

Open growth
Stimulating demand for
open data in the UK



Contacts

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Why is data so important?

Background

Data has been referred to as the new raw material of the twenty-first century. And like any other raw material, it needs investment to locate, extract and refine it before it yields value. Used wisely, data creates opportunities for organisations to make more robust decisions, uncover cost savings and get to know their customers better.

As defined by opendefinition.org, “a piece of content or data is open if anyone is free to use, reuse, and distribute it – subject only, at most, to the requirement to attribute and share alike”. In 2009, the UK Government, among several other national and regional governments around the world, started to open up large amounts of public sector information. At first, the Government’s initiative gave citizens and the media the chance to uncover poor performance or behaviour. And while transparency remains a fundamental aim, open government data also has an important role to play in the economy, supplemented by a small but growing volume of data made freely available by businesses and individuals.

Open data, employed in combination with open platforms, such as APIs (Application Programming Interface), open standards and open licences, expands the network of minds and unlocks the data’s latent potential. However, the companies and entrepreneurs using open data need to be nurtured and supported if they are to succeed.

About this document

This short briefing note summarises elements of Deloitte LLP’s ongoing research programme into open data, which is being conducted in collaboration with the Open Data Institute.

The research programme has collected broad anecdotal evidence and some discrete statistics about open government data. Collectively these provide an indication of the value that open data can bring to the UK’s economy, and demonstrate that business use of open data is growing. However, the unequivocal quantitative evidence of economic benefit that the programme has sought is not yet available. Deloitte LLP will continue to track and analyse such quantitative measures as the open data marketplace develops over the coming months.

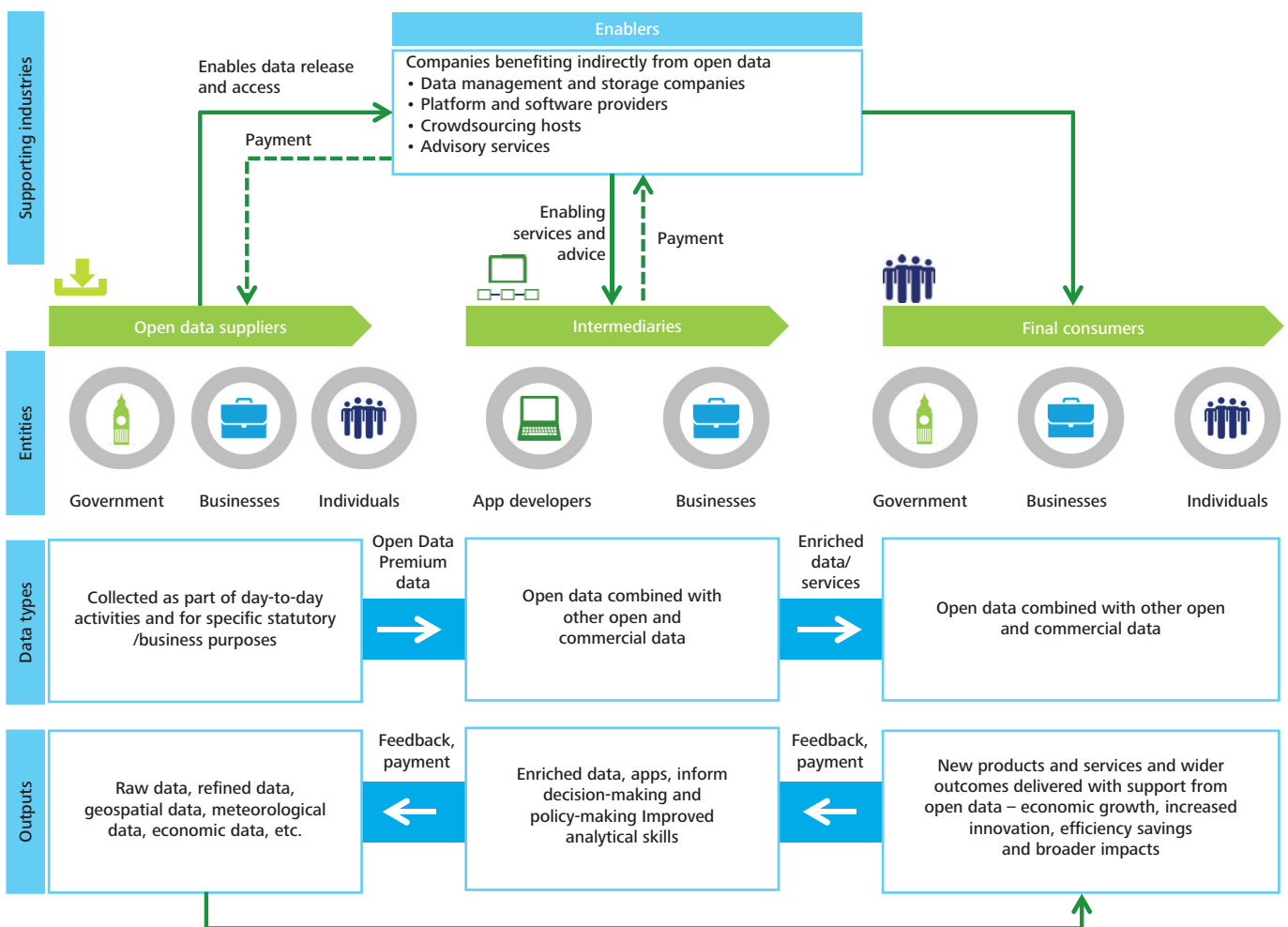
Therefore, this briefing note defines the basic business models that are beginning to emerge, and how the current supply of and demand for open government data may be benefitting different sectors of the economy.

Emerging business models

The open data 'marketplace'

The open data 'marketplace' – populated by a growing number of interdependent organisations supplying and consuming open data and services derived from it – is simultaneously simple and complex. On the one hand, the chains between suppliers of open data and demanders of services are short. On the other hand, almost every entity can link to every other entity, and key roles can also be played by any combination of individuals, businesses and public sector bodies.

Figure 1. The emerging open data 'marketplace'



Source : Deloitte LLP/ODI

This combination of simplicity and complexity, coupled with the rapid growth in the availability of open data is what makes many new business models possible.

Business model 'archetypes'

From a list of more than 230 companies and not-for-profit organisations in the UK and overseas, a number of common business models have been identified. Five such emerging 'archetypes' are:

- 1. Suppliers** – organisations that publish their data via an open interface to allow others to use and reuse it. Examples include public sector bodies and also private sector companies, such as Enel, the Italian power company. Although direct revenues from the publication of data are nil, the broad business benefits of greater transparency may lead to increased levels of customer engagement and loyalty, and a further boost to revenue from reputational enhancement. Wider economic, societal (public good) and environmental benefits may also result from greater access to the data, such as the benefits of reduced congestion through better coordination of road works and greater public access to works information made possible by the publication of data on roadworks.org from ELGIN.
- 2. Aggregators** – organisations that collect and aggregate open data and, sometimes, other proprietary data, typically on a particular sectoral theme, find correlations, identify efficiencies or visualise complex relationships. Examples include Duedil, which is a supplier of company intelligence, and Placr and Locatable, which provide personal transportation and location intelligence, respectively. These insights are subsequently provided as value-added services to businesses and consumers, and also, in some cases, back to government. While 'freemium' pricing can be used (basic data is provided for free while premium data is charged for), this is by no means the only revenue-earning mechanism. Many data marketplaces charge subscription fees for access to their unique insights; some also charge suppliers to publish their data, have a pay-per-use pricing model for API access or earn revenue from advertising.
- 3. Developers** – organisations and software entrepreneurs that design, build and sell web-based, tablet or smartphone applications for individual consumption. Such applications typically use more dynamic types of open data, which are updated frequently. Examples include the myriad personal transportation planning applications for web, tablet or smartphone, which use real-time data from London's over ground and underground transport networks.
- 4. Enrichers** – organisations (typically larger, established businesses) that use open data to enhance their existing products and services through better insight. Such products and services are not entirely dependent upon open data. Examples include insurers and retailers seeking to use open data to gain a better understanding of their customers' risk profiles and demographics. While revenues do not come directly from open data, businesses can save money by using it to make their operations more efficient or can increase sales or premium rates for higher quality products and services.
- 5. Enablers** – organisations that facilitate the supply or use of open data, such as the competition website Innocentive, but are not themselves users or re-users of open data. Such business models are directly revenue-generating and also encourage greater supply of open data by providing cost-effective solutions for businesses that may not have the funds to invest in bespoke platform developments or data analytics.

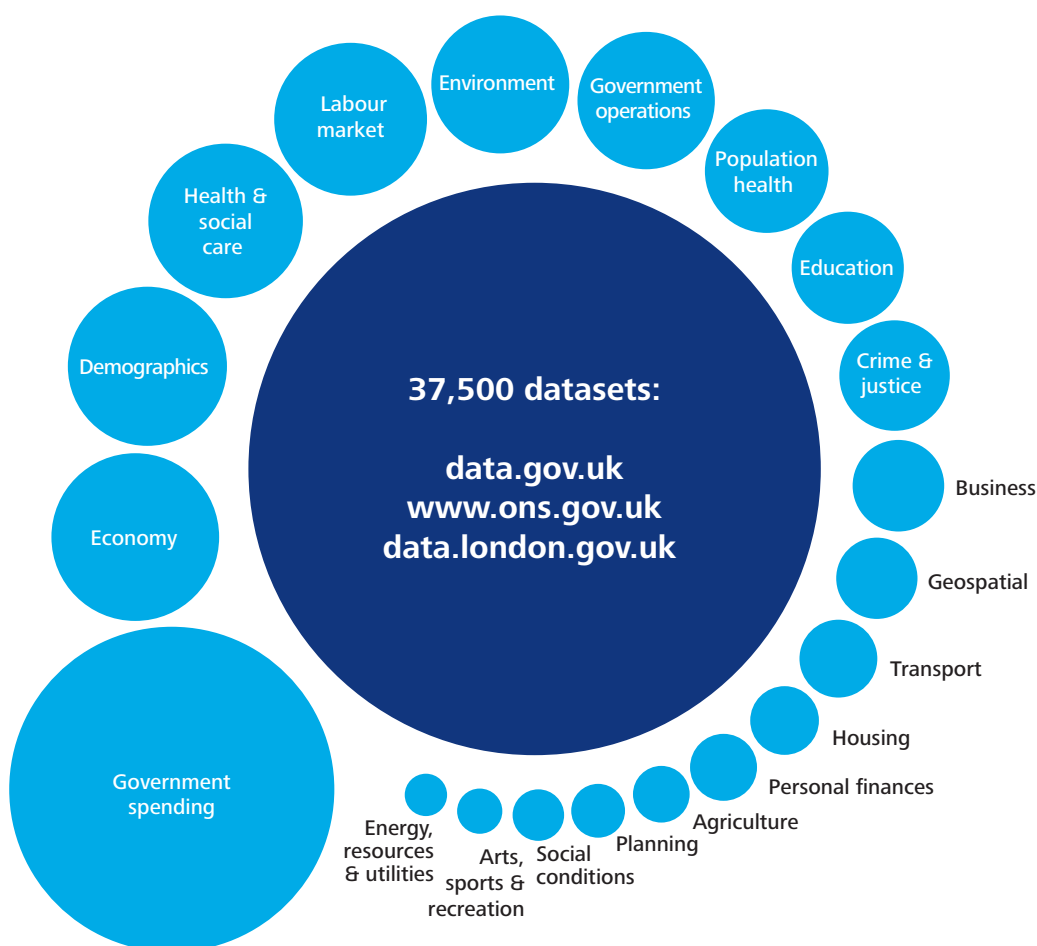
Understanding supply and demand

The supply of open data

While some businesses and individuals are now publishing open data, this briefing note necessarily limits its analysis to the publication and reuse of open government data where supply and demand statistics are more readily available.

Figure 2. What categories of open government data are available?

The current supply of open government data was measured by counting the number of datasets available to businesses on the UK's three largest open data portals: <http://data.gov.uk>, <http://www.ons.gov.uk> and <http://data.london.gov.uk>. When compared with the central bubble in the diagram, the area of each surrounding bubble is proportional to the number of datasets of that category which are available.¹



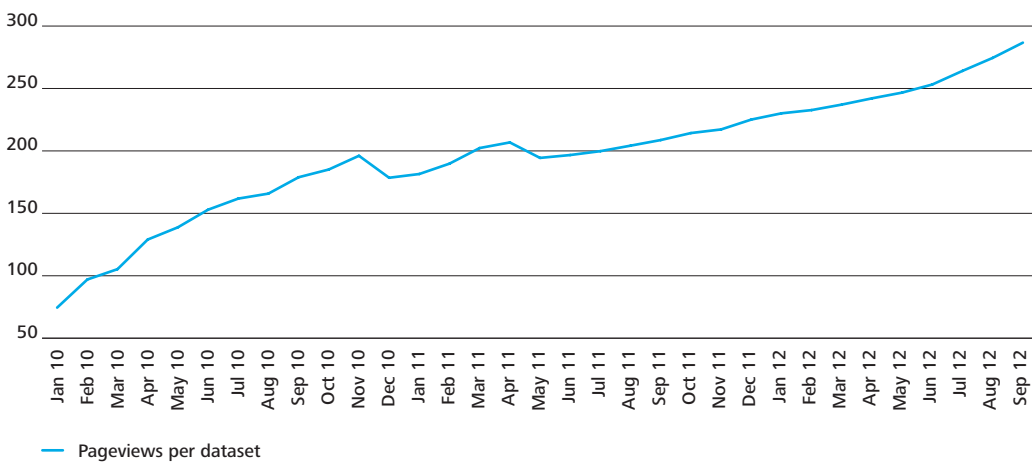
Source: data.gov.uk, www.ons.gov.uk, data.london.gov.uk, Deloitte LLP/ODI analysis

¹ Since data.gov.uk provides links to official open data sources rather than the raw data itself, the number of datasets is determined by counting the number of links to a unique data resource.

The demand for open data

The demand for UK open government data appears to be increasing. For example, between January 2010 and September 2012, the average number of page views per dataset on data.gov.uk increased by 285 per cent, and the number of ‘clicks’ on download links increased by 166 per cent, despite total dataset numbers increasing from 2,879 to 8,675.

Figure 3. Average level of demand for open data on data.gov.uk



Source: data.gov.uk, Deloitte LLP/ODI analysis

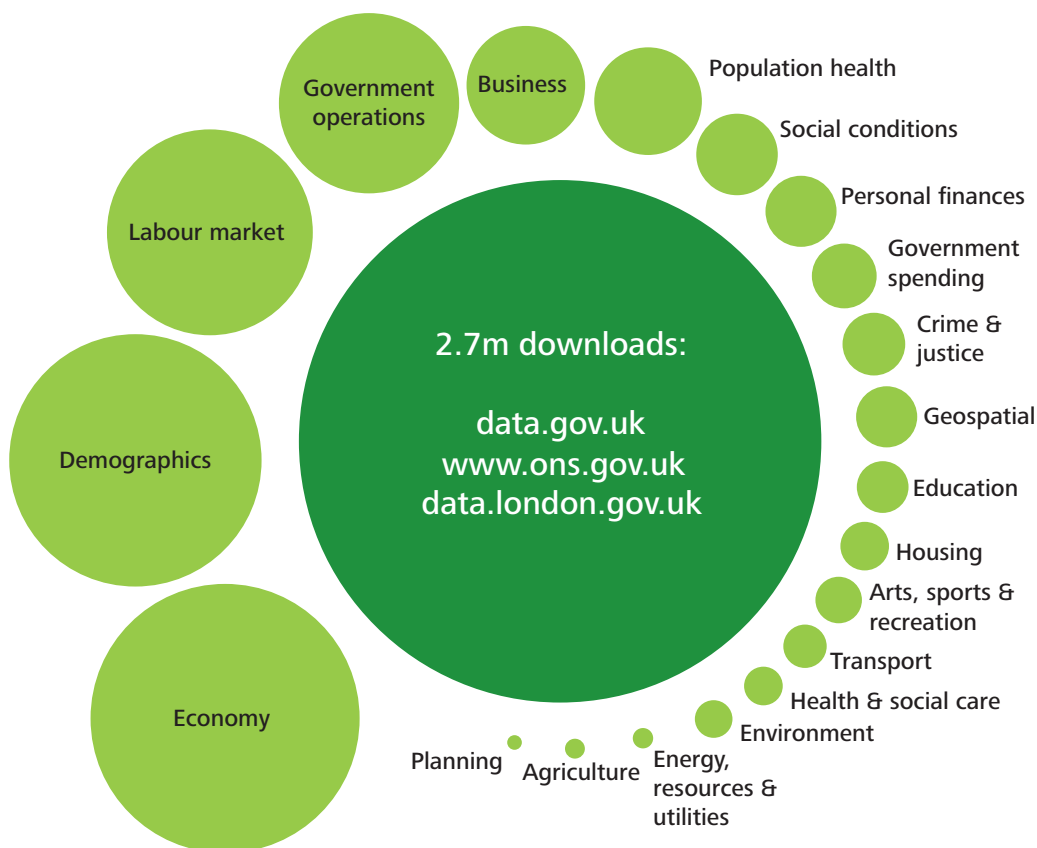
Between January 2010 and September 2012 there were over 826,000 clicks on download links on data.gov.uk. However, it is only since June 2012 that data.gov.uk has been instrumented with analytics that enables the number of download clicks for each category of data to be measured. Furthermore, some types of data referred to on data.gov.uk, such as real-time transport data covering London, or crime statistics, are provided to users via open APIs that are hosted elsewhere. Demand for these types of data is very high, with anecdotal evidence suggesting that there are over one million calls on the API for London’s transport data every day. Overall, drawing conclusions about aggregate levels of demand for different categories of open data is difficult. Nevertheless, this briefing note attempts to form a view of the relative share of downloads achieved.

What is clear is that demand is not uniform. For example, despite the fact that nearly 33 per cent of open datasets available on the UK’s three largest public sector portals describes government spending, this represents only 1.5 per cent of all downloads that have been counted.² The relative demand for different data categories is shown in Figure 4, and is dominated by data from the ONS.

² A download is counted as a click on a download link on each of the three main portals.

Figure 4. What types of open government data are in demand?

The current demand for open government data was measured by counting the number of download ‘clicks’ on data.gov.uk, www.ons.gov.uk and data.london.gov.uk. When compared with the central bubble in the diagram, the area of each surrounding bubble describes the number of downloads of datasets of that type.³



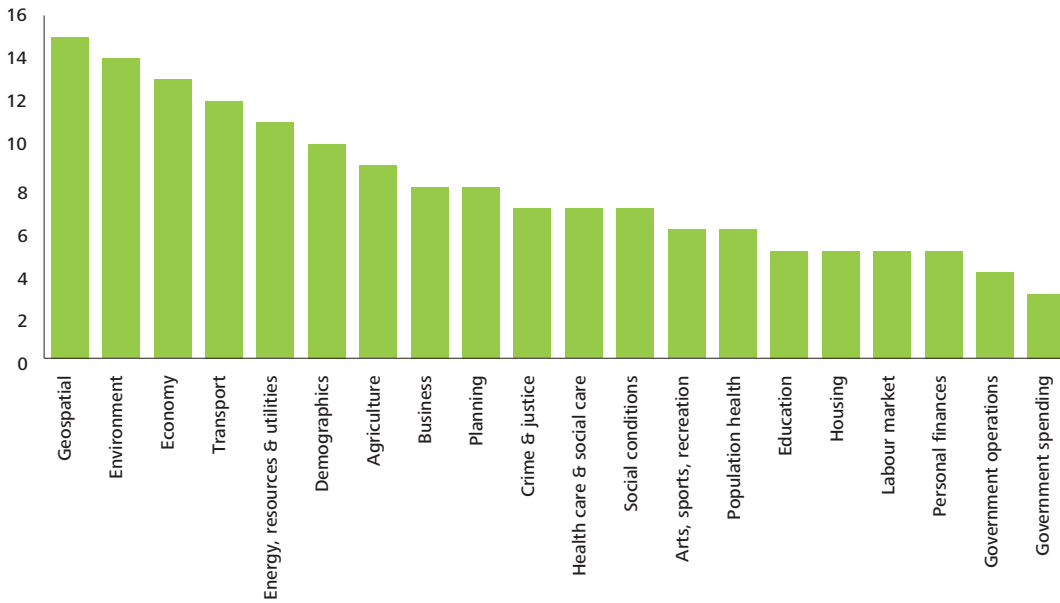
Source: data.gov.uk, www.ons.gov.uk, data.london.gov.uk, Deloitte LLP/ODI analysis

A single data category may have applicability to more than one sector of the economy, and vice versa. For example, geospatial data, or data about the economy or the environment has relevance to most sectors, whereas data about government operations is of particular interest to the public sector and the media, for instance, but is of only limited interest elsewhere. By mapping this potential applicability, informed by studies of UK companies and other anecdotal evidence, the extent to which different data categories could be used by sectors of the economy can be charted, as shown in Figure 5.

³ Since data.gov.uk provides links to official open data sources rather than the raw data itself, the number of datasets is determined by counting the number of links to a unique data resource.

Figure 5. Which categories of open government data are most widely applicable?

Number of sectors to which the data is applicable

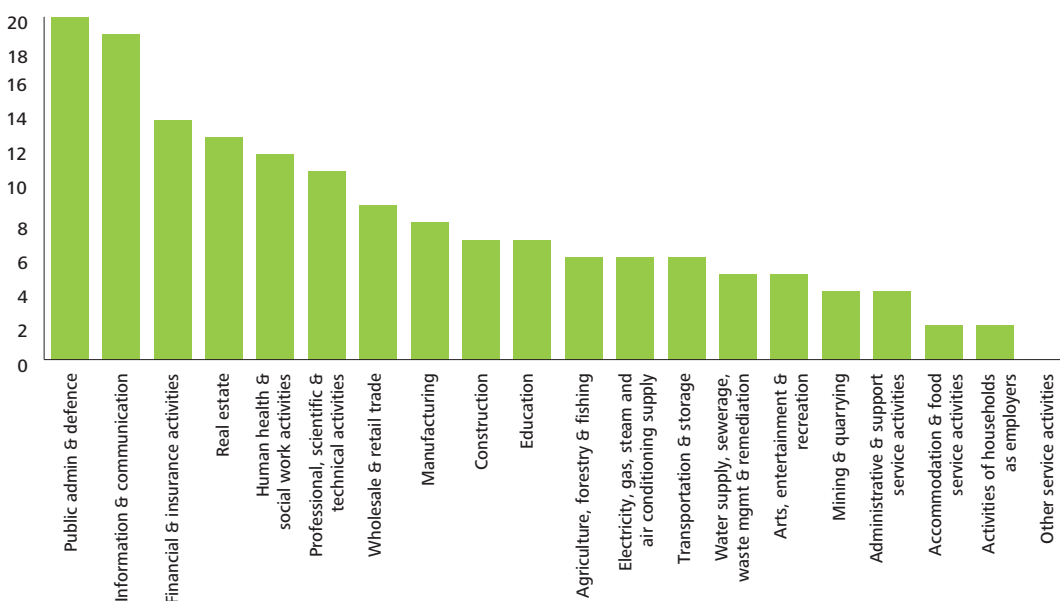


Source: Deloitte LLP/ODI analysis

An equivalent chart showing the extent of the perceived opportunity for different sectors of the economy is shown in Figure 6.

Figure 6. Which sectors of the economy can use most categories of open government data?

Number of data categories that are applicable



Source: Deloitte LLP/ODI analysis

It should be noted that the values in Figure 6 do not by themselves equate to economic benefit, since different categories of open data may have very different levels of economic value to the sectors. Instead, it provides an indication of the business opportunity that exists for different sectors based on all possible categories of open data being available.

However, with some caution, the number of downloads can be used as a proxy indicator of demand, which is indirectly linked to economic benefit. Even so, detailed quantitative estimates of economic impact can then only be established if such demand can be positively correlated and causally linked to conventional measures of economic output per sector, such as Gross Value Added (GVA), or through nationally representative surveys and assessments of case studies. Estimates are made more difficult because the precise use or ultimate re-use of the data after it has been downloaded cannot always be established. Furthermore, demand for some categories of data may be as a result of the Government's transparency objectives or for wider public good rather than for business benefit.

Notwithstanding these issues, and in lieu of having sufficient statistics to establish such correlations, analysing the number of available datasets per category provides some indication of the extent of the opportunity for different sectors. Looking at actual supply gives a sense of the breadth of sectors the data is relevant to and the scale of data they could be considering. Similarly, analysing levels of demand provides some indication of the scale of data different sectors of the economy are likely to be benefiting from – based on actual downloads of different categories. Discrepancies that emerge from such analysis, especially where the supply or demand fall short of expectations, give some sense of which sectors could potentially benefit more.

Thus, within the limitations of available evidence and analysis, the sectors that do not appear to have access to either the full breadth of data categories or quantities of open government data are:

- Real estate activities
- Wholesale and retail trade
- Construction
- Financial and insurance activities
- Education
- Transportation and storage
- Arts, entertainment and recreation

And, based on current downloads, the sectors that do not appear to be demanding either the full breadth of data categories or quantities of open government data are:

- Real estate activities
- Public administration and defence
- Information and communications
- Construction
- Professional, scientific and technical activities
- Arts, entertainment and recreation
- Accommodation and food services

From the perspective of 'supply and demand', the key link between many of the sectors in both of the above lists is the consumer (or the citizen). This means that, on balance, these sectors will benefit most from open government data that has direct relevance to consumers, and stimulating interest from consumer-driven businesses may yield the greatest economic impact.

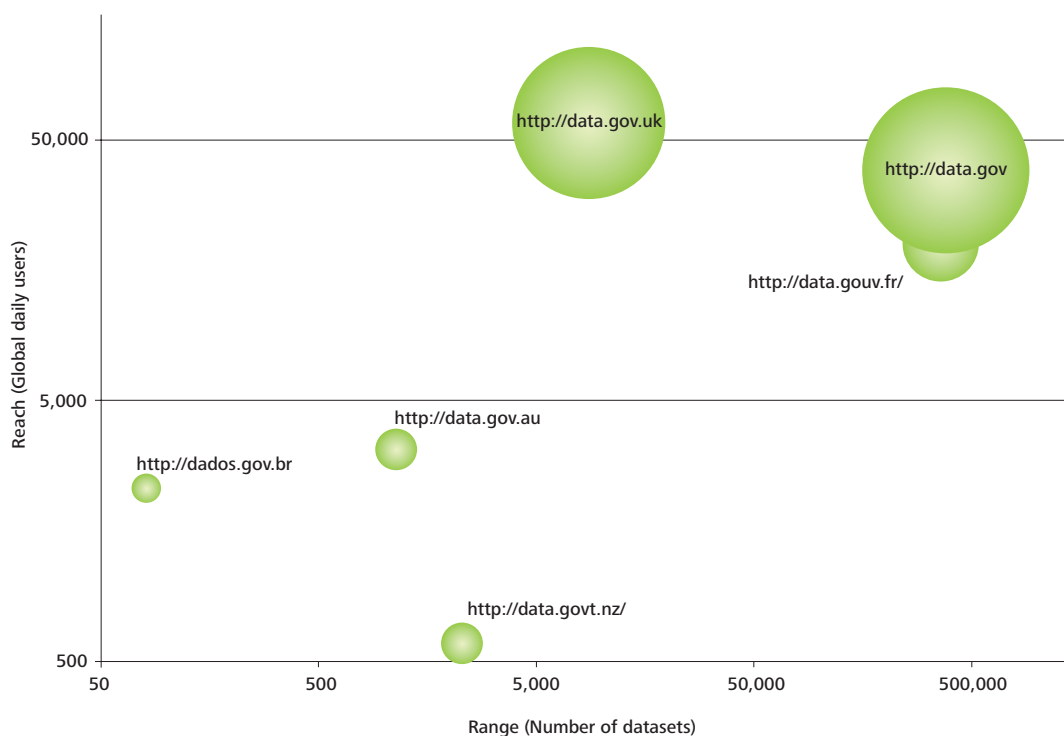
UK leading the world

Quality over quantity

The UK is leading the world on open data. For example, Figure 7 shows the range (number of datasets) versus the reach (number of global daily users) for a number of national open data portals around the world. The size of each bubble is proportional to the relevance (the number of links to the portals from other sites).

Although the UK does not have the same quantity of data as open data sites in the US or France, in the period studied, data.gov.uk received more daily visits than either of these, and also benefits from a similar number of external links pointing to the site.

Figure 7. Quality over quantity



Source: data.gov.uk, Alexa.com, Deloitte LLP/ODI analysis

Despite having a leading position, the open data market in the UK is still relatively immature. The quantitative effects of early open data initiatives diffusing through the economy are yet to be seen. Several estimates of the economic impact of open data have already been made, but most lack substantive evidence and are more qualitative in nature. Therefore, if government portals, such as data.gov.uk, were instrumented so that more information about the demander of the data could be recorded (such as sector or company size) and more use cases or data citations were reported, then future estimates of the economic impact could be made more robust.

The beginning of an exciting journey

It is apparent from the available evidence that the open data initiative in the UK has started well. The quantity and breadth of open government data being made available for businesses to use is increasing rapidly. And interest in and demand for the data is on the rise. While opportunities remain to further increase the potential and use of open data in certain sectors, the journey to realising economic benefit is only just beginning.

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Disclaimer

This briefing note has been prepared by Deloitte LLP in collaboration with the Open Data Institute. It describes certain elements of work carried out during autumn 2012 as part Deloitte LLP's independent programme of research into open data. The findings are based on data and other information that has been kindly provided to Deloitte LLP by a number of individuals and organisations. Deloitte LLP has neither sought to corroborate this information nor to review its overall reasonableness. Further, any results from the analysis contained in this briefing note are reliant on the information available at the time of writing and should not be relied upon in subsequent periods.

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