ODI

Sharing data to create value in the private sector

Open Data Institute

Contents

About

This report was produced as part of a three-year innovation programme funded by Innovate UK. The views in this report are those of the authors.

This report has been researched and produced by the Open Data Institute (ODI), and was published in March 2020. The lead authors are Josh D'Addario, Leigh Dodds, Walter Brown, James Maddison; ODI.

To share feedback by email or to get in touch, contact the private sector data-sharing project lead, Josh D'Addario. To share feedback in the comments, highlight the relevant piece of text and click the 'Add a comment' icon on the right-hand side of the page.

OPEN FOR FEEDBACK   How can it be improved? We welcome suggestions from the community in the comments.

Executive summary

Businesses can create value by using third-party data to develop new products and services. But our research has shown that they can unlock more value by sharing data they have collected.

A changing landscape of consumer and citizen rights, and expectations over privacy and data portability, require businesses to improve how they access, use and share data. This creates both new challenges and new opportunities.

Increasingly competitive markets and complex supply chains require businesses to rethink how they drive innovation; they can no longer expect competitive solutions to solely come from their internal teams.

Use of artificial intelligence and machine learning is leading to increased demands for data, which can be costly for individual organisations to collect and maintain. The changing climate puts pressure on businesses across sectors, requiring them to adapt to common challenges.

This report summarises our research exploring how businesses across a range of sectors are sharing data in ways that directly and indirectly deliver value.

Sharing data can assist companies in increasing revenue, reducing direct costs, and improving efficiency in operations. Our research has highlighted seven key business benefits of sharing data: improving market reach; supporting benchmarking and insights; driving open innovation; driving supply chain optimisation; embracing regulated data sharing; addressing sector challenges; and building trust. Further research may identify additional benefits.

In this report we explore how commercial organisations participate in data ecosystems, the variety of challenges facing businesses, and describe the seven types of value creation. A series of case studies provide real-world examples of businesses that have successfully adopted each approach.

Supporting businesses to unlock the value of data – in ways that will help address a variety of social, environmental and economic problems – requires action by a range of stakeholders.

Businesses must work together to create a stronger data infrastructure that supports the data sharing across sectors. There is a role for professional bodies and industry groups to convene businesses and explore the benefits of sharing data and encourage collaboration. Governments need to continue to explore ways to both incentivise and require businesses to increase access to data that can create wider benefits.

In short, businesses, governments and professional associations need to work together to build an open, trustworthy data ecosystem that maximises the value of data, while mitigating potential harms.

Introduction

Businesses around the world are rushing to unlock value from ever increasing volumes of data.

The European Commission has estimated that the European Union (EU) data economy was worth €300bn in 2016, and estimates that this will increase to €739bn in 2020[1]. McKinsey has projected that data-enabled applications of artificial intelligence (AI) will generate $13tn in new global economic activity by 2030.[2]

The routine collection of data from digital services and products, cheap sensors, increasing connectivity, and easy access to large-scale computing platforms, are enabling businesses of all sizes to create new products and services, and become more data-informed. However, skills and expertise are becoming limiting factors.

The growth of data collection in the private sector

Historically, this ability to collect detailed data about our society, economy and environment was restricted to national governments and agencies. But this capability is now accessible to many businesses, through routine data collection from their products and services, or by collecting and combining data from multiple sources.

Google and Apple are now creating some of the world's most accurate and widely used maps,[3] outstripping the capabilities of national mapping agencies. The Weather Company, among others, is competing with national meteorological services for a share of the weather data market.[4] Social networks and digital advertising networks are collecting large amounts of demographic data about individuals, including profiling their social and economic activities.[5]

Analysis of the growth of the data economy and, in particular, the potential impacts of the open data movement, have tended to focus on the untapped potential of government data, with the private sector playing a role in unlocking that value. For example:

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[1] European Commission (2017), 'Final results of the European Data Market study measuring the size and trends of the EU data economy', https://ec.europa.eu/digital-single-market/en/news/final-results-european-data-market-study-measuring-size-and-trends-eu-data-economy
[2] McKinsey (2018), 'Notes from the AI frontier: Modeling the impact of AI on the world economy', https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy#part1
[3] Open Data Institute (2018), 'The UK's geospatial data infrastructure: challenges and opportunities', https://docs.google.com/document/d/17tPPEi4HHkSkSiLfhp7FkMakx11slHAoo58v729yU7k/edit#heading=h.iajg2z7wdbnj
[4] Open Data Institute (2017), 'The state of weather data infrastructure – white paper', https://theodi.org/article/4021/
[5] The Guardian (2018), 'Are you ready? Here is all the data Facebook and Google have on you', https://www.theguardian.com/commentisfree/2018/mar/28/all-the-data-facebook-google-has-on-you-privacy#

- The $3tn per year valuation of the open data market by McKinsey in 2013 centred on the value of combining open government data with shared data held by businesses.[6]
- In 2014, Lateral Economics estimated that the potential value of open data to the G20 would be around $2.6tn a year, contributing to aggregate the group's cumulative gross domestic product (GDP) of around 1.1% from 2014–2019, or 55% of the G20's 2% additional growth target.[7]
- In 2020, the European Data Portal estimated that the value of open data for the EU28+ was €184bn in 2019, and forecast it to reach between €199.51 and €334.21bn by 2025. The report also looked at employment figures, with 1.09 million open data employees in 2019 and 1.12 to 1.97 million open data employees forecast by 2025.[8]
- Transport for London has reported that use of its open data has allowed private sector companies to contribute between £12m and £15m per year to the London economy.[9]

With private sector collection of data now outstripping that of governments, greater attention is being paid to the need to increase access to data held by commercial organisations.

Continued growth of the data economy requires increased sharing of data between businesses, and between businesses and government. Data needs to flow across all actors, in order that its use can create economic, social and environmental value.

Supporting sharing of data across the private sector

To facilitate access to data, governments are exploring ways to address the need to increase access to private sector data.

One approach has been through regulation, for example, open banking[10] and related regulations in the banking and finance sectors. Policymakers in cities around the world are looking to introduce regulations that allow them to access data held by ride-sharing companies, to inform transport policies.[11]

But, while regulation can require sharing of data, other approaches are needed to ensure that sharing data can be routinely carried out under beneficial terms, while ensuring it is used in safe, ethical ways that minimise harms.

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[6] McKinsey Global Institute (2013), 'Open data: Unlocking innovation and performance with liquid information', https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/open-data-unlocking-innovation-and-performance-with-liquid-information
[7] Lateral Economics (2014), 'Open for Business: How Open Data Can Help Achieve the G20 Growth Target', https://www.omidyar.com/sites/default/files/file_archive/insights/ON%20Report_061114_FNL.pdf
[8] European Data Portal (2020), 'The Economic Impact of Open Data: Opportunities for value creation in Europe', https://www.europeandataportal.eu/sites/default/files/the-economic-impact-of-open-data.pdf
[9] Transport for London (2017), 'TfL's free open data boosts London's economy' https://tfl.gov.uk/info-for/media/press-releases/2017/october/tfl-s-free-open-data-boosts-london-s-economy
[10] Financial Times (2019), 'Open banking: the quiet digital revolution one year on', https://www.ft.com/content/a5f0af78-133e-11e9-a581-4ff78404524e
[11] NYU Wagner (2019), 'E-Hail Regulation in Global Cities', https://wagner.nyu.edu/impact/research/publications/e-hail-regulation-global-cities

Some businesses are routinely sharing data with each other. A 2015 [study of 270 UK companies by the Open Data Institute (ODI)](#) showed that about half used data from non-government sources, including other companies.[12] A 2019 EU consultation of nearly 1,000 small businesses found that a third acquire data from other companies.[13]

However, many businesses are still struggling to see the value of sharing data. A report by the Lloyd's Register Foundation[14] highlighted that businesses in the engineering and construction sectors are still cautious about sharing data. Issues include commercial and legal risks around sharing data, and a lack of clarity around the benefits of sharing data.

The ODI's experience of engaging with our commercial partners,[15] and our user research on what organisations need in order to share more data,[16] reflects this wider uncertainty on both strategic and operational issues.

Frameworks to support legal, ethical and trustworthy sharing of data are clearly necessary. The EU is currently developing guidance to help build confidence around approaches to sharing data across the private sector.[17] The draft guidance includes five principles for business-to-business sharing of data, covering transparency, shared value creation, respect for commercial interests, ensuring undistorted competition, and minimising data lock-in.[18]

The EU-funded Data Pitch project was intended to develop practical insights and drive innovation around sharing data between businesses.[19]

A UK government discussion paper on the economic value of data identified five challenges for the UK economy,[20] and recommended the enabling of safe, legal data sharing, in part by developing repeatable terms for sharing data between businesses, under mutually beneficial agreements.

Other approaches involve exploring the use of a wider set of [data access models](#),[21] like [data trusts](#).[22] Data trusts, inspired by legal trusts, enable people or organisations to share data with others, with data governance decisions made by 'trustees' with fiduciary responsibilities. They represent one kind of 'data institution'; an organisation with some level of responsibility for stewarding data.[23]

[12] Open Data Institute (2015), 'Open data means business',
https://theodi.org/article/open-data-means-business/
[13] European Commission (2019), 'SME panel consultation – B2B Data Sharing',
https://ec.europa.eu/digital-single-market/en/news/sme-panel-consultation-b2b-data-sharing
[14] Lloyd's Register Foundation (2019), 'Insight report on sharing engineering data',
https://www.lrfoundation.org.uk/en/news/insight-report-on-data/
[15] Open Data Institute (2017), 'The value of open data for the private sector',
https://theodi.org/article/the-value-of-open-data-for-the-private-sector/
[16] Open Data Institute (2018), 'What organisations need in order to share more data: our research',
https://theodi.org/article/what-organisations-need-in-order-to-share-more-data-our-research/
[17] European Commission (2019), 'Guidance on private sector data sharing',
https://ec.europa.eu/digital-single-market/en/guidance-private-sector-data-sharing
[18] European Commission (2018), 'Staff Working Document – Guidance on sharing private sector data in the European data economy',
https://ec.europa.eu/digital-single-market/en/news/staff-working-document-guidance-sharing-private-sector-data-european-data-economy
[19] Data Pitch (2020), 'Data Pitch Impact Assessment: our learnings',
https://datapitch.eu/news/data-pitch-impact-assessment-our-learnings/
[20] HM Treasury (2018), 'The economic value of data: discussion paper',
https://www.gov.uk/government/publications/the-economic-value-of-data-discussion-paper
[21] Open Data Institute (2019), 'Mapping the wide world of data sharing',
https://theodi.org/project/the-data-access-map/
[22] Open Data Institute (2019), 'Data trusts: lessons from three pilots (report)',
https://theodi.org/article/odi-data-trusts-report/
[23] Open Data Institute (2020), 'What do we mean by data institutions?',
https://theodi.org/article/what-do-we-mean-by-data-institutions/

But, there is also a need to clearly articulate the business benefits of sharing data. This is the goal of this report.

We explore how businesses are generating value by sharing data with others, including suppliers, partners and even competitors.

We also look at how private sector businesses can unlock value by sharing data.

In the following sections we provide some background on the roles that commercial businesses play in data ecosystems, and the cross-cutting challenges faced by businesses across a range of sectors.

We then document seven ways in which companies create direct bottom-line benefits by sharing data they have collected.

The role of the private sector in data ecosystems

The concept of a **business ecosystem** has been defined as 'an economic community supported by a foundation of interacting organizations and individuals'.[24]

The network of organisations in an ecosystem includes suppliers, distributors, customers, competitors, government agencies, and other organisations involved the delivery of a specific product or service through both competition and cooperation.[25]

The ODI has defined a data ecosystem as consisting of data infrastructure[26] – such as data assets, standards, technologies, policies – and the people, communities and organisations that benefit from the value created by it.[27]

The two terms are closely aligned. The increasing importance of data in business-to-business interactions makes it an important element in understanding the changing forms of value exchange and interactions within ecosystems.[28] An emphasis on data helps bring focus to how the flow of data is essential to value creation.

While businesses can play a variety of roles in a data ecosystem,[29] they broadly fall into one or more of the following:

- **Consumer**. Directly benefiting from consuming third-party data or insights, to improve their products, services and business processes.
- **Intermediary**. Aggregating and sharing data sourced from third parties, to provide data products or insights to downstream consumers of data. Data intermediaries are organisations and individuals located in a data supply chain.[30]
- **Provider**. Publishing data and sharing data with other businesses, communities, individuals or government agencies, to provide insights or enable innovation and collaboration.

To properly understand the value to the private sector of sharing data, we need to consider each of these roles and how use of data enables both new and existing business models.

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[24] Moore (1996), 'The death of competition: leadership and strategy in the age of business ecosystems'
[25] Investopedia, 'What is a business ecosystem?',
https://www.investopedia.com/terms/b/business-ecosystem.asp
[26] Open Data Institute (2016), 'What is data infrastructure?', https://theodi.org/topic/data-infrastructure/
[27] Open Data Institute (2018), 'Mapping data ecosystems: methodology',
https://theodi.org/article/mapping-data-ecosystems/
[28] Gartner (2017), '8 Dimensions of Business Ecosystems',
https://www.gartner.com/smarterwithgartner/8-dimensions-of-business-ecosystems/
[29] Open Data Institute (2018), 'Mapping data ecosystems: methodology'.
https://theodi.org/article/mapping-data-ecosystems/
[30] Web Foundation (2015), 'Open data intermediaries in developing countries',
http://webfoundation.org/docs/2015/08/ODDC_2_Open_Data_Intermediaries_15_June_2015_FINAL.pdf

Data as an enabler of new business models

A data business is a private sector organisation that uses, produces, or otherwise invests in data as a key element of their business model. Accessing, sharing and publishing data are key focuses of their operational activities.

Our research into open data businesses has identified a variety of business models,[31] including:

- **Creating value through publishing**. Cities promote companies like BikeCitizens and Green City Solutions because of the value of the data that they generate and share or publish as a result of their main business of providing bike share programmes and reducing air pollution, respectively.
- **Generating revenue through publishing**. Data businesses can use freemium and cross-subsidy models to generate revenue from publishing open data. Freemium models grant access to open data while introducing premium paid tiers for certain types of access or value-added services. Cross-subsidy models use free open data services to attract customers to other paid-for services, or to generate leads for other business opportunities.
- **Combining data from multiple sources**. Data businesses often rely on various data sources, internal and external, open and shared, to be combined in innovative ways to help customers solve problems.

Business models that have proved to be successful for open source are also relevant to data businesses. For example, service provision, freemium models, collaborative management and cross-subsidies.[32]

A taxonomy of data-driven business models developed by the University of Cambridge[33] identifies six categories:

- **Free data collector and aggregator** – creation and distribution of aggregated data collected from primarily public and open sources.
- **Analytics-as-a-service** – providing analysis of data provided by customers, with insights delivered as data to be used by customers.
- **Data generation and analysis** – creation of new data assets for reuse by others.
- **Free data knowledge discovery** – provision of insights, including recommendations, monitoring and analytics, using public and openly available data.
- **Data-aggregation-as-a-service** – aggregation of internal sources of data, for example about customers, across an organisation.
- **Multi-source data mash-up and analysis** – combining shared, public and open data to provide analytics and insights.

Taxonomies and analyses of this type are particularly helpful in identifying new opportunities and business models within the broader data economy. They are particularly relevant for startups and small businesses developing new products and services within the data economy. But how do we understand the role of publishing and sharing data within existing business models?

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[31] Open Data Institute (2018), 'Data entrepreneurship: exploring successful business models with open data', https://theodi.org/wp-content/uploads/2018/03/ODI_ODINE-2018-1-3.pdf
[32] Jeni's Musings (2012), 'Open data business models', https://www.jenitennison.com/2012/08/20/open-data-business-models.html
[33] University of Cambridge (2014), 'Big data for big business? A taxonomy of data-driven business models used by start-up firms", https://cambridgeservicealliance.eng.cam.ac.uk/resources/Downloads/Monthly%20Papers/2014_March_DataDrivenBusinessModels.pdf

Data as enabler for existing business models

Many companies will not see themselves as 'data businesses', because their primary focus – for example the provision of fitness classes, designing aircraft or delivering manufactured components – is not centred on the collection or publication of data. But data is becoming an increasingly important part of their daily operations.

The growth of data-related roles in the private sector, such as the Chief Data Officer (CDO),[34] and the continued increase in demand for data scientists,[35] shows that many businesses are moving to improve their use, management and governance of data in order to improve decision making and drive innovation.

A 2015 study into the use and application of analytics within businesses identified three levels of maturity across organisations that were driving competitive advantage and innovation.[36] 'Analytical Innovators' were identified as being 'more strategic in their application of analytics, place a high value on data, and have higher levels of data management and analytical skills'.

An updated report by the same authors in 2017 further explored the use of analytics as a source of business innovation, using the same model.[37] They found that 'Analytical Innovators' were using data and analytics to explore incremental innovation in existing products, services and processes, as well as creating new products, services and business models.

The authors noted that organisations with a high ability to innovate were sharing data both internally and beyond company borders at much higher levels than other organisations. Making data 'shareable by default'[38] is therefore important to enabling innovation within businesses and across their ecosystems.

The focus of our analysis and of the case studies presented in this report has been on exploring the benefits to individual organisations of sharing data with their ecosystems.

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[34] Gartner (2019), 'Gartner Research Board identifies the Chief Data Officer 4.0', https://www.gartner.com/en/newsroom/press-releases/2019-07-30-gartner-research-board-identifies-the-chief-data-officer-4point0
[35] TechTarget (2019), 'Demand for data scientists is booming and will only increase', https://searchbusinessanalytics.techtarget.com/feature/Demand-for-data-scientists-is-booming-and-will-increase
[36] Ransbotham, Kiron, Prentice (2015), 'Minding the analytics gap", https://sloanreview.mit.edu/article/minding-the-analytics-gap/
[37] Ransbotham, Kiron (2017), 'Analytics as a source of business innovation', https://sloanreview.mit.edu/projects/analytics-as-a-source-of-business-innovation/
[38] Thomson Reuters, Open Data Institute (2016), 'Shareable by default: creating resilient data ecosystems', https://theodi.org/article/white-paper-shareable-by-default-creating-resilient-data-ecosystems/

Cross-cutting challenges driving the sharing of data

Businesses across a range of sectors are facing a number of common challenges that are driving them to explore the value of sharing data.

Changing regulatory environment

Changing expectations around privacy and data protection mean that companies are having to re-evaluate their approach to collecting, managing and sharing data. General Data Protection Regulation (GDPR) and similar regulations include data portability provisions that require businesses to share more data with their customers and users.

Sector-specific regulation, aimed at creating fairer markets, is also increasingly aimed at ensuring businesses share more data with regulators and their broader ecosystem.

Increasing need for collaboration

Platform business models, complex supply chains and service delivery models, and opportunities to deliver complementary products and services, are requiring businesses to share more information, business intelligence and insight.

Increasingly competitive markets

Globalisation and increased use of digital products and services means that businesses are facing an increasingly competitive marketplace. Sharing and using data internally can help to drive innovation within existing business processes and services, and can help to reduce costs; as can sharing data across supply chains, for example.

The ability to access more competitive intelligence on market size is leading to organisations sharing data with analytics firms.

Demands for more data to harness new technologies

New technologies such as AI and machine learning require access to large volumes of data. These technologies are being used to innovate in existing sectors and are driving the growth of emerging sectors, for example autonomous vehicles.

Without sharing data, businesses face the cost of collecting and labelling data. By engaging in pre-competitive collaboration with others in their sector to collect necessary data, companies may be able to share costs and reduce time to market.

Climate and environmental challenges

The challenges presented by a changing environment are an issue for businesses in all sectors.

How can sharing data create value?

After analysing over 80 examples of data sharing across a range of business ecosystems, we have identified seven categories of value generation. These are outlined in the following section, along with links to illustrative case studies.

Improving market reach

Increasing access to data can promote products and services to a wider range of customers. By making information about products and services findable and

accessible to a new audience – one that is not being served by current sales and marketing efforts – businesses can generate new sales and opportunities.

Sharing and opening data about their products and services allows businesses to work with third parties that can:

● **widen their pool of potential customers** by supporting the creation of new discovery tools, such as tailored search engines and recommendation systems, that are designed around the needs of specific communities
● **develop complementary products and services** that will support specific customers, while driving revenue to existing product lines.

Businesses in a wide range of sectors have long been sharing data and information as a means to increase their market reach. Our research has found that by sharing reference data about available products, coupled with data and application programming interfaces (APIs) that support creating transactions (purchasing a product, placing a booking), businesses can generate additional revenue and reach a broader market. Availability of this information might also help them better engage with their existing customer base.

Benchmarking and insights

Increasing access to data for benchmarking against other organisations can provide useful insight to inform and shape decision making. Companies can use benchmarking against cross-industry metrics and best practices to:

● **drive investment decisions** by understanding how competitors are investing in new technologies, like AI[39]
● **increase efficiency and productivity** by comparing spending and performance with similar organisations to drive operational changes[40]
● **improve equality and diversity** in the workplace by benchmarking salaries to create fairer pay banding and improve hiring practices[41]
● **address health and safety issues** by understanding frequency of accidents and acting to address potential issues[42]
● **improve sales processes** by understanding more about patterns of procurement. [43]

Sharing data is fundamental to successful benchmarking to allow for comparison across a range of organisations working in the same industry. But businesses are reluctant to share data directly with their competitors. Individual competitor organisations can, however, share data with cross-industry organisations, who then pool the data to create aggregate datasets that can be analysed to deliver individual insights.

[39] McKinsey Digital (2017), 'Building efficient IT organizations: Insights from our benchmarks', https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/building-efficient-it-organizations-insights-from-our-benchmarks
[40] Designing Buildings Wiki (2019), 'Project benchmarking',. https://www.designingbuildings.co.uk/wiki/Project_benchmarking
[41] UK Gender Pay Gap Service (nd), https://gender-pay-gap.service.gov.uk/
[42] Health and Safety Executive (2019), 'PABIAC 2015-2019 Strategy' https://www.hse.gov.uk/paper/pabiac-strategy.htm
[43] Spend Network (nd), https://www.spendnetwork.com/

Case study: HiLo Maritime Risk Management

Our benchmarking and insights case study describes how competitor organisations in the maritime sector are sharing data with HiLo Maritime Risk Management, enabling it to deliver insights to improve safety in the shipping industry.

Read the case study

Open innovation

Increasing access to data for effective collaboration between businesses can allow companies to apply external ideas and technology to help find new solutions to their business challenges.

Sharing data is essential to building effective collaborations that can deliver impact through an outsourced research and development process. Sharing operational data can help external organisations explore, analyse and use that data to provide insights, identify efficiency savings or demonstrate the value of new technologies.

Data Pitch, an EU-funded open innovation programme, was designed to support corporate and public sector organisations in sharing data with startups and small and medium-sized enterprises (SMEs) to solve sector- and business-level challenges.[44]

Case study: Greiner Packaging International and OBUU

Our open innovation case study focuses on one example in the Data Pitch programme, where Greiner Packaging International (GPI) shared data with logistics intelligence company OBUU to help monitor the resilience and efficiency of its supply chain.

Read the case study

Benefits of regulated sharing

Increasing access to data to go beyond simple regulatory compliance can realise additional benefits. Regulatory compliance is necessary for companies to continue operating within their industry, but rather than an unwelcome obligation, the need to comply with regulation can be an opportunity to re-engage with customers and to drive innovation.

Clear and visible support for data protection regulation can help build trust with consumers.[45] Embracing data sharing provisions in regulation specifically, for

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[44] Data Pitch (nd), https://datapitch.eu/
[45] Open Access Government (2018), 'The five key business benefits of GDPR',
https://www.openaccessgovernment.org/the-five-key-business-benefits-of-gdpr/44554/

example, the data portability right included in GDPR, can [allow companies to explore new ways to attract and retain customers](#).[46]

Regulation intended to increase market competition can create opportunities for existing providers, and not just new entrants.

Case study: Barclays

Our regulated data sharing case study describes how Barclays saw extra potential in the implementation of open banking regulations in the UK to provide new services, and build confidence with new and existing customers.

[Read the case study](#)

Supply chain optimisation

Increasing access to data can help to optimise and improve a supply chain in a variety of ways:[47,48]

- **Improve the speed and accuracy of product design and distribution** by communicating key information on design specifications and logistics in real time.
- **Improve collaboration and trust among supply chain partners** by sharing and adopting best practices and insights, while helping to reduce administrative costs.
- **Improve flexibility of operations down the supply chain** by having the most up to date information on supply, demand, and external factors such as weather.
- **Improve overall cost management** by providing more insight into inventory levels, price fluctuations, distribution networks, transport capacity and more.
- **Improve the transparency and provenance of the supply chain to ensure ethical operations** by understanding the means of sourcing raw materials, building components, and transporting goods and materials.

Increased access to real-time engineering data between organisations in a supply chain allows for much faster and more accurate product design, improving overall efficiency of delivery and contributing towards supply chain optimisation.

Case study: Airbus

Our supply chain optimisation case study explores how Airbus is sharing engineering data on its airplane concepts with supply chain partners in order to improve the efficiency and accuracy of their product design.

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[46] Open Data Institute (2017), 'The EU General Data Protection Regulation: opportunities for grocery retail,, https://theodi.org/article/the-eu-general-data-protection-regulation-opportunities-for-grocery-retail/
[47] MobilityWork (2019), 'Data sharing: What are the prospects for the supply chain?', https://www.mobility-work.com/blog/data-sharing-supply-chain
[48] McKinsey (2016), 'Supply Chain 4.0 – the next-generation digital supply chain', https://www.mckinsey.com/business-functions/operations/our-insights/supply-chain-40--the-next-generation-digital-supply-chain

Addressing sector challenges

Increasing access to data can help in tackling sector-wide issues in a competitive industry that cannot be solved by a single organisation alone. Common challenges cover a range of issues, including a need to:

- **develop a collective response to common organisational issues,** for example by improving health and safety in the workplace, developing skills or improving productivity
- **adapt to regulatory changes** that, for example, might require operational changes to how businesses deliver services and share information
- respond to social and environmental issues, such as climate change or adapting to the needs of an ageing population
- **build the market for a new sector,** through collaboration, and creating shared resources, data and standards
- **test and apply new technologies** that may change how services are delivered.

Often these challenges will require collaboration across a sector in order to improve conditions for the industry as a whole.

Case study: PassivSystems and Open Climate Fix

In our addressing sector challenges case study we look at how PassivSystems and Open Climate Fix are working to address some of the challenges involved in "decarbonising" the UK energy sector and the shift to more renewable energy sources.

Read the case study

Building trust

Increasing access to data can build trust among consumers, partners and governments. When companies have trusted brands, they are more likely to have better sales, and more opportunities for collaboration could become available.

Businesses are increasingly collecting data not just about their direct business activities, but also their workforce, customers and environment. Reducing unnecessary data collection, and ensuring that data is used and shared in ethical ways, is already fundamental to building a trusted business. Sharing data, in ways that protect privacy and deliver value back to consumers, citizens and society, is also becoming increasingly important.

Recommendations

Our case studies demonstrate that sharing data can have direct benefits to individual businesses and sectors, as well as having broader social, environmental and economic impacts.

We have shown that businesses increase access to data for a variety of reasons, relating to specific challenges and opportunities relevant to their business ecosystems. We have initially identified seven broad categories of value creation, but believe further analysis would identify additional benefits.

To further explore this area, we have identified a number of recommendations, for individual businesses, industry bodies, as well as governments and regulators. Unlocking the full benefits of an open, trustworthy data ecosystem will require collaboration across a range of stakeholders.

Businesses wanting to increase access to data that they hold should:

- **review our case studies** to help develop understanding of the range of ways in which data sharing can benefit business
- **design internal skills and learning programmes to build an understanding of the value of data** at all levels of the organisation
- **engage with internal stakeholders and potential partners** to explore how key business challenges may be addressed through better use of data
- **participate in innovation programmes** and accelerators, like Data Pitch, or academic partnerships, as a means of getting facilitated support on sharing data that will help to address a business need or opportunity
- review current approaches to sharing data, both internally and with suppliers and partners, to **identify and explore new approaches to data sharing**
- **develop a data strategy** that will help to improve data governance and develop the internal data literacy required to make business-held data 'shareable by default'[49]
- address internal concerns about the risks of data sharing, by ensuring there are **appropriate policies that support ethical and legal sharing of data**.

Businesses wanting to take a lead in their sector should:

- **document and share successes** to build on these case studies and invite more opportunities to benefit from further data sharing
- **convene an ecosystem of partners, suppliers and customers** to explore ways to increase access to data that will create business benefits, while respecting privacy and minimising harms.

Professional associations, industry bodies and sector initiatives should:

- **convene businesses within their networks** to help map out current and future data ecosystems that will unlock value for all participants
- **document and share insights** around the benefits of increasing access to data around specific sector challenges

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[49] Thomson Reuters, Open Data Institute (2016), 'Shareable by default: creating resilient data ecosystems', https://theodi.org/article/white-paper-shareable-by-default-creating-resilient-data-ecosystems/

- **develop codes of practice, guidance and training** that will help businesses within a sector to share data, while respecting privacy and minimising harms.

- **run innovation programmes**, like Data Pitch, that will help to facilitate open innovation around sharing of data, to deliver value within specific sectors
- **fund and support work to scope and incubate new data access initiatives**, like data trusts, that will help organisations within a sector to share data in ways that will preserve privacy and increase trust
- **ensure that data shared as part of regulatory changes is made as open as possible**, to help develop open, trustworthy data ecosystems
- **build requirements for increasing access to data into funding agreements** for activities that deliver on industrial strategies, such as the UK Sector Deals and Grand Challenges
- **support the development of legal frameworks and guidance** that will help support ethical, legal and trustworthy sharing of data across a range of sectors.

Organisations of all types within the engineering, manufacturing and construction sectors may also want to endorse our manifesto for increasing access to engineering data.[50]

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[50] Open Data Institute (2019), 'A manifesto for sharing engineering data', https://theodi.org/article/engineering-data-for-the-public-good-a-manifesto/

Appendix: Methodology

To explore the benefits that private sector organisations receive from increasing access to data that they hold, the ODI undertook the following activities across the discovery and alpha phases of our project.

Discovery

Desk research

We started the project with desk research that mapped over 80 examples of private sector organisations that share data. From these examples, we analysed and grouped the various types of business value we observed.

Our analysis explored different characteristics of the commercial environment of data sharing, such as:

- Did the data sharing initiative seek to increase revenues, decrease costs, or both?
- Was the data sharing focused on direct tangible benefits, such as measurable cost reductions, or indirect benefits such as reputation improvement?
- What sector or industry did the businesses operate in and how was this linked to the data sharing initiative?
- Did the competitiveness of the industry have an observable effect on the nature of data sharing?

At the end of this initial desk research period, we reached out to businesses in our network to verify these business values.

Interviews

To validate the findings from the desk research, we conducted discovery interviews with seven companies from a variety of sectors, such as travel, finance and engineering. These interviews aimed to identify whether interviewees recognised these business values in their own work, and if there were any additional business values to consider.

Alpha

Commissioned reports

We leveraged research commissioned for other programmes we have supported, such as the London Economics impact report[51] for the Data Pitch open innovation programme, and the Frontier Economics impact report on open standards, which includes OpenActive[52]. This informed some of the ecosystem benefit analysis in the report and case studies.

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[51] London Economics (2019), 'Data Pitch evaluation', https://datapitch.eu/wp-content/uploads/2020/01/London-Economics-Data-Pitch-evaluation-FINAL-PDF.pdf

[52] OpenActive (nd), 'Helping physical activity reach everyone', https://www.openactive.io/

Interviews

We conducted additional interviews with 10 stakeholders from a range of companies who exhibited the realisation of the business values that we had identified in the discovery phase. The interviews aimed to understand the following:

- The data sharing process itself, including the technologies and actors involved.
- The purpose of sharing data from the organisation's own perspective.
- The financial and non-financial benefits that the organisation has seen so far, or expects to see.
- The wider ecosystem implications of the data sharing initiative, including what other organisations are involved or impacted, and the benefits they receive.