

# Bridging the Data Gap

special briefing

## How Digital Innovation Can Drive Growth and Create Jobs

Issue 15/2014



By Paul Hofheinz and Michael Mandel

Paul Hofheinz is president and co-founder of the Lisbon Council.

Michael Mandel is chief economic strategist of the Progressive Policy Institute (PPI) and senior fellow at Wharton's Mack Institute for Innovation Management at the University of Pennsylvania.<sup>1</sup>

Seldom has the world stood poised before economic changes destined to bring as much palpable improvement to people's lives and desirable social transformation as "big data."<sup>2</sup> Breathless accounts abound of the huge amounts of data that citizens, consumers and governments now generate on a daily basis in studies ranging from the French Prime Minister's *Commissariat général à la stratégie et à la prospective* study on *Analyse des big data: Quels usages, quels défis* to Viktor Mayer-Schönberger and Kenneth Cukier's seminal *Big Data: A Revolution That Will Transform How We Live, Work and Think*.<sup>3</sup> But the larger revolution will come not from the exabytes of data being generated on a daily basis, but through the vast advances in analytics that will help us convert this information into better lives, and better societies.<sup>4</sup> Already, many companies are using the new information to offer more tailored products and services to customers; consumers are receiving more effective healthcare; clever administrations are cutting pollution and commuter transit times; people of all types are being entertained and educated in fascinating new ways; and entrepreneurs who seize the opportunity are helping raise North America and Europe from the longest economic recession since statistic-taking began.<sup>5</sup>

But reaping these benefits will rely on two things. First and foremost, participants in this brave new world must firmly and unequivocally embrace the new technology, seeing it not as some throwback to an Orwellian world where the state monitors what we eat for breakfast but as a huge opportunity to see and discern patterns – and make

1 This interactive policy brief was launched in Brussels at the Transatlantic Summit on Innovation and Trade in Data, convened by the Lisbon Council and the Progressive Policy Institute. The authors would particularly like to thank Diana G. Carew, Steven Chlapecka, Sergey Filippov, Isobel Head, Sloane Hurst, Stéphanie Lepczynski, Lindsay Lewis, Will Marshall, Ann Mettler, Chrysoula Mitta and Linnar Viik. Any errors of fact or judgment are the authors' sole responsibility.

2 Wikipedia defines "big data" as "a collection of data sets so large and complex that it becomes difficult to process using on-hand database management tools or traditional data processing applications. The challenges include capture, curation, storage, search, sharing, transfer analysis and visualisation." Read the full Wikipedia entry at [http://en.wikipedia.org/wiki/Big\\_data](http://en.wikipedia.org/wiki/Big_data)

This interactive policy brief seeks to make knowledge more accessible through online circulation and interactive features, such as hotlinks to articles cited in the footnotes and a web-friendly format.

The opinions expressed in this policy brief are those of the authors alone and do not necessarily reflect the views of the Lisbon Council, the Progressive Policy Institute (PPI) or any of their associates.

# 'Per capita US data usage is more than three times that of Germany and six times that of Italy.'

changes and improvements in our lives as a result of them.<sup>6</sup> And policymakers must provide the right regulatory framework. This framework must ensure that consumers not only receive the right level of protection (including against the potential abuse and misuse of their personal data), but also that these guarantees are never allowed to degenerate into disguised protectionism or the hidden promotion of under-performing national champions, whose deadweight on the economy will ultimately block the advances we so badly need.

This paper is divided into three parts. Part I will look at the emerging “data gap” between Europe and North America. How well are Europeans using data? And how does it compare with the global benchmark in this field, the United States, which enjoys a large first-mover advantage in data-driven businesses?<sup>7</sup> In this study, we will show that the US is forecast to use almost 65 gigabytes of data per person per month in 2014. By comparison, the average for all West European countries is forecast at 24 gigabytes of data per person per month.

In Part II, we will examine the social and economic impact of big data and data-driven businesses, and discuss (briefly) a remarkable and often overlooked fact: big data is a powerful enabler of the previously unempowered, and can be used to increase access, fight social exclusion and improve the environment. Part III will make policy recommendations based on the proceeding analysis. It will include a brief discussion of “do’s and don’ts” in the policymaking field, seeking to offer suggestions about how policy might best perform its vital twin functions (enabling news businesses and job creation while ensuring that consumers are adequately protected), and warning against the potentially devastating effects of some recent proposals, which threaten to divide the Internet into a patchwork of competing kingdoms reminiscent of the Balkan states or the Holy Roman Empire.

## I. Who is using data?

In the past, theory taught that economic growth came from the potent combination of two important inputs: labour and capital. Labour was about people – their hard work, skills and education. Capital was about the buildings, machines and wires that form the physical infrastructure of the economy. Progress – and prosperity – came to individuals, institutions and countries that were able to put these two things together in winning combinations. The more capital you had, the more productive your labour was, at least in theory. And, conversely, a better-trained worker could make even a dumb machine more productive.

But now we see this binary division as much too simple. The winners in today’s economy are the ones who will best be able to integrate an additional factor of production: data. Data is the information needed to understand where markets,

3 [Marie-Pierre and David Marguerit, “Analyse des big data: Quels usages, quels défis?” La note d’analyse 11/2013 \(Paris: Commissariat général à la stratégie et à la prospective, 2013\)](#). Also, Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How We Live, Work and Think* (London: John Murray, 2013).

4 For a fascinating exposition on this topic, see Virginia M. Rometty, “Competitive Advantage in a Era of Innovation,” [Speech to the Lisbon Council, 12 July 2013](#). Ms Rometty is the chairman, president and CEO of IBM.

5 Thomas H. Davenport, *Big Data at Work: Dispelling the Myths, Uncovering the Opportunities* (Cambridge: Harvard Business Review, 2014).

6 European consumers – despite the “data gap” evidence that will be presented later in this paper – are enthusiastic users of data-driven businesses, and particularly Facebook, Google search and Gmail. Facebook enjoys an overwhelming presence in Europe. In the last quarter of 2013, Facebook had 195 million daily active European users and 282 million monthly active European users, more than it had in the US, where Facebook is based (the comparative figures for North America, which includes the US and Canada, are 147 million active daily users and 201 million monthly users). The Google search engine has an overwhelming 90%-96% market share in most European countries, more than in the US. For more information, see [Facebook Annual Report 2013](#).

# 'Policymakers must provide the right regulatory framework.'

the economy, even the weather, are headed, so we can make good business and personal decisions. Better data improves the productivity of both labour and capital. Better data means increasing labour productivity, which ultimately means a higher standard of living, or more leisure, or both.<sup>8</sup>

So who, then, is using data the most? Who sees the vast potential? And who has done the most to integrate this increasingly vital third-pillar of productivity growth into their economy – at the business as well as at the consumer level?

7  
We chose the US as a benchmark because it is the world's leading economy in this field, and it shows what the most advanced industrial nations can accomplish here. But the US is not an example of best practice. A careful analysis of shortcomings in US policy is beyond the scope of this paper.

8  
[James Manyika, Michael Chui, Peter Groves, Diana Farrell, Steve Van Kuiken and Elizabeth Almasi Doshi, \*Open Data: Unlocking Innovation and Performance with Liquid Information\* \(San Francisco: McKinsey Global Institute, 2013\).](#)

Table 1: Europe is behind in the data race

\*gigabytes per month

Rank	Country	Estimated per capita usage of data 2014*
1	South Korea	67.5
2	United States	64.7
3	Canada	55.6
4	United Kingdom	35.2
5	Japan	28.9
6	France	25.1
	West Europe average**	24.0
7	Germany	19.7
8	Spain	16.8
9	Brazil	11.3
10	Italy	11.2
11	China	6.8
12	India	0.8

Sources: Cisco, Progressive Policy Institute

Based on Cisco VNI forecasts, updated February 2014

\*\*Made up of 18 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

# 'If training is cheaper, companies will find it easier to hire.'

9 [Peter Goodridge, Jonathan Haskel and Gavin Wallis, "UK Investment in Intangible Assets: Report for Nesta," \*Nesta Working Paper No. 14/02\* \(London: Nesta, 2014\).](#) The exchange rate used is from 15 April 2014.

10 [Bureau of Economic Analysis, "National Income and Product Accounts, Gross Domestic Product, Fourth Quarter and Annual 2013 \(Third Estimate\)," \*Press Release BEA 14-13, 27\* March 2014.](#)

11 The forecasts we use were issued in May 2013, and partially updated in February 2014 (a full revision is expected in the summer of 2014). Assuming that any data that is transiting the network is seen and used by someone, we have taken the liberty of thinking of IP traffic as a broad measure of data usage. This assumption is more likely to be true for business data than for consumer data. For more, visit the [Visual Networking Index](#)

12 We focused on the 2014 forecasts by major country, and then divided by the population in order to get per capita data usage.

13 A recent European Commission-funded study from Gigaom Research found that France, Germany, the United Kingdom and the three Scandinavian countries all had at least one app-making company with strong sales outside of their domestic market. By contrast, Italy had none. See [Mark Mulligan and David Card, \*Sizing the EU App Economy\*](#) (San Francisco: Gigaom, 2014).

To find out, we set out to measure and compare data usage among leading countries and regions. To be sure, many governments already track investment in so-called "intangible assets," which includes the data-driven sector of the economy. A 2014 report from NESTA found that in 2011 the UK market sector invested £137.5 billion [or €166.22 billion, or \$276.48 billion] in "knowledge assets" – more, in other words, than the £89.8 billion [or €108.56, or \$149.37 billion] invested in tangible assets that year.<sup>9</sup> And the US Bureau of Economic Analysis calculated that investment in intellectual property products, such as software and R&D, reached \$651 billion [or €473.14 billion] in the US in 2013.<sup>10</sup> While useful, these measures don't track most consumer uses of data, such as data used for entertainment or better decision-making. They also omit a broad array of data-intensive business activities, such as uses of financial and production data. And, most significantly, they do not track data usage by governments or small- and medium-sized enterprises, which are key pillars of the modern economy.

To get a broader, more representative measure of data usage in select countries, we created our own tables, drawing on the Visual Networking Index, a set of IP traffic forecasts put out and updated by Cisco, the US-based networking equipment provider.<sup>11</sup> These forecasts measure Internet traffic plus other kinds of data traffic within a country and region.<sup>12</sup>

The results show a large – and getting larger – gap in data usage between Canada, South Korea and the US on the one hand, and five major West European economies on the other (see Table 1 on page 3 for the full statistical picture). In 2014, for example, the US is forecast to use almost 65 gigabytes of data per person per month, including both consumer and business, as well as fixed and mobile. By comparison, the average for all West European countries is forecast at 24 gigabytes of data per person per month. That puts usage throughout most of the West European economy at less than 40% of the US average. If we look at individual countries, the comparisons get even starker. US data usage, for example, is more than three times that of Germany, and six times that of Italy.<sup>13</sup>

By way of caveat, these calculations include consumer video, which is data heavy and where Americans have a more vibrant consumer-driven market. So we ran the same calculation focusing instead on the much smaller category of business data to avoid any possible distortion (see Table 2 on page 5). The results show a narrower but still significant data gap for businesses. Usage of business data in the five West European countries surveyed is 60% that of the US. Germany's usage of business data is half that of the US, and France is just over 40%.

# 'The "Internet of Everything" will lead to an economy built on production and investment.'

Table 2: European businesses face a growing data gap

\*gigabytes per month

Rank	Country	Estimated per capita business usage of data 2014*
1	Canada	9.1
2	United States	8.4
3	Japan	6.8
4	United Kingdom	5.5
5	South Korea	5.3
	West Europe average**	4.9
6	Germany	4.4
7	Spain	3.8
8	France	3.6
9	Italy	2.5
10	Brazil	2.0
11	China	1.7
12	India	0.2

Sources: Cisco, Progressive Policy Institute

Based on Cisco VNI forecasts, updated February 2014

\*\*Made up of 18 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom



# 'The effects of digital technologies are being strongly felt throughout the economy.'

## II. Transformative power in a data-driven economy

14  
The definition is from Wikipedia, which blithely concludes that the Internet of Things "could transform daily life." Visit [http://en.wikipedia.org/wiki/Internet\\_of\\_Things](http://en.wikipedia.org/wiki/Internet_of_Things). See also, Michael Mandel, "What the Internet of Things Means for Physical Industries," Talk at Washington Post Live's All Things Connected Forum, YouTube, 28 March 2014 and Ann Mettler and Anthony D. Williams, *Wired for Growth and Innovation: How Digital Technologies are Reshaping Small- and Medium-Sized Businesses* (Brussels: Lisbon Council, 2012)

15  
Michael Mandel, *Can the Internet of Everything Bring Back the High-Growth Economy?* (Washington, DC: PPI, 2013).

16  
*Ibid.*, "New York, the Silicon City," *The New York Times*, 06 January 2014.

17  
Ann Mettler and Anthony D. Williams, *The Rise of the Micro-Multinational: How Freelancers and Technology-Savvy Start-Ups Are Driving Growth, Jobs and Innovation* (Brussels: Lisbon Council, 2011).

18  
Greg Clark and Tim Moonen, *Europe's Cities in a Global Economy: Trends, Challenges and Opportunities* (Cambridge: Harvard Business School Publishing, 2014).

So far, the Internet has transformed the roughly 20% of industry that is primarily digital in nature – finance, publishing and telecommunications. But the Internet of Things – an on-going economic transition which involves "equipping all objects in the world with minuscule identifying devices or machine-readable identifiers" – has the potential to use data to transform the remaining 80% of the economy, consisting of physical industries such as transportation, manufacturing and public services.<sup>14</sup> In an earlier study, one of this paper's authors calculated that the US economy could raise its level of gross domestic product by 2% to 5% by 2025, which would boost the annual GDP growth rate by 0.2-0.4 percentage points over this period, bringing growth closer to 3% per year.<sup>15</sup> Europe could see a gain of similar magnitude if the right environment could be created.

And the advantages won't only be macro. Put simply, greater adoption of data and data-driven businesses offer the prospect of raising the quality of life in many areas, including entrepreneurship, employment, job satisfaction, the environment and equal opportunity.

### Improved prospects for urban areas

The data-driven economy has benefited dense urban areas in the US such as New York and San Francisco in surprising ways. One reason is because the current mini-boom in technology-driven businesses is being driven primarily by the convergence of technology and content, which requires cross-fertilisation among different industries. Such contacts are found more often in urban areas, rather than out in the suburbs. For example, in New York, the tech/info boom has enabled the city to outperform the rest of the country economically even though the 2008 financial bust was centred so squarely on Wall Street.<sup>16</sup>

The nature of tech/info start-ups clustering in high-density inner city areas naturally fosters entrepreneurship. That's because clusters have built-in networks, and promote economies of scale. Starting an Internet-enabled business is also relatively low-cost, requiring little more than a high-speed Internet connection and a novel idea.<sup>17</sup> Many European cities could stand to enjoy large economic and social benefits from embracing the data-driven economy. In an October 2013 report on "Europe's Cities in a Global Economy," European cities that embraced technology were found to have a clear advantage over those that had not. The study found that London and Paris are Europe's leading municipalities by a large margin, and are "already best placed to capitalise on new developments in the digital and life sciences sectors, as the pair dominate the rankings for high-tech research output, entrepreneurial support, talent and data application."<sup>18</sup>

# 'Small companies often face obstacles when they try to deliver new businesses and services.'

## Better access to opportunity for less-skilled workers

One of the biggest problems facing industrialised countries these days is making sure that big chunks of their population don't get left behind by growth.<sup>19</sup> Surprisingly, the data-driven economy is a beacon in that area, showing early signs of being more inclusive than its manufacturing-based predecessor. As a matter of statistical fact, the US is seeing a tremendous rise in African Americans and Hispanics going into tech occupations. Since 2006, the number of Hispanics in computer and mathematical occupations has risen by 58%, while the number of African Americans in computer and mathematical occupations has gone up by 41%.<sup>20</sup>

Equally important, the data-driven economy has the potential to make it cheaper and easier to train individuals for jobs in areas such as advanced manufacturing that require a mix of cognitive and physical skills. Here's a simple example: right now you can buy a basketball that is Internet-enabled and incorporates sensors that track your dribbling and shooting skills. That basketball and the associated software can take the place of a much more expensive personal coach, hopefully improving your skills. It may sound like a small example, but think about the immensely talented youngster who can't afford the kind of personalised attention that others might get. The app and data-driven feedback can help her or him to develop their talent regardless of economic starting point.

In theory, any mixed cognitive/physical skill such as the ones required to operate advanced machinery or repair breakable items can now be taught the same way. The Internet of Things allows us to instrument a pair of pliers or a sophisticated 3D printer, for example, to determine whether the person is using them the right way. If training is cheaper, companies will find it easier to hire. Rather than being fuelled by consumption and borrowing, the Internet of Everything will lead to an economy built on production and investment, with much more extensive education and training built right into the fabric of the economy rather than being separated out.<sup>21</sup>

## Less pollution and more efficient use of energy

The adoption of "smart-grid" technology is allowing major utilities to better ration their electricity, taking steps to supply energy quickly and easily in peak times and to cut back more effectively in slow periods for the network. The savings involved are not minor, either. The OECD estimates the use of data-driven smart grid applications could help cut global CO2 emissions by more than two gigatonnes (or two billion tonnes) by 2020, an amount equivalent to €79 billion [or \$108.7 billion] of savings.<sup>22</sup> Likewise, the Estonian government has used anonymised mobile phone data to better understand traffic flows on the country's major motorways – and reduce commuter transit times.<sup>23</sup>

19 [Paul Hofheinz, \*EU2020: Why Skills are Key for Europe's Future\* \(Brussels: Lisbon Council, 2009\).](#)

20 [Michael Mandel, "San Francisco and the Tech/Info Boom: Making The Transition To A Balanced And Growing Economy," \*South Mountain Economics\*, April 2014.](#)

21 For more on this fascinating phenomenon, see [ibid., \*Can the Internet of Everything Bring Back the High-Growth Economy\*, op. cit.](#)

22 [OECD, "Exploring Data-Driven Innovation as a New Source of Growth: Mapping the Policy Issues Raised by 'Big Data,'" \*OECD Digital Economy Papers, No. 222\* \(Paris: OECD Publishing, 2013\).](#)

23 Sebastian Rieger and David Deissner, *Moving Into the E-Government Era: Conditions for the Success of E-Government Strategies Using the Example of Estonia* (Frankfurt: Vodafone Institute for Society and Communications, 2014).

# 'By and large, the Safe Harbour Agreement has worked.'

## 24 **Global markets for SMEs**

[Mettler and Williams, op. cit.](#)

25

[Michael Mandel, \*Data, Trade, and Growth\* \(Washington, DC: PPI, 2014\)](#)

26

*Ibid.*

27

*Ibid.*, *Data Consumer Welfare* (Washington, DC: PPI, forthcoming).

28

PPI calculations based on data from Bureau of Labor Statistics.

29

[Mulligan and Card, op. cit.](#)

30

[Maarten Goos, Ian Hathaway, Jozef Konings and Marieke Vandeweyer, \*High-Technology Employment in the European Union\* \(Leuven: KU Leuven/VIVES, 2013\).](#)

31

For a good overview of big data in Europe, see [Sonia Bucholtz, Maciej Bukowski and Aleksander Śniegocki, \*Big and Open Data in Europe: A Growth Engine or a Missed Opportunity?\* \(Warsaw: DemosEUROPA, 2014\).](#)

32

The example is from Thomas H. Davenport, "Analytics 3.0," *Harvard Business Review*, December 2013.

33

*Ibid.*

Small- and medium-sized enterprises are some of the prime beneficiaries of the data-driven economy. The reason is simple: the global nature of the Internet gives SMEs access to global markets that formerly were the sole province of huge multinationals – not just to ship goods, but to export services as well.<sup>24</sup>

These exports are supported and enabled by cross-border data flows, which are far more important to domestic economies than many policymakers realise. The problem is that no one actually tracks cross-border data flows directly. Between 2008 and 2012, the data-carrying capacity of transatlantic submarine cables between the US and Europe rose at an average annual rate of 19%.<sup>25</sup> Over the same period, the overall value of trade in goods and services between the US and Europe barely rose.<sup>26</sup>

## **Improvements to consumer welfare**

Since the global financial crisis started in 2007, US living standards have actually risen on average, as measured by a rise in per capita consumption.<sup>27</sup> The main driving force behind this gain was a dramatic rise in the consumption of data-related goods and services, including everything from smart phones and computers to app purchases to wireless and Internet access. Without these data-related goods and services, per capita consumption would have actually fallen since 2007.

Put another way, data-related goods and services accounted for 37% of the gain in real personal consumption between 2007 and 2013 in the US. And data-related goods and services accounted for a stunning 64% of the gains in non-health real personal consumption between 2007 and 2013.

## **More job creation**

The data-driven economy is sometimes associated with job losses, but much of the evidence appears to point in the other direction. In large cities such as New York, San Francisco and London, the tech/info sector has been a crucial job creator in the period since the crisis started in 2007. What's more, the number of people employed in computer and mathematical occupations in the US is up sharply since 2007.<sup>28</sup> A recent European Commission-funded study by Gigaom Research predicted that jobs in the EU "app economy" would triple by 2018.<sup>29</sup> And the digital economy is the only sector that added jobs consistently throughout the recent global economic turndown.<sup>30</sup>

## **III. Regulation and the data gap**

To be sure, many European companies are seizing the opportunities.<sup>31</sup> [The Bosch Group](#), 128-year-old German electronics multinational, now uses advanced analytics and the Internet of Things to produce smart devices that track vehicle positioning, road tolling, energy use, security monitoring and more.<sup>32</sup> The company calls these "intelligent customer offerings." Likewise, [Schneider Electric SA](#), a 178-year old French electricity-distribution company, now produces the Advanced Distribution Management System, which uses data to help utility companies better manage and distribute energy.<sup>33</sup>

# 'The first step is to ensure that all is right with domestic legislation – in Europe and in the US.'

The advanced system tracks real time data, and can make key decisions including how to avoid wasting energy during low-use times and when to dispatch a service crew because of an outage. Similarly, [Tesco](#), the UK-based global retailer, now tracks more than six million transactions a day through their fidelity card programme. It uses the data to keep its stores better supplied and to respond more quickly to broad changes in consumer behaviour.<sup>34</sup> Today, in collaboration with [IBM](#), the US-based technology and consulting multinational, Tesco is developing an advanced system to monitor refrigerator temperatures at more than 3000 outlets, a move which should help it save as much as 20% on its energy bills.<sup>35</sup>

Small companies, too, are getting in on the act. [Le Bon Coin](#) – an online marketplace with 16 million users in France – offers free announcements to most customers in a stripped-down, eBay-like environment, but supports itself by charging some companies, such as real estate agents and used-car dealers, for ads on the site. It has generated huge customer loyalty by successfully parsing the customer data it collects to propose good, well-tailored offerings, giving the site the feel of a cosy flea market, according to many return visitors. The same for [Monster.fr](#), a popular French job placement site, which uses data to help job seekers hone in on the work they seek.<sup>36</sup> Not all is rosy, though, and new companies often face obstacles when they try to deliver innovative businesses and services. [Uber](#), the US-based taxi service app, was recently stopped from providing services in Brussels, the capital of the EU. Taxi drivers lobbied the local government to ban the new service, proposing a €10,000 fine for anyone caught using it. The incident offered a dramatic show of how vested interests can so easily block innovation – principally by using their connections to power to make sure the playing field tilts firmly in their direction.<sup>37</sup>

Estonia is a good example of the opposite trend. Back in 2001, the country adopted ambitious e-government legislation and a public data-sharing framework, which set a single, interoperable standard for all publicly-held data sets. The new framework also allowed all publicly-owned data and data sets (including the information gleaned from utilities and cell phone networks) to be put into the public domain for advanced analytics – but only after that data had been stripped and anonymised.<sup>38</sup> Overall access to data and services built on data have strong security and privacy standards enabled through an innovative data exchange framework called X-Road. In this way, much publicly-held data has become easily available for mining, and ultimately for the development of new data-driven businesses and services, which have sprung up like clover across this tiny country of 1.3 million people.<sup>39</sup> It shows that public concerns about inappropriate use of private data can be addressed in a format that gives citizens confidence – and leaves them anonymous. And that the resulting economic boost can be had as well.

What would it take to get Europe out in front? How can this fantastic new technology be harnessed to create the jobs, provide the growth and enrich the lives of all Europeans?

The short answer is by creating an enabling environment which provides the safeguards consumers need and encourages the investment Europe wants. Regulation is a complex phenomenon. It consists not only of law, but also of the spirit and intent of the

34  
OECD, *op. cit.*

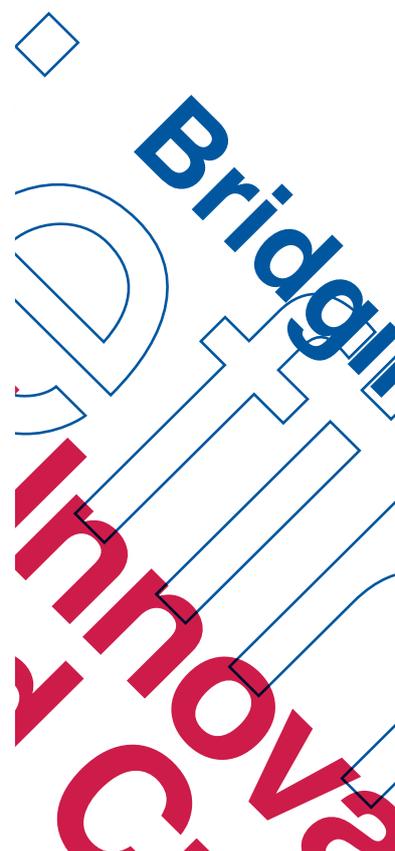
35  
[Bill Goodwin, "Tesco Uses Big Data to Cut Cooling Costs by Up to €20 Million," ComputerWeekly, 22 May 2013.](#)

36  
[Hamel and Marguerit, op. cit.](#)

37  
[James Fontanella-Khan, "€10,000 Fines Threat for Uber Taxis in Brussels," Financial Times, 15 April 2014.](#)

38  
For more on this unique platform, visit the X-Road website at <https://www.ria.ee/x-road/>

39  
One of the first companies to emerge from this massive flowering of Estonian Internet businesses was Skype.



## 'The costs will be felt most profoundly in Europe itself.'

40  
[European Commission, Proposal for a Regulation of the European Parliament and of the Council on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data \(General Data Protection Regulation\), COM\(2012\) 11 Final, 25 January 2012.](#)

regulatory forces behind them. Tough laws can be lightly enforced; just as light laws can be toughened up in the interpreting. Either way, much business is conducted not simply around the services that companies and entrepreneurs provide today, but also in the decisions they are constantly taking about where to do business tomorrow. As a result, the tone a regulator sets can be vital. If you send out a message that you are deeply hostile to new businesses in this area, guess what? Much of the investment you want will be inclined to go elsewhere. If, however, you tell businesses that there are good opportunities here, that the law will be neutral and enabling (offering new entrants an equal playing field, and not allowing the patronage of local business to provide some with an unfair advantage), that local laws will give customers confidence their rights are protected and thereby encourage enthusiastic market participation, and that companies will not be subject to cumbersome new regulation down the line, the results can be quite spectacular.

This is the kind of approach Europe needs. Going forward, we see three key pillars in the European regulatory environment governing data-driven businesses. The decisions taken in each of these pillars will have a crucial bearing on Europe's ability to develop data and data-driven businesses in the future. And, conveniently, each of them is up for review at the present moment. To help policymakers think through the trade-offs, we offer a short analysis of the state of play in each of these three regulatory pillars, proposing a few basic "do's and don'ts" for each. It is important to understand that the quality of the laws will depend not simply on the headlines the proposals generate but on the details of how European regulators eventually decide to get there. Each of these three pillars offers an opportunity – as well as a challenge – to policymakers.

### 1) The General Data Protection Regulation

On 25 January 2012, the European Commission proposed a major overhaul of the 1995 European Data Protection Directive.<sup>40</sup> Most importantly, the proposal came with a significant change in format. The previous "directive" was essentially a mutually agreed European guideline, which only became law when it was transposed into national law in all 28 member states. The new proposal is a "regulation," which is the heavy artillery of EU legislating devices. If adopted, it would immediately become law in all 28 EU member states.

Specifically, the 118-page law as proposed would radically extend the number of companies subject to European data protection rules. Any company dealing with the personal data of European citizens would be subject. In addition, companies above a certain size (and all public bodies) would be forced to hire or designate a full-time "Data Protection Officer." Data rules would include a "right to be forgotten" if customers ask to have their data deleted, as well as limits on the amount of time that personal data could be held and guarantees of full data portability to those who request it. Third parties would remain bound by individuals' original data preferences and limited in processing ability without gaining new consents, a nearly impossible task. Companies of all stripes would be forbidden from supplying data to other companies in countries which European regulators deemed to be untrustworthy. Regulators could order up

# 'The risk is that European policymakers will draw exactly the wrong conclusions.'

“Data Protection Impact Assessments” from companies they suspect of violations – and even from companies they suspect might commit a violation in the future. And regulators could levy large fines of up to 5% of annual turnover on companies that abuse or ignore the rules.<sup>41</sup>

## Do's and don'ts

Understandably – after recent revelations of massive data surveillance operations being run by the US National Security Council – Europeans want a framework in which they know and understand their personal data to be private and safe. European regulators say that the proposed new law will do this. But there are many who feel the rules go too far, moving well beyond the normal assurances consumers might expect and verging into punitive territory for companies, particularly those not based in Europe. One estimate, compiled by the European Centre for International Political Economy (ECIPE), suggests that the law – if approved as written – would have a catastrophic effect on the EU economy, driving down exports, destroying jobs, shaving 1.3% off of annual GDP and costing the average EU household around €983.35 [or \$1,353.00] a year.<sup>42</sup> Another study from the University of Milan Bicocca, Ca' Foscari University Venice and the Denver-based Analysis Group, estimated that if the EU data regulation was implemented as written, it would cost each European small- and medium-sized enterprise as much as €7,200.00 in additional compliance costs each year.<sup>43</sup> This, in turn, would likely suppress jobs in some sectors, reducing employment by as much as 0.6% in particularly heavy hit industries.

In general, there are some elements to praise in the proposed new legislation. The notion of harmonising data protection laws within the EU, for example, could facilitate commerce in this key area by providing a single market for data-driven trade throughout the EU, thereby making compliance easier for companies that want to trade throughout the 28-member bloc. But there are other points that ought to arouse concern among Internet users – and entrepreneurs – throughout Europe. The overall tone of the proposed legislation – and the ensuing debate in the European Parliament – has been one of overt hostility to data businesses, creating a climate in which Europe threatens to shut itself off behind a regulatory wall, and openly encourage the proliferation of weak national champions by ostentatiously shutting out the world's best, most competitive players.

The law, for the moment, remains under discussion among key law-making bodies. After a winter of devastating revelations from US whistleblower Edward Snowden, the European Parliament adopted a tough position, hardening the stance of much that was in the European Commission's original proposal. The European Council, made up of the 28 EU member states whose support for the bill will be required under the EU's “co-decision” procedure, has pushed its decision on the proposed legislation back until Spring 2015. As the discussions go ahead, lawmakers must move to make sure the law does more to create the right framework conditions, enabling a rich and vibrant European market in data-driven analytics and businesses.

41  
Initially, the European Commission suggested a potential fine could go as high as 2% of a company's annual turnover, but the European Parliament raised the level of proposed fines to 5% of annual turnover. The final figure will be determined if and when European institutions negotiate the final details of the package.

42  
[Matthias Bauer, Fredrik Erixon, Michal Krol, Hosuk Lee-Makiyama and Bert Verschelde, \*The Economic Importance of Getting Data Protection Right: Protecting Privacy, Transmitting Data, Moving Commerce\* \(Brussels: ECIPE, 2013\).](#)

43  
[Laurits R. Christensen, Andrea Colciago, Federico Etro and Greg Rafert, “The Impact of the Data Protection Regulation in the EU” \(Denver: Analysis Group, 2013\).](#)

# 'The key is to regulate in a way that does not inhibit innovation and growth.'

## 2) The Safe Harbour Agreement with the US

44  
The seven principles are notice, choice, onward transfer, security, data integrity, access and enforcement. For more, visit the website of [export.gov](http://export.gov), the official export promotion agency of the US government, at <http://export.gov/safeharbor/>.

45  
[Viviane Reding, "A Data Protection Compact for Europe," Speech to Centre for European Policy Studies, 28 January 2014.](#)

46  
*Ibid.*

47  
[Herman Van Rompuy, "Remarks by the President of the European Council following the EU-US Summit," Press Release, EUCO 77/14, 26 March 2014.](#)

48  
The European Commission would also like to see easier access for Europeans to dispute-resolution providers and more aggressive auditing of existing member companies.

49  
Among the 13 recommendations is: "Privacy policies of self-certified companies should include information on the extent to which US law allows public authorities to collect and process data transferred under the safe harbour." Nokia, which has large operations in the US and is a "safe harbour" member, has voluntarily added this notice to its privacy policy: "We may be obligated by mandatory law to disclose your personal data to certain authorities or third parties, for example, to law enforcement agencies in the countries where we or third parties acting on our behalf operate." See [European Commission, Restoring Trust in EU-US Data Flows – Frequently Asked Questions, Memo/13/1059, 27 November 2013.](#)

50  
As of September 2013, there were 3246 US companies taking part in the safe harbour arrangement, an eight-fold increase from the 400 companies using the system in 2004.

The 1995 Data Protection Directive created a unique mechanism for ensuring compliance of US companies with European data law. Known as the "US-EU Safe Harbour," the agreement sets out seven key data privacy principles which US companies must sign up to and fully integrate into their company's data policies if they are going to handle citizens' data while doing business in Europe.<sup>44</sup> After "opting in" to the programme, companies must "re-certify" every 12 months that they are still in compliance. The process is supervised by the US Federal Trade Commission, marking a unique instance of an American regulator enforcing European rules.

The system has recently come under sharp criticism. Last year, after the Snowden revelations, Viviane Reding, vice-president of the European Commission and commissioner for justice, fundamental rights and citizenship, threatened to suspend the entire agreement, and announced a 13-recommendation plan for reforming the programme. "Safe harbour has to be strengthened or it will be suspended," she said in a major speech. "We kicked the tires and saw that repairs were needed."<sup>45</sup>

Since then, the US has made a major effort to give Europeans the assurances they seek. In January, President Obama announced a major review of US intelligence practices – a move that Justice Commissioner Reding pronounced "a step in the right direction."<sup>46</sup> Likewise, at the March 2014 US-EU Summit, President Obama promised European leaders that a US "review" of safe harbour would soon be forthcoming.<sup>47</sup> Most of Vice-President Reding's 13 principles boil down to one point: greater transparency.<sup>48</sup> Already, some important companies that participate in the "safe harbour" programme have unilaterally adopted the greater disclosure which Ms Reding would like to see made mandatory.<sup>49</sup>

### Do's and don'ts

By and large, the safe harbour agreement has worked.<sup>50</sup> Among other things, it has allowed much business to be conducted without an unnecessarily difficult effort to "harmonise" US and European legislation in this area, essentially limiting extrajudicial claims to "mutual recognition" and adding an innovative compliance mechanism onto it. As these discussions move forward, Europeans and Americans need to ensure that vital transatlantic business practices do not become hostage to deeper frustrations over recent developments in the transatlantic relationship. They must find ways that allow both sides of the Atlantic to receive the assurances they need and the safeguards they demand without harming commerce or depriving consumers of the products and services they seek. And they should look carefully at their own practices in the area, recognising that trade agreements can be an important opportunity to unite around a higher standard while driving forward domestic reforms that might otherwise not be possible. The message from Europe to the US is, "you need to improve your privacy standards and increase disclosure requirements," and there may well be something to that. But the message from the US to Europe is equally important: "What you are proposing will hamstring vital new business in this key area of future economic growth. Be careful what you wish for."

# 'The history of trade negotiations teaches that there is room for common ground.'

## 3) The proposed Transatlantic Trade and Investment Partnership

There is one forum where many of these disagreements could be worked out – the proposed Transatlantic Trade and Investment Partnership, which Europe and the US are at present negotiating.<sup>51</sup> To be sure, European regulators – and Vice-President Reding in particular – have gone out of their way to stress that “standards of data protection will not be part of the on-going negotiations for a Transatlantic Trade and Investment Partnership.”<sup>52</sup> But the negotiations nonetheless offer scope for a discussion on how those non-negotiable standards might be written or devised in a way that would imply and facilitate better compliance and greater mutual recognition than in the past. This would require action on both sides. On the US side, it will require higher standards and better safeguards that the right to privacy of Internet users is not being violated – even in the name of national security. But on the European side, it will require a greater willingness to encourage and enforce legislation in this area that is less cumbersome, and more opening and enabling. Times change, and legislation must sometimes be flexible to cope with it.

### Do's and don'ts

Both sides need to listen. The dialogue should be respectful and outcome oriented. No one should agree to measures they are not comfortable with. But no one should expect their interlocutor to agree to measures they are uncomfortable with either. The history of trade negotiations teaches that there is room for common ground here – and that area may, specifically, lie in an agreement that would be based on an acceptance of adequate compliance levels on both sides. The first step is to ensure that all is right with domestic legislation – in Europe as well as in the US. Once that occurs, enhanced mutual recognition, perhaps with an innovative compliance mechanism along the lines of the safe harbour agreement, should be easy to reach – and to gain acceptance. The chance to discuss enabling legislation in the larger context of the transatlantic economic relationship is an opportunity that should not be missed. It could lead, among other things, to positive changes in existing US and European domestic practice as well.

## Closing the data gap: the potential of data-driven growth in Europe

Europe's apparent willingness to aggressively regulate data raises some very important questions about the future momentum of data-driven growth in Europe and around the world. Regulators, businesses and consumers everywhere will be watching Europe closely to see what the final legislation will look like, and more importantly, how these rules could affect the pace of innovation and globalisation. Moreover, should Europe push ahead with an overly regimented approach – effectively making it more difficult for companies, regardless of their origin, to build innovative new data-driven businesses by smothering them in red tape – the data gap between Europe and the US is likely to grow wider. If the new rules overly inhibit data flows in and out of the EU, the costs will be felt most profoundly in Europe itself: lower investment, stagnant wages and reduced job creation in vital new areas of growth.

51 [European Union and United States to Launch Negotiations for a Transatlantic Trade and Investment Partnership, Joint US-EU Press Release, 13 February 2013.](#)

52 [European Commission, "European Commission Calls on the US to Restore Trust in EU-US Data Flows," European Commission Press Release, IP/13/1166, 27 November 2013.](#)



## 'The tone a regulator sets can be vital.'

53  
[European Telecommunications Network Operators' Association, Annual Economic Report 2013 \(Brussels: ETNO, 2013\).](#)

54  
On her way to a summit with French President François Hollande, Ms Merkel said "above all, we'll talk about European providers that offer security for our citizens, so that one shouldn't have to send e-mails and other information across the Atlantic. Rather one could build up a communication network inside Europe." See [BBC, "Data Protection: Angela Merkel Proposes Europe Network," BBC, 16 February 2014.](#)

55  
[Patricia E. Pina, Jeff Kaiser, Karen Mok, Joe Dougherty and Michael Tsan, Open for Business? The Economic Impact of Internet Openness \(New York: Dalberg, 2014\).](#)

56  
See especially the seminal decade-long country study series compiled by McKinsey Global Institute. The results of this study are summarised nicely in William W. Lewis, *The Power of Productivity* (Chicago: University Press, 2004). Mr Lewis was founding director of McKinsey Global Institute.

57  
[Neelie Kroes, "The Data Gold Rush," Speech to the European Data Forum in Athens, Speech/14/229, 19 March 2014.](#)

To date, Europe lags far behind the US and Japan in terms of broadband adoption and investment – a worrisome trend on any day, but also a source of great opportunity in the future.<sup>53</sup> Telco investment actually rose in the US and Japan in 2012, climbing 6.7% and 7.5%, respectively. But it was decidedly flat in Europe, where European providers, facing declining revenues brought on partly by their slowness in diversifying their services and embracing the big-data bandwagon, chose restraint.

The risk is that – faced with a broadening gap – European policymakers will draw exactly the wrong conclusions, and fall back on simple solutions to complex problems that will only leave their domestic worries deeper. German Chancellor Angela Merkel's recent call to develop a "European Internet" is one such example.<sup>54</sup> A European Internet might sound like a grand, patriotic idea. But were it to take shape, it would harm few people or places more than Europe and Europeans themselves. By artificially determining the boundaries in which data could or could not be stored, it would unwittingly lead to a Balkanisation of the Internet, shutting some regions and countries off of economies of scale that are vital to the Internet's functioning.<sup>55</sup> Oddly, Ms Merkel is likely getting very little domestic advice against this approach. Local providers often welcome restrictions on outside entry, even if the ultimate paymaster in such arrangements will be consumers – and even the national champions themselves, whom decades of research have shown suffer the biggest declines in global competitiveness when domestic rules offer them too much local protection.<sup>56</sup>

"Data generates value, and unlocks the door to new opportunities," says Neelie Kroes, vice-president of the European Commission and commissioner for the digital agenda.<sup>57</sup> "You don't need to 'protect' people from their own assets. What you need is to empower people, give them control, give them a fair share of the value." Vice-President Kroes continues: "Keep our data locked up in Europe, engage in an impossible dream of isolation, and we lose an opportunity; without gaining any security. But master all these areas, and we would truly have mastered big data. Then we would have showed technology can take account of democratic values; and that a dynamic democracy can cope with technology. Then we would have a boost to benefit every European."

At a moment when innovation is rapid and constant, Europe needs a strong, judicious framework and a flexible, accommodating regulatory structure that provides adequate consumer protection and remains open to the very real challenges ahead. The key is to regulate in a way that does not inhibit innovation and growth, or stifle economic progress and opportunity.

In the meantime, evidence shows that the cost of data usage in Europe will almost certainly rise if recent European data protection statutes are implemented as written. And that, in turn, will ensure that the data gap between the US and Europe stays wide, significantly reducing the benefits for Europe from the data-driven economy and impairing the ability of large European companies and small- and medium-sized enterprises to grow and compete on the global stage.

# 'The dialogue should be respectful and outcome oriented.'

## Additional reading

Bauer, Matthias, Fredrik Erixon, Michal Krol, Hosuk Lee-Makiyama and Bert Vershelde. *The Economic Importance of Getting Data Protection Right: Protecting Privacy, Transmitting Data, Moving Commerce* (Brussels: European Centre for International Political Economy, 2013)

Buchholtz, Sonia, Maciej Bukowski and Aleksander Sniegocki. *Big and Open Data in Europe: A Growth Engine or a Missed Opportunity?* (Warsaw: DemosEUROPA, 2014)

Bureau of Economic Analysis. *Gross Domestic Product: Fourth Quarter And Annual 2013 (Third Estimate)* (Washington, DC: BEA, 2014)

Clark, Greg, and Tim Moonen. *Europe's Cities in a Global Economy: Trends, Challenges and Opportunities* (London: Centre for London, 2013)

Davenport, Thomas H. *Big Data at Work: Dispelling the Myths, Uncovering the Opportunities* (Cambridge: Harvard Business School Publishing, 2014)

———. "Analytics 3.0," *Harvard Business Review*, December 2013

Davenport, Thomas H., and D.J. Patil. "Data Scientist: The Sexiest Job of the 21st Century," *Harvard Business Review*, October 2012

Filippov, Sergey. *Mapping Text and Data Mining in Academic and Research Communities in Europe* (Brussels: Lisbon Council, forthcoming)

Hamel, Marie-Pierre, and David Marguerit. "Analyse des big data: Quels usages, quels défis?" *La Note d'Analyse* 11/2013 (Paris: Commissariat général à la stratégie et à la prospective, 2013)

Levallois-Barth, Claire. "Big data et protection des données personnelles: un défi (quasi) impossible?" *Telecom*, No. 169, July 2013

Lewis, William W. *The Power of Productivity* (Chicago: University Press, 2005)

Mandel, Michael. *Can the Internet of Everything Bring Back the High-Growth Economy?* (Washington, DC: Progressive Policy Institute, 2013)

———. *Data, Trade, and Growth* (Washington, DC: Progressive Policy Institute, 2014)

———. *Beyond Goods and Services: The (Unmeasured) Rise of the Data-Driven Economy* (Washington, DC: Progressive Policy Institute, 2012)

# 'Per capita monthly data usage in Western Europe is less than 40% of the US average.'

———. “New York: the Silicon City,” *The New York Times*, 06 January 2014

———. *San Francisco and the Tech/Info Boom: Making the Transition to a Balanced and Growing Economy* (San Francisco: South Mountain Economics, 2014)

Manyika, James, Michael Chui, Peter Groves, Diana Farrell, Steve Van Kuiken and Elizabeth Almasi Doshi. *Open Data: Unlocking Innovation and Performance with Liquid Information* (San Francisco: McKinsey Global Institute, 2013)

Mayer-Schönberger, Viktor, and Kenneth Cukier. *Big Data: Revolution That Will Transform How We Live, Work and Think* (London: John Murray, 2013)

Mettler, Ann, and Anthony D. Williams. *The Rise of the Micro-multinational: How Freelancers and Technology-Savvy Start-Ups Are Driving Growth, Jobs and Innovation* (Brussels: Lisbon Council, 2011).

———. *Wired for Growth and Innovation: How Digital Technologies are Reshaping Small- and Medium-Sized Businesses* (Brussels: Lisbon Council, 2012)

Mulligan, Mark, and David Card. *Sizing the EU App Economy* (San Francisco: Gigaom, 2014)

Organisation for Economic Co-operation and Development. “Exploring Data-Driven Innovation as a New Source of Growth: Mapping the Policy Issues Raised by ‘Big Data,’” *OECD Digital Economy Papers*, No. 222 (Paris: OECD Publishing, 2013)

*OECD Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information* (Paris: OECD, 2008)

Patil, D.J. *Data Jujitsu: The Art of Turning Data into Product* (Sebastopol, US: O’Reilly Media, 2012)

Pina, Patricia E., Jeff Kaiser, Karen Mok, Joe Dougherty and Michael Tsan, *Open for Business? The Economic Impact of Internet Openness* (New York: Dalberg, 2014)

The Lisbon Council asbl  
IPC-Résidence Palace  
155 rue de la Loi  
1040 Brussels, Belgium  
T. +32 2 647 9575  
F. +32 2 640 9828  
[info@lisboncouncil.net](mailto:info@lisboncouncil.net)  
[www.lisboncouncil.net](http://www.lisboncouncil.net)  
[twitter @lisboncouncil](https://twitter.com/lisboncouncil)

Progressive Policy Institute  
1101 14<sup>th</sup> Street NW  
Suite 1250  
Washington, DC 20005, USA  
T. +1 202 525 3926  
F. +1 202 525 3941  
[info@ppionline.org](mailto:info@ppionline.org)  
[www.progressivepolicy.org](http://www.progressivepolicy.org)  
[twitter @ppi](https://twitter.com/ppi)

ISSN: 2031-0935

This interactive policy brief is published by the Lisbon Council and Progressive Policy Institute. The responsible editor is Paul Hofheinz, president, head of research and editor-in-chief, the Lisbon Council.



Copyright © The Lisbon Council/Progressive Policy Institute, 2014

This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported Licence.



With the support of the European Union: Support for organisations that are active at the European level in the field of active European citizenship.

Design by **karakas**