HM Government

Industrial Strategy: government and industry in partnership

UK Government Information Economy Strategy

A call for views and evidence

Summary of responses

May 2013

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Background: Information Economy Strategy

The Government has set out a vision for the future of British industry and committed to a long term, strategic partnership with industry. The Information Economy is one of 11 sectors where partnerships are being developed.

The term "information economy" is broadly defined and does not encompass a single sector. For the purposes of the strategy the working description of the information economy is being taken as:

"the part of the economy where digital technologies and information combine to drive productivity and create new growth opportunities across the whole economy"

The information economy sector is a significant enabler of other sectors. 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 strategy will therefore look at how the UK can fully exploit growth opportunities for the wider economy through industry and Government working in strategic partnership. An early output of the strategy will be a picture of the trends in the information economy today, a vision for where it is going and the impact it can have on other sectors; and an explanation of how we will get there. The strategy will be action-oriented, with specific pledges from Government and business.

The strategy sits in the context of increasing Government focus on the information economy, and the innovations and technologies which underpin it. The Autumn Statement 2012 announced an additional £600 million of funding for science, research and innovation, including some of the key technologies for the future information economy, such as Big Data and energy efficient computing. The e-infrastructure leadership council (ELC) was established by the Government in March 2012 as a national advisory body making

recommendations to Government, co-chaired by industry and Ministers. The information economy strategy will build on this activity.

Introduction

This Government response refers to the call for evidence and views that ran between 7 February and 15 March 2013. The call for evidence covered five areas that had been identified as being likely to provide real growth opportunities in the sector and where Government and industry, working together, could stimulate growth. These were: cloud computing, big data, e-commerce, internet of things and smart cities.

Respondents

In total, there were 68 respondents to the call for evidence from a variety of different organisations including, large multinationals; many small firms, including independent traders; trade associations and representative bodies from the information economy sector and other sectors such as education; and local bodies.

Responses

All responses have been seen and analysed by the Information Economy Strategy team and have helped inform the development of the forthcoming strategy.

The flexibility of the call for evidence was maximised by its use of open questions. This allowed respondents free text to put forward their ideas and not be restricted. The approach taken in this summary is not to categorise responses through a formal quantitative analysis, but instead to provide an overview of what respondents said, picking out specific comments for illustration where useful.

Overall Summary of Responses

Five areas of focus

The majority of respondents agreed that the five growth opportunities (cloud computing; big data; e-commerce, internet of things, smart cities) were the right areas on which to focus. Cloud computing was commonly cited as the most important of the five because effort spent in this area would drive the other areas, facilitate access to data, reduce costs and improve efficiency. Most respondents recognised the importance of linking the five areas together and not viewing them as "discrete sectors" but "interdependent concepts".

UK business environment

Several respondents thought that the UK business environment was generally conducive to the information economy, for example UK citizens were keen to adopt new technologies and there was a good cluster of high tech global companies in the UK. One respondent said that "this strong base should encourage the UK to brand itself as Silicon Island".

Barriers to growth

Despite acknowledging the UK had its strengths, respondents identified several barriers to growth. The most frequently cited were lack of support for innovation and access to finance; weak UK infrastructure (e.g. broadband); shortage of relevant skills; restrictive public sector procurement; poor cyber security; inadequate data protection and privacy; and an insufficiently joined-up international approach to standards and interoperability.

Cloud computing

In terms of the benefits of cloud computing, most respondents mentioned improved accessibility, whether for sharing information internally with

employees separated geographically or for data always being accessible at any time from any destination.

With regard to the barriers, around a third of respondents said that cyber security was the biggest concern, be that real or perceived. This was by far the highest response. The other barriers cited were poor infrastructure (mobile connectivity and speed of broadband) and inadequate data protection. The following response gives a good indication of the majority:

> *"Cloud use offers many advantages but it is not more widely exploited due to a number of concerns. Risks to access, content ownership, access rights, data security are amongst the greatest challenges."*

There was also a feeling that business culture, for instance aversion to change or wanting to "keep control" in-house, or the expense of changing systems would limit the use of cloud services. Several respondents cited a lack of understanding of cloud services and the applicability to their business.

When making suggestions for action the majority of respondents focused on allaying security and stability fears since these were identified as the major barriers.

Big data

The challenge in defining big data was highlighted because industry uses this term in different contexts.

A significant number of respondents looked at the broader societal picture and focused on increasing awareness of big data and the opportunities arising from enterprise data, existing open data, or future novel combinations.

The most common feedback was that there needed to be firstly, high quality, well defined and strongly managed datasets to build upon. Data must be captured and retained in a secure, managed environment. Second, the

correct strategy, tools and infrastructure needed to be in place to take advantage of this data. Businesses would need capability to assess and integrate data, operationalise the data, and feed it back into the business effectively.

The tools should be simple, engaging and reliable to use. Users should trust the integrity of the tools and processes, as well as the underlying data. Fundamental to achieving success was the need for technically-literate staff at the core to build and evolve the algorithms and systems.

Some respondents highlighted the importance of businesses taking into account the interests of their customers, shareholders and employees when considering the opportunities for big data. Brands should be developed carefully as 'trusted custodians of customer data'

When making suggestions for action, the majority of respondents argued that there should be greater encouragement of openness and availability of private company data, including through regulatory and non-regulatory actions where appropriate.

There was broad agreement that the UK needed data analysts, business analysts and programmers who were knowledgeable in current standards. In addition, the UK needed to support the business leaders of tomorrow who would embrace new data science.

E-commerce

The majority of respondents stated that there were no significant barriers to their online trading. Barriers to growth in online trading that were cited included: slow broadband speed; poor connectivity; high mobile/roaming charges; inadequate access to finance; and identity assurance and cyber security issues.

A few respondents highlighted management challenges that businesses might face, such as logistics and staffing, direct marketing online, and the perceived difficulty of building a brand online from scratch. The online retail world largely involved branded goods which had already built up their reputation offline through "bricks and mortar" sales, advertising and marketing.

Also highlighted was the business to business (B2B) environment which, whilst using the same principles of business to consumer (B2C), had different specifics that could make the cost of developing online solutions prohibitive to smaller players.

There were two main suggestions for action. Firstly, improving infrastructure with more affordable 4G and broadband, and more wireless hotspots. Secondly, allowing better access to finance and increasing business support for start ups and innovative businesses.

Internet of things (IoT)

In terms of the benefits, respondents cited improvements in security, control, maintenance, automation, prediction and forecasting, analytics, productivity and growth, monitoring and data collection, and in cost effectiveness. Some respondents referred to the fact that M2M could lead to better evidence-based decision-making overall, as a result of the improved business process efficiencies and greater volumes of useful data. This could lead to programmes being completed at lower cost and/or with less waste, and within shorter timescales.

Some respondents referred to M2M and the additional revenues for businesses that could come as a result of reduced fraud (through positive identification of goods), and reduced "grey market trading" (through positive monitoring of goods from manufacture through to consumer purchase).

It was thought that the benefits of IoT would be most evident in the following specific areas/sectors: energy, e-health, security, insurance, automotive, traffic management, street lighting and smart homes.

With regard to the barriers, respondents mainly referred to the UK's insufficiently dynamic culture in the IE sector (citing for example, lack of imagination, innovation and risk taking) which would need to change if the UK intended to provide credible challenge to international competitors.

When making suggestions for action, respondents frequently said that there needed to be a joined up, international approach on interoperable data standards. This would drive up the quality and standardisation of data distribution.

In addition, complex environments, such as urban transport systems or city services, would produce an increasing amount of data via IoT. Information sharing platforms would be essential to providing discovery, publishing and subscribing capabilities to foster cross-domain exploitation of data.

Many respondents also emphasised the importance of addressing cyber security because IoT could potentially give criminals and terrorists access to more "things", for example, vehicles, industrial control systems and physical infrastructure.

Smart cities

A significant proportion of respondents said that the smart cities concept had not been well developed anywhere in the UK yet because this concept was still in its infancy. Of the cities that were highlighted as having moved some way towards the concept, London was mentioned the most - particularly for the transport information it provided across many transport modalities, and also for its recently established 'Smart London Board' in which academics, businesses and entrepreneurs advised the Mayor on smart tech issues.

Isolated centres of excellence did exist in other UK cities, including: Bristol; Manchester; Birmingham; Leeds; Cardiff; Oxford; Cambridge; Edinburgh; Glasgow; and, Southampton.

Looking internationally, Singapore was cited several times for having a government with an ambition to implement a smart city through collaborative partnerships with working groups. Singapore was also good at rolling out technology in a timely fashion, for example, electronic road tolling and travel smart cards. China was also cited often as an exemplar of the commitment to improve existing and/or deliver new infrastructure on a massive scale

When making suggestions for action, a few respondents said they would like to see more strategic vision and corporate leadership at local and national level. However, most respondents agreed that central and local government should have a minimal role to play in this area aside from ensuring that the city had the right infrastructure in place to "become smart". Each individual city would need to experiment and apply smart city concepts differently to address its own highest priority concerns, which could vary from, for example, unemployment, skills development, crime control, to sustainability (to name just a few).