear. Issues of energy poverty must be addressed, as must the potential increased demand on the energy system as a result of technological innovation.

## What we know now

Two-thirds of existing power stations are set to close by 2030. The UK's renewable electricity capacity rose by 22% in 2015, with renewables now contributing 27% of UK electricity generation (DECC, 2016). To meet the UK goal of cutting CO2 emissions by 80% by 2050, power stations must be largely de-carbonised.

## 2030 projection

By 2030, capital investment on- and off-shore in Essex is forecast to exceed £40 billion. Smart Power could save consumers up to £8 billion a year by 2030, help the UK meet its 2050 carbon targets, and secure the UK's energy supply for generations.

## Opportunity/Risk

Medium

## Is the future of energy generation small, local, and flexible?

### INTERCONNECTION

Connecting out network to our European neighbours.

### STORAGE

Allowing users to take energy from the grid to be used when it is needed

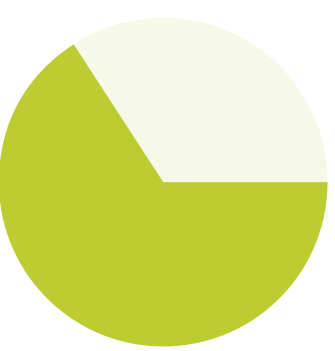
### FLEXIBLE DEMAND

Allowing consumers to choose how and when they use power to cut costs and emissions without inconvenience

The UK is uniquely placed to lead the world in a Smart Power Revolution. If we get this right we could save consumers up to:

# £8bn a year

**Two thirds** of existing power stations set to close by **2030**



# Aging population



# Aging population

Twice as many over 85's by 2031

## Summary

By 2032 there will be a third more 65-84 year olds, and one half more people aged 85+. These trends bring mounting pressure on the NHS, housing, community cohesion, public service costs, and the social contract more generally.

## What we know now

Our population is aging. One-in-six of the UK population, 10 million people, are over 65, and by 2050 one-in-four will be. By 2031, people aged 65 or over will make up 28% of the total of Essex population, with the number of those over 85 more than doubling, from 31,000 to 77,000 (Essex 5 year health and care plan).

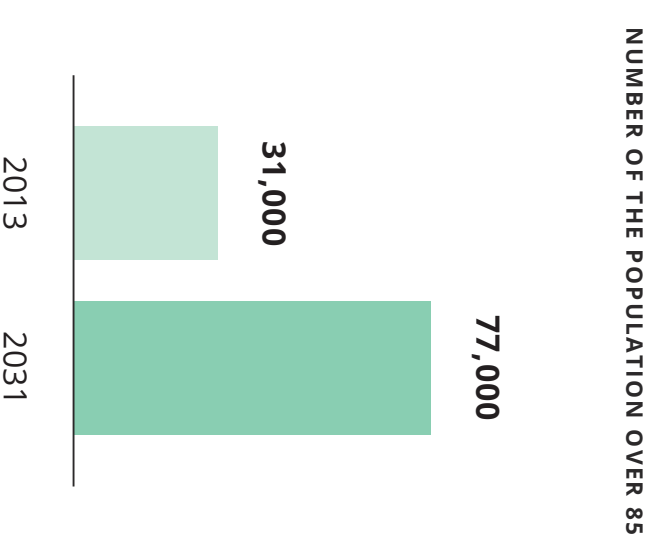
## 2030 projection

Older people may have high levels of health and well-being, retirement may become a more fluid concept, and over 60s may be valued as volunteers in a range of community activities and/or Massive costs pressures on unreformed NHS and social care services require increased taxation on working age population as service quality declines leading to growing resentment and demographic polarisation.

## Opportunity/Risk

High

Will we see older people as an asset, or simply a cost?



# Diversity

The image features a vibrant background of diagonal stripes in various shades of pink and purple, creating a sense of movement and depth. A central, semi-transparent rectangular box in a darker purple hue contains the word "Diversity" in a clean, white, sans-serif font, positioned vertically.

## Diversity

BAME proportion double for 0-19 year olds than for total population

### Summary

Essex is likely to become increasingly diverse up to 2030, particularly in the west of the county which may be subject to London overspill.

### What we know now

5.6% of the overall Essex population are BAME, compared to 11.1% of 0-19 year olds. The most diverse areas are in the west of the county, such as Harlow, Epping Forest, and Brentwood. The numbers of children that are BAME in Essex almost doubled between 2001 and 2011, from 18,257 to 36,291.

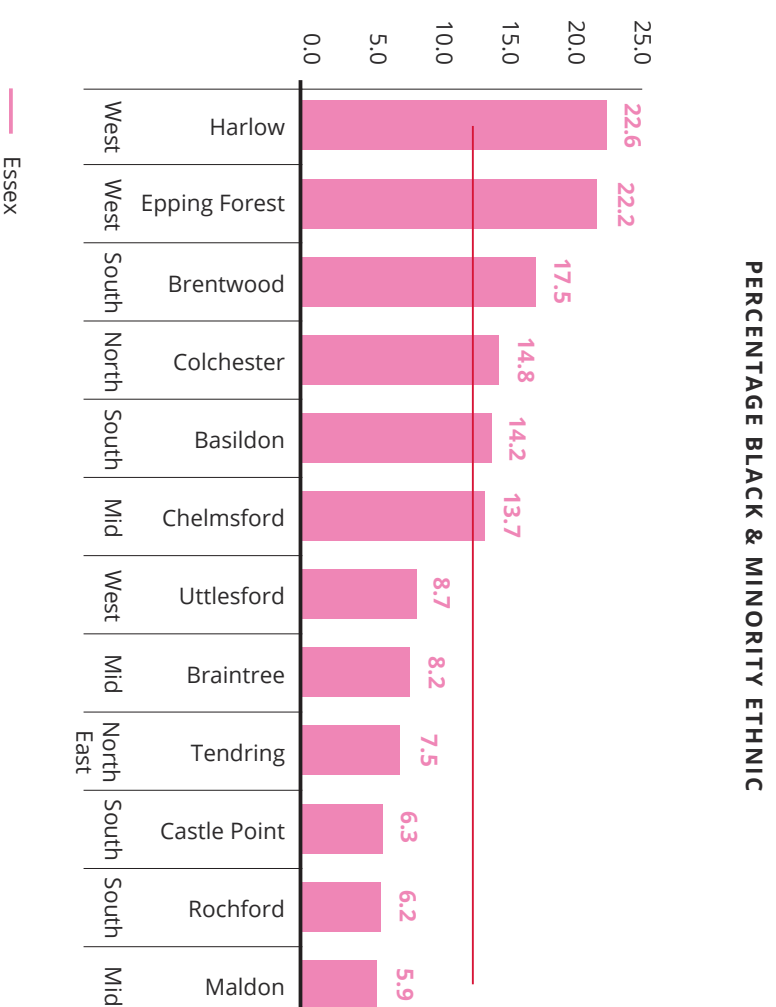
### 2030 projection

In addition to the shift which will result from demographic change across age groups, the likely continued overspill of London populations into Essex could well result in a more diverse ethnic mix in the county- especially to west and in urban centres.

### Opportunity/Risk

Medium

## Ethnic diversity higher among Essex school population than overall



Source: Essex County Council





# London Overspill

## London Overspill

Essex likely to continue as destination for capital's overspill

### Summary

As house prices in London continue to spiral and Crossrail is completed, areas in the west of Essex are likely to continue to see London overspill, with high commuter populations.

### What we know now

Essex has already begun to see overspill from London, and high annual increases in house prices in London leaves many London workers looking to move out. The highest increase in housing prices in Essex in 2015 took place in Romford, with a 22% increase, just ahead of Basildon.

### 2030 projection

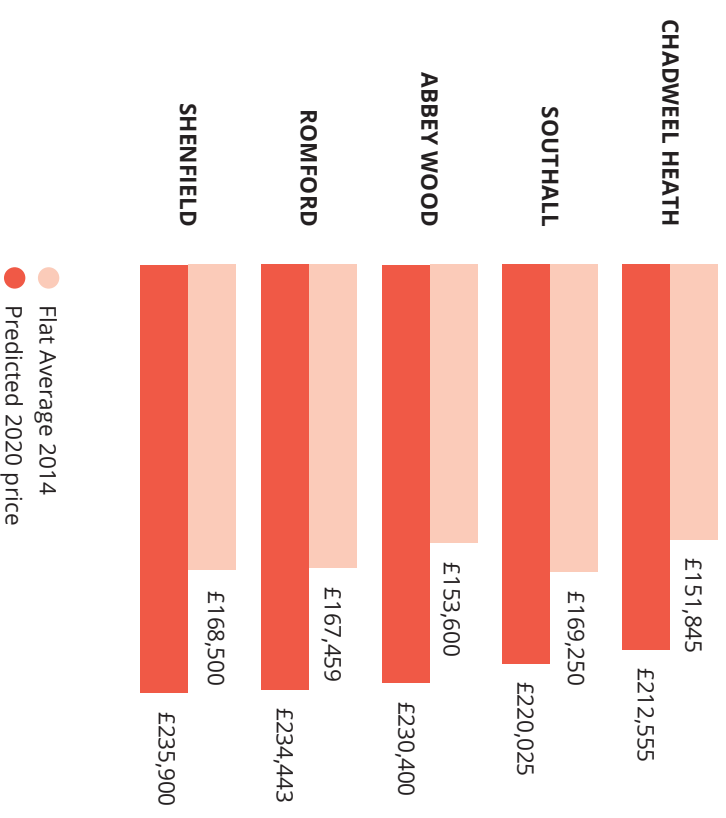
It seems likely that London house prices will continue to rise, and as such it is likely that overspill into surrounding areas such as Essex will also. The completion of infrastructure projects providing faster transportation between Essex and London may well increase this effect.

### Opportunity/Risk

Medium

## Crossrail will push up house prices in Essex

2020'S CHEAPEST CROSSRAIL STOPS (£)





# Childhood Obesity

# Childhood Obesity

1 in 5 school-aged children obese by 2030?

## Summary

One-in-ten children start school obese, with this rising to 1 in 5 by the time they leave school, leading to higher health costs across an individual's lifetime and increased burdens on health services.

## What we know now

Essex as a whole has a lower childhood obesity rate than England, but over 10% of reception students are reported as obese in Chelmsford, Harlow, Maldon, and Tendring (Essex Research and Analysis Unit, 2013). Children's consumption of added sugars and saturated fat significantly exceeds the recommended level. It is projected that by 2030, 36% of men and 33% of women in UK will be obese, with the direct medical costs of conditions related to being overweight or obese rising from around £6bn today to £10-12bn. (WHO, 2015; McKinsey, 2014).

## 2030 projection

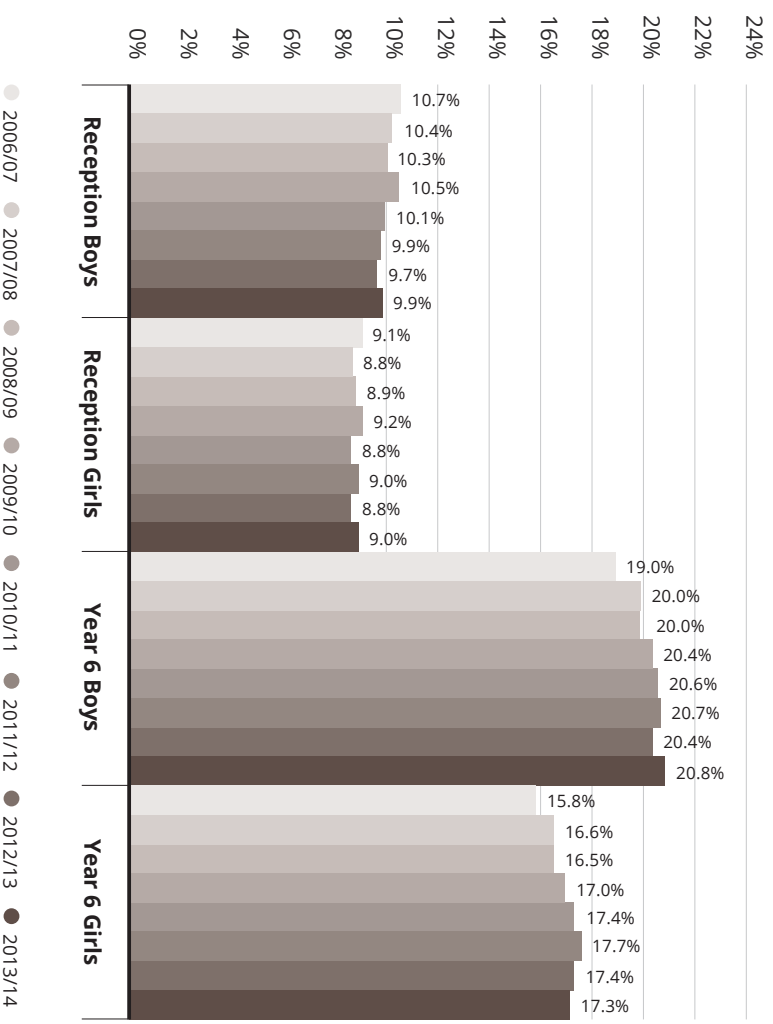
New sugar taxes and concerted efforts to improve children's diets and fitness reverse the growth in obesity or weak industry regulation has little impact as kids are bombarded by powerful brands. Obesity continues to increase leading to growth in associated health issues.

## Opportunity/Risk

Medium

## Can we reverse the growth in childhood obesity?

PREVALENCE OF OBESITY 2006/07 TO 2013/14 BY SCHOOL YEAR AND SEX



Source: Public Health England



# Transformation of social care

# Transformation of social care

Quadrupling of need by 2030?

## Summary

With an increased elderly population and technological development, health and social care professionals will need to adapt to deliver effective services accessible to all.

## What we know now

Long term health conditions now take 70% of the health service budget. By 2025 we need an additional 1 million social care jobs. We can work differently - Buurtzorg has a back office of 30 people to support 7,000 frontline nurses. By empowering nurses to understand needs 40% fewer hours of care are required by Buurtzorg's patients.

## 2030 projection

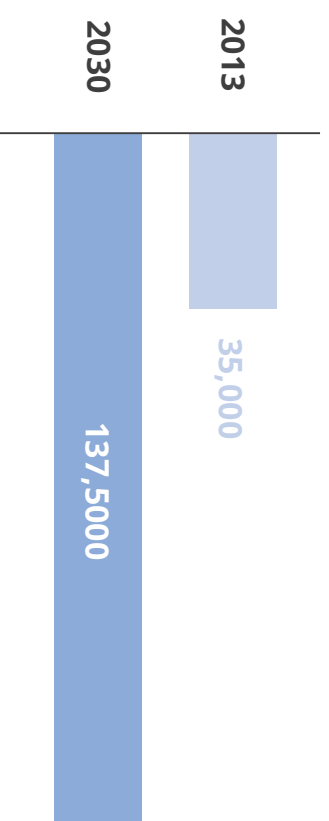
By 2030, the number of people needing social care in Essex is expected to rise from 35,000 to 137,500 (Who Will Care Commission). Caring for these needs requires a partnership with patients over the long term, dissolving traditional boundaries and managing systems or networks of care.

## Opportunity/Risk

High

## Care organised round the person - a radically different model?

THE NUMBER OF PEOPLE IN ESSEX NEEDING  
SOCIAL CARE SUPPORT





# Health demand management in the community

# Health demand management in the community

Risk of hospital overload

## Summary

There is a need to reduce demand on health services such as A&E. This may involve changing expectations, GP contracts, or developing separate community offers.

## What we know now

In January 2016, 212,136 patients waited more than four hours in A&E units – the highest number ever. Research by The Royal College of Emergency Medicine found 15% of A&E admissions could have been treated in the community, and the Essex-focussed 'Who Will Care Commission' highlighted the mobilisation of community resources as a key part of future demand management (Who Will Care Commission, 2014).

## 2030 projection

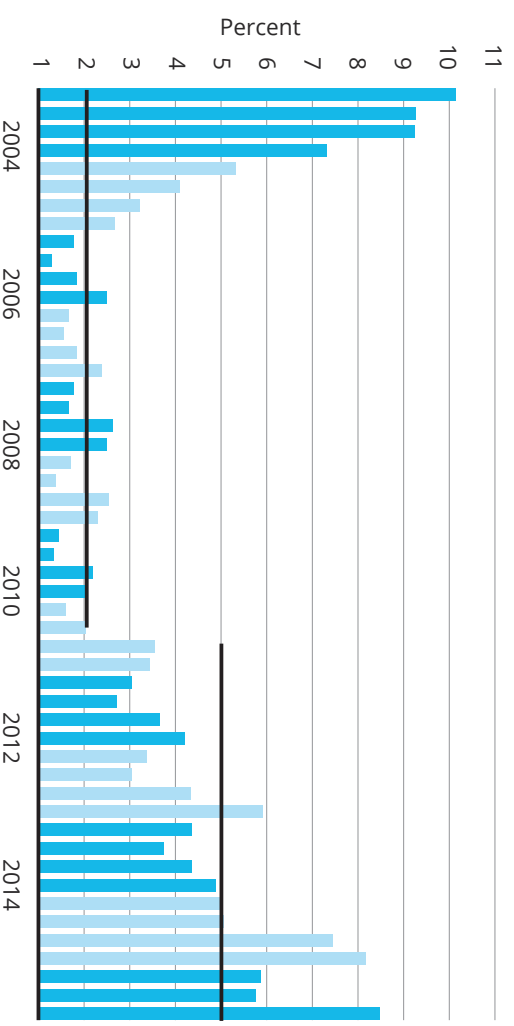
A major effort to shift resources to provide integrated care in community settings reduces pressure on hospitals or Continuing crisis leads to a shift to private care for those that can afford it while most experience a declining quality of care.

## Opportunity/Risk

Medium

## Can we break the hospital habit?

PERCENTAGE OF PATIENTS SPENDING MORE THAN FOUR HOURS IN A&E FROM ARRIVAL TO ADMISSION, TRANSFER OR DISCHARGE



Source: Kings Fund





# Individual-led commissioning

# Individual-led commissioning

Reconfiguration of services around patient-led demands?

## Summary

Commissioning models might emerge that enable individuals to buy services directly for themselves or together with others. In these models, the role of public services changes to providing quality-assurance or platforms for choice.

## What we know now

Clinical commissioning groups now control the majority of the NHS budget - £69 billion in 2015/16. NHS England plans to extend personal combined health and social care budgets to five million frail elderly people, disabled children and those with serious mental illness or learning disabilities by 2018.

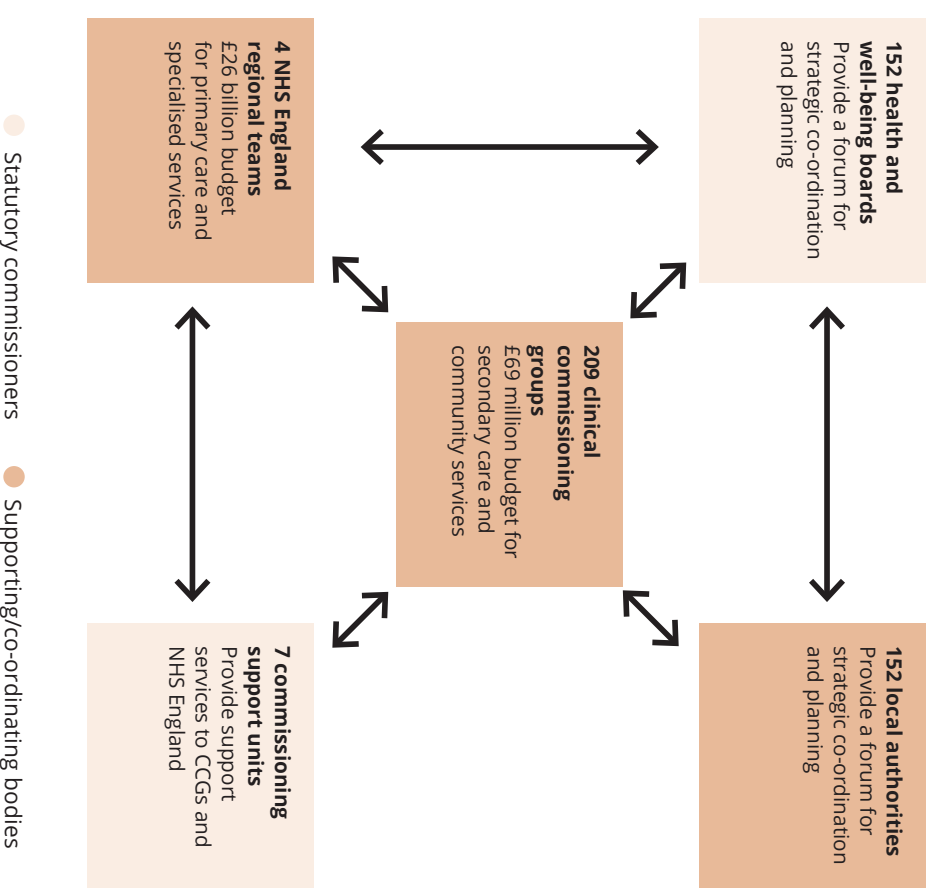
## 2030 projection

New patient advocate networks could become brokers for personal budgets and patients could become intelligent commissioners themselves.

## Opportunity/Risk

Medium

## Will power devolved to the patient increase personalisation and efficacy?



Graphic title: Source: Kings Fund



# Increasing temperatures

# Increasing temperatures

Impacts of agriculture, wildlife, communities, and migration

## Summary

Increases in global temperature over the next 15 years may influence wildlife, agriculture, and human populations.

## What we know now

The world is getting warmer. The average global temperature on Earth has increased by about 0.8° Celsius (1.4° Fahrenheit) since 1880. Two-thirds of the warming has occurred since 1975.

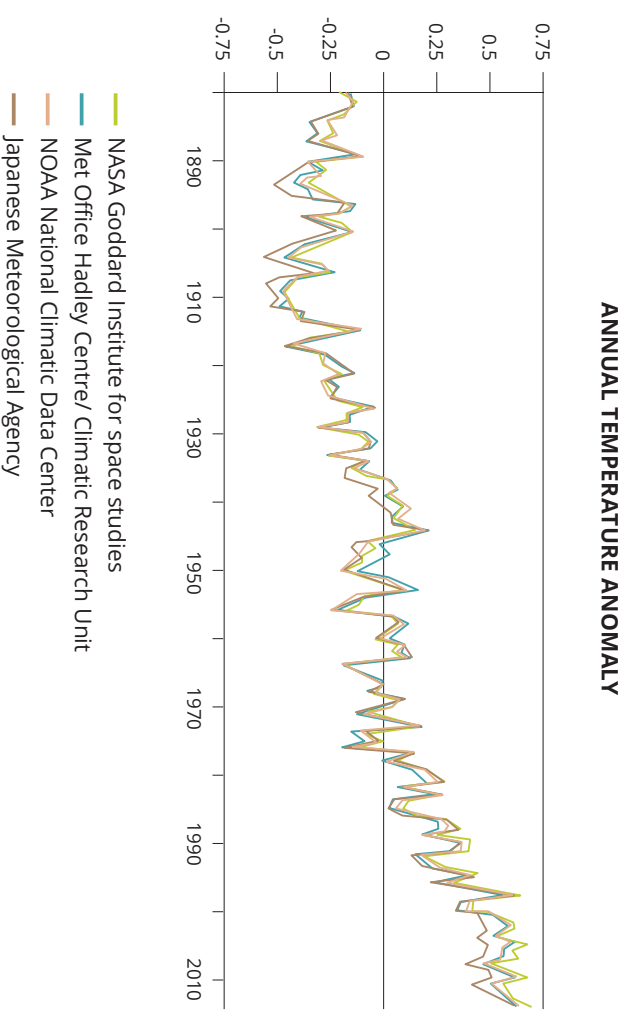
## 2030 projection

A changing climate is likely to create more extreme weather as well as changing the patterns of wildlife and agriculture in the UK. Resource pressures, conflict and global migration may increase.

## Opportunity/Risk

Medium

**Rapid warming in the past few decades and the last decade is the warmest.**



Source: NASA Earth Observatory



# Sustainable locations for development (flooding)

# Sustainable locations for development (Flooding)

Impacts of agriculture, wildlife, communities, and migration

## Summary

Development on flood plains brings significant risks, increasing the costs of flooding, impacting hardest on the most vulnerable. Co-operation with developers to ensure future development minimises flood risk is crucial.

## What we know now

About 16,000 houses in England were flooded in 2015 during the wettest December in a century. Evidence suggests that UK rainfall is increasing in intensity. Housing in areas where flooding is likely has grown at a rate of 1.2% per year since 2011. Nearly 14,000 people are at high risk of flooding in the South Essex Flood Risk Area alone (Essex County Council, 2014; Environment Agency, 2016).

## 2030 projection

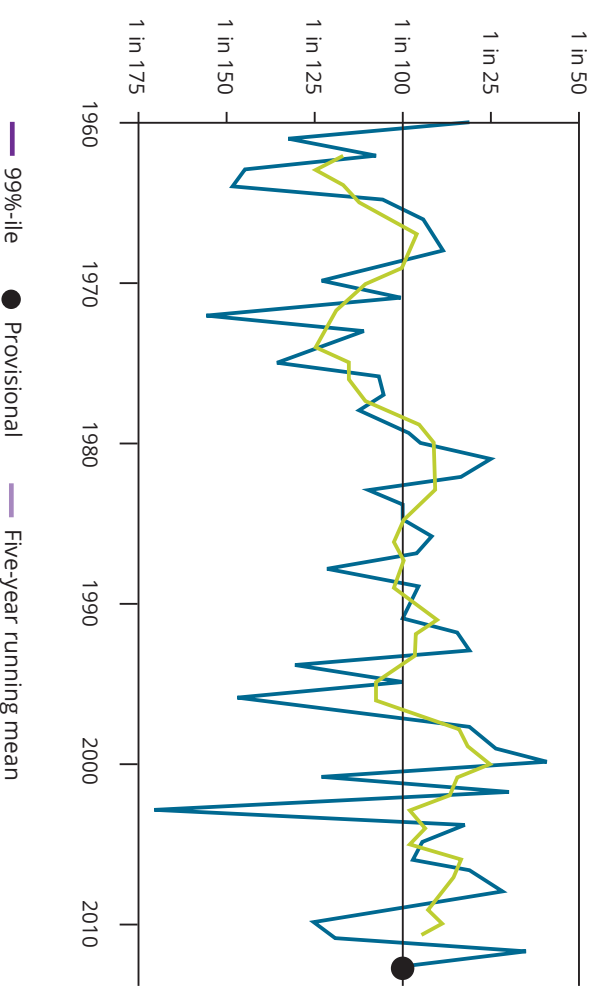
Extreme weather and flooding are likely to become more frequent. Flood risk could become a key factor in new developments.

## Opportunity/Risk

Medium

## More flooding likely; daily heavy rain events are more frequent

EXTREME DAILY RAINFALL STATISTICS



Source: Met Office



# **New Crime and Public Safety Challenges**

# New Crime and Public Safety Challenges

Crime increasingly distant and personal

## Summary

Challenges for police forces may change, with shifts towards cyber-crime, terrorist networks increasing awareness of domestic violence and crimes against the person, and potential public safety issues around addiction and some mental health issues.

## What we know now

Last year the UK saw around 5.1m online fraud offences and 2.5m cyber-crime offences, with fraud and cyber-crime against retailers rising 55%. There was also a 41% increase in sexual offences, and a 25% increase in violence against the person. Police must also deal with the threat of terrorism.

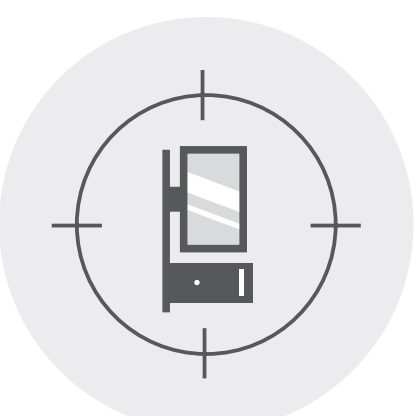
## 2030 projection

Forecasts suggest that cyber-attacks could cost the global economy up to \$90 trillion by 2030. Police forces may need to work differently to effectively combat both global cyber-crime and terrorism, and highly localised domestic violence and safety issues around addiction and mental health.

## Opportunity/Risk

Medium

**How can police forces effectively combat the crimes of the future?**



Cyberattacks could cost global economy up to

**\$90 trillion**

by 2030





# Hyper-connectivity and Automation

# Hyper-connectivity and Automation

An economic opportunity, or a threat to existing economic structures?

## Summary

Projected rapid increases in the number of connected, 'intelligent' and autonomous devices may open up new forms of connectivity and possibilities for highly tailored services across both public and private sectors, transforming the way humans interact with machines.

## What we know now

Forecasts suggest that by 2020, between 20 and 100 billion everyday objects will be connected to the internet. AI has seen rapid development, as exemplified by the success of Google's DeepMind programme in beating top-ranked human players at the board game Go, and the commercial success of Amazon Echo. Together 'learning' machines, connectivity and advanced robotics could mean major changes for work, the person, and public services.

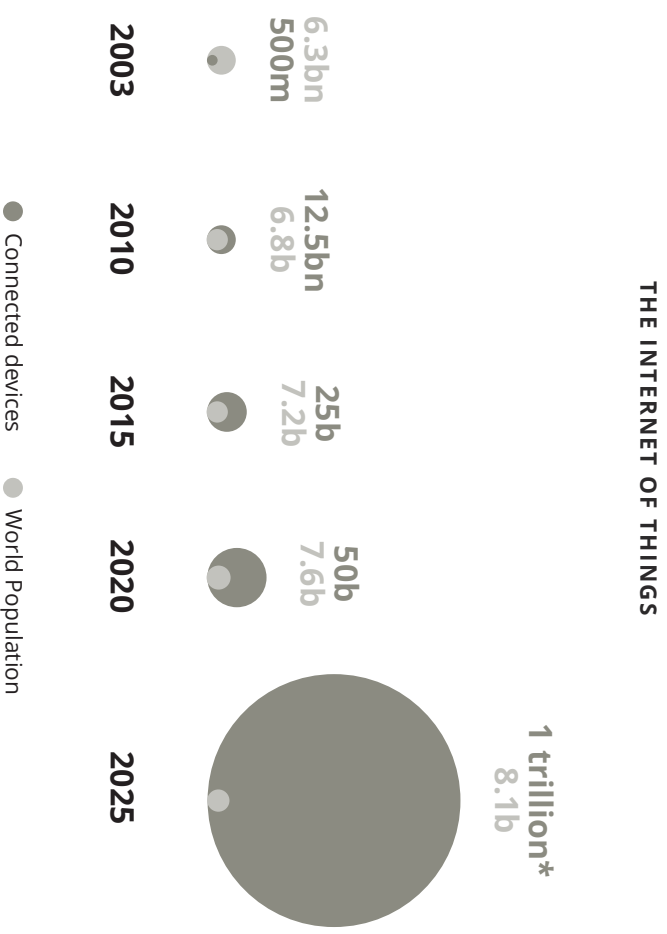
## 2030 projection

Intelligent connected devices may increasingly be utilised to develop smart transport systems, health monitoring, and behaviour profiles to provide accurate data regarding the particular needs of individuals.

## Opportunity/Risk

High

## How will hyper-connectivity change the world?



# Big Data, AI, and Analytics

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# Big Data, AI, and Analytics

Will Essex harness the power of Big Data to meet needs?

## Summary

The development of connected and intelligent devices presents opportunities for large-scale analytics of behaviour as huge quantities of data are collected automatically.

## What we know now

The popularity of wearable health and fitness trackers demonstrates the appeal of using constant data monitoring to inform lifestyle decisions. A huge mass of data is collected in every area of life. Combined with increasing computational power and exponentially expanding analytical capability, this data can change entire systems of innovation, goods and service provision, impacting every sector from healthcare to finance to agriculture to climate and energy.

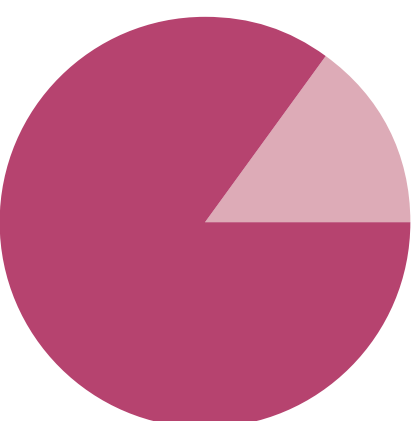
## 2030 projection

Data collection and its use will become a much greater part of every service we interact with providing powerful new opportunities to meet needs and confront major challenges. 85% of corporate users of big data believe it will dramatically change the way they do business, with the global big data market forecast to top \$84 billion by 2026. The question is whether the big data/analytics transformation will be harnessed to meet the needs of Essex.

## Opportunity/Risk

Medium

**How will big data change the way we live and work?**



**85%**

of corporate big data users believe it will dramatically change the way they do business

The background features a dark gray field with numerous diagonal lines of varying lengths and shades of gray, creating a textured, layered effect. The lines are oriented from the top-left to the bottom-right.

# Public Sector Finance

# Public Sector Finance

More localised systems of finance

## Summary

The public sector and local government are likely to see changes in how they are financed which will increase competition across administrative boundaries and create challenges regarding cross-service alignment.

## What we know now

Councils have had a real spending reduction of 32% since 2010 and face a £14.4 billion funding gap by 2019/20. There are warnings about the future financial viability of some local authorities. Essex County Council has projected a funding gap of £171.6 million in 2018/19.

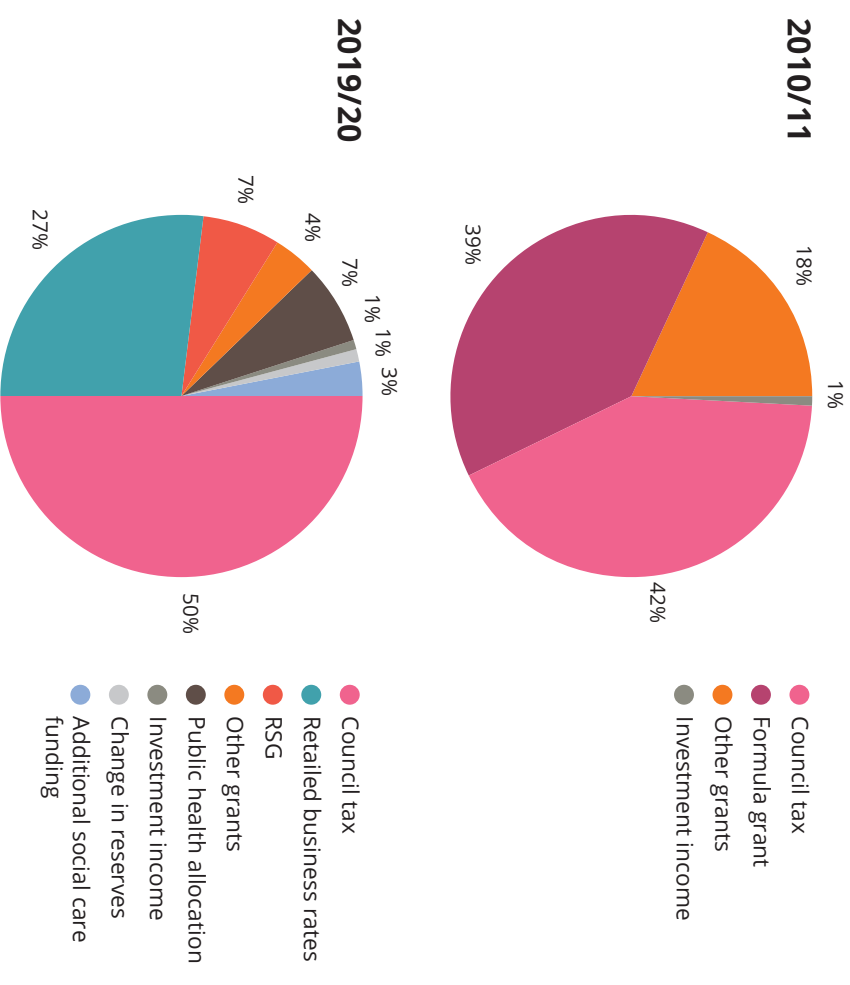
## 2030 projection

We could have a local finance system that is far more localised than present possibly with more user charging and resource pooling. Service resourcing remains a severe challenge.

## Opportunity/Risk

High

## Local government finance now and 2030 – continuing localisation and precariousness?



Source: Local Government Association

# Digital Public Services

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# Digital Public Services

Digital not just as default but the norm?

## Summary

Increased public expectation that everything can be done online will bring challenges for public services in enabling this to happen, and ensuring citizens who are not 'tech-enabled' or are vulnerable are not left out.

## What we know now

More than 90% of the UK population use the internet. Digital innovation is driving new business models which broker direct relationships between people, services and things and improve as they go by harvesting data. 18% of people prefer to access public services exclusively online, with 43% preferring mostly online use (Deloitte, 2014). It is estimated that by making transactional government services digital by default, between £1.7 billion and £1.8 billion could be saved (Government Digital Service, 2012).

## 2030 projection

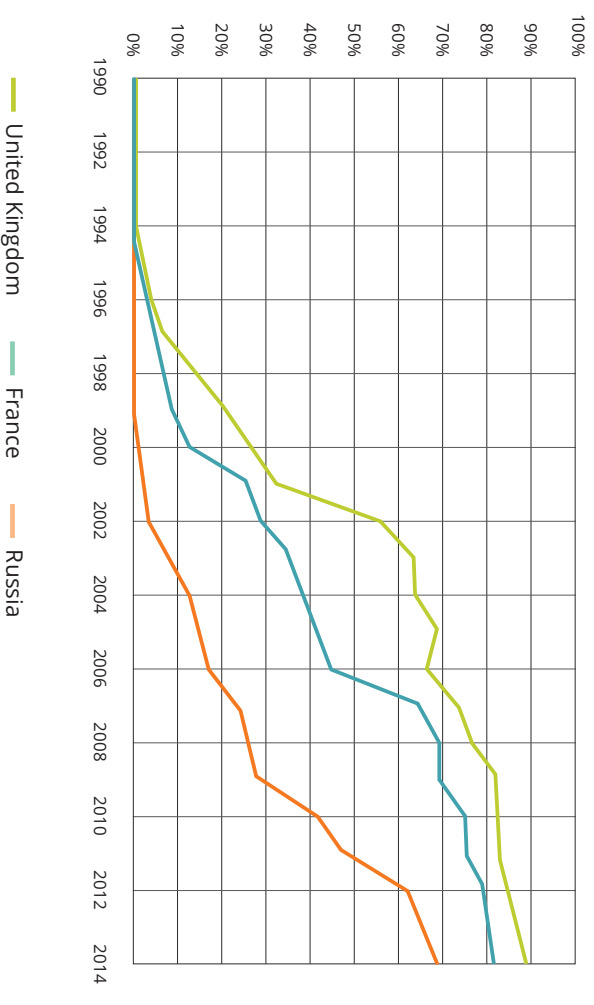
Smart technologies and organisation redesign could empower front line staff and citizens to co-create public services in new, easily accessible and inclusive ways or Lack of investment, leadership and skills could leave public services locked into traditional models, which are seen as increasingly irrelevant and lose public trust.

## Opportunity/Risk

Medium

## Can public organisations transform themselves for the internet age?

INTERNET USERS AS PERCENTAGE OF POPULATION



Source: World Bank