LOCATION INTELLIGENCE

Connecting people to place

Ordnance Survey

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INTRODUCTION

Why location intelligence powers businesses

The case for location data

Understanding patterns and trends is easier when placed in a geographic context. Vast amounts of information can be distilled when viewed on a map.

But a map is just the start of what can be done with location data, and many organisations and start-ups are realising that fusing location into their data systems has many benefits.

Benefits

- Location data is authoritative which means it can be trusted as being correct, accurate and reliable.
- Location data can be used to bring multiple sources of information together. It is the chain that links together datasets.
- Location data is high quality data because it is captured and processed using common data principles and standards.

OS location data supports everyone from local authorities and central government to the emergency services, utility companies, global tech companies, and transport and logistics providers. It helps improve the country's roads, railways and broadband coverage, levelling-up communities and regions. It has also supported the building of a million new homes to provide affordable housing to the people who need it and boosted the productivity and sustainability of the UK's agriculture systems.

What is authoritative data?

'Authoritative' means something you can trust and respect as true and correct; synonymous with accurate, reliable, and trustworthy. Authority needs to have a trustworthy source. Where does the data come from? Who owns, collects, and manages that data, and how do they manage quality? Will it be reliable, i.e. still the same in five years' time?

As the National Mapping Service to Great Britain, Ordnance Survey creates, maintains, and disseminates consistent, definitive, and authoritative geospatial and cartographic data of Great Britain. The capabilities we deliver support the public and private sectors and the delivery of the UK Geospatial Strategy.

OS benefits from being trusted by those who use our data, and we ensure we apply the highest standards to our data and products. In fact, we do more than follow global data standards; we lead in their development, maintaining high quality data which is 'authoritative.'

Building connected cities

Using location intelligence to build smart cities

To ensure people feel their city provides quality of life and supports their needs, it's important the surrounding infrastructure is centred on them, and that services and leisure activities are easily available.

Location intelligence is a fundamental element for smoother running services, more efficient information flows, and greater connectivity - all of which help unlock better decision making through optimised collection and use of data.

From emergency services to utility companies, and from high-speed connectivity, to transport and logistics providers, digital connectivity affords urban planners and service providers an opportunity like never before to deliver true citizen-centred cities.

In the UK, the average citizen interacts with location data more than 40 times a day.

Implementing a connected infrastructure of roads, waste, water, and power, is not possible without reliable location data. It provides a single source of accurate, environmental information to allow fast decision-making by businesses and policy makers.

The assets in urban environments that need to be located and understood with accuracy include:

- Gas pipes
- Electricity grids
- Internet and telecommunications cables and infrastructure
- Road infrastructure
- Emergency response locations (e.g. ambulance stations, fire stations)
- Water pipes
- Sewage pipes
- Educational and medical facilities

Connected transport

In the same way that citizens want a simple, seamless experience with services, urban transport affords a great opportunity for the same easy, intuitive use by the populace, by putting users at the very centre of its focus.

Connected transport means a transport network that puts the experience of those crossing the city ahead of all over concerns, whether financial, or otherwise. This means integrating the various modes of transport available to citizens.

For example, a user pays once for a trip from one point in the city to another, the most efficient route is calculated using whatever means necessary, avoiding and preventing traffic.

In this way, not only are a user's journey made easier, but the city as a whole becomes smarter, with location data providing the vital real time insight into how to keep the highways and byways of the city flowing.

Connected transport harnesses the technology that enables real-time data exchange, to improve decision-making for transport assets and traffic management, leading to better outcomes for residents, businesses, and local communities. The use of sensor and communication technologies is connecting more road networks, and this will provide more data to support technologies that will enable authorities to better manage traffic and emergencies, support connectivity, and enable better interaction between road users, vehicles and infrastructure.

A connected EV infrastructure

Another future transport trend is the growth of electric vehicles which is leading to more vehicle users requiring adequate access to charge points. Electric vehicles help increase air quality and reduce emissions but there's a shortage of charging points.

Location intelligence can be used to identify accessible locations where electric charging points for electric vehicles can be installed.

Demand for charging points will grow in residential areas, on motorways, in car parks, for city hotspots and remote communities. Electric fleets also require large-scale charging facilities.

Provision for this requires considered mapping, integrating location with access to the grid.

Forecasted Electric Vehicles

10 million by 2030

48% CAGR 2020–2030

Forecasted number of charge points

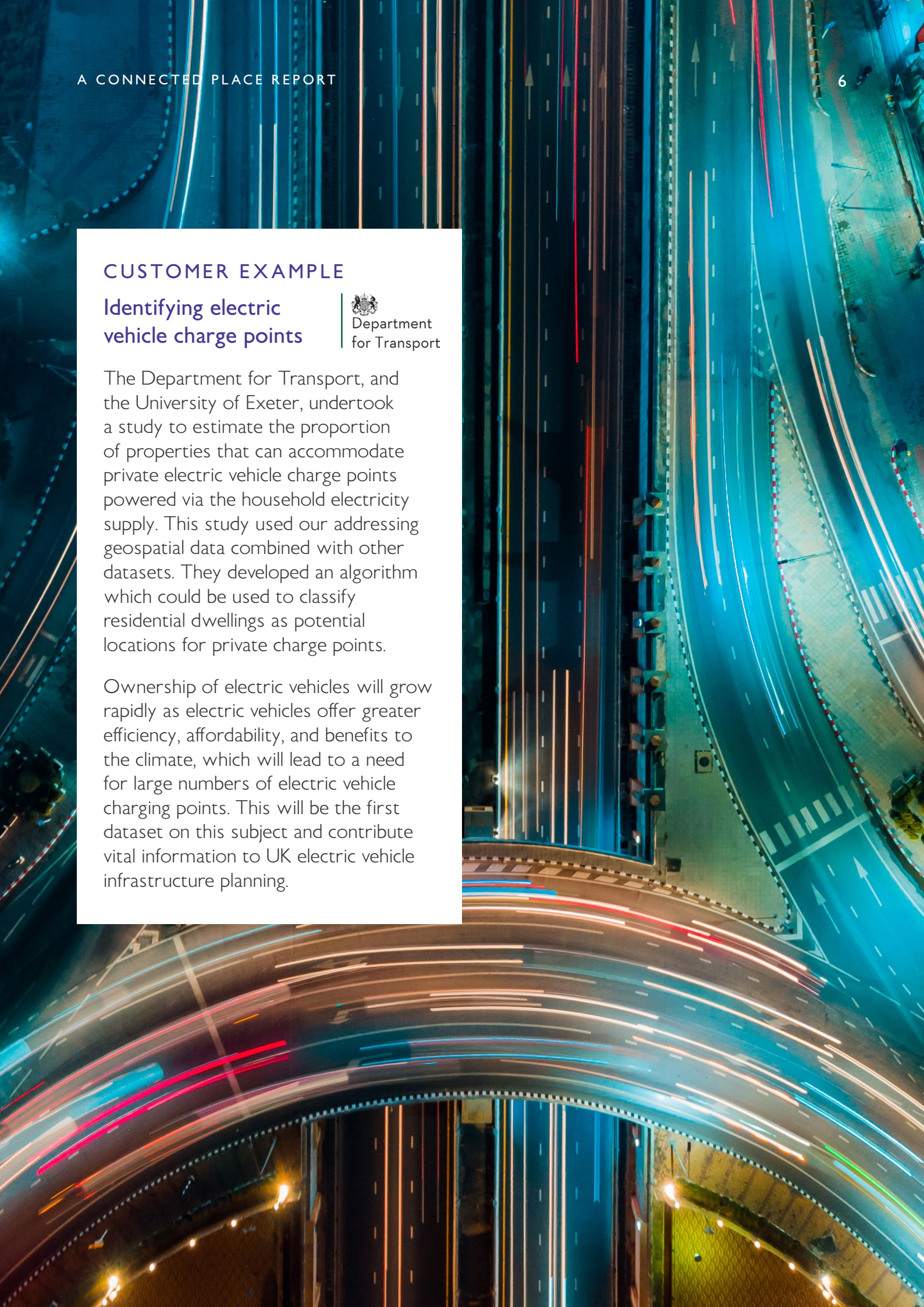
2.3 million by 2030

51% CAGR 2020–2030

UK EV sales in 2021 resulted in a

15% reduction

volume weighted average Co2 emissions YoY variation



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Identifying electric vehicle charge points

Department for Transport

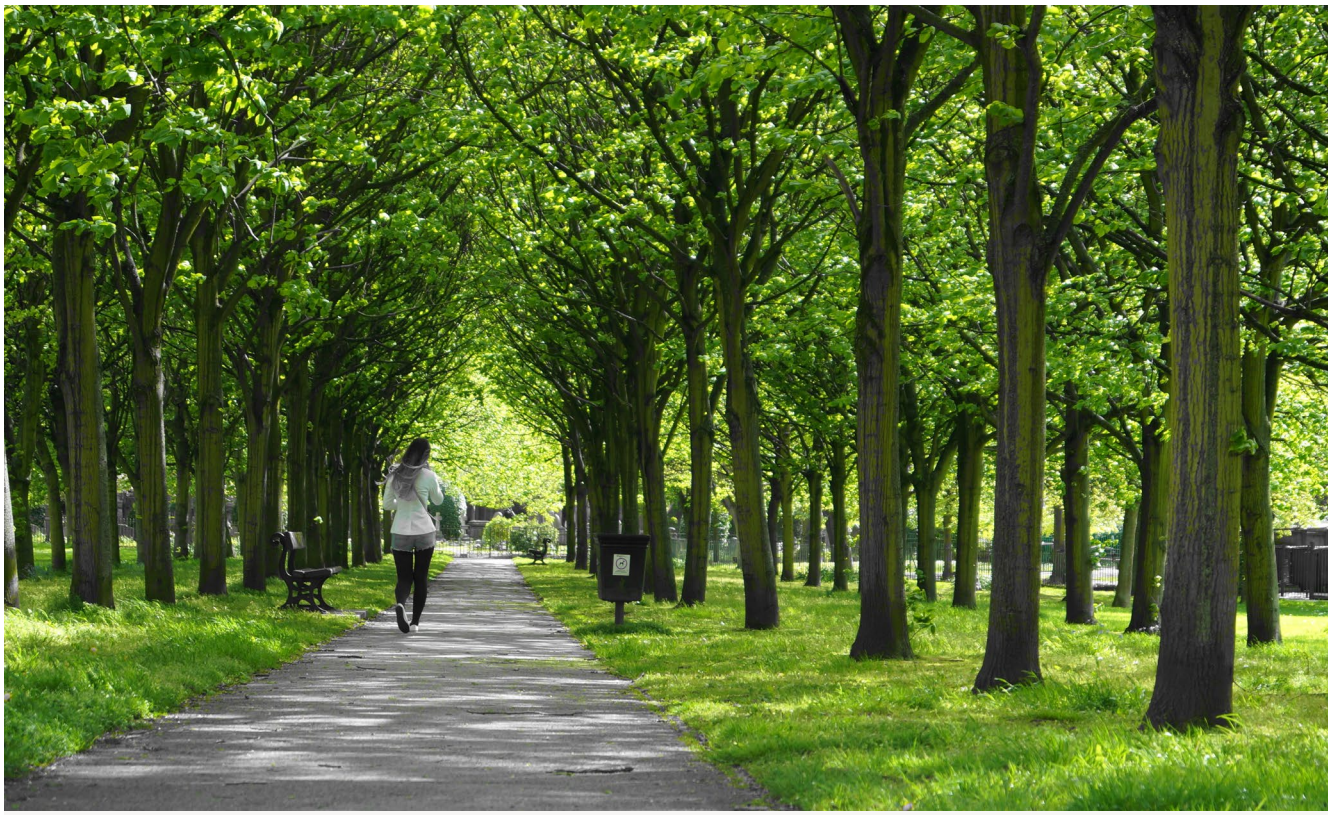
The Department for Transport, and the University of Exeter, undertook a study to estimate the proportion of properties that can accommodate private electric vehicle charge points powered via the household electricity supply. This study used our addressing geospatial data combined with other datasets. They developed an algorithm which could be used to classify residential dwellings as potential locations for private charge points.

Ownership of electric vehicles will grow rapidly as electric vehicles offer greater efficiency, affordability, and benefits to the climate, which will lead to a need for large numbers of electric vehicle charging points. This will be the first dataset on this subject and contribute vital information to UK electric vehicle infrastructure planning.

Connecting people to services

Services are the beating heart of any community. They provide the lifeblood of a city to its residents, making their movements and interactions seamless and effortless. For services to work effectively, they must sustain the body of people within an urban environment without getting in their way, and must make their lives healthy, easy, and ultimately, happy.

We can speak of services as the 'user experience' of a city. With services that provide a great user experience, citizens are free to grow in their lives, to innovate, to socialise, to raise their families, to be happy in their environment and to want to show it off.



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Greenspace is the urban ecosystem – protecting our biodiversity, our physical and our mental health.

Greenspaces are also, according to Scotland's parks and greenspace charity, greenspace scotland, a potential source of local green energy.

ParkPower is a Scotland-wide programme, led by greenspace Scotland, exploring the contribution parks and greenspaces can make to decarbonising the energy system.

As well as supplying heat to homes and businesses, it is hoped that any operational schemes could also provide an income stream to reinvest back into the greenspaces – and the community groups helping maintain them – further helping protect these valuable public assets.

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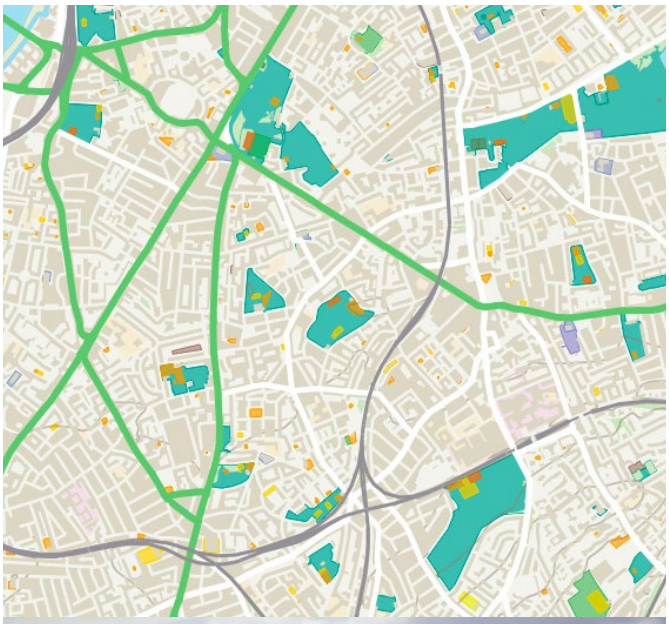
The importance of green outdoor spaces in relation to health and wellbeing is clear. What is also apparent is that deprived areas are also less likely to have access to green space and gardens.

In an effort to begin to remedy this, Ordnance Survey was approached by the Department for Levelling Up Housing and Communities (DLUHC) to provide evidence that budgets for green space were being allocated in the right areas.

OS used data from ONS, which allowed them to hone in on certain areas. With that knowledge and what counts as accessible having been established, the methodology quickly took shape.

Using location intelligence, OS was able to show accessible current green space as well as shining a light on accessible areas where new parks could be created.

Ministry of Housing, Communities & Local Government



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As a key player in the property sector, Zoopla are invested in discovering and implementing new ways of improving their data quality; anything which might help reduce fall-throughs, speed up conveyancing, smooth the sales processes, and ultimately, optimise their services.

The use of location data, and robust and accurate addressing system in place, can enable accurate links between properties and their owners.

Zoopla invested heavily in OS's location data to improve property data by harnessing the AddressBase Premium as its core database. Zoopla have commented that the use of Unique Property Reference Numbers (UPRNs) and having that robust and accurate addressing system in place, enables accurate links between properties and their owners; as well as anyone else involved in the property lifecycle (lenders, agents, conveyancers) to reduce time and optimise the purchasing process.

By optimising the completion process, Zoopla can provide a smoother service to their customers, and focus on the near-term benefits to property searches. In short, Zoopla's dedication helps users have a better chance of choosing the home that is right for them; and move in, in less time.

CUSTOMER EXAMPLE

How location intelligence supports police work

Cleveland Police is using location intelligence to meet the challenges of policing. Visualising and analysing maps and data is helping local police officers understand, and respond to emerging issues around demographics and crime trends. Its also providing situational awareness and understanding of live incidents, crime and much more in the community.

The Command and Control Room is putting its real-time data feeds over OS mapping platforms so that resources can be deployed efficiently. With detailed maps a range of feeds can be integrated including live traffic, aerial imagery, detailed addressing and much more.

The OS Maps API provides a direct automatic update, so Cleveland Police are always using the most up to date mapping information, removing the need for frequent manual downloading and processing of location data.

CUSTOMER EXAMPLE

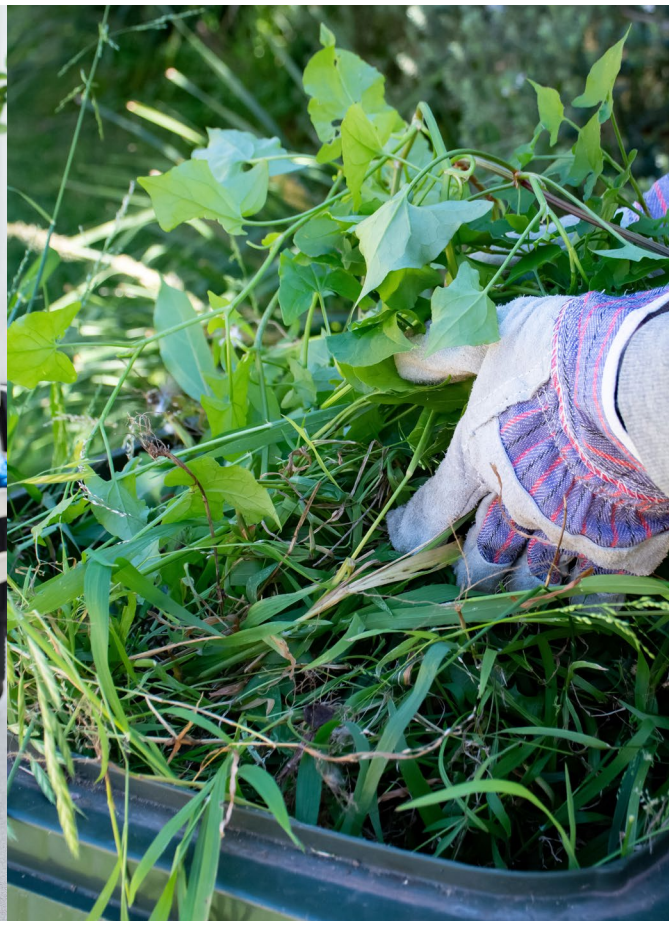
Northumberland County Council

Northumberland County Council has increased levels of recycling and reduced vehicle costs – simply by optimising its garden waste collection routes with location intelligence.

Using OS location data, alongside route optimisation software, the collection routes were made as efficient as possible.

Central to the process was OS location data which includes road routing information, such as turn restrictions and no-entry instructions, impacting where and when a waste collection vehicle can travel.

The council can now easily identify the location of all homes using the garden waste collection service. The overall impact has led to savings in excess of £200,000 per year and reduced travel by council vehicles by 1,700 miles – decreasing CO2 emissions by 9.15 tons every year.



Connecting people to infrastructure

Infrastructure is the backbone of a city. It is the foundation upon which everything else can be built, and so should be resilient and adaptable.

Infrastructure has a dual function – to meet present moment concerns, required for the day-today functioning and wellbeing of its citizens, covering fundamental elements such as roads, waste, water, power and communications. Its second but equally important role is forward-looking, planning for the sustainable city of tomorrow, today.

A more considered, well-built city today is best placed to deliver a smarter, more digitised one tomorrow.

Establishing a strong framework

The foundations of any urban environment are transport, waste, water, power and communications; without them, cities simply grind to a halt. Rapid urbanisation, however, has raised questions around such key infrastructure like never before. Half the world's population live in cities today and this is set to increase to two thirds by 2050, with people driven by the employment opportunities, living standards, and access to services afforded by urban living.

Having a planned infrastructure – pre-emptively installed during housing construction – is up to three times less expensive than a retrospective one, where it is required to work around or demolish existing infrastructure first. Importantly, it enables a city to best meet twenty first century needs head on, rather than seeking compromises.

A considered, connected infrastructure, that recognises and caters for the likes of new demands on mobility, such as electric vehicles, sustainable transport, the reduction of air pollution and carbon efficiency, also doesn't go unnoticed by residents or visitors.

With location data, artificial intelligence and aerial or satellite imagery its now impossible to create a customisable base map, or development a 'digital twin' that fits a city's specific requirements.

The case for location data in infrastructure

Good planning is contingent on access to reliable location intelligence. By knowing what assets exist in precise detail, in relation to the citizens, businesses or governments it serves, location data is an exceptionally powerful resource in building urban environments at lower cost, greater efficiency, lower waste, and with much greater happiness to its inhabitants.

Introducing OS Connect

OS Connect from Ordnance Survey helps utilities and telecoms companies solve the challenges they face. It combines our world-class location data, services and expertise, with data and technology from partner organisations to offer comprehensive solutions. All focused on helping our utilities and telcos customers achieve their business priorities, including:

- Better asset management
- Improved customer service
- Driving operational efficiency
- Achieving sustainability and net zero
- Ensuring health, safety and security

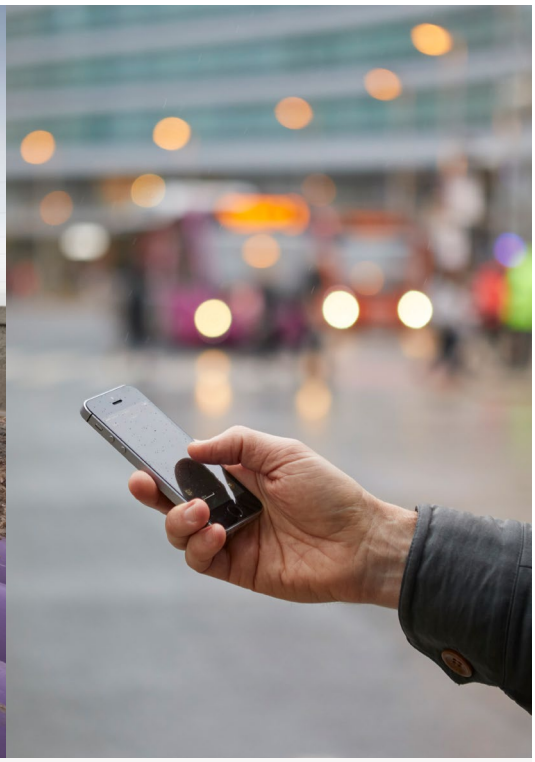
In addition to being a supplier of trusted data, OS has significant depth of location data 'know-how'. We are world-renowned in data modelling and standards.

We are also global leaders in secure location data sharing services and legal and security frameworks. All of this expertise underpins OS Connect. Working with our partner network, we also have access to diverse, rich datasets to combine with our own, along with best of breed technology and solutions that utilise OS data – to create business value.

This what OS Connect is all about. A way of working that is committed to your success through the provision of:

- Professional Services
- Trusted Geospatial Data
- Location Solutions & Services
- Secure Data Sharing

We believe that location data has a huge part to play in addressing the challenges facing utilities and telcos today, but we also recognise that some of these challenges cannot be solved in isolation. So, collaboration is at the core of OS Connect where we work in partnership with our customers and our partner ecosystem to provide the answers you need to drive your business forward, by creating services and solutions that maximise the value of location data.



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Improving national infrastructure planning and building

Geospatial Commission

Ordnance Survey is working with Atkins to build the UK Government's new National Underground Asset Register (NUAR), which is a digital map of underground pipes and cables that could help reduce accidental damage.

The government believes there is huge potential for location data to improve the way that national infrastructure is planned, built and managed, from informing where future gigabit capable broadband and 5G mobile networks need to go, to planning and connecting utilities, and designing new housing developments.

One of the benefits of the NUAR map is to reduce the amount of accidental damage that occurs to existing infrastructure, which costs billions of pounds to the British economy.

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Connecting faster broadband for everyone

Ordnance Survey geospatial know-how has aided the UK government on a mission to bring 'next generation' connectivity to the nation.

When the government announced it was investing £5 billion to deliver super-fast broadband to homes and businesses all over the UK, Ordnance Survey was asked to help model the roll-out plan in rural areas, by government agency Building Digital UK (BDUK).

Location data showing roads and paths was combined with OS datasets on addressing, routes and buildings. This was added to BDUK's data, along with information from third-party suppliers. Taking all this, and then using mapping techniques, a much richer, visual picture of the country could be created.

The visual model was powered by Unique Property Reference Numbers (UPRNs). This data is far better than relying on postcodes, which are far too broad and can include up to 100 properties within them. UPRNs are more granular and serve as a unique identifier for an addressable location – whether that's a building, a house, or an individual flat in a block.

Building
Digital UK

CUSTOMER EXAMPLE

Faster, better internet

Location data gives Ofcom an accurate picture of where people are, and what services are available in different parts of the UK – to help make communications work for everyone.

Having a clear picture of the coverage and performance of the UK's networks is crucial to its work in helping bring better broadband and mobile services to people. Using OS location data helps provide the detail about broadband services available to different parts of the country. It also means detailed data – offering people, businesses and others an insight into how broadband services compare across the UK.

Working with location intelligence has given Ofcom the ability to identify 'service delivery addresses'. This improved data matching between customers and services providers, and the ability to accurately assess mobile and internet connectivity for all UK homes and businesses.

The path to a connected world

Location intelligence offers above all else, opportunity. Specifically, the opportunity to build new kinds of communities. Ones which put the beating heart of them – their people – at their very centre.

Realising this new kind of city requires understanding what currently exists, what has previously worked and what innovations can be achieved that improve on everything that has gone before. It is critical that this data offers feedback loops in real time, rather than months or years. Ordnance Survey, helps make this necessity a reality.

Location data by Ordnance Survey is comprehensive, precise, flexible, usable, and current. It is the data upon which you can lay the strongest of foundations to connect people to services, and deliver the fulfilling, quality of life for citizens.

Ordnance Survey, is the collaborative partner to help you build a more connected, citizen-centred and productive future.

To speak with an expert from Ordnance Survey about your project, email us at: osconnect@os.uk

Bring your solutions to life with OS data and APIs

Get started for free and benefit from the power of location by incorporating Great Britain's most comprehensive geographic data into your applications.

Visit the OS Data Hub

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