

THE STARTUP MANIFESTO

How the next government should
support digital startups in the UK

Guy Levin – September 2014



#StartupManifesto

ABOUT COADEC

Coadec is the policy voice of digital startups.

Set up in 2010 by tech entrepreneurs, The Coalition for a Digital Economy (Coadec) is a non-profit that campaigns for policies to support digital startups in the UK.

Our supporters include startups and entrepreneurs, developers, VCs and angel investors, technology companies and academics.

Coadec is sponsored by Google, Intuit, TechHub and iHorizon.

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INTRODUCTION

Why digital startups matter

Digital startups matter to the UK. They create jobs and perhaps most importantly are a source of productivity growth and innovation. The digital revolution is having a profound impact on all parts of society and the economy.

In 2011, venture capitalist Marc Andreessen wrote that 'software is eating the world'.¹ He was right. It's hard to think of an industry that isn't being affected. The recent taxi protests over Uber² are an example of this disruption spilling from the metaphorical into the real.

When we think about what the UK will be good at in the future, it's clear that embracing the digital economy makes sense. The UK's internet economy is already a significant and growing part of the broader economy. It already makes up over 8% of GDP, and is forecast to be worth over 12% by 2016.³ We are the fastest growing digital economy in the G20,⁴ and in London alone it is forecast to create an additional 46,000 jobs and contribute £12 billion to our economy over the next decade.⁵

Research has shown that entrepreneurial firms, of which digital startups are a significant subset, are an important source of employment, productivity growth and innovation.⁶

This isn't just about app developers in Shoreditch, it's a trend affecting every

sector of the economy, and every region of the country.

Why is this happening

We are more connected than ever.

The UK is one of the most connected nations on the planet - we spend more time using technology every day than we do sleeping.⁷ While challenges remain for digital inclusion, a large majority of the population is now online: 87% of the population is online,⁸ over 60% of UK adults use a smartphone, and even those aged 65-74 are now twice as likely to use a smartphone as in 2012.⁹

Barriers to entry have plummeted.

The cost of launching a digital product or service has fallen dramatically over the last decade. Cloud web services now mean that a startup pays for what it uses and does not need to invest in expensive infrastructure. Amazon, Google and others offer cheap and scalable storage in the cloud. In 2000 it cost around \$19 per month to host a gigabyte (GB) of data,¹⁰ in 2014 on Amazon Web Services it costs \$0.03 per GB.¹¹

This trend also affects SMEs and individuals. While marketplaces like Ebay are not new, anyone can now create a virtual shopfront at very low cost using Etsy or Shopify, unleashing a wave of micro-entrepreneurs.

It is predominantly startups who capitalise on these trends to provide

innovative services to consumers and businesses.

UK startups are thriving

The backdrop of this manifesto is a thriving digital economy that has

been supported by a series of policy measures over the last decade.

Before looking at what should be changed, it is important to note that the UK is in a position of strength on startups.

FIGURE 1 - EXAMPLES OF UK STARTUPS BY SECTOR

Across different sectors, UK based startups are now household names:

TRANSPORT

Citymapper, Hailo, skyscanner

MUSIC

Songkick, Shazam

ECOMMERCE

Made.com, Farfetch, JustEat

GAMING

MindCandy, NightZooKeeper

PROPERTY

Zoopla, OneFineStay, Flatclub

FINTECH

Zopa, FundingCircle, TransferWise, Wonga

ADVERTISING

Unruly, FutureAdLabs, Skimlinks

CLOUD

Box, Huddle, Mimecast

MOBILE

SwiftKey

BIG DATA

Duedil

Role for policy

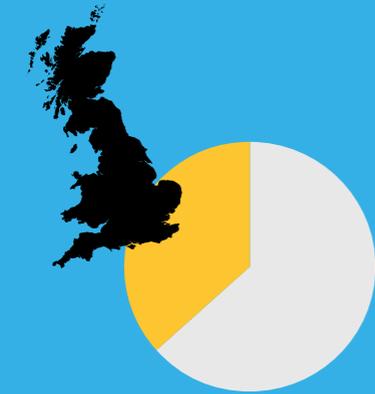
But despite this good news, in order to take advantage of the massive opportunity presented by the digital revolution, policymakers must continue to support startups.

A significant reason why UK startups have been thriving is the supportive policy environment. In 2006, then Shadow Chancellor, George Osborne MP visited California and wrote that 'in Silicon Valley I have seen the future and at present Britain is not part of it'.¹² In Government this translated

into a series of policy moves to support startups - including tax reliefs on investment, reforms to IP and investment in broadband.

A further role for Government is its convening and promotional powers, for example regular engagement by Downing Street with the digital economy, the Tech City UK initiative, and clear promotion by UKTI of startups overseas.

We are competing internationally for talent and capital. Policymakers



Europe has created 30 \$1bn+ tech companies over the last decade, of which **11 have been from the UK**¹³

UK app developers will add **£4 billion to GDP this year**, and the sector will be worth £31 billion by 2025¹⁴



Over **15,000 new businesses** were formed in the postcode area near the Old Street ('Silicon') Roundabout last year, more than anywhere else in the UK¹⁵

INTRODUCTION

around the world wake up to the benefits of digital entrepreneurship. A striking example is Startup Chile, which offers entrepreneurs a \$40,000 grant, visas for the team, and free office-space, all without asking for any equity.¹⁶

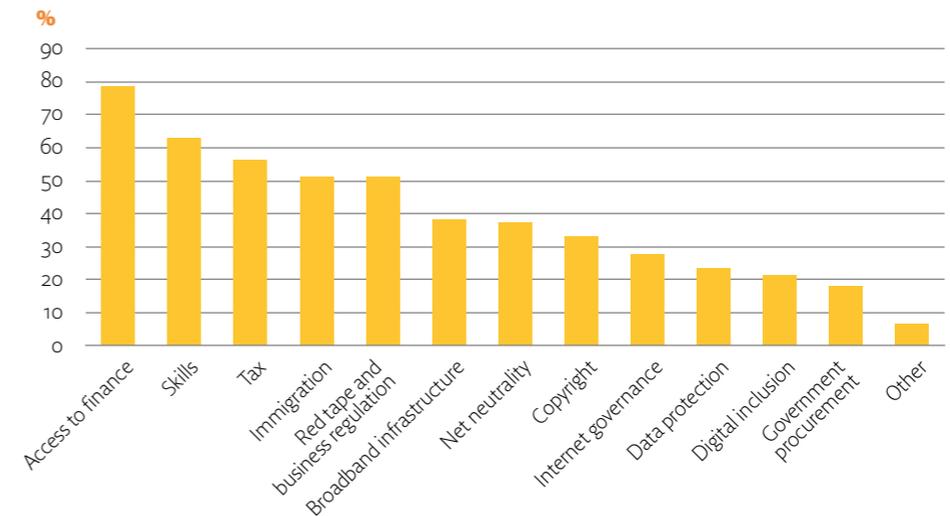
Government will face both increased international competition, as well as a more challenging policy environment.

What policy issues matter to digital startups

In a survey of Coadec's members, startup founders and entrepreneurs set out the issues that matter to them:

UK policy is now often seen as best-practice internationally, but the next

FIGURE 2 - WHICH POLICY ISSUES MATTER MOST TO STARTUPS



Source: Survey of Coadec supporters

In this manifesto Coadec proposes a set of policy responses to address these issues. It is based on conversations with startup founders,

VCs and those with an interest in the digital economy.



IMPROVE ACCESS TO FINANCE

Entrepreneurs need funding in order to found and grow startups. While the costs of launching a startup have fallen significantly, access to finance is still a major issue for startups. Founders surveyed by Coadec ranked it as the top issue they face.¹⁷

To some degree this is representative of the relative youth of the UK's digital sector. Unlike Silicon Valley, we have not yet seen several generations of startups grow and exit. Despite huge growth in recent years, it is still a relatively untested sector for institutional investors, and successful exits are yet to create hundreds of UK tech millionaires and billionaires who then continue investing in the sector.

There is, however, also a significant role for government policy. In 2010, Prime Minister David Cameron announced the ambition of 'making Britain the best place in the world

for early stage and venture capital investment'.¹⁸ Since then the current government introduced significant tax reliefs on investment in early stage companies – extending reliefs within the Enterprise Investment Scheme (EIS) and in 2012 introducing new reliefs through the Seed Enterprise Investment Scheme (SEIS).

Equity financing is normal for startups, with loans often unsuitable or inaccessible for most. The evidence suggests that funding at the seed level has become easier to access in recent years, supported by tax reliefs, but that has been hard for startups to raise subsequent rounds of funding.

The goal set by the Prime Minister in 2010 was a good one, and the next government should continue to incentivise investment in early stage companies, including digital startups.

1 COMMIT TO KEEPING SEIS AND EIS TAX RELIEFS FOR THE NEXT PARLIAMENT

The EIS and SEIS schemes have been very effective at encouraging investment in startups. They offer significant tax benefits, reducing risk for early-stage investors. According to a recent survey 86% of angel investors say that they always use EIS or SEIS, while 58% say they would not have invested at all without them.¹⁹ Despite only running since 2012, SEIS has already helped over 1,600 companies raise more than £135 million in investment.²⁰ Startups consistently say that without SEIS and EIS that they would have been unable to get started.

There are a number of small changes that could be made to improve the impact of these reliefs. For example, we support the BVCA's recommendation in their latest Budget submission for convertible debt to be made eligible for EIS/SEIS relief, as well as for the 12 month time limit by which startups must have spent 90% of the investment to be expanded to 24 months.²¹

Most important however, is simply that these reliefs are retained. This will give certainty to investors and protect an important source of capital for startups. The next government should commit to retaining both SEIS and EIS tax reliefs for the duration of the next Parliament.

2 BRING BACK TAX RELIEFS FOR CORPORATE VENTURE CAPITAL

Corporate Venture Capital (CVC) is when a company invests in the equity of a high growth or high potential privately held business. They may do this simply as a financial investment like traditional VC, but also to tap into innovation. The UK lags well behind the US when it comes to corporate venturing. Intel Capital alone has invested over \$11 billion in over 1,300 companies.²²

UK companies still hold considerable cash piles following the financial crisis, with 6 in 10 sitting on a cash surplus, estimated to be worth £440 billion.²³ International companies also have substantial cash on their balance sheets, including in Europe (partly due to US

tax rules). There is a strong case for incentivising companies to invest in high growth businesses, supplementing investment by angels and VCs. Greater engagement from corporates should also be welcomed for the other benefits it would bring beyond the financial, including opening up networks and sharing information.

Between 2000 and 2010 the UK had tax reliefs for companies who invested in high growth companies, the Corporate Venturing Scheme, but it was not renewed in 2010. As the BVCA²⁴ and RSA²⁵ have argued, corporate venturing could be an important source of capital, and so this tax relief should be revisited.

The next government bring back tax reliefs for corporate venturing.

3 REMOVE THE CAP ON ENTREPRENEURS' RELIEF AND LOWER THE EQUITY THRESHOLD

Entrepreneurs themselves are restricted in how they can benefit from tax reliefs on investment in early stage companies. Founders, as well as 'associates' (close family members) cannot own more than 30% of a company and still qualify for SEIS relief. For EIS the bar is higher, as directors and employees are disqualified from claiming the relief, effectively ruling out founders.

The argument made is that entrepreneurs themselves benefit from Entrepreneurs' Relief and should not benefit from SEIS/EIS as well. Entrepreneurs' Relief reduces the Capital Gains Tax (CGT) rate for founders who sell their business to 10%.

We propose two changes to Entrepreneur Relief to better incentivise serial entrepreneurship and better decision making:

Remove the cap on Entrepreneurs' Relief

Entrepreneurs' Relief is capped at a lifetime value of £10 million. Beyond this threshold a founder would pay the standard rate of CGT of up to 28%.

Removing the lifetime cap would encourage serial entrepreneurship, incentivising successful founders to start new businesses and reinvest some of the money they make.

Entrepreneurs need funding in order to found and grow startups. While the costs of launching a startup have fallen significantly, access to finance is still a major issue for startups. Founders surveyed by Coadec ranked it as the top issue they face.



There has long been a stereotype of UK entrepreneurs making some money and then retiring to a country house rather than starting over and building something again. Extending Entrepreneurs' Relief would help fix this.

An alternative method of reaching a similar policy goal would be to introduce a new roll-over relief for Capital Gains Tax, so that gains that are reinvested into a new startup would be exempt from tax.

Lower the equity threshold to qualify for Entrepreneurs' Relief

Currently, only those who own more than 5% of the equity in a business qualify for Entrepreneurs' Relief.

However this does not take into account the significant dilution that many VC backed entrepreneurs are subject to. Founders and early employees of successful companies that raise significant rounds of investment may well be diluted below the 5% threshold, making them ineligible for tax relief. This can lead to skewed decision making, notably the incentive for founders not to pursue additional investment in order to avoid dilution below 5%.

Lowering the equity threshold would remove those risks. An alternative means of reaching the same goal would be to give any company at the moment it registers a certain number of 'tokens' (less than 10), which it can then allocate to founders and early employees, qualifying them for Entrepreneurs' Relief.



IMPROVE ACCESS TO TALENT

For digital startups to thrive in the UK we need talented entrepreneurs to found companies, and we need startups to be able to hire skilled developers, engineers and designers.

Access to talent is a constant challenge for startups. A survey of Coadec supporters showed it was the 2nd ranked issue, after only access to finance. This reiterates findings of other reports, for example research last year found that 77% of Tech City businesses could grow faster if there were more skilled people available, with most resorting to freelancers to fill the gaps.²⁶

Depending on the definitions used there are a wide range of estimates of the skills gap. European Commission research suggests that the skills gap is larger in the UK than anywhere else in the EU, with 250,000 ICT job vacancies expected by 2020,²⁷ while Baroness Lane-Fox has argued that there will be 1 million new tech jobs to be filled in the UK by 2020.²⁸

One response to Coadec's survey summed up what is needed 'Addressing the skills shortage by both stronger education and a more robust and fit for purpose visa system'.²⁹

The UK needs to significantly improve digital skills for the entire population.³⁰ Different skills will be needed for different groups, but basic digital literacy is essential for everyone, while a significant subset needs advanced skills to create and utilise new technologies.

There is a considerable gender divide in tech, with women making up just 16% of IT workers. This starts in education, where just 35% of applicants to STEM degrees are female (and just 12% of Computer Science).³¹ When tackling the skills shortage, the next government should do all it can to encourage more girls and women to study STEM subjects, build digital skills, and become entrepreneurs.

It is excellent news that from this month, all school children will learn computing as part of the revised national curriculum. The next government should continue to support digital skills, however these supply side changes will inevitably take time to feed through the system.

In the short to medium term, immigration is the best solution. The UK benefits hugely from migrant entrepreneurs, with successful

startups like TransferWise, Seedrs, Skimlinks, DueDil and YPlan founded by international teams. Across the UK migrant entrepreneurs are behind one in seven companies.³²

UK universities train top STEM grads from overseas, but the lack of visa options mean that many potential entrepreneurs and skilled workers are forced to leave.

Startups also look to hire skilled workers from around the world. Free movement of labour within the EU offers a significant pool of talent, but a large proportion of skilled individuals come from outside the EU - including the US, Israel and India.

4 RESTORE POST-STUDY WORK VISAS FOR STEM GRADUATES

Since April 2012 the former Tier 1 (Post Study Work) Visa has been closed. The category had allowed non-EU students to stay in the UK for two years after graduation. Since its closure it has been much more difficult for entrepreneurs to stay on and start their business (the Graduate Entrepreneur category is helpful but not an answer in of itself). Those who would have found work at a start up company now have to wait for immigration sponsorship, encountering delays that can mean they have to leave the UK or look for opportunities elsewhere.

This matters for digital startups. Since 2010 the number of non-EU students entering UK universities to study Computer Science has fallen by 38%.³³ Talented graduates in STEM subjects, including Computer Science, should be encouraged to stay in the UK. They may be future entrepreneurs and employees of innovative businesses.

The next government should reinstate post-study work visas for non-EU graduates in a STEM subject at UK universities

5 MAKE IT EASIER FOR STARTUPS TO HIRE FROM OVERSEAS

Startups struggle to hire people from non-EEA countries. The entire process is complicated, costly, and time-consuming for startups. This is simply not acceptable in the age when digital businesses depend on being able to move quickly and grow.

The process of getting licensed to sponsor Tier 2 visas is not cheap (£526 for SMEs), can be exceptionally complex and bureaucratic, and is time consuming (the government says 20% of applications take over 8 weeks,³⁴ and evidence from startups suggests in some case it can be much longer as the Home Office policy is to visit startups before they issue their sponsor licence). Then startups need ensure the salary for the role is above £22,800 (the minimum for 'Programmers and software development professionals')³⁵ and then advertise the role in the UK for 28 days and demonstrate that there were no suitable workers before being granted a sponsorship certificate. And that is all before the individual has even applied for their visa.

This complexity, time and cost is damaging. The salary threshold is also a barrier for many startups, even when taking account of the new entrant minimum salary levels for Tier 2 migrants as often initial salaries are low, compensated by employees receiving equity in the startup.

Where a startup will only recruit a small number of non-EU employees the government should consider allowing a trusted third party, such as a VC firm, to sponsor them. This will allow the startup to recruit them before securing a sponsor licence, potentially bringing their start date forward by a few months and avoiding losing them.

It is welcome that the Tier 1 Exceptional Talent Visa has been extended to include a category for digital technology. Tech City UK can make up to 200 recommendations to the Home Office, however there is poor awareness of the scheme, and the eligibility criteria are too restrictive. This route is currently out of reach for almost all startups because so few people appear to qualify - meeting the test of being 'established as a world-leading recognised expert in your field within the digital and tech industry'.³⁶

The next government should make it easier for startups to hire from overseas by:

1. Speeding up the process of sponsor licencing and reduce application fees for SMEs
2. Allowing VC firms to secure tier 2 visa sponsor licenses and therefore sponsor visas on behalf of their startups
3. Removing the salary threshold for digital workers (this could be defined by SOC codes 2136 and 2137)³⁷
4. Exempting digital roles from the requirement to advertise the role for 28 days in the UK
5. Adding digital roles to the Tier 2 Shortage Occupation List
6. Relaxing the eligibility criteria for the Tier 1 Exceptional Talent visa and allow other bodies to make recommendations

6 REFORM THE GRADUATE ENTREPRENEUR VISA

The Graduate Entrepreneur Visa in its current form is not delivering on its potential. At its best, this would ensure that top graduates from UK universities stay to develop their business ideas here, rather than returning home or to a country with a more favourable visa climate.

According to the most recent figures, in Q1 2014 only 146 Graduate Entrepreneur visas were granted.³⁸ While the figures are slowly rising, they are well below the number of available visas (1900).

Given that there were more than 170,000 non-EU students at UK universities in 2012–13 (of which over 52,000 were studying STEM subjects),³⁹ and that 0.7% of students tend to start their own business,⁴⁰ such low numbers cannot reflect the potential pool of entrepreneurs.

The low level of refusals by the Home Office suggests that the problem is upstream at universities.

Only 96 HE institutions⁴¹ are currently registered to sponsor Graduate Entrepreneur Visas, out of a total of 161 HE Institutions⁴² registered

Since 2010 the number of non-EU students entering UK universities to study Computer Science has fallen by 38%. This matters for digital startups. Talented graduates in STEM subjects, including Computer Science, should be encouraged to stay in the UK.



with the HE Statistics Authority. Even for those universities which are sponsors, schemes may be poorly signposted to students, and universities are declining to sponsor potential entrepreneurs. Anecdotal evidence suggests that universities have been warned to be cautious in sponsoring students or else risk their broader ability to sponsor student visas.

TABLE 1 – TIER 1 GRADUATE ENTREPRENEUR VISA

	Decisions	Grants	Refusals	Refusal rate
2012 Q4	28	27	1	4%
2013 Q1	68	66	2	3%
2013 Q2	38	35	3	8%
2013 Q3	15	13	2	13%
2013 Q4	81	79	2	2%
2014 Q1	153	146	7	5%

Source: Home Office

Each university also receives a fixed number of visa slots, 10 for MBA students and 10 for non-MBA students. As Nesta note, this does not make sense when some universities (eg Imperial, Oxford and Cambridge) account for a disproportionate number of startups.⁴³

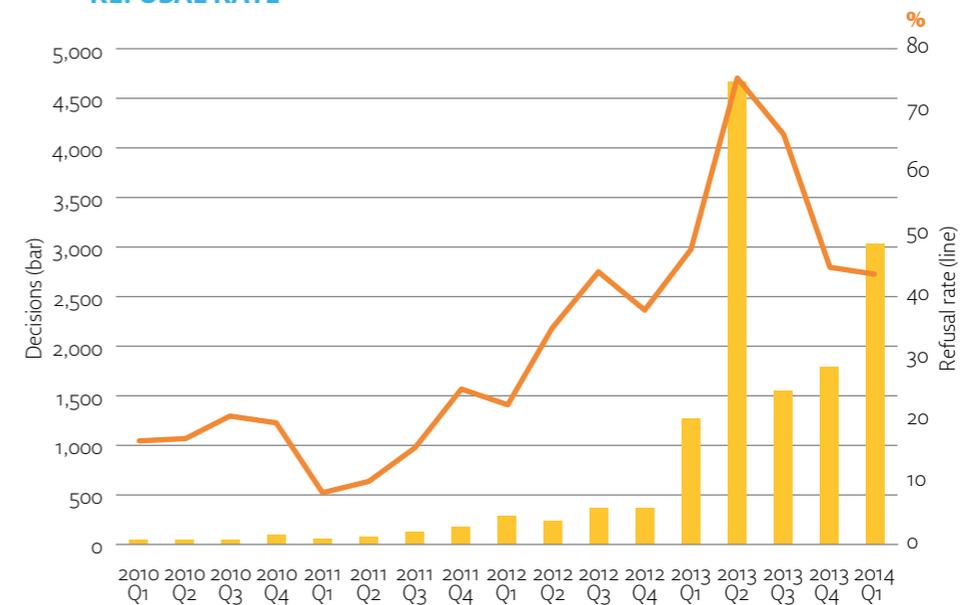
To reform the Graduate Entrepreneur Visa:

1. The visa cap of 10 per institution should be lifted, and the total cap reviewed when it is met
2. Allow other non-academic organisations to sponsor visas, for example startup accelerators like Entrepreneur First or entrepreneurship organisations like the National Association of College and University Entrepreneurs (NACUE)
3. Lower the ‘credible business idea’ bar to focus on the individual’s entrepreneurial potential, not the quality of the idea
4. Extend the time period in which graduates are eligible to apply, currently set at 12 months following graduation

7 OPEN UP THE ENTREPRENEUR VISA TO THOSE WITH FUNDING FROM ANGEL INVESTORS AND CROWDFUNDING PLATFORMS

The Entrepreneur Visa is intended to in the words of David Cameron to ensure that ‘If you have a great business idea, and you receive serious investment from a leading investor, you are welcome to set up your business in our country’.⁴⁴ It is right that the UK is trying to target migrant entrepreneurs. Data from the top VC firm KPCB suggests that 60% of the top 25 US tech companies were founded by immigrants or their children (Google, Intel, Ebay, Texas Instruments, VMware, Yahoo!, Cognizant and LinkedIn were all founded by 1st generation immigrants).⁴⁵

FIGURE 3 - TIER 1 ENTREPRENEUR VISA: DECISIONS AND REFUSAL RATE



Source: Home Office

The number of applicants has soared – from less than 50 per quarter in 2010 under the previous scheme, to over 3,000 in 2014. The proportion of applications which have been refused has also risen drastically, peaking at 75% in Q2 2013.⁴⁶ This is likely due to increasing awareness of the scheme but also due to the closure of other routes.

Entrepreneurs either need to show £200,000 in funding for their company that can come from anywhere, or £50,000 from a VC, seed funding competition endorsed by UKTI or a UK government department.

The route for those with £200,000 in funding has been called an ‘investor lite visa’ as it allows those with personal wealth to gain a visa without the full £1 million threshold of the Tier 1 Investor Visa.

Startups though are unlikely to have £200,000 in committed funding. But the criteria for the £50,000 limit are too strict. Few VCs invest at that level in seed rounds, for example the average seed round for Passion Capital, a leading London seed fund was £189,936.⁴⁷ And there are only 5 organisations in the other qualifying funding source, UKTI endorsed competitions (TechStars, Oxygen Accelerator, Seedcamp, Wayra, and Collider).⁴⁸

The current scheme means that entrepreneurs with funding commitments from angel investors, friends and family, or crowdfunding platforms (like Seedrs or Crowdcube), often the most readily available sources of seed capital for startups, would not be eligible.

In contrast, other countries have more open Entrepreneur Visa or Startup Visa systems. For example, Canada allows committed funds from angel investors to be included, while Ireland, Singapore and New Zealand do not impose conditions on where the funding comes from as long as other conditions are met.⁴⁹

To reform the Entrepreneur Visa, the next government should expand the types and sources of committed funding at the £50,000 level that grant eligibility for the Entrepreneur Visa. This should include accredited angel investors and crowdfunding platforms.

8 REVIEW AND STREAMLINE VISA PROCESSES WITH THE SUPPORT OF THE GOVERNMENT DIGITAL SERVICE

A common complaint from startups and entrepreneurs is the time and cost of applying for visas and gaining sponsorship status.

Currently, visa applicants must submit their passports to the Home Office for months. This should be reduced to the minimum time necessary.

The Government’s Digital Strategy includes a commitment to redesign visit visa applications, The Disclosure and Barring Service (DBS) criminal record checking service, and e-Gates at the Border as three of the GDS’s 25 exemplar transactions by 2015.⁵⁰ The strategy also commits to develop a plan for all of the Home Office’s major transactions following this.

The next government should accelerate this work, making it a priority for the Home Office to redesign visa applications, in particular for the Tier 1 Graduate Entrepreneur and Entrepreneur Visas, and the Tier 2 General Visa.

9 INVEST TO HELP TEACHERS DELIVER THE NEW COMPUTING CURRICULUM

It is excellent news that from this month schools in England will begin teaching the new Computing Curriculum.⁵¹ From the age of 5, students will be taught computer science, programming, and safety online.

In time, this new curriculum could have a transformational impact on the UK’s digital skills. However, that will only happen if teachers are able to deliver it. Currently, teachers are poorly prepared. In a recent survey by Nesta and the TES, 60% have said that they are not confident in their ability to deliver it.⁵² Fewer than half of all secondary school ICT teachers have a post A-level qualification relevant to ICT, and most primary school teachers do not have a computing background.⁵³

As the UK Digital Skills Taskforce have noted, the Government has only provided a total of £3.5 million to support teachers, working out at just £175 per school, contrasted to over £15,000 per school for a similar policy in Jersey.

Policy Exchange recommends an additional £3 million per year (so £15 million over the parliament),⁵⁴ while the Digital Skills Taskforce recommend an additional £20 million.⁵⁵

The next government should invest should invest at least £15 million in in continuing professional development (CPD) for teachers.

10 CREATE INCENTIVES FOR INDIVIDUALS AND STARTUPS TO HELP TRAIN TEACHERS AND STUDENTS

The UK's digital startups are home to thousands of developers, engineers and computer scientists. Many of them already engage with tech third sector initiatives like Code Clubs. As well as traditional CPD for teachers, the next government should look at how it can incentivise more of those with the necessary skills support teachers and students.

This could include introducing an income tax relief for those who volunteered a certain number of hours per week/month in local schools. Alternatively the relief could be focussed on the company – for example, employer National Insurance Contributions (NICs) could be reduced or removed for any suitably skilled employee who committed a certain number of hours. This would help schools and students, as well as providing an incentive for startups to hire additional staff and allow them time off to volunteer.

The next government should introduce new incentives to encourage individuals and startups to help train teachers and students.

11 PROMOTE FREE TOOLS INCLUDING MOOCS, CODECADEMY, AND THIRD SECTOR INITIATIVES LIKE CODE CLUBS

A multitude of free and low cost educational tools now exist to help people of all skill levels improve their digital skills.

Universities offer free tools – for example, MIT's Scratch offers a free online tool to learn basic programming concepts.⁵⁶ And anyone can take Harvard's famous Introduction to Computer Science course CS50 as a free Mooc online.⁵⁷ Startups like Codecademy also offer free tools to learn to code.

Tech third sector initiatives like Code Club, Year of Code, Code Dojos, Geekettes, largely run by volunteers, offer fantastic resources and encouragement for those looking to learn new skills.

As well as investing in teacher CPD, the next government should work with tech third sector initiatives to promote free tools that allow everyone, including teachers, students and career-changers to improve their digital skills.



BUILD WORLD CLASS DIGITAL INFRASTRUCTURE AND INCREASE SUPPLY OF AFFORDABLE OFFICE SPACE

Digital startups rely on digital infrastructure. Always on, high speed connectivity is the new normal.

While most infrastructure investment should be funded by the private sector, there is a role for the government ensuring that the national infrastructure keeps up with demand – setting standards, ensuring sufficient competition, and using public funds

to deliver infrastructure where the market will not.

The next government should also do all it can to increase the supply of affordable work space for startups, including helping those who base their business at home. While it is right that rents are set by the market, there is more the government could do on planning and restrictions.

12 CONTINUE TO INVEST IN SUPERFAST CONNECTIVITY AND RAISE THE LEVEL OF AMBITION FOR DIGITAL INFRASTRUCTURE

The UK is in a relatively strong position on fixed line and mobile broadband. On current government plans, the UK will have 95% coverage for superfast broadband and 98% coverage for 4G mobile broadband by 2017.⁵⁸ It is important that the next government ensures these targets are met and continues to invest in the UK's digital infrastructure, as demand for connectivity from consumers and business soars. Bandwidth needs are rising rapidly, for example, Cisco forecast that mobile data traffic will grow 8-fold from 2013 to 2018, a compound annual growth rate of 51%.⁵⁹

In this context it is welcome that the Department for Culture, Media and Sport (DCMS) has recently launched a consultation on Digital Communications Infrastructure⁶⁰ to look at scenarios beyond 2018, out as far as 2030. The consultation asks:

'... should the UK be more proactive and seek to capture more of the available proceeds of growth through acting in advance of demand to get 'early mover advantage'? Can we improve the trend rate of growth for the UK by investing in and improving our digital communications infrastructure?'⁶¹

Our answer to both these questions is a resounding 'yes'. As well as delivering on existing plans, the next government needs to raise the level of ambition, particularly taking into account the needs of business, including digital startups.

While it is important to reach those in rural areas and ensure everyone in the country can get online, the challenge for startups is predominantly in urban areas and their requirements differ from most consumers. Upload speeds may be more important than download speeds, and long lead times for the installations of new lines are a constant complaint for startups.

Most investment in digital infrastructure should be funded by the private sector, and it is great that new entrants to the business broadband market like Relish and Optimity are using wireless connectivity to offer faster services than the incumbents. It is also to be welcomed that Tech City UK are gathering data and working with Ofcom and the government to place pressure on suppliers. But it is still important for Government to invest to fill gaps in coverage, ensure competition, and set the regulatory framework. The next government should extend the superconnected cities programme to encourage high speed connectivity in urban centres (where startups tend to cluster)

The next government continue to invest in superfast connectivity and raise the level of ambition for digital infrastructure. It should continue to invest in the rollout of fibre and wireless connectivity where the market fails, review planning laws to speed the deployment of infrastructure (going further than the package announced in September 2012),⁶² and work with industry to accelerate work on 5G mobile connectivity.

13 REVIEW THE PLANNING SYSTEM AND PROPERTY REGULATIONS TO INCREASE THE SUPPLY OF AFFORDABLE OFFICE SPACE FOR STARTUPS

A common complaint of startups is the lack of affordable office space. Startups not only need cheap office space, but flexible terms, as many will either look to expand or even cease to exist before a standard multi-year lease is up (the average UK commercial lease length is 5.8 years).⁶³

A 2013 survey by Yougov found that 25% of tech SMEs cited a squeeze on affordable office space in London, while one estate agent reported that rents in Shoreditch soared 46% in 2012–13.⁶⁴ Similar problems are faced by startups in other tech clusters around the UK.

It is to be welcomed that Hackney Council secured an exemption from Government rules that would have allowed offices to be turned into homes without planning permission.⁶⁵ But the next government should look at this issue more broadly and review the planning system with a clear goal of increasing the supply of affordable office space, including for digital startups.

Similarly, government should look at regulations to make it easier for landlords to offer space on flexible terms. Provisions that currently exist to protect business tenants from being evicted make landlords reluctant to offer short lets – this has led to a polarisation in the market between expensive serviced offices and coworking spaces at one end, with standard 5 year leases at the other.

Finally, government could expand its scheme allowing businesses, charities and social enterprises to rent unused government office space for free.⁶⁶ The scheme is currently poorly publicised – no startup we asked had heard it existed – and has limited availability. The next government should signpost this scheme more effectively, list more excess public sector office space, and open the platform to private and commercial holders of office space so they can also list their space.

There is a role for the government ensuring that the national infrastructure keeps up with demand – setting standards, ensuring sufficient competition, and using public funds to deliver infrastructure where the market will not.





BRING LAWS AND REGULATIONS INTO THE 21ST CENTURY

The pace of technological change is accelerating, and public policy is struggling to keep up.

This matters because laws and regulations are far slower to change. 94% of modern (post 1950) UK laws were passed before the invention of the iPhone in 2007.⁶⁷ In some ways this is only to be expected, and obviously many, if not most, are not affected by technological change (eg murder is still murder). But it is a reminder that the bulk of the legislative corpus is from a pre-digital age.

Almost every sector of the economy is being 'disrupted' by innovative

technologies and business models. This is a good thing as it leads to more consumer choice, and to cheaper, better services and products. It's how progress happens. But it creates problems when new technologies or ways of doing business run up against outdated regulations.

Any government must also address the negative impacts of technological change. Every wave of innovation from the invention of the printing press to current digital revolution has had impacts on labour markets and societies. Jobs that used to exist no longer do, and jobs that exist now may not exist in the future.

It took 38 years for the radio to reach 50 million users, it took 13 years for television, it took four years for the web and it took 10 months for Facebook⁶⁸

—Baroness Lane-Fox

14 MAKE IT GOVERNMENT POLICY TO SUPPORT DISRUPTIVE INNOVATION AND CREATE AN ENVIRONMENT WHERE PEOPLE AND BUSINESSES CAN ADAPT

One way of starting to shift the culture of policymaking is by explaining the government's philosophy on innovation. And then putting it into practice.

For example, European Commissioner Neelie Kroes set out this position well on the day of the recent Uber taxi protests, writing that:

That debate forces us to think about the disruptive effects of digital technology and the need for entrepreneurs in our society. And that's what the Taxi protests are really about. It is right that we feel sympathy for people who face big changes in their lives... Whether it is about cabs, accommodation, music, flights, the news or whatever. The fact is that digital technology is changing many aspects of our lives. We cannot address these challenges by ignoring them, by going on strike, or by trying to ban these innovations out of existence... [The] disruptive force of technology is a good thing overall. It eliminates some jobs and it changes others. But it improves most jobs and it creates new ones as well.⁶⁹

The next Prime Minister should publicly articulate a similar position on disruptive innovation. It should be government policy to support disruptive innovation, making clear that the role of the state is to encourage innovation and competition, with the minimum red tape needed.

The state is also rightly there to create an environment where people and businesses can adapt to change. This should include help those who are negatively affected by innovation, for example people whose jobs are made redundant by automation – including through opportunities for retraining and upskilling.

15 ENCOURAGE PERMISSIONLESS INNOVATION

In 1982, students at MIT were warned not to use the ARPANet (the predecessor to the modern internet) for anything which didn't directly support government business:

'It is considered illegal to use the ARPANet for anything which is not in direct support of Government business .. Sending electronic mail over the ARPANet for commercial profit or political purposes is both anti-social and illegal. By sending such messages, you can offend many people, and it is possible to get MIT in serious trouble with the Government agencies which manage the ARPANet'.⁷⁰

Just imagine if attitudes hadn't changed.

Permissionless innovation is the idea of a freedom to try new things and experiment, learning through trial and error, rather than having to seek a licence or prove that it wouldn't cause harm first. The web as we know it simply wouldn't exist if users had to get permission before trying a new feature.

The permissionless nature of the internet is vitally important to protect – the next government should protect net neutrality and work to create a level playing field for businesses. A pay-to-play internet would be bad for startups, as they would be unable to compete with the larger companies who could afford preferential access.

The next parliament will also face many new and emerging technologies that will challenge the regulatory environment, whether drones, autonomous vehicles, wearables and the internet of things.

We are not calling for an absence of regulation, but for government to strive to create the conditions for permissionless innovation where possible. It should not jump to regulate a new technology, and should try to create the space for innovation rather than taking a precautionary approach in all instances.

This can be in the form of geographical spaces set aside for pilot schemes or innovation zones – for example, the recent announcement of a competition to find cities that will pilot driverless cars⁷¹ is to be welcomed.

16 COMMIT MORE RESOURCES TO THE INFORMATION COMMISSIONER'S OFFICE (ICO)

A strong and appropriately resourced data protection authority is vital both to allow it to stand up for consumers, and to provide clear advice to businesses.

It is a good thing for startups, and businesses in general, for there to be a credible data protection authority and public confidence in the data protection regime. Currently the UK's data protection authority is struggling to cope with the demands placed upon it, and this is likely to get worse in the future. Issues of data protection and privacy are increasingly important as more of our lives move online. The rise of wearables and the internet of things are only going to accelerate this trend.

In his most recent Annual Report, Christopher Graham, the Information Commissioner and head of the UK's data protection authority (the ICO), warned that:

'in order to be an effective partner in delivering modern and innovative services, the ICO needs stronger powers, a more sustainable funding system, and a clearer guarantee of independence... our grant-in-aid from the Ministry of Justice, which has been cut in every year since I became Information Commissioner in 2009, **is simply not adequate** for us to do the work we could and should be doing to promote greater efficiency and accountability in the public service.'⁷²

The next government, in consultation with the ICO, should ensure the Commissioner has the resources needed.

17 CREATE A FRAMEWORK FOR DATA PROTECTION THAT GIVES CONFIDENCE TO CONSUMERS AND DOES NOT STIFLE INNOVATION

A clear data protection framework is vital for both consumers and for business. Proposals to update the EU's data protection framework (which currently dates back to 1995) are welcome and overdue.

Consumers and citizens should have confidence that their data will not be abused. Similarly the rules must be clear and not impose too great a burden on small companies. Digital startups, who often handle significant amount of data, yet lack the resources of larger companies, can be particularly affected by well-meaning provisions.

As it currently stands, the General Data Protection Regulation (GDPR), proposed by the European Commission includes far reaching new regulations that could impose significant burdens on digital startups. While there are proposed exemptions for small companies, these may not apply to data heavy companies (those processing data on more than 5000 subjects), a category in which many startups would fall, despite their size.

While it is welcome that the Ministry of Justice (MoJ) has raised its concerns about the Regulation, including raising concerns about the cost to businesses, including SMEs – arguing that it could have a net cost to the UK of £100–360 million,⁷³ it should go much further in making the positive case in Brussels for reforms that would work for consumers and business.

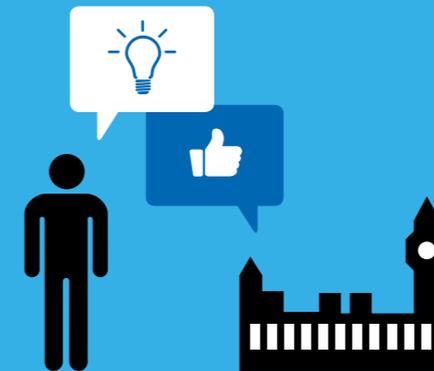
The next government should seek clarity on the impact of the GDPR on digital startups and make the positive case for a framework that encourages innovation.

18 CONTINUE TO SUPPORT FINTECH INNOVATION

The UK leads the world on fintech, with London's fintech sector larger than either New York's or San Francisco's, and London's overall digital sector growing faster than San Francisco's.⁷⁴ Whether it is money transfer (eg TransferWise), investing (eg Nutmeg), P2P lending (eg Zopa), or equity crowdfunding (eg Seedrs), there are UK based fintech startups coming up with innovative services.

The Treasury and Financial Conduct Authority are both making efforts to encourage this fintech innovation, with the Chancellor recently launching Innovate Finance, a trade body for fintech.

It should be government policy to support disruptive innovation, making clear that the role of the state is to encourage innovation and competition, with the minimum red tape needed.



I want the UK to lead the world in developing Fin Tech. That's my ambition – short and sweet.⁷⁵

—George Osborne, Chancellor of the Exchequer

This rhetoric has been accompanied by clear policy support from the Treasury including allowing P2P lending to be included within ISAs and reforming payments regulation. The FCA is also engaging with fintech, including with new proposals headlined 'Project Innovate', including an 'Incubator' to help applicants through their authorisations process and a dedicated 'Innovation Hub' to be a point of contact for fintech firms.⁷⁶

The next government should continue this support, including reviewing the major barriers around fintech innovation.

This should include looking at the regulation of cryptocurrencies such as Bitcoin. HMRC should take the lead in being one of the first tax authorities to establish a framework relating to tax, VAT and other compliance requirements related to cryptocurrency.

The government should also look at how Anti-Money Laundering and Know Your Customer rules affect digital businesses, and how regulations should change once digital proofs and secure online identity assurance (see recommendation 22) are the norm.

19 REVIEW REGULATIONS SURROUNDING COLLABORATIVE CONSUMPTION AND THE 'SHARING ECONOMY'

Another area where regulation can be a barrier to innovation and the growth of startups is the sharing economy. A few examples:

- Under a forty year old law, anyone in London wanting to rent out their home for less than 3 months has to seek planning permission, as this is considered a change of the property's use.⁷⁷ This caused obvious problems for some users of a service like Airbnb when some councils enforced this outdated rule. Thankfully section 25 of the Greater London Powers Act 1973 is being amended in the Deregulation Bill⁷⁸ currently before Parliament.

- Uber is being taken to court over the issue of whether its app counts as a taximeter, based on rules about private hire set in 1998,⁷⁹ over a decade prior to the launch of GPS based taxi apps (Hailo launched in 2011, Uber in London in July 2012).
- Until ministers intervened and issued new guidance to councils, services like parkatmyhouse.com (now JustPark) were being blocked by councils, again under planning rules.⁸⁰

Yet the sharing economy presents a massive opportunity for the UK as it allows consumers and businesses to unlock dead assets and release their value. That can be anything from a bedroom (Airbnb) or parking space (JustPark), to car journeys (BlaBlaCar) and wifi connections (Fon). Even pets are being shared, with BorrowMyDoggy connecting dog owners with dog sitters and walkers.

The web allows people who have something to be matched with people who want something more easily than ever. Analysis by PWC forecasts that the top five sharing economy sectors will generate around \$335bn in global revenues by 2025, up from \$15bn today.⁸¹

Technology has changed the level of regulation that is needed. For example, laws and regulations from a pre-digital age do not take into account the value of user ratings and social trust, GPS tracking, or verified online IDs.

The next government should hold a 'Red Tape Challenge' style review into regulatory and legislative rules that affect the Sharing Economy, with a presumption that regulations should be removed where technological solutions allow.



USE DIGITAL GOVERNMENT TO UNLOCK INNOVATION

20 MAKE IT EASIER FOR STARTUPS TO SELL TO GOVERNMENT

The public sector is a major consumer of digital services and software – in 2009, the Government spent 1% of GDP on IT.⁸⁷

As the government's own Digital Strategy acknowledges: 'Departments currently rely on a few, large systems integrators to supply their digital requirements... However, the UK has a burgeoning digital technology sector with a wide range of highly skilled and innovative companies, including small and medium sized enterprises who are often unable to access the government procurement market due to high barriers to entry and complex, expensive and often frustrating processes'.⁸⁸

CloudStore and the G-Cloud framework have made the process for digital companies selling to government easier. However startups still find the process difficult and time consuming.

It was so arduous to 'join' G-Cloud that one of our startups found it easier to form a joint venture with 3 other startups and 'join forces' to apply/get approved and listed. This can't be what was intended and G-Cloud should be made easier to use and more accessible

—VC Partner

Similarly, the target for 25% of procurement to be from SMEs is unlikely to be hit. The Public Accounts Committee concluded last year that: 'The government has not yet done enough to provide greater opportunities for SMEs to win government business. The government has a long way to go in its aspiration to achieve 25% of its procurement spending with small businesses by 2015. Current data suggests that, despite clear commitments, only 10% of government spending is currently with SMEs'.⁸⁹

We agree.

Efforts to improve how the government uses digital have been successful by any measure.

The Government Digital Service (GDS) is transforming the way the UK government does business. By 2015, 25 exemplar transactions will have been redesigned and moved online – at the time of publication 4 of these are already live, with 17 in beta and 4 in alpha.⁸² They are already making a big difference, for example, 70% of registrations to vote are now online.⁸³

This move towards digital government is important for several reasons. It has redesigned services around the user need, with the GDS's (brilliant) design principles focus on user centred design, data, and iteration.⁸⁴ This makes government services quicker and easier for citizens. Digital government also saves money – the government's own digital strategy estimates that digital by default could save between £1.7 and £1.8 billion each year.⁸⁵ Finally, it opens up data – putting public sector data online helps

unlock innovation. Startups like Zoopla and Citymapper have been built on top of public sector data (from the Land Registry and TfL respectively).

The next government should continue to pursue the digitisation of government transactions. It should release more data and open up those transactions using APIs to allow others to build upon them. This will create massive new opportunities for innovation by startups and technology companies.

With 6.4 million adults in the UK never having used the internet,⁸⁶ digital inclusion remains an issue, particularly for the elderly, disabled and economically deprived. The next government should tackle these issues and ensure that everyone in the UK can benefit from the digital revolution. Others, including the Digital Skills Taskforce, Go On UK and the Tinder Foundation have set out recommendations for how this could be achieved.

The next government should meet the 25% target, and raise the level of ambition with a more challenging target. The government should also simplify the process for startups to list their services on the CloudStore, including holding workshops to explain the process (following the model of Home Office Hours on visas in partnership with tech organisations).⁹⁰ Increased transparency with regular reporting on SME contracts would also help.

The government should also look at using challenges rather than complicated tenders to engage with startups. These can be easier to understand as well as more flexible, allowing innovative solutions rather than prescribing exactly what is needed. An example of good practice in this area is TfL's Innovation Portal,⁹¹ which sets out challenges that TfL faces and invites ideas.

21 COMMIT TO KEEP AND EXPAND THE GOVERNMENT DIGITAL SERVICE

The Government Digital Service is one of the most effective parts of the civil service and an example to the world of how to do digital in the public sector. They have successfully taken government departments with them on the journey to a more digital government, with the exemplar services proving how digital can make life better both for departments, and more importantly, for citizens and users.

The GDS model and their design principles are well respected internationally and is now being replicated in the US with a recent announcement by President Obama of a new US Digital Service.⁹²

The next government should commit to keeping and expanding the Government Digital Service. This expansion could come in the form of the development of new teams focussed on particular issues, for example a Health Digital Service with a focus on NHS.

22 CREATE STANDARDS FOR SECURE ONLINE IDENTITY ASSURANCE

In its Technology Manifesto, Policy Exchange propose the introduction of electronic proofs to replace the largely analogue

The next government should continue to pursue the digitisation of government transactions. This will create massive new opportunities for innovation by startups and technology companies.



proofs that consumers use in their interactions with the public and private sectors (eg birth certificates, marriage certificates, exam and degree certificates, driving licences, P60s and P45s).⁹³ They are right that in a digital age, it doesn't make sense to have to present physical, analogue proofs of identity.

Moving towards secure online identity assurance will unlock innovation for startups. For example, fintech companies who are required to conduct Anti-Money laundering (AML) and Know Your Customer (KYC) checks on their users would benefit from using digital identity checks.

The Cabinet Office's Identity Assurance programme is working with 5 identity providers (Digidentity, Experian, Mydex, the Post Office and Verizon) to create a system for identity assurance for Government services.⁹⁴ This process should be completed by the next government and opened up to other providers – if it is good enough for accessing one's tax records or applying for a passport, it should also be good enough to conduct financial transactions online.

23 ACCELERATE PROGRESS TOWARDS 'GOVERNMENT AS A PLATFORM', INCLUDING RELEASING APIS FOR GOVERNMENT SERVICES

Digitising government services is a worthy aim. It is better for both users and the public sector.

However, a future wave of startup innovation will be unlocked when government takes the next step and becomes a platform. The GDS is already committed in this direction, as they put it:

'The government is implementing a platform-based operating model. Google, Amazon, Twitter and Facebook, among many others, have all built their success on the back of platforms. They have developed a core technology infrastructure that others have then built upon, driving the success of the platform and meeting far more users' needs than the original provider could have done on their own'.⁹⁵

For example, accountants can use HMRC APIs to file taxes online and travel companies can use an FCO API to include up to date travel advice.⁹⁶

But this is only the beginning. The next government should work towards all government transactions and services being opened up using APIs to allow others to innovate on top of the platform.

24 GO FURTHER ON OPEN DATA, INCLUDING REAL-TIME PERFORMANCE DASHBOARDS FOR ALL GOVERNMENT SERVICES

Data is often the raw material of innovation in the digital age. Startups find new ways of using data to provide services and products for users.

The next government should continue to encourage the use of data, including through continued support for the new Alan Turing Institute for Data Science announced in 2014's Budget.⁹⁷

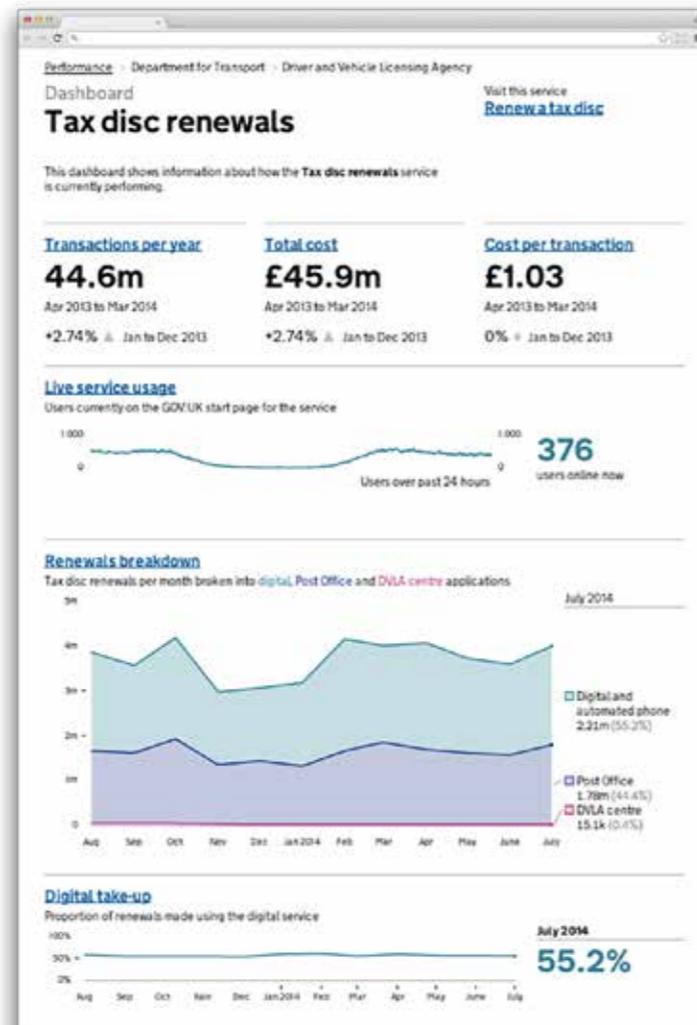
The public sector holds huge quantities of data, and has already embarked on the journey of opening this up. The government's data portal, data.gov.uk has had over 12 million page views since launch in 2010,⁹⁸ and third party developers have created over 300 apps based on this data.⁹⁹

The next government should go further on this, including looking at public sector data sets which could be opened up, including making land registry data free.

Digital services also allow for real-time data. The Prime Minister is reported to have an iPad app showing live data for government services – this should be open to everyone.¹⁰⁰ The GDS has published 83 performance dashboards¹⁰¹ for government services, so you can see for example the number of users currently renewing their tax disc, as well as statistics on user satisfaction, error reporting, and the cost per transaction.

The next government should continue to open more data and finish the job on performance dashboards, with real-time data for all government services. This will have a significant impact on the public and press's ability to understand government performance, and has the potential to unlock innovation as startups and others find new ways to use this data.

FIGURE 4 - SCREENSHOT OF PERFORMANCE DASHBOARD



RECOMMENDED FURTHER READING

Policy Exchange, Technology Manifesto, 4 June 2014, www.policyexchange.org.uk/publications/category/item/technology-manifesto

Social Market Foundation, Venturing Forth, 15 July 2014, www.smf.co.uk/publications/venturing-forth-increasing-high-value-entrepreneurship/

Nesta, Understanding Innovative Startups Project, since 2013, www.nesta.org.uk/project/understanding-innovative-startups

BVCA, Tech Country, March 2013, www.bvca.co.uk/ResearchPublications/ResearchReports/TechCountry.aspx

REFERENCES

- Andriessen, Marc, *Why software is eating the world*, Wall Street Journal, 20 August 2011, <http://online.wsj.com/news/articles/SB10001424053111903480904576512250915629460>
- BBC News Online, *London's anti-Uber taxi protest brings traffic to standstill*, 11 June 2014, www.bbc.co.uk/news/uk-england-london-27799938
- Boston Consulting Group, *The Internet Economy in the G-20: The \$4.2 Trillion Growth Opportunity*, March 2012, www.bcg.com/documents/file100409.pdf
- Ibid.
- Oxford Economics, cited by London Technology Week, *Mayor of London and leaders of global tech scene come together to launch London Technology Week*, 16 June 2014, <http://londontechnologyweek.co.uk/2014/06/mayor-london-leaders-global-tech-scene-come-together-launch-london-technology-week/>
- van Praag, Mirjam and Versloot, Peter H., *The Economic Benefits and Costs of Entrepreneurship: A Review of the Research (2008). Foundations and Trends in Entrepreneurship, Vol. 4, No. 2, pp. 65-154, 2008*, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1625828
- 'The average UK adult now spends more time using media or communications (8 hours 41 minutes) than they do sleeping (8 hours 21 minutes - the UK average)' Ofcom, *Techie teens shaping communications*, 6 August 2014, <http://consumers.ofcom.org.uk/news/cmr-2014/>

8. Office for National Statistics, *Internet Access Quarterly Update, Q1 2014*, 14 May 2014, www.ons.gov.uk/ons/dcp171778_362910.pdf
9. Ofcom, *Adults' Media Use and Attitudes Report 2014*, 29 April 2014, <http://stakeholders.ofcom.org.uk/market-data-research/other/research-publications/adults/adults-media-lit-14/>
10. Nesta, *The Startup Factories*, June 2011, www.nesta.org.uk/sites/default/files/the_startup_factories_o.pdf
11. Price per GB of 'Standard Storage' per month for the first 1TB of data. Amazon S3 Pricing, accessed 7 August 2014, <http://aws.amazon.com/s3/pricing/>
12. Osborne, George, *Where are the British giants of cyberspace?*, *The Times*, 13 June 2006, www.thetimes.co.uk/tto/law/columnists/article2049204.ece
13. GP Bullhound, cited by Guardian, *Europe creates 30 \$1bn-plus tech firms since 2000*, 15 June 2014, www.theguardian.com/business/2014/jun/15/billion-dollar-technology-firms-europe-us-asos-zoopla-spotify
14. VisionMobile, cited by Guardian, *UK app developers predicted to add £4bn to economy this year*, 26 June 2014, www.theguardian.com/technology/2014/jun/26/uk-apps-economy-worth-four-billion-pounds
15. UHY Hacker Young, *London's Silicon Roundabout remains top area for UK start-ups*, 9 June 2014, www.uhy-uk.com/resources/news/london-s-silicon-roundabout-remains-top-area-for-uk-start-ups/
16. 'The program assigns a USD\$40k grant per project (\$20,000,000 CLP), a 1-year resident visa to all the team members specified on the application, as well as a nice and comfortable workspace (desk & wifi) that you will share with entrepreneurs from +60 countries' Startup Chile, FAQs, accessed 7 August 2014, www.startupchile.org/about/faqs/
17. Coadec, *Towards a Startup Manifesto survey*, May 2014
18. Cameron, David, *East End Tech City speech*, 4 November 2010, www.gov.uk/government/speeches/east-end-tech-city-speech
19. Deloitte, *Taking the pulse of the angel market*, July 2013, [www.deloitte.com/assets/Dcom-UnitedKingdom/LocalAssets/Documents/Market insights/PrivateMarkets/uk-business-angels-association-taking-the-pulse.pdf](http://www.deloitte.com/assets/Dcom-UnitedKingdom/LocalAssets/Documents/Market%20insights/PrivateMarkets/uk-business-angels-association-taking-the-pulse.pdf)
20. Alexander, Danny, *Hansard*, c 746, 1 April 2014, www.publications.parliament.uk/pa/cm201314/cmhansrd/cm140401/debtext/140401-0002.htm#140401-0002.htm_spnw18
21. BVCA, *Budget Submission 2014*, p. 9, [www.bvca.co.uk/Portals/o/library/documents/BVCA 2014 Budget Submission.pdf](http://www.bvca.co.uk/Portals/o/library/documents/BVCA%2014%20Budget%20Submission.pdf)
22. Intel Capital, *Our Focus*, accessed 11 August 2014, www.intelcapital.com/advantage/
23. ICAEW, *Cash Surplus Research 2013*, October 2013, [www.ion.icaew.com/ClientFiles/a42b9c80-6acd-4dca-980a-bac45d9a324d/Business Opinion cash surplus 2013 - headlines.pdf](http://www.ion.icaew.com/ClientFiles/a42b9c80-6acd-4dca-980a-bac45d9a324d/Business%20Opinion%20cash%20surplus%202013%20-%20headlines.pdf)
24. BVCA, *The Missing Piece*, October 2013, [www.bvca.co.uk/Portals/o/library/documents/BVCA The Missing Piece.pdf](http://www.bvca.co.uk/Portals/o/library/documents/BVCA%20The%20Missing%20Piece.pdf)
25. RSA, *Corporate Venturing in the UK*, July 2012, www.thersa.org/___data/assets/pdf_file/0008/636830/Corporate-Venturing-report.pdf
26. GfK, *TechCity Futures*, May 2013, <http://bit.ly/16E6Y2O>
27. European Commission, *Does digital technology create or kill jobs? Do Europeans have the digital skills needed to get a job and keep a job?*, 28 May 2014, http://europa.eu/rapid/press-release_MEMO-14-383_en.htm
28. Lane-Fox, Martha, *Hansard*, col. 395, 16 January 2014, www.publications.parliament.uk/pa/ld201314/ldhansrd/text/140116-0002.htm#st_128
29. Coadec, *Towards a Startup Manifesto survey*, May 2014, statistics-january-to-march-2014/immigration-statistics-january-to-march-2014#data-tables
30. For a more comprehensive look at digital skills, the UK Digital Skills Taskforce interim report *Digital Skills for Tomorrow's World* published July 2014 is an excellent resource, www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf
31. e-Skills UK, *The Women in IT Scorecard 2014*, p. 5, www.e-skills.com/Com/Research/WomeninIT_Scorecard_Jun14.pdf
32. Centre for Entrepreneurs, *Migrant Entrepreneurs Behind One in Seven UK Companies*, 4 March 2014, [www.centreforentrepreneurs.org/Media/Default/Campaigns/Migrant Entrepreneurs/Release 4-13-14 Migrant entrepreneurs.pdf](http://www.centreforentrepreneurs.org/Media/Default/Campaigns/Migrant%20Entrepreneurs/Release%204-13-14%20Migrant%20entrepreneurs.pdf)
33. HEFCE, cited by Policy Exchange, *Technology Manifesto*, www.policyexchange.org.uk/manifestos/technology-manifesto-01-06-2014/
34. Gov.uk, *UK visa sponsorship for employers*, accessed 14 August 2014, www.gov.uk/uk-visa-sponsorship-employers/apply-for-your-licence
35. UK Visas & Immigration, *Codes of Practice for Skilled Workers*, Standard Occupational Classification (SOC) Codes, 6 April 2014, www.gov.uk/government/uploads/system/uploads/attachment_data/file/303033/CoP_-_Apr_14_Vo_6.pdf
36. Home Office, *Tier 1 Exceptional Talent Route*, Tech City UK Eligibility and Assessment Criteria, www.gov.uk/government/uploads/system/uploads/attachment_data/file/300203/TCUKGuidanceDocument-2.pdf
37. 2136: Programmers and software development professionals; 2137: Web design and development professionals
38. Home Office, *Immigration statistics, January to March 2014*, Extensions table ex 01 q, 22 May 2014, www.gov.uk/government/publications/immigration-statistics-january-to-march-2014/immigration-statistics-january-to-march-2014#data-tables
39. Science and Technology Select Committee, *International STEM Students Oral and Written Evidence*, Government Supplementary Written Evidence, p. 126, www.parliament.uk/documents/lords-committees/science-technology/IntIStEMstudents/IntIStEMstudentevidence.pdf
40. Nesta, *Talent Drain in the UK*, 14 January 2014, www.nesta.org.uk/blog/talent-drain-uk
41. Home Office, *Tier 1 (Graduate Entrepreneur) authorised endorsing bodies - April 2014*, www.gov.uk/government/uploads/system/uploads/attachment_data/file/304810/HEI_List_April_2014.pdf
42. Higher Education Statistics Authority, *2012/13 Students by Institution*, accessed 12 August 2014 www.hesa.ac.uk/dox/dataTables/studentsAndQualifiers/download/Institution1213.xlsx
43. *ibid.*
44. Cameron, David, *quoted by BBC News Online*, 4 November 2010, www.bbc.co.uk/news/uk-politics-11689463
45. KPCB, *Immigration in America & the shortage of high-skilled workers*, 29 May 2013, p. 33, www.kpcb.com/file/kpcb-immigration-in-america-the-shortage-of-high-skilled-workers
46. Home Office, *Immigration statistics, January to March 2014*, Extensions table ex 01 q, 22 May 2014, www.gov.uk/government/publications/immigration-statistics-january-to-march-2014/immigration-statistics-january-to-march-2014#data-tables
47. Passion Capital, *First Year infographic*, accessed 12 August 2014, https://a.swipeusercontent.com/NO6fHu6tYWNyYvTUj_6Pw7p130Y6tT-8oo.jpg
48. UKTI, *Entrepreneurs setting up in the UK*, 10 April 2014, www.gov.uk/government/publications/immigration-statistics-january-to-march-2014/immigration-statistics-january-to-march-2014#data-tables

- publications/entrepreneurs-setting-up-in-the-uk#endorsement-for-an-entrepreneur-visa
49. Migreat, *Entrepreneur visas worldwide: a comparison of the 7 countries where Entrepreneurs are welcomed*, 24 July 2014, http://blog.migreat.com/2014/07/24/entrepreneur-visas-worldwide-a-comparison-of-the-7-countries-where-entrepreneurs-are-welcomedutm_sourceblogutm_mediumlinkutm_campaignaugustpush/
 50. Cabinet Office, *Government Digital Strategy, Action 5: all departments will redesign services handling over 100,000 transactions each year*, 4 December 2013, www.gov.uk/government/publications/government-digital-strategy-action-5/action-5-all-departments-will-redesign-services-handling-over-100000-transactions-each-year#home-office
 51. Department for Education, *Statutory Guidance: National curriculum in England: computing programmes of study*, 11 September 2013, www.gov.uk/government/publications/national-curriculum-in-england-computing-programmes-of-study/national-curriculum-in-england-computing-programmes-of-study
 52. Nesta, *Teachers feel unprepared for September's new computing curriculum*, 10 July 2014, www.nesta.org.uk/news/teachers-feel-unprepared-september%E2%80%99s-new-computing-curriculum
 53. UK Digital Skills Taskforce, *Digital Skills for Tomorrow's World, interim report*, p. 10, www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf
 54. Policy Exchange, *Technology Manifesto*, 4 June 2014, www.policyexchange.org.uk/publications/category/item/technology-manifesto
 55. UK Digital Skills Taskforce, *Digital Skills for Tomorrow's World, interim report*, p. 37, www.ukdigitalskills.com/wp-content/uploads/2014/07/Binder7-REDUCED2.pdf
 56. MIT, Scratch, accessed 12 August 2014, <http://scratch.mit.edu/>
 57. edX, Introduction to Computer Science, accessed 12 August 2014, www.edx.org/course/harvardx/harvardx-cs50x-introduction-computer-1022
 58. Department for Culture, Media and Sport (DCMS), *Communications Infrastructure Strategy Consultation*, 6 August 2014, p. 5, www.gov.uk/government/uploads/system/uploads/attachment_data/file/341450/DCIS_consultation.pdf
 59. Cisco, *VNI Mobile Forecast Highlights, 2013 - 2018*, accessed 13 August 2014, www.cisco.com/c/dam/assets/sol/sp/vni/forecast_highlights_mobile/index.html#~Country
 60. Department for Culture, Media and Sport (DCMS), *Digital Communications Infrastructure Strategy consultation*, 6 August 2014, www.gov.uk/government/consultations/digital-communications-infrastructure-strategy-consultation
 61. Ibid, p. 61
 62. DCMS, *Fastest broadband in Europe: delivering infrastructure to boost UK businesses*, September 2012, http://old.culture.gov.uk/news/news_stories/9332.aspx
 63. IPD, *Lease Events Report 2013*, www.bpf.org.uk/en/files/bpf_documents/commercial/IPD-MSCI-LeaseEventsReport_FINAL.pdf
 64. Computer Weekly, *Tech City startups looking elsewhere due to London costs*, 24 October 2013, www.computerweekly.com/news/2240207800/Tech-City-startups-looking-elsewhere-due-to-London-costs
 65. Hackney Council, *Hackney Council secures protection for commercial space*, 10 May 2013, <http://news.hackney.gov.uk/hackney-council-secures-protection-for-commercial-space/>
 66. Gov.uk, *Rent government workspace for your business, charity or social enterprise*, accessed 13 August 2014, www.gov.uk/rent-government-workspace

67. Between 1950 and 2013 inclusive there were 3,672 Public General Acts of Parliament. Between 2007 and 2013 inclusive there were 213 Acts. Source: House of Commons Library, *Acts and Statutory Instruments: the volume of UK legislation 1950 to 2014*, 19 March 2014, www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=oCCsQFjAB&url=http%3A%2F%2Fwww.parliament.uk%2Fbriefing-papers%2FNS02911.pdf&ei=tGzrU_CpLKaZoQW5zYHABg&usg=AFQjCNF2tc2NetKP8oWLaNtmSTNYOpFdg
68. Lane-Fox, Martha, *Hansard*, col. 394, 16 January 2014, www.parliament.uk/pa/ld201314/ldhansrd/text/140116-0002.htm#st_128
69. Kroes, Neelie, *My view on today's taxi protests and what it means for the sharing economy*, 11 June 2014, http://ec.europa.eu/commission_2010-2014/kroes/en/blog/my-view-todays-taxi-protests-and-what-it-means-sharing-economy
70. MIT, *Getting Started in the AI Computer Lab*, 7 September 1982, www.academia.edu/1416892/Getting_Started_Computing_at_the_AI_Lab
71. Department for Business, Innovation and Skills, *UK Government fast tracks driverless cars*, 30 July 2014, www.gov.uk/government/news/uk-government-fast-tracks-driverless-cars
72. Information Commissioner's Office (ICO), *Information Commissioner's Annual Report and Financial Statements 2013/14*, 14 July 2014, pp. 8-9 http://ico.org.uk/about_us/performance/~media/documents/library/Corporate/Research_and_reports/annual-report-2013-14.pdf
73. Ministry of Justice (MoJ), *Government response to Justice Select Committee's opinion on the European Union Data Protection framework proposals*, January 2013, p. 6, www.gov.uk/government/uploads/system/uploads/attachment_data/file/217296/response-eu-data-protection-framework-proposals.pdf
74. Mandel, Michael and Liebenau, Jonathan, *London: Digital City on the Rise*, June 2014, <http://mikebloomberg.com/files/London-Digital-City-On-The-Rise.PDF>
75. Osborne, George, *Chancellor's speech at the launch of the new trade body for FinTech, 'Innovate Finance'*, 6 August 2014, www.gov.uk/government/speeches/chancellor-on-developing-fintech
76. Financial Conduct Authority, *Supporting innovation in financial services: call for input into Project Innovate*, 24 July 2014, www.fca.org.uk/about/what/promoting-competition/project-innovate
77. Department for Communities and Local Government (DCLG), *Creating a fair and flexible private rented sector*, 24 February 2014, www.gov.uk/government/news/creating-a-fair-and-flexible-private-rented-sector
78. Parliament, *Deregulation Bill 2013-14 to 2014-15*, accessed 13 August 2014, <http://services.parliament.uk/bills/2014-15/deregulation.html>
79. Private Hire Vehicles (London) Act 1998, www.legislation.gov.uk/ukpga/1998/34/contents
80. BBC News Online, *Eric Pickles backs renting of driveways with guidelines*, 3 August 2013, www.bbc.co.uk/news/uk-23558130
81. Vaughan, Robert, *Why the sharing economy could live up to the hype*, City AM, 11 August 2014, www.cityam.com/1407787446/why-sharing-economy-will-could-all-hype
82. Gov.uk, *Transformation*, accessed 14 August 2014, www.gov.uk/transformation
83. Gov.uk, *Voter registration performance dashboard*, accessed 14 August 2014, www.gov.uk/performance/register-to-vote
84. Gov.uk, *Government Digital Service Design principles*, 2 July 2012, www.gov.uk/design-principles

85. Cabinet Office, *Government Digital Strategy: December 2013, 10 December 2013*, www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy
86. Office for National Statistics, Internet Access Quarterly Update, Q1 2014, 14 May 2014, www.ons.gov.uk/ons/rel/rdit2/internet-access-quarterly-update/q1-2014/index.html
87. Cabinet Office, *Government Digital Strategy: December 2013, 10 December 2013*, www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy
88. Ibid.
89. Public Accounts Committee, Cabinet Office: Improving government procurement and the impact of government's ICT savings initiatives, 24 June 2013, www.parliament.uk/pa/cm201314/cmselect/cmpubacc/137/13702.htm
90. Home Office officials, immigration lawyers, and startups met at events organised by techUK and Tech London Advocates. This model should be rolled out more widely
91. TfL, *Technology Innovation Portal*, accessed 20 August 2014, www.tfl.gov.uk/info-for/business-and-commercial/technology-innovation-portal/challenges
92. White House, FACT SHEET: Improving and Simplifying Digital Services, 11 August 2014, www.whitehouse.gov/the-press-office/2014/08/11/fact-sheet-improving-and-simplifying-digital-services
93. Policy Exchange, *Technology Manifesto*, recommendation 25, 4 June 2014, www.policyexchange.org.uk/manifestos/technology-manifesto-01-06-2014/
94. Government Digital Service, *What is identity assurance*, 23 January 2014, <https://gds.blog.gov.uk/2014/01/23/what-is-identity-assurance/>
95. Government Digital Service, *Government Service Design Manual: Government as a platform*, accessed 14 August 2014, www.gov.uk/service-manual/technology/government-as-a-platform.html
96. Cabinet Office, *Government Digital Strategy: December 2013, Action 16, 10 December 2013*, www.gov.uk/government/publications/government-digital-strategy/government-digital-strategy
97. Department for Business, Innovation and Skills, Plans for world class research centre in the UK, 19 March 2014, www.gov.uk/government/news/plans-for-world-class-research-centre-in-the-uk
98. Data.gov.uk, Site usage, accessed 14 August 2014, <http://data.gov.uk/data/site-usage#totals>
99. Data.gov.uk, Apps, accessed 14 August 2014, <http://data.gov.uk/apps>
100. BBC News Online, David Cameron testing app to aid government decisions, 8 November 2012, www.bbc.co.uk/news/technology-20240874
101. GDS, Releasing all the things: a good day for the Performance Platform, 14 May 2014, www.bbc.co.uk/news/technology-20240874

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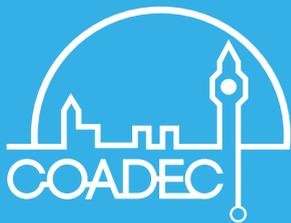
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