

The UK's digital economy

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This is the third in a series that looks at the role of the UK as a global trading nation. What are the challenges, and what are the key decisions facing policy makers? In this article Jonathan Portes looks at how an open economy can support the UK's Government's digital agenda.

The sheer scale and scope of technological advance, driven by information technology, is difficult for most of us to comprehend. I have access both to more information and more computing power in my pocket than almost any human in existence did the day I started work, not that long ago! No-one knows – although many try to predict – the economic and social consequences of these changes, but they clearly will be fundamental to the future development of our economy.

As a consequence, there is hardly a government in the developed world that does not recognise the importance of the "digital economy"; believe that it is uniquely well positioned to take advantage of the opportunities it presents; and claim to have a strategy for making itself a world leader. The UK is no exception: as the UK government's "Information Economy Strategy" put it:

"The information economy is transforming the way we live and work. It is crucial to our success on the global stage, our competitiveness and our connectedness – to our whole economy. In the UK we have a strong history of innovation, from Alan Turing, the "father of algorithms", to Tim Berners-Lee, inventor of the World Wide Web. Today we have world leading computer science departments, highly innovative technology businesses, and a pioneering approach to open data and transparency. If we want to retain our strength in the information economy, then we cannot stand by. We need concerted joint action from Government, industry and academia, working in partnership towards the success of the sector, and ensuring that the benefits are felt across the rest of the economy."

But, in order to work out what an appropriate strategy for the digital economy in the UK looks like, we must start by defining what we mean in the first place. When we talk about the "digital" or "information" economy or businesses, many people think about Tech City (also known as "Silicon Roundabout") in East London, or similar smaller clusters elsewhere in the UK.

Alternatively, they might mention large multinational companies which rely on information technology hardware, software or both, like Apple or Amazon.

But none of this quite captures what we mean. There are of course now very few businesses (or indeed few forms of economic activity) where digital inputs do not figure in some form or other. We all use email and work for organisations which have websites. More fundamentally, most traditional companies – in sectors from pharmaceuticals to finance to extractive industries – rely increasingly on digital or information technology based initiatives to improve performance.

When statisticians, economic analysts or policymakers talk about the digital economy we normally mean specific industries and types of output. The standard definition covers information and communication technologies on the one hand, including manufacture and services; and digital content on the other, in everything from e-commerce to music to architecture.

However, our reliance on somewhat outmoded forms of classification means that this misses a lot of the digital business activity that really matters - and is likely to matter even more in future. As digital platforms and tools spread out into the wider economy, and become pervasive in a greater number of sectors, so the set of 'digital' companies widens.

Indeed, Recent research by my NIESR colleagues Max Nathan and Anna Rosso found that the digital economy is substantially larger than conventional estimates suggest; almost 270,000 active companies in the UK (14.4% of all companies as of August 2012), and 11% of all jobs. This compares to 167,000 companies (10.0%) when the Government's conventional definitions are used.

The difference arises because conventional definitions miss out a large number of companies in business and domestic software, architectural activities, engineering, and engineering-related scientific and technical consulting, among other sectors.

Table 5: Total number of firms in the information economy by GI product

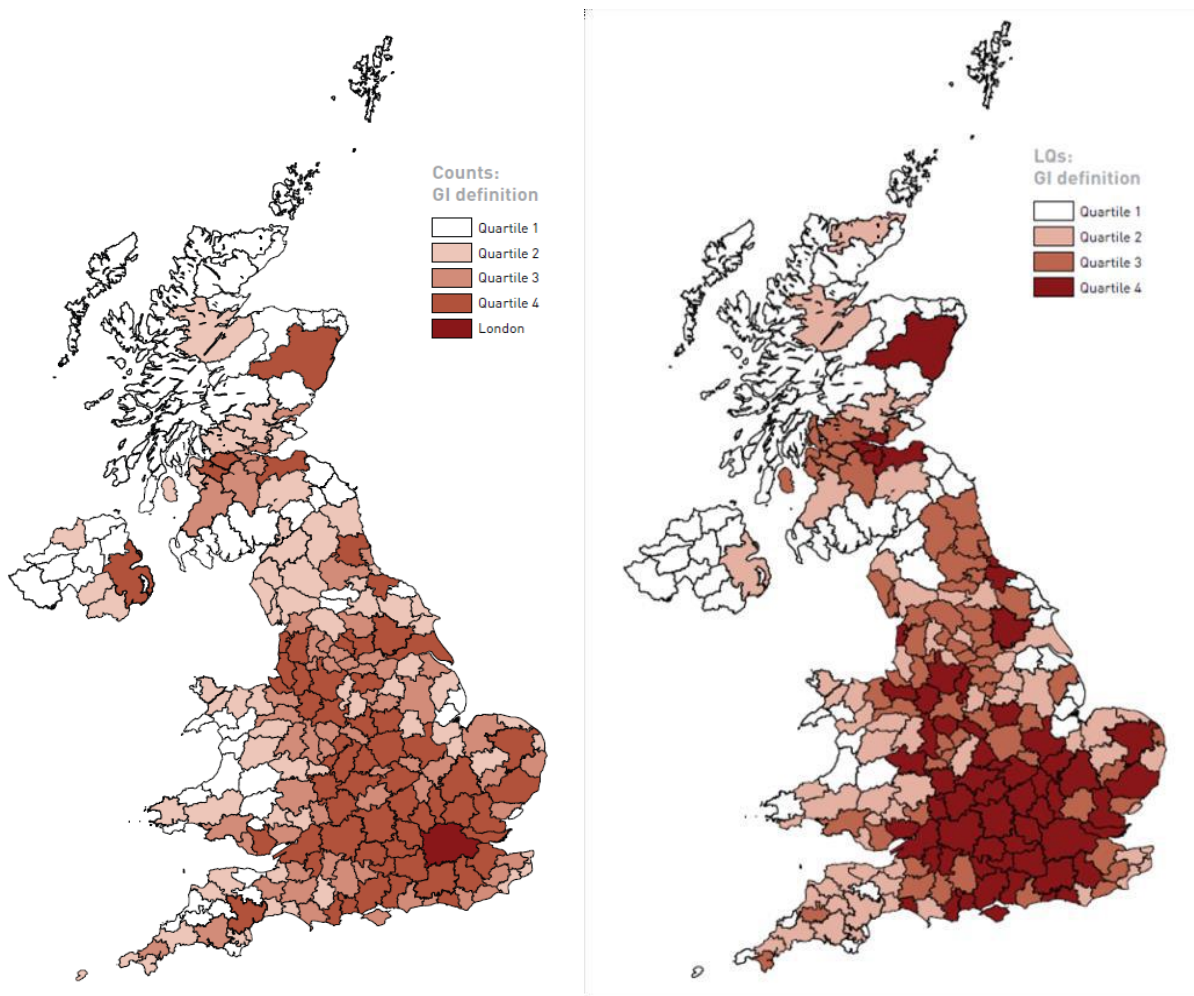
| | <i>Observations</i> | <i>%</i> | <i>Revenues (£)</i> | |
|-----------------------------|---------------------|------------|---------------------|---------------|
| | | | <i>mean</i> | <i>median</i> |
| advertising_network | 1,663 | 0.74 | 3,163,943 | 341,687 |
| broadband_services | 8,628 | 3.82 | 4,050,860 | 18,369 |
| care_or_maintenance | 15,663 | 6.94 | 1,300,043 | 54,642 |
| consultancy | 151,408 | 67.05 | 2,009,348 | 57,802 |
| education_courses | 645 | 0.29 | 6,321,385 | 434,989 |
| electronics | 15,180 | 6.72 | 12,953,757 | 174,866 |
| peer_to_peer_communications | 1,300 | 0.58 | 13,120,439 | 0 |
| software_desktop_or_server | 5,237 | 2.32 | 547,854 | 13,171 |
| software_mobile_application | 31 | 0.01 | 2,953,207 | 1,426,606 |
| software_web_application | 43 | 0.02 | 14,577,145 | 409,863 |
| custom_software_development | 19,981 | 8.85 | 1,012,336 | 34,814 |
| web_hosting | 6,021 | 2.67 | 1,392,615 | 34,765 |
| <i>Total</i> | <i>225,800</i> | <i>100</i> | <i>2,723,804</i> | <i>57,282</i> |

Source: Gi and Companies House data

Note: observations by product when defining digital economy using GI ICT products and sectors ((manufacturing and services). Revenues are GI modelled revenues.

And looking at the detail is even more revealing. The digital economy is definitely not just, or even mainly, about start-ups: indeed, companies active in the digital economy have a similar average age to those outside it. Shares of start-ups (companies up to three years old) are very similar. Given the popular image of the digital economy as start-up dominated, this may be surprising to some. Similarly with geographic location - while there is indeed a strong cluster of digital start-ups in East London, looking at digital businesses more broadly reveals a large concentration in the crescent of high-value activity that runs around the West of London - probably reflecting not just the prosperity of this area but its good transport and communication links both domestically and internationally. There are some perhaps unexpected hotspots both in the North East and in Eastern Scotland.

Figure 5. Information economy company counts and LQs by TTWA (sector*product)



Note: counts are quartiles plus London.

So, looking at this broader concept, what is "different" about the digital economy, and what is the role of government? The government announced in its [Productivity Plan](#) Its intention to publish, in autumn 2015, a Digital Transformation Plan that “sets out concrete actions the government will take to support the adoption of digital technologies across the economy, and the ways in which the government will assist in tackling barriers to new businesses entering and creating new markets. “ Other countries – and not just industrialised countries – are taking similar action. For example, India recently announced the **Digital India programme, with a vision to** “transform India into a digitally empowered society and knowledge economy.”, by improving digital infrastructure, moving more government services on-line, and encouraging more private investment.

For the UK, what should such a plan include? I would identify the following key points - they are by no means exclusive to the digital economy, but they are, I would argue, of particular relevance.

First, the importance of trained, skilled workers - not just people with degrees, but with specific skills; and not just for the minority of people who are employed in obviously “digital” companies but across the economy as a whole. It is no longer enough to talk about “IT skills” as if they were interchangeable - digital companies are likely to need both people with a high level of general analytic skills, and at least some people with very specific, and highly specialised, skills and qualifications. This poses significant challenges to government. Should education and training focus on providing as many people as possible with general IT skills, or should public policy (and public subsidy) be directed at advanced training in specific areas. In my view, central planning rarely works in advanced market economies; and this is particularly true of the labour market. That would imply that for compulsory and publicly funded education, the focus should be on general skills and basic knowledge; while for advanced skills, the role of policy should be to ensure that companies do have access to these skills.

There are clear implications here for immigration policy (see my earlier article [here](#)). Policy could work much better (without spending any more public money) if government pulled back from second-guessing companies' own decisions on which skilled workers they need. Trying to construct ever more elaborate and detailed lists of “shortage skills” is simply not a sensible or feasible role for government, particularly in an industry when things change faster than government analysts, can possibly hope to keep up. Current proposals to significantly reduce the number of visas given to skilled workers – and/or to scale back on the “intra-company transfer” route used by many companies to bring in workers with specific skills for a limited period of time – appear particularly retrograde.

Second, the very different nature of different firms in the digital economy means that a differentiated approach to policy is required. For example, some digital companies require a lot of expensive capital investment; but most do not. So simply subsidising capital investment is not necessarily the answer. More effective might be broader incentives to increase research and

development spending, and provide small and medium sized firms with access to “patient capital” that does not demand an immediate return.

Third, government procurement. Here, we are confronted with the paradox that the government spends large amounts of money on ICT projects ranging from the enormous to the tiny, often wastefully; and yet ICT companies, who you might think would find this situation to their liking, frequently complain about the difficulty of working with government. Government needs to become considerably more flexible and agile in the way in which it contracts with the sector; this goes much wider than just traditional large ICT hardware or software consultancy contracts.

Fourth, the European Single Market. It has long been a key policy objective of the UK government to extend the Single Market to services, including those with an information technology or digital component. In principle, this remains government policy. However, in practice, all the rhetoric surrounding the proposed "renegotiation" of the UK's relationship with the European Union has focused on two main points: reducing EU migration and/or restricting access to welfare benefits, and reducing EU regulation. The former isn't really reform at all; and the latter, while it may be beneficial in some cases, does nothing to extend the Single Market. In fact, quite the reverse: to make the Single Market in services a reality, more EU regulation will of course be required, in particular to ensure that companies have to meet only one set of standards and regulation across the EU, and to give market access in all countries to companies based anywhere in the EU. The government needs to get its priorities right here, and focus on issues which will be of genuine benefit to British business and workers.

The digital economy, broadly defined, will almost certainly be a major contributor to UK economic growth over the next few years. While there are huge opportunities, and the UK is well-positioned, the issue is wider – and the policy responses necessarily more complex – than might first appear.