

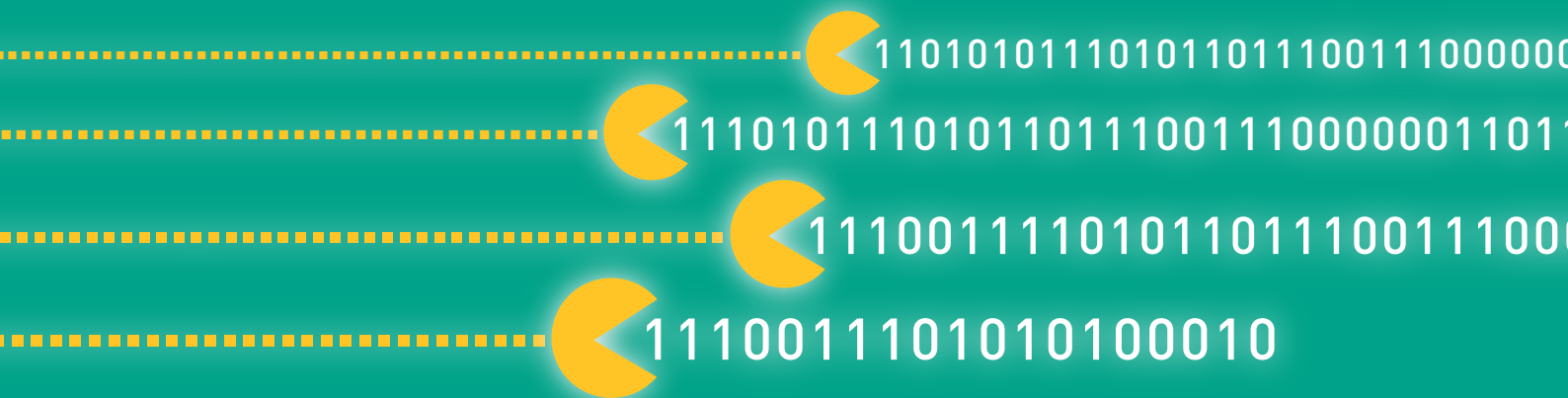
Nesta...

INSIDE THE DATAVORES

How data and online analytics affect business performance

Hasan Bakhshi, Albert Bravo-Biosca and Juan Mateos-Garcia

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THE BIG DATA HYPE?

If you believe what you read, businesses in seemingly every sector of the economy can reap rewards by making better use of their customer data, from information gathered through marketing campaigns to web analytics and transaction data. Technologies like NoSQL, a flexible type of database, and Hadoop, a framework for distributed data processing, have slashed the costs of storing and managing large data sets. Advances in data mining, artificial intelligence and network science have made it easier to extract valuable insights from this data too.

How businesses can put data to use



Collect

By collecting data about website activity and transactions, businesses can sense their environment better

+



Analyse

Data mining, text mining and controlled experiments allow businesses to extract more insights from their data

+



Deploy

Businesses can apply data to make decisions across many areas, from marketing to new product development

+



Empower

Data is not enough. There are other resources and practices inside a business that influence how much it benefits from its data

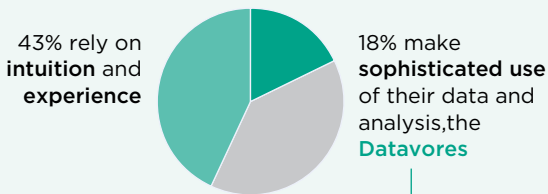
WHY USE DATA?

Business school case studies of large, multinational companies and white papers from data technology vendors extol the benefits of data-driven decision making.

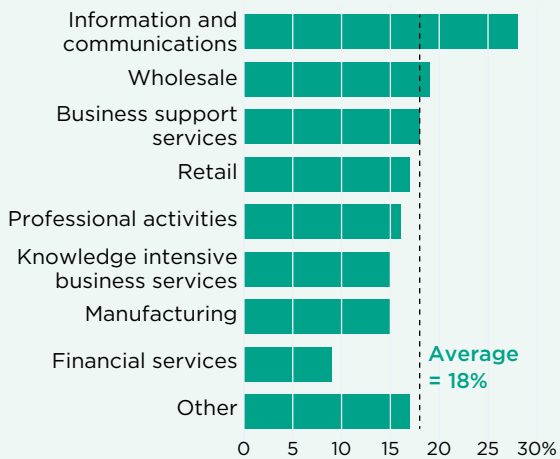
Case studies and anecdotes are of little value to businesses who want answers to questions such as: what quantitative impact might this use of data have on my bottom line? And, what other changes do I need to make to my business to maximise this impact? Without clear answers to these questions, it is tempting for many businesses to put off better use of data and focus instead on more familiar, tried and tested ways of making decisions. This may help explain the survey finding in our *Rise of the Datavores* report,¹ that only 18 per cent of businesses in the UK's internet economy – the datavores – make a sophisticated use of their data when growing their sales, despite the vaunted benefits.

The Datavores: The UK's most data-sophisticated businesses

How businesses in the internet economy make use of their data when growing their sales



% of Datavores in different sectors



How the Datavores are using their data

Compared to the average, Datavores are...



1. See: http://www.nesta.org.uk/sites/default/files/rise_of_the_datavores.pdf

WHAT IS THE BOTTOM LINE?

*Inside the Datavores*² looks inside businesses that make use of their online customer data in different ways and how this shows up in their business performance. We do this by matching survey responses about data activities with historical performance measures taken from respondents' company accounts, and by conducting an econometric analysis of the link between business performance and data activity while controlling for other characteristics of the business.

We find that businesses that make greater use – that is, the collection, analysis and deployment – of their online customer data are, other things equal, 8 per cent more productive as a result (measured by value added).³

When considering data activities separately, our results show that data analysis has the strongest effect on productivity. Businesses that are more analytical in their approach to data are 11 per cent more productive than the average. Analytical businesses explore their data using a multitude of techniques, including regression analysis, data mining and text mining; they run A/B experiments on their websites, and they disseminate the insights generated from their data through reports, dashboards and visualisations.

We find that deeper data analysis is associated with higher profitability too: firms that subject their data to more analysis generate an additional profit of £3,180 per employee and generate a return on equity that is 4.3 percentage points higher than the average.⁴

By contrast, we find that more comprehensive data collection on its own is not associated with higher productivity or profitability. Echoing what we know about the adoption of other Information Technologies, collecting data on its own does not yield business benefits – the data must be analysed, and the resulting insights used to drive action.

Using data: Impact on the bottom line

Increase in **PRODUCTIVITY** compared to average for businesses making use – **collection, analysis, deployment** – of their online customer data:



When considering data activities separately:

High levels of analysis  +11% productivity

High levels of collection  No increase in productivity

High levels of analysis also boost a business's **PROFITABILITY**:

Compared to average  +£3,180 per employee operating profit

 +4.3%points higher return on equity

2. For a detailed description of our data and findings, see the full *Inside the Datavores* research report at: www.nesta.org.uk/publications/inside-datavores

3. A business is described here as undertaking a greater level of a data activity if they are one standard deviation above the average firm in their score for that activity. So, it turns out that 16 per cent of companies in the sample are one standard deviation above the average in their score for data use.

4. We use earnings before interest, taxes, depreciation and amortization (EBITDA) as our measure of profits.

BEYOND DATA

Boosting the impact

Increase in **PRODUCTIVITY** compared to the average for businesses that make use - **collect**, **analyse**, **deploy** - of their online customer data and...

...DON'T empower their employees



+4%
productivity

...DO **empower** their employees



+16%
productivity

We also find that how a business manages its workforce has great bearing on how much it benefits from data. In particular, businesses that grant their employees greater autonomy to make decisions report a productivity premium from data use that is almost four times as high as those with centralised decision making. These businesses allow their employees to experiment with new ideas, and to act on the results without seeking prior permission of managers. More generally, businesses that are more open to making changes to their business processes enjoy significantly higher returns from their use of data.

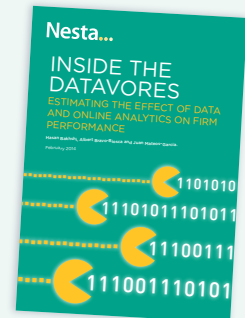
ARE YOU A DATAVORE?

All these results help to explain why the most data-sophisticated businesses - the datavores - enjoy the impressive performance they do, with sales per employee over 50 per cent greater than other businesses and profits per employee over 15 per cent greater. Are you a datavore when it comes to your online customer data?



To see the full report visit:

www.nesta.org.uk/publications/inside-datavores



Nesta...

1 Plough Place
London EC4A 1DE

research@nesta.org.uk
www.twitter.com/nesta_uk
www.facebook.com/nesta.uk

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