

Google response to UK Government Information Economy Strategy call for evidence

1. Google welcomes this opportunity to respond to the Government's call for evidence on its Information Economy Strategy.

About Google

2. Google is perhaps best known for our search engine, which is available to internet users throughout the world. Every day millions of people use Google to search for a wide range of services and information. We also offer dozens of other popular services, from Android to YouTube to Gmail. Our products are generally offered for free for personal use, supported by revenue from advertising and sales to businesses.

3. Although only 13 years old, Google has been in the UK for over a decade and employs over 2,000 people here. In 2011, Google established Campus London in 'Tech City' to support the local tech community. It is now home to over 100 tech startups, has over 10,000 members, and hosts as many as 100 events a month, from mentoring to hackathons.

Current snapshot of the UK internet economy

4. The Internet is the key growth story of today's economy. The UK's ecommerce is world-leading: per capita, we buy and sell more than anyone else in the world.¹

5. In March 2012, the Boston Consulting Group updated their survey on the internet economies of the G20.²

- The UK continues to rank No.1 out of G-20 nations for Internet contribution to GDP.
- The UK Internet economy contributed £121 billion to the overall UK economy in 2010, 8.3 percent of GDP, and is projected to rise to £225 billion (12.4percent) by 2016.
- The UK Internet economy is expected to grow at an annual rate of 11percent, this is compared to a projected 5.4 percent in the USA, 4.0 percent in Germany, 3.4 percent in France and 6.9 percent in China.
- The UK is far ahead of all other G-20 nations with the share of total retail carried out online. In 2010 this was 13.5 percent in the UK and is projected to reach 23 percent

¹www.bcgperspectives.com/content/articles/media_entertainment_strategic_planning_4_2_trillion_opportunity_internet_economy_g20/

²www.bcgperspectives.com/content/articles/media_entertainment_strategic_planning_4_2_trillion_opportunity_internet_economy_g20/

by 2016.

6. The WWW foundation's webindex also shows the UK Internet economy as strong and progressing steadily: it ranked the impact of the UK's Internet economy at 13th in 2007, 7th in 2009, and 4th in 2011.³ Another recent survey by AT Kearney presents a similar picture: the UK is internationally competitive and has a stronger business-to-consumer e-commerce sector than other countries, with the proportion of business-to-business e-commerce to GDP triple the global average.⁴

7. The general trend across Europe is clear: a 2011 survey of 13 national economies by McKinsey & Co. found that the internet accounted for 3.4percent of GDP and 21percent of GDP growth in the previous five years, while creating 2.6 new jobs for each lost to technology related efficiencies.⁵

8. Our online retail sector in particular is world leading and has an estimated value of £78 billion.⁶ 65 per cent of Britons have bought online: the highest proportion in the OECD and twice the OECD average.⁷ Last year, on just one day, consumers made 113 million visits to UK retail websites.⁸

9. Alongside the growth of the Internet economy, in just a few years, London's 'Tech City' has grown from 15 companies to over 3,000⁹, employing almost 50,000 people,¹⁰ and has become the most attractive area in the UK for foreign investment,¹¹ and Europe's leading startup ecosystem¹². Research from the US has shown that high tech jobs, such as those being created in 'Tech City', have the highest 'multiplier effect' of any industry: each high tech job in the US creates 4.3 additional jobs in the local goods and services economy¹³

³ <http://thewebindex.org/visualisations/>

⁴ ATKearney, 2012,

www.atkearney.com/index.php/Publications/the-internet-economy-in-the-united-kingdom.html

⁵ http://www.mckinsey.com/Insights/MGI/Research/Technology_and_Innovation/Internet_matters

⁶ <http://www.imrg.org/IMRGWebSite/user/pages/homepage.aspx>

⁷ <http://www.oecd.org/sti/ieconomy/ieoutlook.htm>

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http://www.digitalstrategyconsulting.com/intelligence/2013/01/boxing_day_was_biggest_day_ever_for_online_retail_in_uk.php

⁹ http://www.demos.co.uk/files/A_Tale_of_Tech_City_web.pdf

¹⁰ www.londonmet.ac.uk/fms/MRSite/Research/cities/Publicationspercent202011/Mapping_the_Digital_Economypercent5b1percent5d.pdf

¹¹ BVCA Private Equity and Venture Capital Report on Investment Activity 2010. Cited in <http://www.london.gov.uk/sites/default/files/digital-economy-2012.pdf>

¹² <http://reports.startupcompass.co/StartupEcosystemReportPart1v1.2.pdf>

¹³ [Technology Works, 2012](#)

Google's perspective on the Information Economy Strategy

10. The world-leading growth of the UK's Internet economy presents us with both opportunities and challenges. Technology is not just powering the growth of our retail sector but driving efficiencies and productivity improvements throughout our public services and manufacturing.

11. But while new tech businesses are booming in Tech City and our online retailers are the best in the world, the far bigger challenge for the Government and the focus of its strategy should be those who *do not* consider themselves part of the Information Economy. Whether you are a High Street baker in Surrey, a farmer in Devon, or a widget maker in Scunthorpe, the Information Economy will impact your business. Those businesses who choose to ignore the way new technologies can increase productivity, efficiency, competition, and access to markets won't just miss out on opportunities to grow but will find it harder to do the work they have always done.

12. As the Information Economy grows and impacts more businesses, the competition for talent will become even hotter. At every level - from high end computer scientists, to mid-level data-savvy managers, through to the basic digital skills needed on a retail shopfloor - businesses and organisations, in both public and private sector, large and small, will be competing for employees with the skills needed to thrive in an Information Economy. This is a major challenge for the UK. In 2011, Stephen Leonard, CEO of IBM UK, revealed that they had only been able to fill 80 percent of the 1000 technology jobs they had created in the previous year.¹⁴ If IBM cannot get the staff, what chance do the smaller guys have?

13. This competition for skills is not only from tech players but widening out beyond the tech sector to retail and far beyond into every aspect of our working lives. And this competition is not only domestic but global. Here lie the greatest challenges and opportunities for an Information Economy. If we do not make the mobility of the global Information Economy count for us by investing in skills, we will go backwards. But if we can build up the right skills, we will not only continue to punch above our weight as an Internet Economy but attract more businesses with a desire to build their factories and businesses here.

Skills (questions 6, 7, and 8)

¹⁴ <http://www.telegraph.co.uk/finance/jobs/8607205/IBM-boss-skills-gap-leaves-200-jobs-empty.html>

14. The Internet is changing the way we work. Analysis by Wilson and Homenidou for the UK Commission for Employment and Skills shows a marked change between 2010 and 2020 across the board in the kind of roles and skills that businesses will demand.¹⁵ Managerial, technical and professional roles are all expected to increase significantly, while administrative roles will grow much more slowly, and plant and machine operatives will decline. According to the UKCES research, businesses of all kinds will demand more and more higher level skills employees. There are many factors driving these changes but technology is undoubtedly one of them.

15. The UK will need more tech skills. In this regard, we welcome the Government's announcement of a new Computing curriculum with computer science at its heart, to be launched in September 2014. Google's partnership with Raspberry Pi to provide 15,000 school children with their own computer, purpose-designed for them to learn to code will, we hope, also help inspire a new generation of programmers and developers. The partnership with Code Club, Teach First, OCR and others will help us reach the children who will really make the most of the opportunity. However competition for computer scientists, programmers and developers is global. Other countries are also putting an emphasis on digital skills: Israel now has the highest number of engineers as a proportion of the population; in Mexico 130,000 computer engineers graduate every year. In the UK, uptake of computer science remains low and accounts for only 0.4 percent of A-levels taken. This is having an impact within businesses: 66 percent of employers are dissatisfied with digital skills of their workforce. This is something that the Government should focus on at the heart of the Information Economy strategy.

16. As well as those with some training or education in computer science, we also need those with mid-range skills, particularly data-analytics. McKinsey Global Institute, in their study *Big data: The next frontier for innovation, competition, and productivity*, estimate that in United States alone businesses will not just demand 190,000 employees with deep analytical skills but *1.5 million 'data-savvy managers'*. MGI point out that these 'data-savvy managers' need not be computer scientists, nor require three year university courses: 'people in these roles simply need enough conceptual knowledge and quantitative skills to be able to frame and interpret analyses in an effective way. It is possible to develop such skills through a single course in statistics and experimental design.'

17. In addition, to computer scientists and data-savvy managers, the Information Economy will demand employees with new and different skills - and not always pure tech skills. In their analysis of the retail sector, UKCES identify a wide range of new specific skills set

¹⁵ <http://www.ukces.org.uk/assets/ukces/docs/publications/evidence-report-41-working-futures-2010-2020.pdf>

that businesses will be increasingly demand, including:

- a greater demand for ICT skills in the design of online shopping websites, managing logistics, the introduction of in-store technologies (e.g. EPOS), and collating information about consumers;
- more emphasis on managing warehousing where the shift to online sales is pronounced;
- the development of marketing / financial skills which are able to target promotional campaigns at customers with a given consumer profile (via data collected through instore technologies or online registration).¹⁶

While many of these changing skills sets are driven by technological change and the impact of the Internet, the skills themselves are by no means purely tech skills. Mapping out business demand for and the current provisions of skills in these areas would be a valuable exercise for Government as they build out their Information Economy strategy.

Areas of focus (response to question 1)

18. This Call for Evidence has a necessarily broad focus. The issues at stake are no longer limited to what used to be called ‘the ICT sector’ but flow out across the economy, with implications for all sectors. The consultation is right to identify that ‘the use of digital technology and information is a key element of most parts of the economy which means the strategy has the potential to make a real difference not only in the UK’s IT sector but *across the whole economy*.’ The Internet and the innovations associated with it are changing every sector and while the impacts may vary one thing that is consistent across all sectors and which Google believes should be a key focus for the Government is the demand that they create for new skills. The UK has the opportunity to become a global hub for the worldwide Information Economy, particularly given our strong headstart on ecommerce, but we will need to make sure that we have the digital skills if are we to realise our potential. Addressing the skills gap, therefore, should be *the* key area of focus for the Information Economy Strategy.

The drivers of change (response to question 2)

19. The consultation asks what would likely be the key drivers of change over the next five to ten years and it is right to identify, for example, Internet computing and data-driven innovation as likely to be key components of big change. As we grow from a global Internet

¹⁶ <http://www.ukces.org.uk/assets/ukces/docs/publications/evidence-report-53-retail.pdf>

of two billion users to one of five billion users, business and Government in the UK should consider the opportunities and challenges that will be created with the shift in language, culture and markets. However it is, of course, impossible to predict the future with certainty: so while Government is right to seek to understand what might happen next, it should be cautious about seeking to constrain it. Policies designed for the Information Economy need to be flexible and technology-neutral, if they are to be successful.

The role of Government and the barriers to growth (questions 3 and 4)

Help for startups and innovators

20. The UK Government can support the innovation that underpins the Information Economy and has begun to do so in a number of ways. Opening up data and shifting procurement online are both good steps and, if their value is to be fully realised, should become the default setting for Government. The recognition and championing of Tech City are also important and have helped establish the cluster on the world stage. Coupled with the Seed Enterprise Investment Scheme, these steps are helping to make the UK a more attractive option for foreign investment in tech startups.

21. There are also reforms that need to be made to allow innovation to thrive. The reforms to copyright, proposed by Professor Ian Hargreaves and supported by the Government, need to be put in place as quickly as possible. This is not just vital for the UK tech community, as the Coalition for a Digital Economy have made clear,¹⁷ but also to stop innovation in other sectors, such as scientific and medical research, from being held back by outdated copyright laws, designed for the age of the tape recorder, rather than the Internet. The fact that copying a CD onto an iPod, something that millions of British people do every day, is technically in breach of copyright demonstrates the importance of flexibility in laws governing technology. In this regard, Google would encourage policymakers to be cautious not to believe that what worked for previous technologies can simply be lifted up and applied to the Internet. In particular, the Internet should not be treated as if it is the same as a mobile phone network. Its scale and structure make it quite different.

Help for ecommerce

22. The Internet has made it easier than ever for businesses to set up and grow online and these low barriers to entry are helping to drive growth and lower prices for consumers. Across the board, Government departments who are considering new legislation or

¹⁷ <http://www.coadec.com/open-letter-to-the-government-on-adopting-hargreaves-recommendations/>

regulation online or for business should be required to consider the implications for the hundreds of thousands of small and medium sized businesses online. As the largest Internet economy the UK has a leading role to play in Europe to ensure that new regulations and directives, such as those around Data Protection, are designed in a way that will not needlessly strangle UK businesses in red tape but instead enable UK businesses to compete on a global stage.

Help for the old economy to adapt and grow

23. Many of the biggest challenges, for example in the competition for the new skills that new ways of working will require, will be for those businesses who do not consider themselves to be part of the Information Economy. As it builds its strategy for the Information Economy, Government should consider what it can do to help the transition of these companies and organisations.

Advantages of Internet computing (questions 9, 10, and 11)

24. 'Cloud computing' is one of those terms that is frequently used and rarely defined but a useful description is offered by Andrew McAfee as 'an umbrella term for a rapidly growing industry' that he more simply divides into three broad layers: infrastructure as a service (computing capacity), platform as a service (software development technologies), and software as a service (software programmes).¹⁸

Internet computing: Stronger businesses

25. Internet computing typically benefits organisations through more effective mobile working, higher productivity, more use of standard processes, better ability to enter new business areas and the ability to open up in new locations.¹⁹ For example, Spanish bank BBVA moved 110,000 employees to Internet computing productivity tools, not with the goal of cost savings, but "to promote innovation, make faster decisions, and increase productivity".²⁰

Internet computing: New jobs

26. Last year alone, it is estimated that Internet computing services helped organizations of

¹⁸ <http://andrewmcafee.org/2012/10/mcafee-cloud-costs-google-model/>

¹⁹ IDC, Quantitative Estimates of the Demand for Cloud Computing in Europe and the Likely Barriers to Uptake, http://ec.europa.eu/information_society/activities/cloudcomputing/docs/quantitative_estimates.pdf

²⁰ <http://www.bbc.co.uk/news/mobile/business-16486796>

all sizes around the world generate more than \$400 billion in revenue and 1.5 million new jobs.²¹ In the years ahead, others estimate Internet computing will create 800,000 jobs across Europe, with 240,000 of them in the UK (compared to 160,000 in Germany and 100,000 in France),²² and 0.1-0.4 per cent GDP growth in the EU.²³

Internet computing: Small business

27. The benefits of Internet computing are by no means limited to large corporations. While the total cost savings increase with firm size, the largest percentage savings are realized by small firms.²⁴ McKinsey estimates that at least one-third of all SMEs make extensive use of Internet computing technologies, and those that do have benefited tremendously, using new Internet-based services to perform the functions that entire departments once performed for large corporations.²⁵

Data-driven innovation (questions 12, 13, 14, and 15)

28. The consultation is right to identify data-driven innovation (or ‘big data’ as this consultation calls it) as a key driver of change. More data is generated today than ever, thanks in part to the proliferation of smartphones, social media, and sensor networks. Companies collect increasing amounts of data from business partners, suppliers, and customers. Data is so common that it’s often considered a “by-product,” generated and collected with no extra effort involved. And data is only going to get bigger. McKinsey projects a 40 percent growth in global data generated per year.²⁶ This trend affects the entire economy, not just a few sectors. For example, by 2009 nearly all sectors of the United States economy had at least an average of 200 terabytes of stored data per company with more than 1,000 employees.

Unlocking data’s potential value

29. Data-driven businesses in the UK are growing faster and acting more innovatively than

²¹ IDC White Paper on Cloud Computing,

<http://www.microsoft.com/en-us/news/Press/2012/Dec12/12-19CloudSkillsPR.aspx>

²² The Economic Consequences of the Diffusion of Cloud Computing, Federico Etro, University of Milan, Bicocca and Intertic, <http://www.intertic.org/Policypercent20Papers/WorldEconomicForum.pdf>

²³ Federico Etro, Economics of Cloud Computing, <http://www.valueoftheweb.com/#>

²⁴ <http://andrewmcafee.org/2012/10/mcafee-cloud-costs-google-model/>

²⁵ http://www.mckinsey.com/insights/mgi/research/technology_and_innovation/internet_matters

²⁶

www.mckinsey.com/Insights/MGI/Research/Technology_and_Innovation/Big_data_The_next_frontier_for_innovation

their counterparts. NESTA's 2012 research study of data-driven businesses in the UK shows how a small but significant group of UK companies – what they call 'the datavores' – are using data-analytics to drive their businesses.²⁷ Their report shows how these businesses, which account for around one in five of all online businesses, grow faster than others. These 'datavores' have a number of defining features. they gather online customer data intensively, subject this data to sophisticated analyses (such as controlled trials and data and text mining), and use what they learn to improve their business. NESTA also report that these 'datavores' are more innovative than their competitors, in products as well as processes.

30. A 2011 study by researchers at the University of Texas found that increasing the usability, quality, and exchangeability of data positively impacts business by improving employee productivity, return on equity, return on investment capital, and efficient use of company assets.²⁸

31. As economic sectors accumulate more data, the economic potential of that data also increases. For example, McKinsey estimates that the efficient and effective use of data could provide as much as \$300 billion in value to the United States healthcare sector.²⁹ Similarly, data in the EU's public administration sector could generate €250 billion in annual value. Data-driven innovation and decision-making in the US retail sector holds a 60 percent potential increase in retailers' operating margins. And the global use of locational data alone holds the potential for a \$600 billion potential annual consumer surplus.

Ecommerce (questions 16, 17, 18)

32. The Internet is powering retail growth in the UK. Double-digit growth in online sales helped overcome an otherwise tough Christmas period.³⁰ 'Click-and-collect' came into its own in 2012, so that despite a slight fall in the number of overall shoppers, when people did get out to the shops they bought more per trip.³¹ Integrated Internet services, such as 'click-and-collect', have become an integral part of the British High Street experience, with consumers researching online and buying in-store and spot-checking prices on their smartphones. And the strength of the UK's online retailing at home is helping to strengthen

²⁷ <http://www.nesta.org.uk/library/documents/Datavores.pdf>

²⁸ http://www.sybase.com/files/White_Papers/EffectiveDataStudyPt1-MeasuringtheBusinessImpactsofEffectiveData-WP.pdf

²⁹ http://www.mckinsey.com/Insights/MGI/Research/Technology_and_Innovation/Big_data_The_next_frontier_for_innovation

³⁰ <http://www.bbc.co.uk/news/business-20932684>

³¹ http://www.brc.org.uk/brc_news_detail.asp?id=2372

our position abroad: UK retail parcels to the USA increased three fold last year.³² So while the Internet brings challenges for retailers, it also brings huge opportunities.

33. Companies now have the ability to grow and scale globally very quickly. In the view of Hal Varian, Google's Chief Economist, 'the early 21st will be the age of the micro-multinational: small companies that operate globally.' This is in part due to lower barriers and lower costs. The availability of open source tools, Internet computing, and virtual office infrastructure has driven down the cost of launching an Internet venture from \$5 million in 1997 to \$50,000 in 2008.

34. The Internet helps companies not just to grow but to scale more easily. Julie Deane founded The Cambridge Satchel Company in 2008 with capital of just £600. She set up a basic website at little cost and with no prior training. Within six months, her turnover was £30,000 and by year end £200,000 and by 2012, turnover was over £1m.³³ But because her company was Internet based, she could grow her shop-front with little friction or risk.

35. The growth of ecommerce is also due to the ease with which companies can reach global markets. Scott Phillips has built up a business in Hartlepool selling reconditioned golf-balls: what started out as local company has grown into a global exporter, with stock delivered worldwide and prices displayed in multiple currencies.³⁴

36. Intermediaries, such as Google, play an important role in supporting UK ecommerce. Google's tools help businesses not only to advertise to new global markets but to use analytics to identify and target them and to use tools, such as Google Translate, to speak to them.

³² http://www.brc.org.uk/brc_news_detail.asp?id=2342

³³ <http://www.telegraph.co.uk/finance/festival-of-business/9637983/Cambridge-Satchel-Companys-search-for-supply-routes-to-success.html>

³⁴ <http://www.thisismoney.co.uk/money/news/article-2177299/Lost-golf-ball-course-Scott-Phillips-million.html>