

# Bits and Billions



A blueprint for high-impact digital entrepreneurship in the UK

Chris Yiu

 @PXDigitalGov



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# About the Digital Government Unit

We are helping policymakers and politicians unlock the potential of technology: for an innovative digital economy, smarter public sector and stronger society. For more information on our work programme please feel free to get in touch.

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# Executive Summary

Our world is increasingly dominated by technology, data and the internet. This represents a fundamental rebalancing of the economy. When we come to look back on the dawn of the information age, the economic and social changes we are living through now will rank alongside the agricultural revolution, the industrial revolution and other great periods of change and advancement.

Economic policy has already started to respond to the digital revolution. Public money is being poured into science, incubators and infrastructure – and these are all welcome developments. But to achieve sustainable growth in the new economy, the heavy lifting can and should be done by the private sector.

So enterprise matters, and high-impact entrepreneurship matters most of all. The exciting digital start-ups emerging across the UK will have a real and lasting impact on the economy if – and only if – they scale up. In time, these will be the businesses that deliver disruptive innovations, anchor an ecosystem of customers and suppliers, and generate growth, wealth and jobs.

To date, the United States has had a clear lead in generating world-beating digital businesses. Powerful first-mover advantage means this is unlikely to change in the near-term. Nevertheless, the UK has its own unique strengths to build on and great depth in the raw ingredients required to excel. This is a good position to work from and sets us up well for a drive to pull ahead of our competitors.

Since coming to power, the current government has articulated a vision for the UK to emerge as a leading centre in the new high-tech economy, and to be the best place in the world for entrepreneurs to launch and grow innovative digital businesses. In this report we consider the government's ambitions for the digital economy, and ask what more policymakers need to do to help digital start-ups to scale up. Our analysis is broken down across six pillars: digital skills, ambition, investment, mentors, agility and creativity. In all of these areas there are lessons to learn from success stories around the world, and clues about how public policy in the UK should be upgraded for the 21st century.

Taken together, the recommendations assembled in this report form a bold policy prescription for the years ahead, designed to unlock the UK's potential for growth powered by high-impact digital entrepreneurship.

## Six pillars for high-impact digital entrepreneurship

### Skills for technology

Skills and human capital remain the most important preconditions for successful, innovative enterprises to get off the drawing board and continue their journey from start-up to scale. The expanding digital economy is increasing demand for individuals with strong digital skills and backgrounds in science, technology, engineering and mathematics. Over the medium-term we should look to our

education system to put more emphasis both on the ability to create digital products, and on science and the creative disciplines that provide a foundation for employment in the digital economy. In the near-term, making it easier to tap into the global pool of digital talent would help ensure that today's digital start-ups are still around to employ our school leavers and graduates of the future.

### **Ambition**

Achieving dramatic success as a digital entrepreneur takes a rare combination of talent, ambition, determination and persistence (and perhaps a little luck). Recurring debates about the UK's enterprise culture suggest it is not realistic to think we can shift national mindsets overnight or just cut-and-paste entrepreneurial attitudes from other countries. In the context of high-impact digital entrepreneurship, however, we can and should be putting more energy into getting our most talented young people to think about founding or working for a start-up when weighing their career options. Universities, students, businesses and the government all have a role to play in shaping how people think about their career options.

### **Finance for scaling up**

Taking an innovation from inception to market and preparing for long-term expansion takes time and money – and the ability to access external finance is critical. The different parts of the finance industry come together to form a funding ladder, running from initial, angel and seed funding all the way through to a trade sale or initial public offering. There are already a range of tax reliefs and exemptions designed to incentivise investment in venture capital and enterprise-related activity. Nevertheless, more could be done to encourage a wide range of investors to recycle their gains into funding new businesses. Over a longer horizon, action on the UK's relatively high rates of capital gains tax and stamp duty on shares would send a positive signal to global investors.

### **Mentors**

Aspiring high-impact entrepreneurs need support that goes beyond investment. Good mentors provide essential advice and guidance, and can act as an invaluable sounding board for dealing with the many and varied challenges of scaling up a business. One of the most important benefits of start-up clusters is achieving critical mass and positive feedback in the pool of potential mentors – of all sorts, including peers, business partners, investors and industry experts. Often, the most credible advice and support comes from mentors with direct experience. This is not something that is easily substituted by officials or government information campaigns. Future initiatives need to focus on sustaining the welcome trend of established businesses setting up a presence in start-up clusters and playing an active and productive role in the start-up community across the UK.

### **Agility**

Starting a business is risky. For entrepreneurs, a key faculty is the ability to pivot when the business demands it, responding rapidly to feedback and changing direction to ensure the business has the best chance of success. For this to work, the broader business environment needs to be flexible and look kindly on the sorts of compromises and hacks that the early stages of high-impact enterprise



often demand. For individual start-ups wanting to scale up, there is a particular need to be able to take on staff with minimal bureaucracy, and to lay staff off quickly and fairly should circumstances dictate. For the broader digital economy, evidence from the United States shows there could be significant benefits from a labour market where there is more cross-pollination of ideas and more freedom for highly skilled employees to move between firms. These themes of flexibility for employers and employees are complementary and should be explored further.

**Creativity, certainty and copyright**

If data is the raw material for the digital economy, then the rules around copyright are fundamentally important for high-impact digital enterprise. Weighing the relative merits of varying interpretations of the right to privacy against different degrees of protection of intellectual property is a task for future research. For now, the critical insight is the importance of a regulatory regime that provides certainty for entrepreneurs, investors and consumers. Attempts to modernise the UK’s copyright laws have a history of stalling. The conclusions of the most recent review were broadly accepted by the government, but most have yet to be implemented.

**Table 1: Recommendations at-a-glance**

Pillar	Main recommendations
Improving the quality and quantity of digital skills	<ol style="list-style-type: none"> <li>1. Relax the visa requirements applied to highly skilled individuals wanting to work in the digital sector in the UK, to ease constraints faced by digital start-ups looking to expand</li> <li>2. Reinstate a post-study visa for STEM graduates, to enable talented migrants to continue to work in the UK digital sector</li> <li>3. Reform the graduate entrepreneur visa, to ensure we are not missing out on the best entrepreneurial talent from UK universities</li> </ol>
Launching the most talented and ambitious entrepreneurs	<ol style="list-style-type: none"> <li>4. Introduce a high-impact test for enterprise policy, to ensure all new government initiatives on enterprise focus aggressively on helping those start-ups with the potential to scale up</li> <li>5. Work with leading employers to encourage the best and brightest graduates to give the start-up scene a go, paying some of those who are good enough to join a top tier graduate scheme to work for or co-found a start-up instead – and holding a graduate job open for two years in case it doesn’t work out</li> </ol>
Promoting finance for high-impact digital enterprise	<ol style="list-style-type: none"> <li>6. Consider the case for a capital gains tax rollover relief for shares, to encourage more people to reinvest their gains in UK businesses and support a deeper and more liquid equity market</li> </ol>
Increasing the impact of mentors	<ol style="list-style-type: none"> <li>7. Encourage more large businesses to establish a presence in areas with clusters of digital start-ups, wherever they are in the UK, to increase knowledge transfer, add weight to start-up communities and increase the scope for forming mutually beneficial business relationships with growing start-ups</li> </ol>
Helping start-ups maximise agility	<ol style="list-style-type: none"> <li>8. Develop an opt-in, light-touch employment regime for start-ups in the digital sector, making it quicker and more straightforward for business owners to take on and lay off highly skilled employees. In exchange, employees would have stronger rights to break out of contracts to work for competitors or start their own businesses</li> </ol>
Balancing copyright with creativity	<ol style="list-style-type: none"> <li>9. Implement quickly and decisively the recommendations of the Hargreaves review of intellectual property and growth, to give digital entrepreneurs and investors the legal certainty they need to innovate and invest</li> </ol>

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# Introduction

The world we live in is increasingly dominated by technology, data and the internet. This is having a profound impact on our economy. One by one, old industries are being transformed, disrupted or rendered obsolete by technological advances. Film cameras were replaced by digital cameras, which in turn are under threat from the increasing sophistication and convenience of mobile phones. Bricks and mortar stores are consolidating and sometimes closing in the face of competition from online retailers. Once upon a time the first choice for families booking a holiday was to visit the travel agent on the high street; now almost 60% of us use services related to travel and accommodation online.<sup>1</sup> The number of people subscribing to online dating sites far exceeds the number of lonely hearts ads in the papers. Newspapers themselves are grappling with a massive shift in their readership to online channels. Mobile communications were revolutionised first by text messages and then by the arrival of the mobile internet. Attempts to disintermediate traditional financial services firms have surged in the wake of the banking crisis. Mark Andreessen summed these phenomena up in one simple phrase: software is eating the world.<sup>2</sup>

As the costs of computing power and storage continue to fall, and as connectivity continues to increase, barriers to entry across every industry will diminish further or perhaps even disappear altogether. New technologies – persistently connected appliances (the “internet of things”), personal monitoring, human enhancement, advanced robotics, 3D printing – will give rise to entirely new industries as they enter the mainstream.

In the UK, our domestic technology, digital and creative sectors are already well established. The ubiquity of the internet and digital technology makes it hard to separate out precisely how much they matter to the modern economy. Virtually every business makes use of technology in one form or another – from email and web hosting through to cutting edge data analytics and automation. Nevertheless, previous studies have estimated that the internet is integral to over 8% of the economy, with this figure set to grow to over 12% by 2016.<sup>3</sup> Internet and online businesses contributed almost one quarter of total UK growth over the past five years.<sup>4</sup>

Economic policy is starting to respond to this rebalancing in the economy. The UK has a proud tradition of excellence in science and engineering, and the government has made clear its intention to shape the UK as a hub for the design and development of new technologies. Public money is being poured into science, incubators and infrastructure – and earlier this year Budget 2012 announced

“One by one, old industries are being transformed, disrupted or rendered obsolete by technological advances”

1 Internet access – households and individuals, Office for National Statistics, 2011

2 Why software is eating the world, The Wall Street Journal, 2011

3 The internet economy in the G20, Boston Consulting Group, 2012

4 Internet matters, McKinsey & Company, 2011

further steps on ultrafast broadband, funding for a new centre for aerodynamics, and tax reliefs for video games and animation companies.<sup>5</sup> The computer science curriculum in our schools is being rebuilt to put more emphasis on coding and the ability to make software as well as being able to use it. The Tech City Investment Organisation heralds a deliberate attempt to foster a cluster of digital and creative businesses in Inner East London.<sup>6</sup> The new Catapult programme, overseen by the Technology Strategy Board, is building centres of excellence dedicated to high value manufacturing, cell therapy, offshore renewable energy, satellite applications, the connected digital economy, future cities and transport systems.<sup>7</sup> University science parks are continuing to evolve, with clusters of spin-out companies around Cambridge, Oxford, Southampton, Edinburgh and many other leading campuses. Even Whitehall itself has been equipped with a new Government Digital Service to overhaul online public services.<sup>8</sup>

The dominant driver for economic policy remains, however, promoting economic growth. All of the initiatives described above have their role to play in advancing our science and engineering base, supporting innovation and upgrading critical economic infrastructure. But sustainable growth will only be achieved if these sorts of interventions on clusters and niches go hand-in-hand with an economic environment where ambitious entrepreneurs can transform scientific and technological breakthroughs into world-leading businesses. The government is clear – and we agree 100% – on the importance of sparking and sustaining a private-sector led recovery.

Enterprise is the lifeblood of a market-based economy. The best entrepreneurs in the world are leading businesses that not only earn them a decent living, but also deliver new products and services, anchor an ecosystem of customers and suppliers, generate wealth and jobs, and inspire future generations.

For policymakers it is not sufficient simply to assume that the basic building blocks of economic policy designed for previous eras will work for the next generation of digital businesses. We start from a place where rules, regulations, norms and laws designed for an analogue world have accumulated over centuries. As we move forward, bold policy thinking will be a necessary ingredient for radical reshaping of the economy.

The government has certainly stepped up its rhetoric on the digital and high-tech economy. The Prime Minister has said he is personally “committed to making the UK the best place in the world to start, run and grow a high tech company”.<sup>9</sup> The Chancellor of the Exchequer’s most recent Budget set “an ambition to make the UK the technology hub of Europe”.<sup>10</sup> We are yet to see, however, the sort of radically ambitious and fundamental reforms across the public policy landscape that are necessary for entrepreneurs and the private sector to fully unleash the kind of transformational change in the digital economy that politicians aspire to.

The focus of this report is therefore on the intersection of UK public policy, the digital revolution and high-impact entrepreneurship. There is a real opportunity to steal a march on the new economy – but only if we think big and act fast.

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<sup>5</sup> *Budget 2012*, HM Treasury, 2012

<sup>6</sup> *Tech City: the digital capital of Europe*, UK Trade & Investment, 2011

<sup>7</sup> *Catapult centres*, Technology Strategy Board, 2011

<sup>8</sup> *Government Digital Service opens for business*, Cabinet Office, 2011

<sup>9</sup> *SVc2UK Appathon*, Silicon Valley comes to the UK, 2011

<sup>10</sup> *Budget 2012*, HM Treasury, 2012

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# 1

## Enterprise Matters

Enterprise is a fundamental driver of economic activity. Entrepreneurs provide the energy, enthusiasm and leadership required to turn ideas into practical business applications. Without enterprise we would not have persistent competition, the hallmark of market-oriented economies. Competition matters because the pressure it exerts on businesses gives consumers choice, drives down prices and gives firms an incentive to improve the quality of their offerings. Competition also drives innovation. Over time, incremental improvements in the design and execution of products, services and business models help us realise more economic value from the same raw inputs. Every so often, disruptive innovations are brought to markets in ways that completely overturn established industries. Major disruptions can breathe new life into tired companies or put them out of business altogether in a burst of creative destruction, and can radically shift the balance of power across the value chain and around the globe.

Broadly speaking, large businesses have won out as an effective and efficient way to organise activity in most of the major, mature, high-value-add industries. Big organisations have a good track record in supporting incremental innovations. They often understand their industry well, have a wealth of knowledge about consumers and suppliers, and are able to devote research and development resources to building the next iteration of a successful product or service. They are also remarkably efficient structures for organising economic activity, as they are able to exploit economies of scale in administration, technology and back-office functions that are unavailable to much smaller businesses.

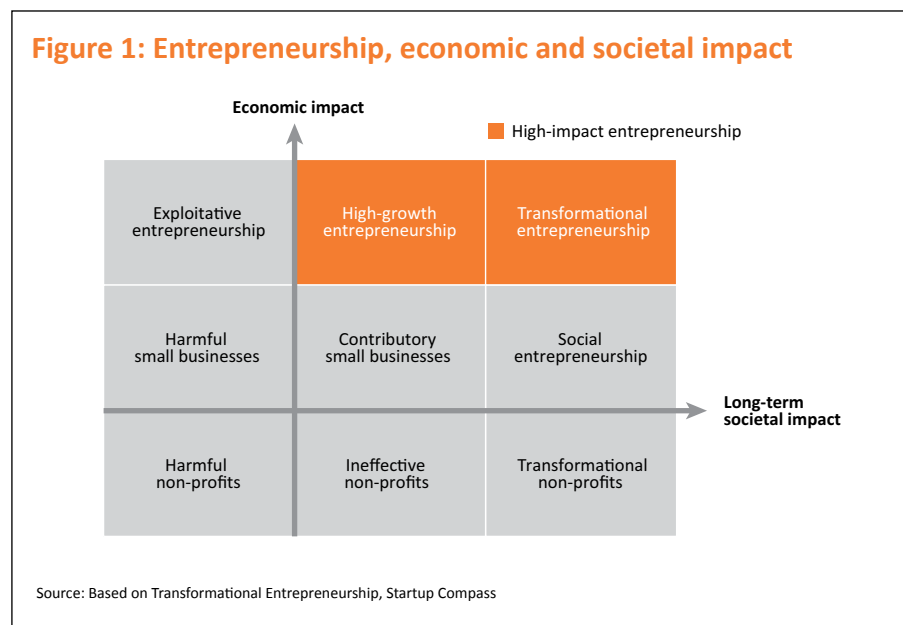
Large businesses typically fare far less well, however, when it comes to disruptive innovation (albeit with some high-profile exceptions). The cultural factors that make large businesses such efficient economic entities – tried-and-tested processes, checks and balances, a degree of risk-aversion – often tend to be less compatible with imagining and driving through radical new ways of approaching a market. Instead, major disruptive innovations tend to come more frequently from start-ups, either entering an industry to compete with the incumbents, or outflanking them altogether by occupying a parallel market.

The notion of start-ups with aggressive ambitions to scale up is critically important to our discussion. Although there are many small and medium sized businesses doing well for their owners, the majority do not go on to experience exceptional growth or transform their industry. So whilst enterprise is central to practical innovation and economic growth, a sub-set of entrepreneurial activity – high-impact enterprise – is what matters most for driving sustained improvements in long-term economic prosperity.

Distinguishing start-ups from other small businesses is part science and part art. Not all products or services can scale rapidly and extensively – this is often

related to the underlying cost structure of the activities involved, the model for extracting value from customers, conditions in the market and challenges dealing with wider management spans and geographies. To some extent all of these factors can be modelled and analysed. Equally important for start-ups are the mindsets and raw entrepreneurial talents of the people involved. Aiming for disruptive innovation takes a particular type of ambition.

Within high-impact enterprise, some commentators draw a distinction between pure high-growth entrepreneurship and transformational entrepreneurship.<sup>11</sup> Success stories in the latter category are notable for not only making an impressive economic return, but also delivering positive long-term benefits for society. The mission statements of many of the start-ups that aim for transformational impact are just as likely to talk about changing the world as they are to mention return on investment or market share. Familiar examples from successful internet companies include “being the earth’s most customer-centric company” (Amazon), “giving people the power to share” (Facebook), “bringing the best personal computing experience to people around the world” (Apple) and “organising the world’s information” (Google).



Achieving high-impact entrepreneurship of either kind takes more than ambition. The most successful entrepreneurs are highly talented individuals – by no means perfect but certainly with abilities, energy and persistence very well matched to the significant challenges of scaling up from concept to sustainable, profitable business. Just like any other career, high-impact entrepreneurship is not for everyone. If high-impact entrepreneurship is the goal, then attempts by policymakers to promote enterprise need to walk a fine line between pushing more people to consider starting a business, and avoiding diverting talent from traditional careers in established business into projects that do not have the potential to scale up.

In short, enterprise matters. In the context of the digital revolution and rebalancing the economy, high-impact entrepreneurship matters most – and this will have to be the epicentre for radical policy reforms.

<sup>11</sup> Transformational entrepreneurship: where technology meets societal impact, HBR, 2012

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# 2

## The State of Play

The government has a number of initiatives underway designed to improve the business environment for innovation and the digital economy, and to support enterprise. At the time of writing this includes (but is not limited to):

- Efforts to boost the take-up of science, technology, engineering and mathematics (STEM) courses, including work to improve the quality of science (including computer science) teaching in schools, and work to help students understand which courses are most relevant to future employment<sup>12</sup>
- The Young review of enterprise, which included recommendations on financial support for young entrepreneurs, facilitating managed space for SMEs, simplifying advice and information, and promoting alternative sources of finance.<sup>13</sup>
- The Beecroft review of employment law, which considered reforms to make it easier to remove under-performing employees, and other changes that might encourage employers to take on more staff.<sup>14</sup>
- Stripping back regulation and cutting red tape to make it easier for small businesses and charities to operate, implementing a moratorium on new regulation for micro and start-up businesses, and bearing down on European regulations.<sup>15</sup>
- A range of measures designed to improve overall access to finance, including the National Loan Guarantee Scheme and Business Finance Partnership.<sup>16</sup>
- Reforms to the Enterprise Investment Scheme and Venture Capital Trusts, the launch of the Seed Enterprise Investment Scheme, and an increase in the capital gains tax lifetime limit for entrepreneurs' relief that gives business owners access to a 10% effective tax rate for the first £10 million of capital gains earned.<sup>17</sup>
- The introduction of a Patent Box for the corporation tax regime, which offers a corporation tax rate of 10% on profits generated from patents created in the UK, R&D tax credits that offer tax relief up to 225%, and new tax credits for the video games, animation and high-end television sectors.<sup>18</sup>
- The Hargreaves review of intellectual property, which included recommendations on reforms of the copyright and intellectual property regime to simplify payments for copyrighted materials and to free up orphan works.<sup>19</sup>
- Support to upgrade the UK's broadband infrastructure, including support for fixed and mobile infrastructure deployment, and funding for a new wave of super-connected cities with ultrafast broadband access.<sup>20</sup>
- The establishment of the Technology Strategy Board Catapult centres, which will focus on centres of excellence dedicated to high value manufacturing, cell

12 *Plan for growth: implementation update*, HM Treasury, 2012

13 *Make business your business*, Lord Young, 2012

14 *Report on employment law*, Beecroft, 2011

15 *Plan for growth: implementation update*, HM Treasury, 2012

16 *Ibid*

17 *Ibid*

18 *Ibid*

19 *Digital opportunity: a review of intellectual property and growth*, Hargreaves, 2011

20 *Plan for growth: implementation update*, HM Treasury, 2012

therapy, offshore renewable energy, satellite applications, the connected digital economy, future cities and transport systems.<sup>21</sup>

- The establishment of the Tech City Investment Organisation, which exists to drive investment to the cluster of technology, digital and creative companies based in Inner East London.<sup>22</sup>

All of these initiatives are welcome, and on balance make a positive contribution to building an overall business environment conducive to growth. It is certainly easy to see how each measure makes sense in isolation. In totality, however,

“The deep changes in our economy being ushered in by digitisation... suggest that a more radical examination of the fundamental building blocks of public policy is in order”

one might argue that the breadth of measures is both too extensive (the growth review document alone contains 235 different measures) and at the same time insufficiently radical. Borrowing from our earlier discussion on enterprise and innovation, from the perspective of high-impact digital

entrepreneurship, the government's growth strategy is more incremental improvement than disruptive innovator.

The deep changes in our economy being ushered in by digitisation, along with the continued pressing need to kick-start growth, suggest that a more radical examination of the fundamental building blocks of public policy is in order.

<sup>21</sup> *Catapult centres*, Technology Strategy Board, 2011

<sup>22</sup> *Tech City: the digital capital of Europe*, UK Trade & Investment, 2011

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# 3

## A Framework for High-Impact Digital Entrepreneurship

Rebuilding public policy to support a revolution in high-impact digital entrepreneurship requires a sound understanding of the factors and characteristics necessary for businesses of this type to form, grow and enjoy success.

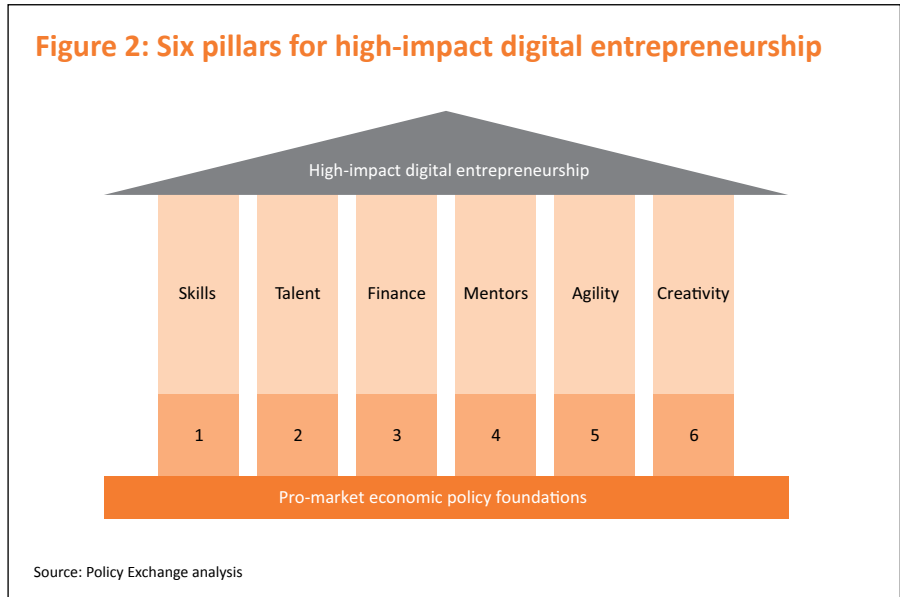
The analysis in this paper is oriented around the following six pillars:

1. **Skills.** High-impact digital enterprise is built on human capital. To be successful an economy needs to attract, develop and retain the most talented scientists, engineers, designers and coders. A high general level of technical competence in the workforce as a whole is also important.
2. **Ambition.** To achieve high impact, entrepreneurs need to think big – setting their sights on changing the world rather than just earning a comfortable living. This is closely linked to culture and what traits and outcomes a society chooses to celebrate.
3. **Finance.** For start-ups to scale up they need access to finance. This matters at every step on the funding ladder, from seed capital to IPO. Every investor is legitimately concerned about both the quality of the business they are investing in and prospects for an eventual exit.
4. **Mentors.** Running a high-impact enterprise is a demanding challenge for even the most talented entrepreneurs. Even where an individual has prior experience in the start-up world, leaning on advice and support from trusted mentors is a powerful mechanism to manage performance.
5. **Agility.** Many start-ups do not succeed first time around. Sometimes the original concept needs to be dropped altogether, other times a more or less radical “pivot” is required to make the leap from start-up to scale. Entrepreneurs need to be willing and able to shift gears quickly.
6. **Creativity.** The data and content that powers digital businesses can be duplicated in a way that does not apply to physical plant and machinery. This can be tremendously powerful when businesses have enough leeway to be creative with digital content – but poses challenges for rights owners.

The most successful centres for high-impact digital enterprise exhibit strong performance across all of these pillars. In discussions about global centres, California, New York and London are frequently cited as key centres for start-ups and the digital economy. This characterisation is undoubtedly correct, but risks somewhat glossing over relative performance. On one simple measure

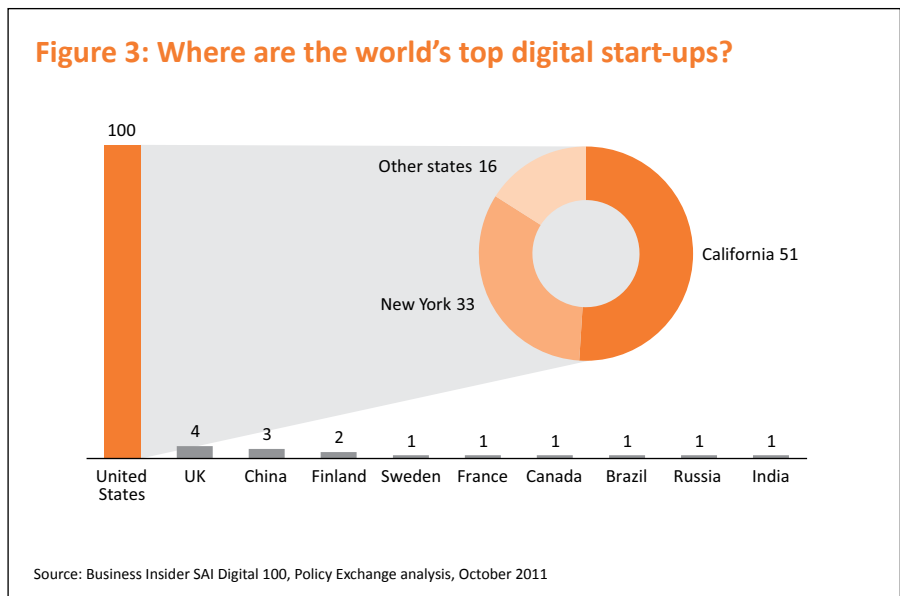


**Figure 2: Six pillars for high-impact digital entrepreneurship**



of high-impact entrepreneurship – looking at the biggest digital start-ups still operating as private companies – the United States massively dominates other countries. Making these sorts of comparisons always involves an element of subjectivity and judgment about company valuations. Nevertheless, a recent review of the world’s top 115 private digital start-ups found that 100 were located in the US, with more than half of these in California (see Figure 3).<sup>23</sup> This list was compiled in October 2011, so the pre-IPO Facebook tops the list. Others in the top 10 include well-known businesses like Dropbox, Zynga, Twitter and Groupon. UK entries include Mind Candy, Miniclip, Shazam and eBuzzing (the full list is included at Annex A).

**Figure 3: Where are the world’s top digital start-ups?**



This is about more than just the size of the host country or economy. The United States economy and population is about five times larger than the United Kingdom, but on the measure above its performance at generating very high-end

<sup>23</sup> *The 100 most valuable start-ups in the world*, SAI Business Insider, 2011

digital start-ups is significantly stronger. This is directionally consistent with findings from the Global Entrepreneurship and Development Index, which suggests that overall the UK system for entrepreneurship operates at around 75% of the effectiveness of the United States.<sup>24</sup>

Of course, it is important to remember that the UK is not California, and on many dimensions never will be. Seeking simply to achieve the same success in the same spheres is too blunt a foundation for public policy. Instead, we need to understand better how to marry proven conditions for successful entrepreneurship with the UK's unique strengths, culture and areas of comparative advantage.

So whilst recognising that policy designed for one country's circumstances cannot always be directly translated to other situations, it is clear that California and New York hold important clues and lessons for policymakers seeking to unlock high-impact digital enterprise in the UK.

The presence in the rankings of other western European countries, along with Brazil, Russia, India and China, highlights the fact that the UK is not the only place outside the United States where high-impact digital enterprise is possible. The self-reinforcing nature of clusters suggests that there will be an important element of path dependence in the emergence and growth of new digital centres. This places further emphasis on the importance of acting decisively and fast if policymakers in the UK are serious about making the UK the best place in the world to locate new, high-impact digital enterprises.

Over the following sections of this paper we dive deeper into each of the six pillars for high-impact digital enterprise, and begin assembling insights we can bring to bear on UK public policy.

*24 Entrepreneurial profile  
of the UK in light of the  
Global Entrepreneurship and  
Development Index, Imperial  
College London, 2012*

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# 4

## Skills for Technology

Although digital businesses have a clear dependence on technology, skills and human capital are arguably the most important input for the most successful enterprises. Devising cutting-edge innovations and figuring out new ways to disrupt the status quo remains a task where wetware (i.e. the human brain) – albeit often in conjunction with the latest hardware and software – wins out. Having access to a labour market rich in the sorts of skills demanded by high-impact digital enterprises is therefore a fundamental factor for economic success.

Broadly speaking the UK is well educated, with tertiary educational attainment significantly above the OECD average, and a higher share of new entrants onto tertiary programmes choosing to study a science discipline.<sup>25</sup> Overall, the Science Council reports that 20% of the workforce is now employed in science-related roles.<sup>26</sup>

Nevertheless, our conversations with entrepreneurs and start-ups very often turned to skills shortages related to particular aspects of the digital economy like user interface design and high-end coding. If not addressed, a shortage of skilled employees in these areas risks developing into a bottleneck constraining the UK's overall performance on high-impact enterprise.

In the medium-term this can and should be addressed by investment and focus throughout the education system, to put more emphasis on the ability to make and design as well as simply to use modern software, and on science and related subjects that provide a foundation for employment in the digital economy. This can run the full age spectrum, from more constructive computer science classes in primary schools (including support through projects like the Raspberry Pi initiative) through to the planned expansion in technical colleges and increased emphasis on STEM subjects at degree and post-graduate levels. In time these factors should result in a substantial increase in home-grown skills for the digital economy – though they will unavoidably take five to ten years to fully feed through the system.<sup>27</sup>

Skills development can also happen outside the traditional educational boundaries. Many leading businesses provide valuable training and development programmes for their employees, to the benefit of the employer and the wider community. Similarly, public funding for initiatives like the Open Data Institute will help to train more people in the skills required to work with data and technology.<sup>28</sup>

In the near-term, however, the only practical way to get more skilled individuals into the workforce is to look overseas. The UK is already an attractive destination for talented students, with a strong reputation for both academic and

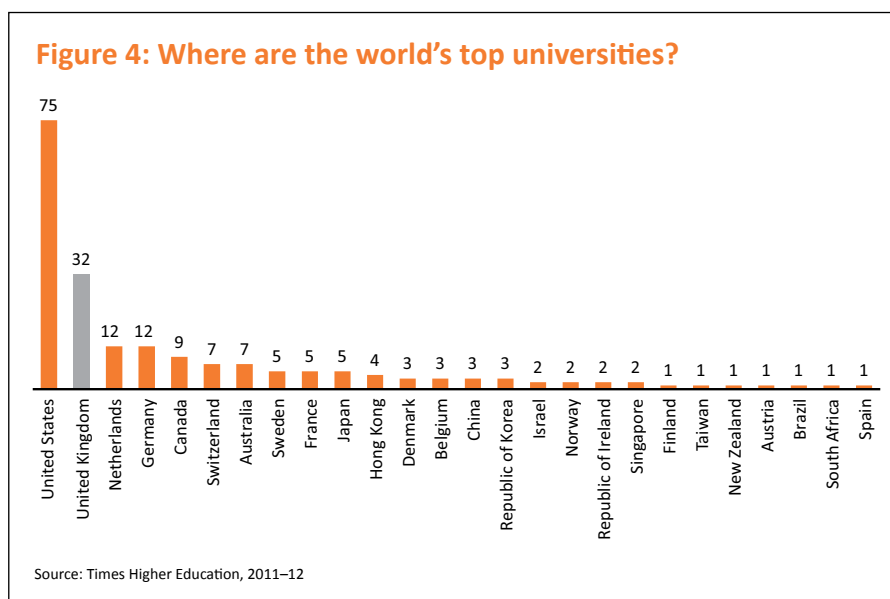
<sup>25</sup> *Education at a glance*, OECD, 2011

<sup>26</sup> *Current and future UK science workforce*, Science Council, 2011

<sup>27</sup> Upcoming Policy Exchange work on vocational and technical education will examine some of these issues in more detail.

<sup>28</sup> *Open data measures in the autumn statement*, Cabinet Office, 2011

applied research. Four of the top 20 (and 32 of the top 200) universities in the world are in the UK (see Figure 4) – a strong second place behind the US (with 14) and by far the strongest in the EU.<sup>29</sup> And among universities under 50 years old, 20 of the top 100 are in the UK.<sup>30</sup> Based on the latest data on clearance visas issues, around 200,000 foreign students come to the UK to study each year.<sup>31</sup> The number of EU and international students taking postgraduate taught courses in science, technology, engineering and mathematics nearly doubled in the period 2002–10 from around 10,000 to around 18,000 (whilst UK student numbers stayed broadly flat at around 11,500).<sup>32</sup>



When it comes to the best overseas students making the leap to enterprise, however, the UK is arguably falling short. There is an option for students wishing to start a business in the UK following their degree – but the Tier 1 Graduate Entrepreneur visa has a quota of just 1,000 places a year, and an additional constraint of 10 endorsements per institution.<sup>33</sup> There is also a Tier 2 entry route for skilled workers, with an annual cap of 20,700 places for individuals from outside the EU who have secured employment (and satisfied various other conditions) with salaries below £150,000, and no cap for individuals to be employed with salaries above £150,000.<sup>34</sup> For business owners looking to staff pre-revenue start-ups with coders and other technologists, many of whom may be initially paid peppercorn salaries and incentivised with stock options, this route is of limited help.

This represents a tightening of policy compared to previous years, when a post-study visa gave migrant graduates free access to the UK labour market.<sup>35</sup> In addition to meeting some general concerns about immigration, the government determined that this regime was inappropriate in an environment where many UK graduates are struggling to find work.

The broader immigration rules around entrepreneurs also merit a brief discussion. The Tier 1 Entrepreneur entry requirements contain a provision requiring access to at least £50,000 of capital from British investors.<sup>36</sup> A hurdle of this sort makes sense as a practical way to screen out individuals who do not have the financial means or backing to support a start-up business. This figure is high, however, relative to some

<sup>29</sup> World university rankings, Times Higher Education, 2012

<sup>30</sup> The 100 under 50 university rankings, Times Higher Education, 2012

<sup>31</sup> Immigration statistics: study, Home Office, 2012

<sup>32</sup> Strategically important and vulnerable subjects, Hefce, 2011

<sup>33</sup> Visas and immigration: Tier 1 (graduate entrepreneur), UK Border Agency, 2012

<sup>34</sup> Visas and immigration: Tier 2 (general), UK Border Agency, 2012

<sup>35</sup> Visas and immigration: Tier 1 (post-study work), UK Border Agency, 2012

<sup>36</sup> Visas and immigration: Tier 1 (entrepreneur), UK Border Agency, 2012

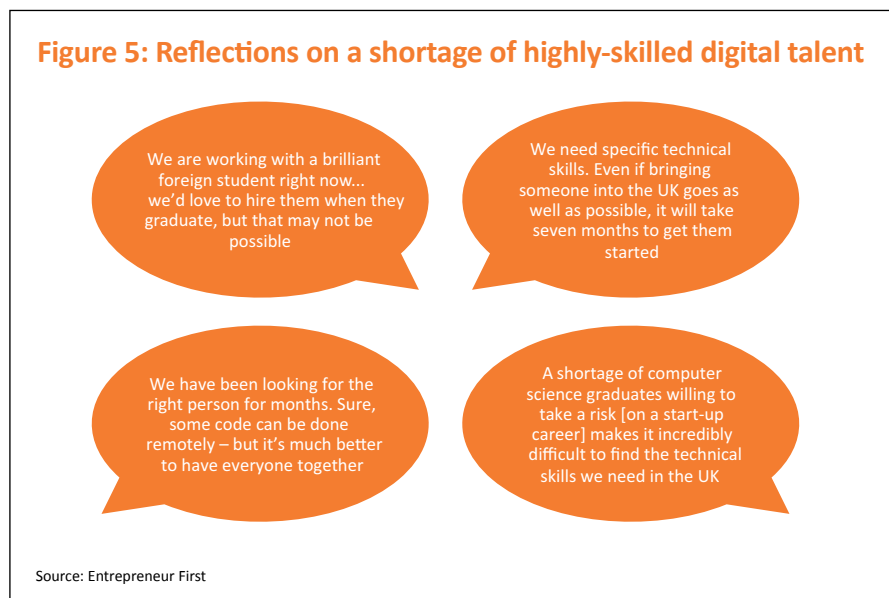
other countries. The Singapore Entrepass regime has a threshold set at SGD \$50,000 (which is equivalent to around £25,000).<sup>37</sup> New Zealand has no specific capital requirements but instead offers access to entrepreneurs whose firms are deemed to benefit the country; Chile actually gives selected start-ups funding. Australia and Canada both use points-based systems that emphasise skills.<sup>38</sup>

Interestingly, the United States has no specific visa for migrants wishing to start a new business. Instead, the current rules include provisions for investors (as opposed to founders) to be granted a visa if they are prepared to put enough money behind a new business – but at a significantly higher threshold of US \$1 million. A campaign to introduce a start-up visa, which proposes extending visas to start-up company founders or entrepreneurs that can attract a minimum equity investment of US \$250,000, is currently in train with legislation proposed in the House and the Senate.<sup>39</sup>

Despite the absence of a specific entrepreneur visa, the United States has traditionally benefitted enormously from being open to immigration. Over half of the start-ups in Silicon Valley since 2005 had one or more immigrants as a key founder.<sup>40</sup> Household names including Google, Intel, Yahoo!, eBay and YouTube were all started by individuals born outside the United States.<sup>41</sup> Amongst its technology firms overall, over half of immigrant founders originally came to the United States for higher education.<sup>42</sup>

High-impact digital enterprise needs access to a specific and scarce set of skills centred around science, technology and design. In time the supply of these skills from the domestic labour force should rise to meet increasing demands from new businesses in the digital economy. In the near-term, however, we need to consider whether it is possible to find a targeted way to boost access to international talent, whilst maintaining the overall political desire to draw tight immigration policy. This theme came out repeatedly in our conversations with digital start-ups.<sup>43</sup>

**Figure 5: Reflections on a shortage of highly-skilled digital talent**



37 *Entrepass*, Ministry of Manpower (Singapore), 2012

38 *Where creators are welcome*, Economist, June 2012

39 Startupvisa.com

40 *America's new immigrant entrepreneurs, parts I to IV*, Wadhwa et al, 2007–2009

41 Ibid

42 Ibid

43 The sentiments expressed in Figure 5 have been anonymised, as many of the businesses we spoke to had visa requests for staff in progress or pending.

Making progress matters for two reasons. First, we are missing out on the direct benefits of enterprise and job creation, as some graduating students with great ideas have no alternative but to take them overseas (no matter how much

they would have preferred to stay and launch in the UK), and firms that do start are constrained by a lack of local talent. On the ground, companies report a significant scarcity of people with high-end digital skills like web development and coding. This scarcity is real: a scan of job listings for start-ups in the UK returns large numbers of vacancies, the vast majority in the digital space.<sup>44</sup> Second, there is an indirect impact on the entrepreneurial community. Meetups and community events have surged in popularity in the digital community. Fewer aspiring entrepreneurs and highly-skilled peers in the start-up community means disproportionately fewer social connections and less diversity in the networks that support clusters of start-ups.

No country has a monopoly on visionary entrepreneurs or talented coders. But they are scarce. Recognising this, Peter Tufano, Professor of Finance at Saïd Business School says “you can’t be nationalistic about entrepreneurship”.<sup>45</sup> For the new global digital elite the UK is already an attractive place to live and study. It can and should become the top destination to build an enterprising start-up career.

<sup>44</sup> See for example Indeed.co.uk, CoderStack, Careers 2.0 and others

<sup>45</sup> *High-impact entrepreneurship and the economy*, Entrepreneur First, 2012

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# 5

## Ambition

Drumming up enthusiasm for business and an enterprise culture are long-standing issues in the UK policy debate.

Following a number of reviews over the years, the most recent examination of the issues for enterprise as a whole was conducted earlier this year in a review led by Lord Young, an adviser to the Prime Minister on small business and enterprise.<sup>46</sup> This showed that overall 50% of private sector turnover is generated by small and medium-sized businesses, and that 60% of private sector jobs are provided by small and medium-sized businesses. The review contributed important observations about starting a business in the modern economy, in particular that:

- *Start-up costs are low.* The report suggests that most new businesses can and do get going on a bootstrap budget, and points out that a determined entrepreneur can get sales moving armed with little more than a smartphone.
- *Technology has enabled new routes to market.* Selling and promoting online is faster and cheaper than ever before, and social media has provided new platforms for establishing online businesses.
- *There is lots of support available.* Initiatives to support start-ups are growing out of private sector interests, the government and the community itself, and campaigns, awards and events designed to promote enterprise are enjoying a renaissance.

The review also made important recommendations that are already being put into practice, including:

- *Support for young entrepreneurs.* A new initiative to provide small loans to young people aged 18–24 to get their business idea off the ground is being piloted.<sup>47</sup>
- *Facilitating managed space for SMEs.* The government has agreed to open up vacant and under-used space to business start-ups, and to list these on a common portal alongside private sector providers.
- *Simplified advice and information.* Two new business-friendly guides have been developed (on setting up a home-based business and on taking on employees). Future work by the Government Digital Service will provide an opportunity to consolidate other online offerings.
- *Accessing finance.* This is partly about helping businesses to locate what is available, and new online search tools are being developed. It is also about opening up awareness and understanding of non-traditional routes including peer-to-peer

<sup>46</sup> *Make business your business*, Lord Young, 2012

<sup>47</sup> See also the Policy Exchange research note *Financing Innovation* for more analysis of the arguments for providing modest financial support to young entrepreneurs.

lending and crowdfunding (and £100 million of the Business Finance Partnership funding has been ring-fenced to support non-traditional channels).

- **Opening up government business.** Government is expanding its efforts to attract SMEs to bid for government business, and also giving more staff in the public sector opportunities to spin out delivery into public service mutuals.

All of these steps will deliver positive improvements for small businesses and enterprise in the UK. The recognition that many new businesses are increasingly enabled by technology is an important reflection of how pervasive the internet and digital technology has become. And many of the newer trends toward shared workspaces and crowdsourced funding are already particularly popular among digital start-ups. Doing more to open up access to these sorts of resources is an important and welcome enabler for the digital economy.

The question facing policymakers concerned with enterprise is where to take this agenda next. From the perspective of supporting high-impact digital enterprise, we argue that the next phase needs to be a significant focusing of energy. Achieving dramatic success as an entrepreneur takes rare talent, ambition, determination and persistence. Whilst small businesses will continue to play an important role in our economy, we need to think seriously about how we can best support the small minority of people who have what it takes to make a serious attempt at high-impact digital enterprise.

The global competition for entrepreneurs and talent makes this all the more pressing. We discussed the rules around immigration and visas for entrepreneurs, students and highly-skilled migrants in the previous chapter. Successful and aspiring digital entrepreneurs have a very real choice about where in the world they choose to locate their business. If the UK is not prepared to support its most talented entrepreneurs to start their business at home, then many will have no problem taking it overseas.

We believe that part of the answer lies in shifting mindsets in the policy and business communities, to celebrate transformational enterprise above all other forms of business success.

Looking back to the top 115 digital start-ups, the high-ranking US entries are notable for their contribution to societal transformation as well as pure business success – radically changing the way we communicate with each other (Facebook, Twitter, Tumblr), transact (Groupon, Craigslist, Square) and learn (Wikimedia) whilst also accumulating astonishing numbers of users.<sup>48</sup> American firms that have matured off the start-up list have had even greater impacts on our world (think Google, Apple, Amazon or Microsoft). British entries in the list are without doubt exceptional businesses, but none could yet realistically be argued to have changed the world in quite the same ways.

In the Global Entrepreneurship and Development Index work, the UK's performance relative to other OECD countries is attributed primarily to weaknesses in aspirations and attitudes. The UK ranked 28th (out of 30 countries) for product innovation by nascent and new entrepreneurs, and 16th for high-growth aspirations.<sup>49</sup>

Comparisons with California and New York reveal some of the underlying differences in attitudes between entrepreneurs in the United States and those in the UK. According to research compiled by Startup Compass, Silicon

<sup>48</sup> *The 100 most valuable start-ups in the world*, SAI Business Insider, 2011

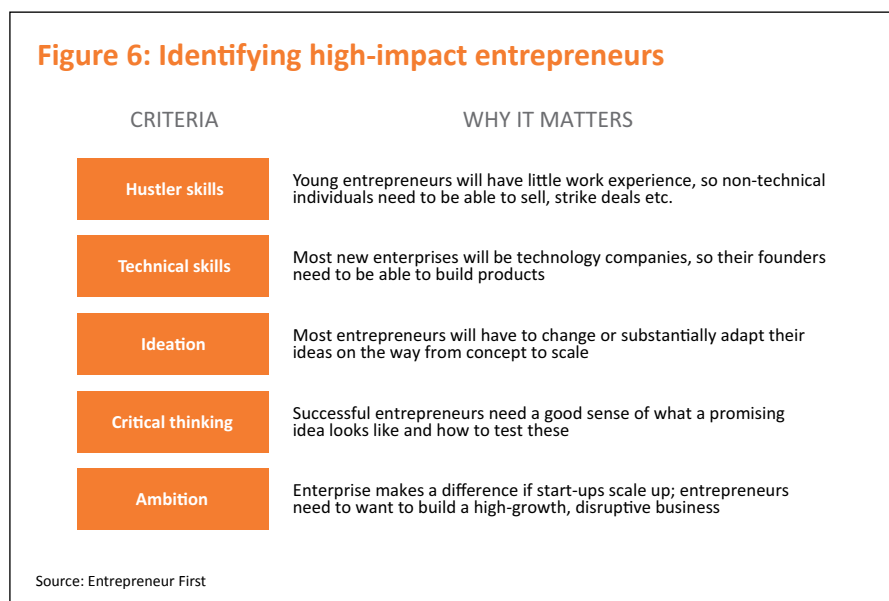
<sup>49</sup> *Entrepreneurial profile of the UK in light of the Global Entrepreneurship and Development Index*, Imperial College London, 2012



Valley entrepreneurs are 13% more likely to tackle new markets than London entrepreneurs, whereas London entrepreneurs are 21% more likely to tackle existing markets with better products. Silicon Valley entrepreneurs are 22% more likely to estimate their market size as greater than US \$10 billion compared to New York City entrepreneurs, and 120% more likely compared to entrepreneurs in London. Silicon Valley has 30% more founders that want to change the world than London or New York; London has two times more founders that want to make a quick flip than Silicon Valley or New York.<sup>50</sup>

The sorts of audacious attitudes to success characteristic of Californian start-ups are neatly encapsulated in the movie *The Social Network*. In one of the film’s most memorable scenes, Sean Parker is in conversation with a young Mark Zuckerberg and tells him: “A million dollars isn’t cool. You know what’s cool? ... A billion dollars.”<sup>51</sup> This is the sort of thinking on upgrading our ambitions that policy on high-impact enterprise should reflect.

There are clues about what sorts of factors we need to look for, nurture and celebrate to promote high-impact enterprise in the work done by Entrepreneur First, a new national graduate scheme that aims to make launching a start-up the most exiting career option for the UK’s top graduates.<sup>52</sup> The selection criteria for participants in the elite Entrepreneur First scheme focuses heavily on the sorts of characteristics exhibited by successful high-impact digital entrepreneurs – a blend of self-starting and technical skills, critical thinking, creativity and ambition.



The first cohort of young entrepreneurs to participate in the scheme was announced in April 2012. The 30 people selected span 15 different universities and have interests ranging from 3D printing to online gaming and unmanned aerial vehicles. Participants benefit from mentors, training, time with other ambitious entrepreneurs, and introductions for access to funding (note Entrepreneur First does not itself make a direct financial investment in its participants). The costs are met by sponsorship in cash and in kind from a range of business partners, who in return hope to benefit from a relationship with the start-ups and graduates involved.

50 *The rise of start-up ecosystems*, Startup Compass, 2012

51 *The Social Network* – screenplay, Sony PicturesDigital, 2011

52 Entrepreneur First

Other schemes also exist with objectives to help elite talent with great ideas get their start-up business off the ground. In Europe, HackFwd (itself a start-up) looks to match talented developers with great product ideas to funding, tools and advice. To help screen for quality, individuals cannot apply directly but instead must obtain a referral from a set of nominated experts in the start-up and technology worlds. Under the HackFwd model, successful entrepreneurs receive the equivalent of a year's salary plus a range of business benefits in kind, and in exchange give up 30% equity in their business.<sup>53</sup>

One of the most high-profile examples from the United States is Y Combinator. Participants selected for Y Combinator receive a small amount of funding from the programme's investors (on average around \$18,000), in exchange for a small equity stake, and move to Silicon Valley for three months for intensive collaborative business development. There are two cycles a year, with each culminating in a demo day of presentations to potential investors. The decision about who to accept onto the scheme is driven by the quality of the teams applying – Y Combinator say they look for “brains, motivation and a sense of design”.<sup>54</sup> Wired describes Y Combinator as “the most prestigious program for budding digital entrepreneurs”.<sup>55</sup>

One of the big challenges that all of these schemes have to tackle is the tendency for bright graduates to choose to start their career in a large, established corporation. As noted in an earlier section, in many cases large businesses are efficient economic entities and good at incremental innovation. But if they attract too many potentially great entrepreneurs, the overall scope for disruptive start-up innovation is diminished. Speaking during a recent trip to the UK, Eric Schmidt highlighted getting the UK's most talented graduates into technology and start-ups as one of the big challenges for unlocking the potential of the UK's digital economy.

In the UK there is an emerging movement to get graduates to consider founding or working for a start-up when they leave university. One recent initiative in this space is Silicon Milkroundabout, which was set up as an alternative to traditional graduate jobs fairs and aims to match UK start-ups to developers, project managers and designers.<sup>56</sup> Encouragement for entrepreneurial activity on university campuses is also picking up, with good work being led by the National Association of College and University Entrepreneurs and others.<sup>57</sup>

Ideally we would get the UK to a place where having had the nerve to go down the high-impact start-up route is seen as mark of distinction, even if the business did not ultimately work out. In the United States an attempt to start a business is often seen as valuable life and learning experience, and a good thing to put on a CV when applying for jobs in larger companies. In the UK we are too often far closer to treating failure in business as something to quietly forget.

A focus on recognising great attempts at launching a start-up, and celebrating high-impact enterprise can go hand-in-hand with achieving broader social aims. Many of history's great entrepreneurs have given back to society in significant ways. In recent decades endowments by technology entrepreneurs to major charitable foundations like the Bill & Melinda Gates Foundation, the William &

“One of the big challenges that all of these schemes have to tackle is the tendency for bright graduates to choose to start their career in a large, established corporation”

53 HackFwd, 2012

54 Y Combinator, 2012

55 Y Combinator is boot camp for start-ups, Wired, 2011

56 Silicon Milkroundabout

57 NACUE

Flora Hewlett Foundation and others have resulted in hundreds of millions of dollars being disbursed to good causes. More recently the trend for successful digital entrepreneurs to bankroll projects on the frontiers of science and engineering, such as the SpaceX project funded by Elon Musk, the founder of PayPal, has also picked up. All of these actions set strong, positive role models for the good one can do off the back of high-impact enterprise.

Although the UK has arguably yet to achieve breakthrough success at transformational digital enterprise, it has achieved world-class transformational performance in other sectors. At various times over the last century the UK has led the world in fields including advanced engineering, energy, financial services and media.

It is not that great a leap to believe that, with the right focus, the UK could repeat this sort of success in the digital economy.

# 6

## Finance for Scaling Up

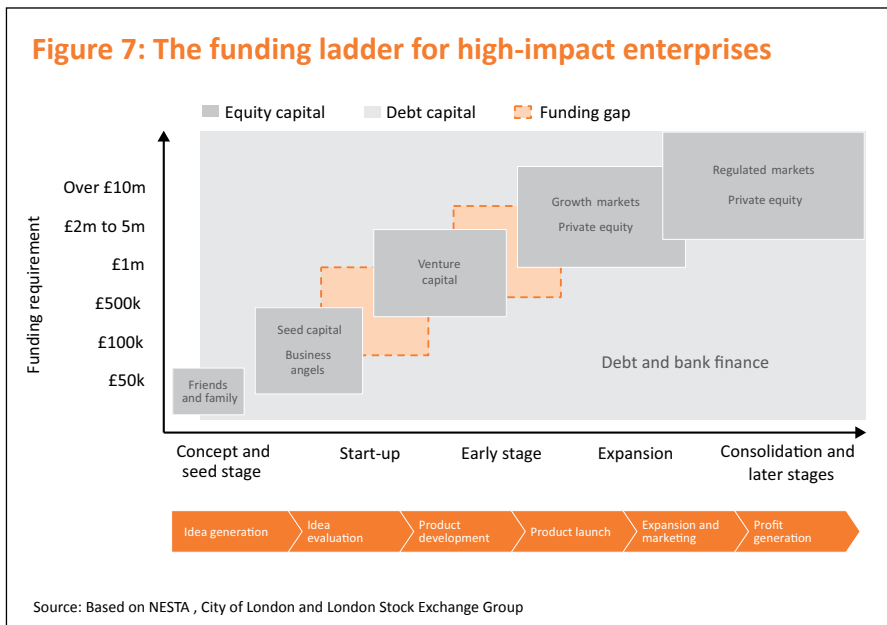
Finance is an essential ingredient for any new business. Taking an innovation from inception to market and preparing for long-term expansion takes time and money.

In the early stages, aspiring entrepreneurs will almost certainly need to bootstrap – living off very limited resources in order to focus on planning, idea generation and developing a pitch for potential investors. The new youth investment loans that are being piloted by the government will provide a welcome additional source of funding for new businesses looking to cover costs for their first few weeks and months.<sup>58</sup>

But to achieve high impact, start-ups need to scale up.

Where a business is new, small or growing fast it may not be possible to rely on cash in the bank or retained earnings past the initial phase of growth. In these circumstances, the ability to access external finance is critical.

The different parts of the finance industry do not operate in isolation, but instead are part of a broader funding “ladder” or “escalator” for start-up companies – running from initial, angel and seed funding, through start-up and expansion venture capital, all the way to exit via a trade sale or initial public offering (IPO).



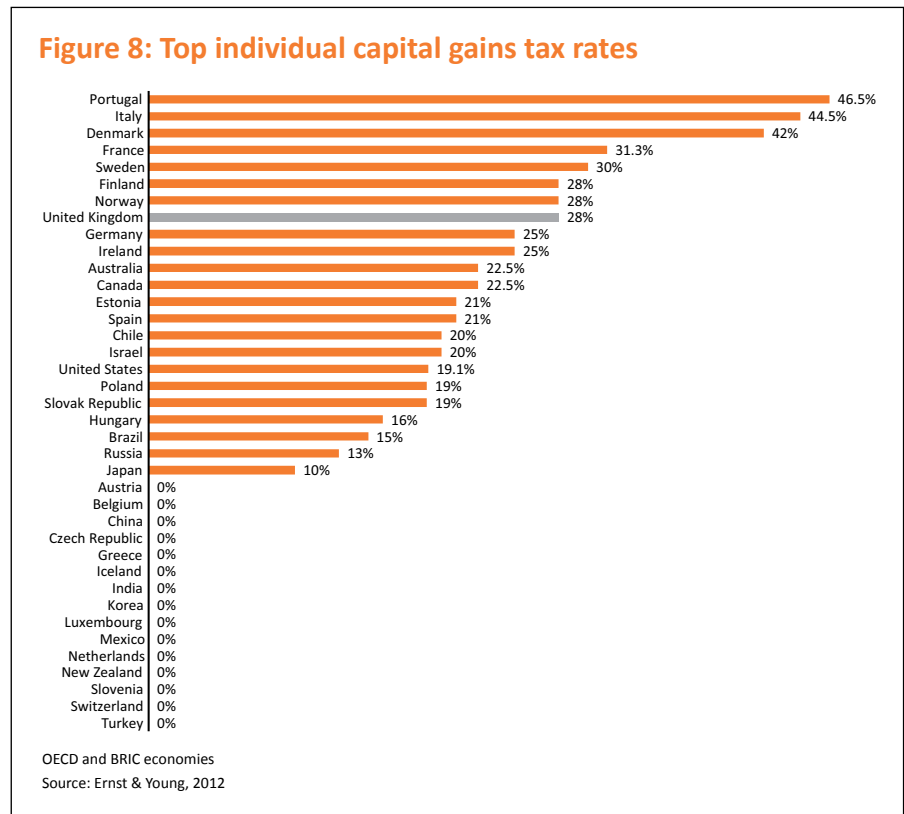
For innovative businesses to thrive and grow there needs to be a healthy blend in the availability of finance – across debt and equity and with enough sources to

<sup>58</sup> Start-up loans for young entrepreneurs, Department for Business, Innovation and Skills, 2012

see firms through all stages of growth, from start-up to follow-on funding. For each investor it is important to see a path to eventually exiting and realising a gain. Since there must be a buyer for every seller, a set of properly developed and liquid markets across the entire funding landscape matters.

Our review suggests that there is particular potential for the UK to improve the early stages of the funding ladder (see the gaps highlighted in Figure 7). On average Silicon Valley start-ups raise two to three times more money in the first three phases of development – described in the Startup Compass work as discovery, validation, and efficiency, and corresponding to our concept, start-up and early stage phases.<sup>59</sup> The same work shows, however, that London start-ups raise 30% more money in later stages of expansion.

Earlier chapters of this report touched on the challenges and opportunities presented by the international mobility of skilled workers and talented entrepreneurs. Capital is just as internationally mobile – if not more so. And for potential investors looking for a path to an eventual exit and gain, the tax treatment of those gains is an unavoidable consideration. The tax treatment of capital gains around the world varies from the very simple to the very complex – with some regimes containing interlocking exemptions, rates and allowances. Nevertheless, a comparison of the top marginal rates applied to individuals in different jurisdictions is instructive.



Whilst it is important to remember this is a simplified comparison of headline rates, the UK is clearly at the higher end of the rates table. There are sound reasons for choosing a high capital gains tax rate – but they rest more on fairness than on economic efficiency. As capital gains tax tends to be paid by individuals with relatively high incomes and wealth, it can be an important tool for redistribution

<sup>59</sup> *The rise of start-up ecosystems*, Startup Compass, 2012

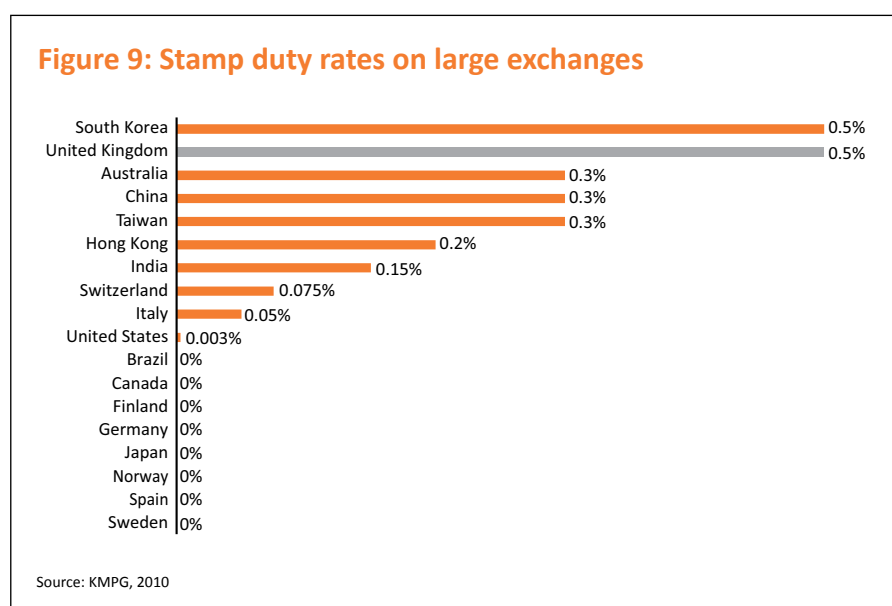
and to ensure that well-off individuals and families pay a fair share of tax. There have also been particular concerns in the recent past that low rates of capital gains tax were being abused in the private equity industry and other areas to disguise incomes and interest as capital gains, in order to achieve a lower tax rate (infamously described as bosses paying less tax than their cleaners).

In practice, the headline capital gains tax rate can be mitigated by a range of reliefs and exemptions designed for individuals taking an equity stake in small and growing businesses. Some of these were outlined earlier in this report – with key policies including Venture Capital Trusts, the Enterprise Investment Scheme and Seed Enterprise Investment Scheme, and the Entrepreneur’s Relief in capital gains tax. The last of these provides business owners with an effective 10% tax rate on the first £10 million of gains. Overall these measures can be very generous for investors who take them up, and the government can and should continue to promote them.

If the government wanted to do more in this vein, then measures to improve flexibility around these reliefs would be welcome – for example extending eligibility to allow more employees, directors and founders to access them. A companion rollover relief, appropriately targeted, might also sit comfortably in the mix. By enabling investors to defer tax liabilities when the proceeds of one investment are invested into another, this could add extra depth to the market.

Alternatively, if the objective is to send a very clear signal to global investors, some commentators argue for cutting back the main rate of capital gains tax itself (perhaps ring-fenced to avoid introducing a low rate of tax for investments in second homes and the like). This sort of move might fit well with the government’s narrative around Britain being open for business. The government has made strides on the corporation tax front, with commitments to reduce the main rate of corporation tax in a staged manner over a number of years.<sup>60</sup>

Beyond capital gains tax, stamp duty is another area where the tax regime meets investors considering whether to buy or sell equities. As stamp duty is a tax on transactions, it discourages frequent trading of shares, with a consequential decrease in market liquidity. As with capital gains tax, a comparison of UK stamp duty rates with other jurisdictions is instructive.



60 Budget 2012, HM Treasury, 2012

Again the UK is at the higher end of the table. As with capital gains tax, there are revenue arguments for choosing a non-zero rate of stamp duty. On the other hand, stamp duty contributes to what many people argue is an uneven tax treatment of debt and equity, which discourages participation in equity investment across the board, from small-scale investors through to large funds.

Some commentators argue that the accumulation of tax treatments that favour debt over equity, and rates that are less competitive than those levied in other jurisdictions, contribute to a scarcity of viable IPO routes for digital start-ups in Europe. Anecdotally, many businesses choose to move to the United States when the time comes to list – often on the NASDAQ.<sup>61</sup>

New technologies are the other part of the financing landscape with a particular bearing on high-impact digital enterprise. A number of innovative businesses are emerging with propositions to disintermediate the traditional players in the financing space (and are, of course, on the path of high-impact digital enterprise themselves). Online lending and borrowing platforms are starting to enable quicker decision making and faster access to finance than some traditional channels. Peer-to-peer platforms allow individuals to invest or lend directly to small businesses, with both sides enjoying better rates of interest/return than might be achieved through traditional intermediaries. Crowdfunding platforms allow businesses to aggregate many small investments to reach their funding target, rather than (or in addition to) looking for a small number of large tranches of investment.

**Figure 10: Some online funding and lending platforms**

PLATFORM	IN ITS OWN WORDS
Crowdcube	Gives entrepreneurs and business pioneers a new way to raise business finance by tapping into a crowd of like-minded individuals willing to invest smaller amounts
Funding Circle	An online marketplace to help businesses find low cost loans quickly and investors get better returns. There are no middlemen, no banks, and no lengthy delays
Grow VC	A global, transparent, community platform. Enables great ideas and great teams to get visibility with the right investing audience, funding and support earlier
Market Invoice	An online marketplace where growing companies selectively auction their invoices due to large customers to a network of high-net worth and institutional buyers
Platform Black	Bringing competitively priced instant finance to SMEs via invoice trading
Iwoca	Offering instant working capital to online-market retailers
Seedrs	An online platform for investing seed capital. Invest in the shares of start-ups you choose. Raise capital for your start-up from friends, family and the crowds
Thincats	An online market for secured business loans. We link experienced investors with established borrowers to provide a serious alternative to high street banks
Wonga	We are transforming financial services without the long waits, complexity and rigidity people and small businesses traditionally face whenever they need to borrow some cash
Zopa	Zopa is a marketplace for money. Lenders get lovely returns, borrowers get low-cost loans and money becomes human again
Ratesetter	Creditworthy borrowers are looking for a low cost loan. Smart savers are looking for a better return. We match them up and ensure everyone gets what they've been promised
Kickstarter	A funding platform for creative projects. Every project is put to all-or-nothing funding, and supported by friends, fans, and the public in return for rewards

Source: Company websites, Policy Exchange analysis

<sup>61</sup> It's high time there was a tech IPO market in London, TechCrunch, 2012

As these platforms mature and gain market share, it will be important for the regulatory regime to keep pace and for the government to treat them on a level playing field with traditional investment channels. The decision to direct part of the Business Finance Partnership into new channels is a welcome development.<sup>62</sup>

*62 Business finance partnership  
– small business tranche,*  
Department for Business,  
Innovation and Skills, 2012



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# 7

## Mentors

Aspiring high-impact entrepreneurs need support that goes beyond investment. In our conversations with a range of businesses at different stages of development, all cited the importance of mentors to provide advice, guidance and a sounding board for dealing with the many and varied challenges of scaling up a business. This includes both peers who are facing the same challenges and people with deep expertise and experience in the sector and/or start-up game. Mentors were sometimes people that entrepreneurs knew before starting their business, at other times they were found in the community or the relationship developed alongside securing finance from angel investors and venture capitalists.

One of the important benefits of achieving a critical mass of high-impact entrepreneurs and investors is that this generates a feedback loop in terms of the pool of potential mentors and the strength of the start-up community.

The Startup Compass work mentioned earlier found that the Silicon Valley and New York City ecosystems have more helpful mentors than the London ecosystem. Silicon Valley companies have 46% more helpful mentors than companies in

London.<sup>63</sup> On the Global Entrepreneurship and Development Index, the UK ranked in the fourth quartile on a measure of whether individuals know other entrepreneurs.<sup>64</sup>

The Tech City initiative in East London is in part a deliberate attempt to nurture a community and network of businesses that can provide informal support and mentoring alongside traditional business relationships.

The promotion of shared workspaces, and the

decision of some large businesses to develop a presence in the area, are sensible and positive steps toward helping links to form. The flagship seven-storey Campus venue supported by Google (in partnership with Seedcamp, TechHub and Central Working) already provides one high-profile venue. Other big businesses that have announced plans to develop their presence in East London include Intel, Facebook, Amazon, Vodafone, Barclays and GREE.<sup>65</sup> They will also be joined by the new Open Data Institute. Similar clusters of businesses in university science parks and other spin-out centres deliver the same sorts of benefits for areas outside London, such as Edinburgh, Cambridge, Warwick and Strathclyde.<sup>66</sup>

Thought leaders in the start-up community also have an important role to play. These individuals do not have time to connect directly with every aspiring entrepreneur that would like to get personal advice. But by being active in the

“The Tech City initiative in East London is in part a deliberate attempt to nurture a community and network of businesses that can provide informal support and mentoring alongside traditional business relationships”

<sup>63</sup> *The rise of start-up ecosystems*, Startup Compass, 2012

<sup>64</sup> *Entrepreneurial profile of the UK in light of the Global Entrepreneurship and Development Index*, Imperial College London, 2012

<sup>65</sup> *Speech at the ICT Olympics trade event by the Chancellor of the Exchequer*, HM Treasury, 2012

<sup>66</sup> *Scottish universities top UK spin-outs survey*, BBC News, 2011

community and sharing their views on business development widely, these individuals can set the tone in the community and help entrepreneurs keep one eye on the big picture. Start-up experts like Paul Graham, Steve Blank and Fred Wilson (among others) all play this sort of role and are cited widely.

The government has taken a number of steps to increase the general supply of mentors, including working with the British Bankers Association to develop a national mentoring portal, and allocating funds to recruit and train volunteer mentors from the small business community.<sup>67</sup> The government has also partnered with organisations in the private sector to develop GrowthAccelerator, a subscription-based service that delivers tailored advice to small businesses with rapid growth potential.<sup>68</sup>

But delivering effective mentors for the high-impact start-up community is not something that government can achieve simply by allocating cash to compensate people for their time and trouble. The nature of the mentor/mentee relationship can be complex – and in many instances it is not something that mentors do for money (indeed, many of the most highly regarded mentors are themselves very wealthy individuals, by dint of their success in the start-up and venture capital worlds). Nor is the sort of advice that respected mentors can provide something that is easily substituted by academics, officials or government information campaigns – no matter how well drilled.

Instead, successful efforts to develop the mentoring ecosystem for high-impact entrepreneurs are more likely to lean heavily on the private sector and goodwill of those in the community. Areas where we have already seen promising progress, and where activities might be further accelerated include:

- Encouraging established businesses to build up a presence in areas with clusters of start-up businesses, and to be open to informal interactions and alliances with individuals and groups in the community so that they can benefit from different perspectives and advice.
- Supporting incubators as a locus for entrepreneurs to learn from each other, to access individuals who have seen a large number of start-ups (including both successful and less successful businesses) and to quickly gain access to interactions with a wide range of potential investors.
- Using technology to maximise the accessibility of advice from respected mentors in the start-up community, taking advantage of modern communication channels to deliver engaging, relevant and interactive support on a one-to-many basis.

*67 Government delivers better access to business mentors,* Department for Business, Innovation and Skills, 2012

*68 GrowthAccelerator – support for high growth SMEs,* Department for Business, Innovation and Skills, 2012

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# 8

## Agility

Starting a business is risky – and this is especially true for aspiring entrepreneurs setting out with very bold ambitions for growth and impact. Only around three in twenty Silicon Valley start-ups survive longer than five years.<sup>69</sup> In the process of surviving the initial stages of the business, securing funding and scaling up sustainably, agility can make the difference between success and failure.

For high-impact entrepreneurs themselves, a key faculty is being willing and able to “pivot” when the business demands it. It is rare (though not unknown) for the final product of a successful high-impact enterprise to be identical to the original concept that launched the business. Pivoting happens far more frequently among start-ups in the United States: 45% more on average in Silicon Valley than New York City, and 33% more than London.<sup>70</sup> As illustrated in Figure 6 above, an ability to adapt and to generate and test new ideas is one of the key criteria specified for applicants to the Entrepreneur First scheme.

For pivoting to work, the broader business environment also needs to be flexible and conducive to the sorts of compromises, hacks and rapid prototyping that the early stages of high-impact enterprise often demand.

Cutting back red tape around very small businesses, as the government is starting to do, is an important measure here. Some of the world’s great digital businesses, including Microsoft and Apple, really did start in garages and bedrooms. Making it easier for new businesses to get set up with basic facilities (e.g. bank accounts and office space), access data inputs (e.g. maps and postcodes) and to avoid cumbersome bureaucracy when prototyping products (e.g. requirements for obtaining CE marks) are all things that matter particularly for high-impact digital enterprises. The recommendations of the Young review relating to access to shared spaces and vacant government buildings are important steps forward in this regard.

Start-ups, especially in the digital space, also need to be quickly able both to take on new skilled staff and to downsize if and when circumstances demand. The Beecroft review of employment law made recommendations relating to compensated no-fault dismissal for micro businesses that, by making it easier to reduce headcount when necessary, might make firms more willing to take on staff. As a general measure, however, there are significant drawbacks in terms of the reduction in protection offered to workers, in particular for large numbers of staff on relatively low incomes. At the time of writing, a call for evidence on this topic has been issued by the government, and its conclusions are currently being awaited.

In the digital and technology sectors the rate of churn of staff between different businesses, and the interaction with employment law, may be of

<sup>69</sup> *Difference engine: Pilgrim’s progress*, Economist, 2012

<sup>70</sup> *The rise of start-up ecosystems*, Startup Compass, 2012

particular interest for policymakers. For highly skilled workers in these sectors, employment contracts often include clauses that (a) prevent employees from joining/establishing a competitor or poaching colleagues for a period of time, and (b) ensure that any intellectual property developed whilst the individual is employed vests with the employer. These sorts of clauses are a rational measure put in place by individual employers to increase staff loyalty and ensure that valuable intellectual property does not leak from the business. This in turn gives businesses an incentive to invest in staff training, research and development – all of which are important for businesses to grow and innovate.

The downside, however, is that these sorts of measures also reduce labour market mobility, and in so doing restrict the flow of insights from one business to another. In particular they make it hard for employees who see a better way of doing something, or who have an idea in the same field as their employer, to launch it as a new business start-up under their own steam. As a result, some good ideas for new and improved products and services may not come to market.

Once again, the experience in the United States proves instructive, as the enforcement of non-compete clauses is not uniform but instead varies by state. Given the competing factors described above, whether enforcement is good for growth is an empirical question. Research on a panel of data across the United States concluded that, on balance, the enforcement of non-compete clauses impedes entrepreneurship and regional growth. In particular, in regions that did not enforce such clauses, increases in venture capital had stronger positive effects on patents, start-ups and employment.<sup>71</sup>

For policymakers, there is an important question of balance between private and public interests. Relaxing aspects of employment law to make it easier for highly skilled workers to move between businesses may have a detrimental short-run effect on their initial employers whilst having a net positive long-run effect for the region or sector as a whole. Finding reforms in this area will therefore necessitate identifying a suite of changes that deliver benefits on both sides.

“Relaxing aspects of employment law to make it easier for highly skilled workers to move between businesses may have... a net positive long-run effect for the region or sector as a whole”

<sup>71</sup> *Non-compete covenants: incentives to innovate or impediments to growth*, Samila and Sorenson, 2009

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# 9

## Creativity, Certainty and Copyright

If data is the raw material for the digital era, then the rules around copyright are fundamentally important for high-impact digital enterprise. Thinking about copyright for digital data takes a radical shift in mindset compared to the way we might have thought about factors of production in previous eras. Bits – the ones and zeroes that encode digital data – are inherently copyable. In the words of Bruce Schneier, “trying to make digital files uncopyable is like trying to make water not wet.”<sup>72</sup>

The debate around copyright, data and the internet has been raging for years, and shows no signs of abating. There are real and significant concerns on all sides, from rights holders legitimately concerned about piracy and illegal distribution, through to civil society groups concerned with the potential for over-intrusive surveillance and the curtailing of freedoms. The recent actions and reactions around the Stop Online Piracy Act (SOPA) and the PROTECT Intellectual Property Act (PIPA) in the United States, and the Anti-Counterfeiting Trade Agreement (ACTA) in Europe are the latest rounds in a saga that dates back to the watershed case against Napster in 2001 and before.<sup>73</sup>

There is a strong argument that enforcing 100% effective control over copyright whilst also maintaining watertight online privacy are mutually incompatible aims. In essence, any model of internet governance that requires systems to be able to identify and block a specified class of infringing content also requires the ability on some level to screen the traffic moving over the network, which necessarily compromises privacy.<sup>74</sup>

For the purposes of this paper we do not propose to weigh the relative merits of varying interpretations of the right to privacy against different degrees of protection of intellectual property. Instead we focus on how some specific aspects of the rules and legislation around online content shape the environment for high-impact digital entrepreneurship. The critical insight is the importance of a regulatory regime that provides certainty for businesses and consumers. An environment characterised by uncertainty will make it difficult for entrepreneurs to establish whether their idea is viable, increase the share of funding that is swallowed up by legal analysis and dispute resolution, and deter consumers if they fear that interaction with a product or service could leave them liable to subsequent legal action.

In the United States, some commentators have pointed to a case example around video storage and cloud computing to illustrate the positive effect of resolving legal uncertainties. Despite the widespread availability and maturity of technologies to time-shift video recordings and to store the underlying data in

<sup>72</sup> *Quickest patch ever*, Wired News, 2006

<sup>73</sup> *A&M Records, Inc. v. Napster, Inc.*, US Court of Appeals, 2001

<sup>74</sup> *The case for copyright reform*, Engström and Falkvinge, 2012

the cloud, investment in cloud video services did not really take off until a court ruling made it clear that the hosting providers were not at risk of infringing content owners' rights.<sup>75</sup>

In terms of the impact of tighter rules, research conducted by Booz & Co. among angel investors in the United States and in Europe found that increasing liability for content providers, holding intermediaries responsible for content uploaded by users, and making it easier to prosecute users for copyright violations would all have a significant negative impact on investment.<sup>76, 77</sup> Parallel research in Europe following court cases in France and Germany related to online video platforms and cloud technologies found that rulings tightening the scope of copyright exceptions had significant negative impacts on venture capital investment.<sup>78</sup>

In the UK, the Hargreaves review of intellectual property is the latest in a series of reviews and inquiries around copyright, intellectual property and growth.<sup>79</sup> Following consultation the government is poised to implement a number of the recommendations of the review, including measures to improve the rules around orphan works, collective licensing and collecting societies. A progress update on plans for a Digital Copyright Exchange has set out a positive way forward to rationalise the complexity of licencing for digital content.<sup>80</sup> Other measures, including a modernisation of the rules around copyright exceptions (for example parody and content mining), are due to be set out by the government later this year.

Attempts to update and modernise the UK's copyright law have a history of stalling. Only around half of the recommendations in the Gowers Review of Intellectual Property, published in 2006, were ever implemented.<sup>81, 82</sup> Since the Hargreaves review was announced, the UK has been overtaken by the legislative process in a number of other countries.

The latest major economy to enact substantive copyright reform is Canada, where the Copyright Modernisation Act received Royal Assent in June 2012.<sup>83</sup> Although there has been criticism of some elements of the Act (including, for example, provisions designed to prevent the circumvention of digital locks), for the most part it is a positive story for digital start-ups. Important innovations include:

- Strong “safe harbour” provisions for intermediaries. The legislation makes it clear that intermediaries (including ISPs and search engines) involved in communication, caching and hosting activities are exempt from liability if their users infringe copyright laws. The Canadian approach places fewer burdens on intermediaries than the United States variant (see below).
- A “notice and notice” regime for dealing with alleged infringements. When an intermediary receives notice from a copyright holder about an alleged infringement, they must forward this to the relevant user(s). The intermediary is not, however, obliged to remove the content at the point of alleged infringement.
- New exemptions and limitations designed to promote innovation. This includes exemptions for format shifting and new fair use provisions covering educational use, parody and satire. The Act is also the first of its kind to introduce a copyright exemption for the creation of non-commercial user-generated content.

<sup>75</sup> *The impact of copyright policy changes on venture capital investment in cloud computing companies*, Lerner, 2011

<sup>76</sup> *The impact of US internet copyright regulations on early-stage investment*, Booz & Co, 2011

<sup>77</sup> *The impact of EU internet copyright regulations on early-stage investment*, Booz & Co, 2012

<sup>78</sup> *The impact of copyright policy changes in France and Germany on venture capital investment in cloud computing companies*, Lerner, 2012

<sup>79</sup> *Digital opportunity: a review of intellectual property and growth*, Hargreaves, 2011

<sup>80</sup> *Copyright works: streamlining copyright for the digital age*, Intellectual Property Office, 2012

<sup>81</sup> *Gowers Review of Intellectual Property*, HM Treasury, 2006

<sup>82</sup> *Digital opportunity: a review of intellectual property and growth*, Hargreaves, 2011

<sup>83</sup> *Government delivers on commitment to modernize Canada's copyright laws*, Government of Canada, 2012

Other countries pressing ahead with copyright reform include Ireland and the Netherlands. In Ireland, a Copyright Review Committee has been established to consult on copyright reform and make recommendations to government. The Committee's consultation paper puts forward a number of suggestions including the implementation of exceptions and limitations, the adoption of a fair-use doctrine, and exceptions around transformative uses of copyrighted work to promote innovation.<sup>84</sup> In the Netherlands, the government has expressed support for the introduction of more flexibility into the copyright regime, to enable the regime to keep pace with technological change and to promote innovation.<sup>85</sup> The Dutch Ministry of Economic Affairs is reviewing the economic aspects of copyright exceptions to help target future legislative change.

In the United States, one important aspect of difference compared to the UK is clarity around the liability for networks and intermediaries when users violate copyright. The Digital Millennium Copyright Act (DMCA) contains "safe harbour" provisions for online service providers against copyright infringement liability, provided they comply with certain guidelines and respond promptly to remove or block infringing material when they receive notification of infringement from a copyright holder or their agent. This sort of "notice and takedown" regime has critics on both sides, from those who see it as tacit approval of copyright infringement, through to those who view the rules as increasingly burdensome to comply with and subject to abuse by rights holders. What is clear, however, is that certainty about the rules of the game enables digital start-ups to launch new products and services with clarity about potential liability. It is unlikely, for example, that a service such as Pinterest could have achieved its stratospheric rise in the absence of these safe harbour provisions.<sup>86</sup>

In the UK, protection for intermediaries is provided via provisions in the E-Commerce Directive. In June this year, the European Commission commenced a consultation on "notice and action" procedures, following concerns that the relevant parts of the directive are suffering from problems around compliance costs, legal uncertainty relating to differing interpretations in different national courts, illegal content staying online too long, and fundamental rights not always being respected.<sup>87</sup> It is worth noting the apparent distinction between "notice and takedown" and "notice and action" – the latter potentially extending to requiring ISPs to block access to infringing sites. Following an extensive legal process, site blocking has already been ordered in the UK under the Copyright, Designs and Patents Act in the case of Newsbin2 and The Pirate Bay.<sup>88</sup>

The E-Commerce Directive operates in parallel with the Digital Economy Act (DEA), which is now in force – although the sections relating to copyright infringement will be active only once Ofcom lays its initial obligations code before Parliament later this year.<sup>89</sup> This includes "graduated response" provisions focused on requiring ISPs to limit or suspend internet access for users meeting certain copyright infringement thresholds. Further sections granting the government and the courts powers to require ISPs to block access to certain internet locations are due to be dropped on the grounds that they are not practically enforceable.<sup>90</sup> A review conducted by the London School of Economics concluded that the DEA has the balance between copyright enforcement and innovation wrong, with the legislation focusing too much on suppressing technological advances.<sup>91</sup>

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<sup>84</sup> *Copyright and innovation: a consultation paper*, Copyright Review Committee, 2011

<sup>85</sup> *Towards flexible copyright?*, Government of the Netherlands, 2012

<sup>86</sup> *Pinterest addresses copyright concerns*, Washington Post, 2012

<sup>87</sup> *A clean and open internet: public consultation*, European Commission, 2012

<sup>88</sup> *Pirate Bay must be blocked by UK ISPs court rules*, BBC News, 2012

<sup>89</sup> *New measures to protect online copyright and inform consumers*, Ofcom, 2012

<sup>90</sup> *Government drops website blocking*, BBC News, 2011

<sup>91</sup> *Creative destruction and copyright protection*, London School of Economics, 2011

All of these developments are taking place against a backdrop where an increasing number of digital businesses rely inextricably on a combination of applying vast processing power to large quantities of data, alongside providing platforms for the display, sharing, remixing and reuse of user-generated content. Many of the recent internet start-ups that have witnessed meteoric growth have also walked a difficult line around copyright and user-generated content.

For now, it is striking that among the universe of high-impact or high-growth digital start-ups, the majority of leading businesses where data mining, content and user-generated or social content are core to the business have grown out of the United States (such as Google, Yahoo!, Facebook, Flickr, Tumblr and Dropbox, to name just a few). Outside the United States, the most successful start-ups tend to be focused in areas like retail (Ventee-Privee, 360Buy) and gaming (Rovio, Habbo, Mind Candy, Miniclip).<sup>92</sup> Compared to entrepreneurs in Silicon Valley, London entrepreneurs are reportedly 50% more likely to build e-commerce products, 35% less likely to build social products, 3.5 times less likely to build products based on user-generated content and two times more likely to build project management software.<sup>93</sup>

In time, the trend toward transformative user-generated content may require very substantial changes in the way we think about copyright, with potentially significant first-mover advantage for countries that make progress early on. From a philosophical perspective, some commentators have begun to ask whether we should shift to viewing both authors and users as equal members of a healthy copyright system, and whether we should frame the concept of fair use not as an exception to copyright, but instead start from the position that it is a user right.<sup>94</sup>

<sup>92</sup> *The 100 most valuable start-ups in the world*, SAI Business Insider, 2011

<sup>93</sup> *The rise of start-up ecosystems*, Startup Compass, 2012

<sup>94</sup> *Transformative user-generated content in copyright law*, Wong, 2009



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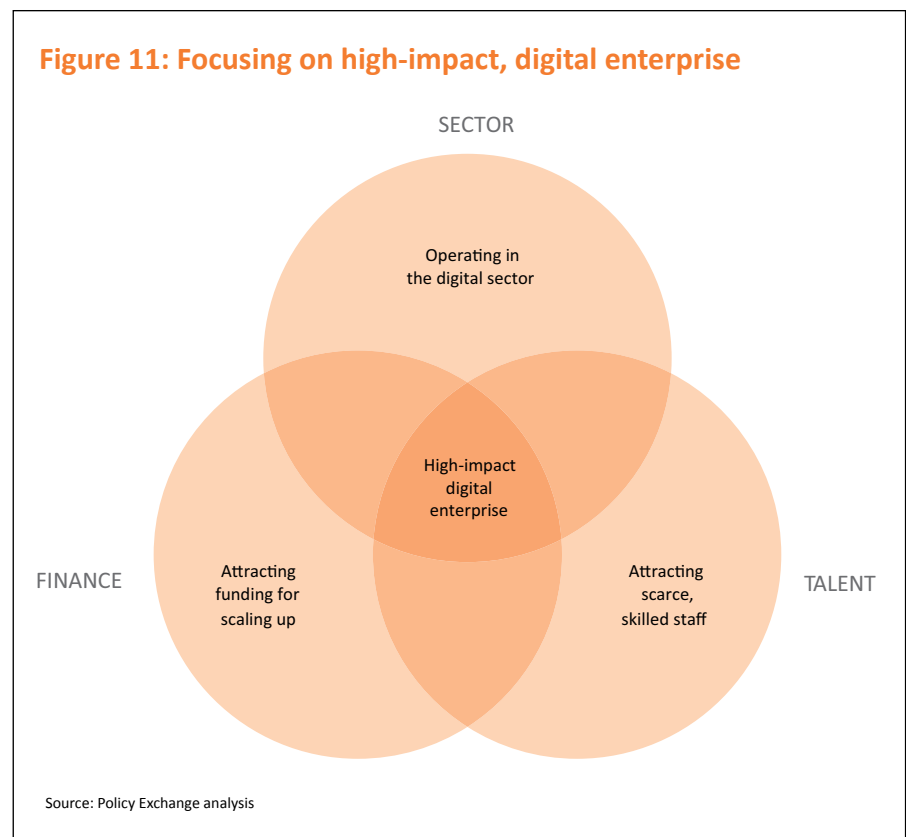
# 10

## Targeting a Policy Package

The previous chapters have discussed the challenges for high-impact digital enterprise in the UK, and started to draw together the threads for a package of policy reforms.

Before we take the final step to recommendations, however, we need to consider carefully how we might target measures designed to support digital start-ups. In the absence of targeting, blanket measures might have a range of broader unintended consequences – perhaps introducing rules that are inappropriate for traditional industries, or that strike the wrong balance between promoting private-sector growth and fairness.

To focus government action where it will have the greatest impact, we propose targeting any interventions based on the component parts of our notion of high-impact digital enterprise.



To help policymakers operationalise this notion we suggest starting from the following qualifying criteria:

- Start-ups that have their main business activities firmly rooted in digital innovation, and/or could not operate without the internet.
- Start-ups that have secured funding from recognised angel and/or venture capital investors (with accreditation perhaps provided by the investor community itself).
- Entrepreneurs and highly skilled employees whose intellectual, technical and creative talent is critical to the business, and whose remuneration (whether it be in equity or salary, upfront or deferred) clearly reflects this.

Working with these sorts of criteria necessarily takes us close to the realm of policymakers picking winners. When this gets as close as designing policy to favour a specific firm or niche then this should rightly be avoided: for the most part market forces do a much better job than officials at selecting the fittest companies over the long run.

But in the current economic climate, and having taken a strategic decision to talk up the UK's digital economy and enterprise culture, the government does need a pragmatic way to focus policy reforms. In our view, targeting a number of related policies using the criteria proposed here (or similar) strikes the right balance between focusing support on high-impact digital enterprise without straying too close to excessively distorting incentives for businesses and investors.

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# Recommendations

This paper has examined what more needs to be done across six pillars for high-impact digital enterprise: skills, ambition, finance, mentors, agility and creativity. The following package of recommendations seeks to bridge the gap between the government's ambitions for digital Britain and the challenges that entrepreneurs and investors still face in the digital economy.

In each case we propose that reforms be focused using the criteria described in the previous chapter. In order to deliver policies that will send very clear signals to entrepreneurs and investors we follow Occam's razor and opt for the simplest, most straightforward reforms that we can conceive of to tackle the challenges and capture the opportunities highlighted in our analysis.

## Improving the quality and quantity of digital skills

Human capital is the most important factor of production in the digital economy. In the long run, improvements in the way we teach science and technology in schools will be the best way to deliver a workforce better suited to digital innovation. These investments will, however, take many years to pay off.<sup>95</sup> In the near-term, businesses are reporting severe difficulties recruiting skilled employees to key positions in the digital economy. At the same time, the UK remains an attractive destination for talented international students and graduates, but current immigration policy means many are unable to enter the UK or to stay on after university.

If we want future generations of British graduates to have bright career opportunities in the digital sector, then it is critical that we set the right conditions now for the sector to grow and thrive in the meantime.

To enable high-impact digital enterprises rapidly to obtain the highly skilled staff they need, as a short-term measure we recommend:

1. **Relaxing the visa requirements for highly skilled workers seeking jobs in the digital economy**, to enable start-up businesses in the digital sector to take on staff for a two-year probationary period, without a requirement to pay a high up-front salary.
2. **Reinstating a two-year post study visa for graduates achieving good degrees in STEM subjects**, to make it easier for start-ups to find and employ young technical talent.
3. **Reforming the graduate entrepreneur visa**, in particular increasing the quota from 1,000 places and removing the restriction of ten endorsements per academic institution, so that universities with a concentration of talented students do not lose out.

<sup>95</sup> And the government's current proposals merit an entire separate discussion, which we will hold over for future Policy Exchange publications.

If necessary, and in line with the current approach for Tier 2 highly skilled migrant entrants, an annual cap could be applied to limit the

number of individuals eligible to enter the UK under some or all of these recommendations.

In recognition of the importance of building up the long-run capabilities of the domestic workforce, we propose that individuals or businesses benefitting from a relaxation in the immigration rules be asked to make a contribution toward enhancing the teaching and take-up of computer science and stem subjects in the UK education system. This might take the form of pledges to mentor STEM students, support outreach and careers advice for students, or participate directly in teaching programming and other computer science skills. Alternatively, those benefitting might be expected to make a contribution to mentoring and sharing expertise with others in the start-up community, in line with our proposals below on how large businesses can get further involved in start-up clusters.

### Launching the most talented and ambitious entrepreneurs

Achieving breakthrough success as a high-impact entrepreneur running a transformational business takes real talent, ambition and determination. For the majority of people, pursuing high-impact entrepreneurship may not be the right course. At present, public policy is too focused on encouraging a wide range of people to consider starting a business, when the most efficient route may well be for them to work inside an established organisation. At the same time, too many of our most talented graduates move directly into established businesses without giving enough thought to turning their exceptional talents to enterprise.

To put more emphasis on high-impact enterprise we recommend:

- 4. Introducing a high-impact test for enterprise policy**, to limit any further proliferation of interventions designed to promote a general enterprise culture, and instead (a) help the government to focus on delivering existing initiatives and (b) ensure that any additions to the government's programme focus aggressively on start-ups with the potential to scale up.
- 5. Teaming up with leading employers to encourage some of the best and brightest graduates to give working for (or co-founding) a start-up a go.** To participate, an employer would identify one or more successful applicants in each year's graduate scheme cohort, and then pay them their standard graduate salary to spend their time working for a relevant start-up rather than joining the rest of their graduate scheme cohort. The employer would take an equity stake in the start-up business, and guarantee to hold a graduate job open should the start-up fail within two years.

The latter of these would blend aspects of Entrepreneur First, HackFwd, Y Combinator and other such programmes with a new dimension to try to shift some of the particularly stubborn attitudes to risk and financial reward among UK graduates. By building in a graduate salary, the prospect of working for a pre-revenue start-up or co-founding a new business would, for many graduates, be easier to justify than starting working life with little or no immediate financial upside. And by holding open the opportunity to join a prestigious graduate scheme if the start-up fails, the perception that failure would be detrimental to a future career would be significantly reduced. The model could also be attractive for employers – for a relatively small financial outlay they would benefit from

widening their access to smart people with innovative ideas, and be well placed to benefit (including by sale or acquisition) when start-ups in the scheme scale up to success. Constructing the model with the employer taking a small equity stake in the relevant start-up would further align incentives.

Getting a scheme of this sort off the ground would take a degree of coordination with employers and educational establishments, which the government would be well placed to back and could run at arm's length. We would expect to establish a minimum set of common terms for participating employers (perhaps covering a standard length of scheme and equity stake taken by the employer), and a badge that would confer status on both participating employers and graduates. Beyond this we envisage flexibility around things like access to training and development, IT and other support services.

A reasonable objective might be for government to use persuasion and political pressure to get at least half of the top 100 graduate employers in the UK on board. The public sector could even participate directly by sponsoring some entrepreneurs from the cohorts of graduates accepted onto the Civil Service Fast Stream and other elite public sector employers like the armed forces and the BBC.

### Promoting finance for high-impact digital enterprise

Access to finance is critical for high-impact start-ups looking to scale up, and there are gaps at various stages in the funding ladder for growing enterprises. From a public policy perspective, we are looking for ways to increase depth and liquidity in the equity markets without introducing artificial tax distortions (the ability of the market to reward success and punish failing ideas is important and should not

be overwhelmed by investors seeking to game the tax rules) or triggering significant fiscal costs for the Exchequer.

For investors and founders, the UK blends a relatively high rate of capital gains tax with a number of reliefs and

“To encourage serious financial backing for efforts to scale up world-beating businesses ... there has to be an effective route to IPO”

exemptions that deliver a competitive effective tax rate when the relevant qualifying conditions are met. As mentioned earlier in this report, changes could be made around the edges of these reliefs to broaden access – but overall they are generous and welcome.

To encourage serious financial backing for efforts to scale up world-beating businesses, however, there has to be an effective route to IPO. To this end there are practical steps the government could take to make investing in shares more attractive to a wide investor base, and to encourage people who have done well from backing a start-up to recycle their gains back into supporting other new and growing businesses.

To help increase depth and liquidity in equity markets we recommend:

6. **Considering the case for a capital gains tax rollover relief, to give people who sell shares an incentive to reinvest their gains. When shares are disposed of and the proceeds used to buy new shares, the relief would allow the investor to defer paying tax until disposal of the new assets.**<sup>96</sup>

This could be drawn up as a general relief for shares, or more tightly focused on shares in digital and high-tech businesses. As rollover is about postponing rather than eliminating tax liabilities, the primary fiscal impact would be felt more in the timing of tax receipts rather than their net present value.

<sup>96</sup> For a more detailed exposition of the mechanics of a rollover relief, see the existing HMRC guidance on the business asset rollover relief (which applies to assets used to carry on a trade).

If there were appetite to expend significant resources on tax reduction, then steps to reduce stamp duty on shares and the main rate of capital gains tax would send strong positive signals to the investor community. However these taxes currently raise around £3 billion and £4 billion a year respectively.<sup>97</sup> In the current fiscal climate it may be difficult to justify movement until a balancing item can be found elsewhere in the Budget process.

### Increasing the impact of mentors

Access to high-quality, experienced and respected mentors is something that aspiring high-impact entrepreneurs consistently cite as important. Mentors can come from a range of sources, including peers, the broader business community, investors and experts. The most sought-after mentors are typically people who have themselves been successful at some aspect of launching a high-impact enterprise – so this is not something that government policy can substitute for simply by throwing money at training people up.

More can be done, however, to multiply the impact of people and businesses that have shown an affinity for mentoring. In addition to working with big graduate employers to get them involved in supporting start-up founders, we recommend:

- 7. Encouraging more large businesses to establish a presence in areas with clusters of digital start-ups**, with an explicit extension to emerging clusters outside of London and the more established university science parks. As with initiatives in Tech City this should include sharing space and internet access, and providing facilities and coordination for hosting and participating in community events. This should also boost the scope for large businesses and start-ups to form mutually beneficial commercial relationships and alliances.

The ultimate execution for this recommendation will fall outside the public sector, with the businesses that take the final decision about where to locate. Businesses, student groups and start-up communities are all already active in this space, and have a continued role to play. As noted above, there may be a particular link with our recommendations on visas, perhaps by attaching an expectation that highly skilled individuals who come to the UK to work in the digital economy spend time, in and give back to, the start-up community.

As with our proposals for a new graduate start-ups scheme, the government might play a decisive role with soft influence and coordination, and be particularly useful for accumulating buy-in from private sector partners.

The government might also look to encourage and support more online activity with elite mentors. Start-up and student communities are already taking advantage of technology – including websites, video and interactive content – to consume advice from the most highly regarded start-up experts from around the world. In general, the market should be effective in selecting the platforms that best meet entrepreneurs' needs. If the government is looking to back further mentoring initiatives that would pass a high-impact enterprise test, then using small amounts of cash to provide universities with improved facilities to participate in online hangouts and other technology-enabled mentoring might be a good place to start.

<sup>97</sup> Tax and NICs receipts, HM Revenue & Customs, 2012

## Helping start-ups maximise agility

Successful start-ups need to be willing and able to pivot rapidly where necessary, to be flexible in their use of space, and benefit from measures designed to remove red tape and minimise regulatory burdens for the smallest businesses.

On the employment side, there are two complicating factors. First, agile organisations will often want to take on staff and shed them rapidly should circumstances make this necessary. Making it easier to hire and fire workers can give start-ups flexibility but at the cost of eroding protections for their staff. Second, businesses in the digital space will often want to write restrictive employment contracts to build a degree of employee loyalty and intellectual property protection. But measures that are good for individual businesses may hold back competition and innovation in the broader economy.

To increase the options available to high-impact digital start-ups wanting to achieve greater agility, we recommend:

- 8. Developing an opt-in light-touch regime for highly skilled employees in the digital economy**, under which employers in the digital sector would have the ability to execute rapid no-fault dismissal of highly skilled staff in exchange for forgoing non-compete clauses and claims over intellectual property developed by employees outside their core work responsibilities.

For the avoidance of doubt, we propose this as a tightly focused and optional regime. It would be an option only when dealing with highly skilled employees in the digital sector – like programmers, user-interface designers and other employees with high-end technical expertise. It would not be an option for businesses in general or as a way to undermine the rights of staff in lower pay brackets.

Structuring this as an opt-in would provide maximum scope for forward-thinking businesses to benefit from increased flexibility, whilst avoiding imposing unnecessary burdens on businesses that are satisfied with the status quo.

Individuals would be free to decline employment contracts with these terms should they wish, and businesses would not be obliged to make use of the scheme.<sup>98</sup>

## Balancing copyright with creativity

Digital businesses are built on digital content and data, the underling components of which are fundamentally and unavoidably copyable. This poses some real challenges for businesses wanting to innovate whilst staying the right side of the copyright regime. Uncertainty on the future of copyright rules can cast a long shadow over the digital economy and inhibit innovation and experimentation. This is particularly true with the rise of platforms and businesses that rely heavily on data mining and social and user-generated content.

This paper has not sought to resolve the fundamental debate about rights and privacy in the digital era. We do observe, however, that the UK has a track record of failing fully to implement copyright reform, and that other countries are pressing ahead implementing regimes that will be attractive to digital start-ups. We also note the ongoing uncertainly promulgated by developments on the Digital Economy Act and E-Commerce Directive.

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<sup>98</sup> Further work may need to be done to ensure that this sort of regime could be made compatible with European employment law. The opt-out from the Working Time Directive, which enables consenting employees to work beyond the standard 48 hour maximum working week, may provide a model for making this proposal work in practice.

So far as it is possible to reduce uncertainty for entrepreneurs and investors, and encourage the development of online platforms, we recommend:

- 9. Fast-track implementation of the Hargreaves recommendations,** to provide legal certainty for digital start-ups and to ensure that the UK has a modern, fit-for-purpose copyright regime.

As the government has broadly accepted the Hargreaves recommendations, the best thing it can do for start-ups is to press ahead with implementation. The slower progress is made, the less confident entrepreneurs and investors will be that the proposals will not be watered down or shelved. Redoubling efforts on implementation would also help minimise the risk of the UK falling behind new, modern regimes enacted in other countries.



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## Conclusion

The government has signalled clear ambitions for the UK to develop as a technology and digital centre, and a desire to make the UK the best place in the world for high-impact enterprise.

At the cusp of the digital revolution, and in a world increasingly dominated by technology, data and the internet, enterprise and innovation matter more than ever. The United States has a clear lead when it comes to fostering high-impact digital start-ups. For the rest of the world the field is wide open, and there is a very real opportunity for the UK to stake out a position as a centre for high-impact digital enterprise in its own right, built on the

foundations of its own unique strengths, history and culture. In this respect the government's ambitions are spot on.

To turn them from vision to reality, however, bold policy reforms are needed for the UK to accelerate its performance. Policymakers need to act fast, and cannot simply rely on the UK's past performance and a business environment designed for the analogue era to pull us through – no matter how well this served us in previous decades. Instead the government needs to act more like the high-impact digital entrepreneurs it wants to promote: pivoting fast to steal a march on our competitors in other countries, focusing aggressively on measures that will help start-ups to scale up, and building an attractive environment for investors to put money into innovative digital businesses to help them grow.

The UK has the talent to launch world-beating, high-impact digital enterprises. A radical package of reforms designed for the 21st century will ensure that they reach their full, transformational potential.

“There is a very real opportunity for the UK to stake out a position as a centre for high-impact digital enterprise in its own right”

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# Annex A:

## The World's Top Digital Start-Ups

Source: SAI Business Insider, 2011

Notes: Focused on the world's leading private digital companies. The methodology is based on implied valuations from recent financing rounds, financial performance, market share and market size, growth. The work considered more than 300 start-ups from around the world, and ranked the top 115.

Rank	Business	Location
1	Facebook	Palo Alto
2	Zynga	San Francisco
3	Groupon	Chicago
4	360Buy	Beijing
5	Twitter	San Francisco
6	Dropbox	San Francisco
7	Wikimedia Foundation	San Francisco
8	Ventee-Privee	Paris
9	LivingSocial	Washington
10	Craigslist	San Francisco
11	Palantir Technologies	Palo Alto
12	VANCL	Beijing
13	Hulu	Los Angeles
14	Square	San Francisco
15	Jawbone	San Francisco
16	Airbnb	San Francisco
17	Rovio	Helsinki
18	Mozilla Corp	Mountain View
19	Spotify	Stockholm
20	Kayak	Norwalk
21	Gilt Groupe	New York
22	Storm8	Redwood Shores
23	Coupons.com Inc	Mountain View
24	Datapipe	Jersey City
25	Tumblr	New York
26	eHarmony	Pasadena
27	LegalZoom	Glendale
28	Yelp	San Francisco
29	Angie's List	Indianapolis

30	Trulia	San Francisco
31	Zulily	Seattle
32	ZocDoc	New York
33	Chegg	Santa Clara
34	Service Now	San Diego
35	Foursquare	New York
36	Workday	Pleasanton
37	Box.net	Palo Alto
38	Buddy Media	New York
39	MediaBank	Chicago
40	AdKnowledge	Kansas City
41	Indeed	Stamford
42	Zoosk	San Francisco
43	One Kings Lane	San Francisco
44	Yodle	New York
45	Everyday Health	New York
46	Kabam	Redwood City
47	Stella & Dot	San Francisco
48	Glam Media	Brisbane
49	Flipkart	Bangalore
50	Ideeli	New York
51	Ozon	Moscow
52	FreshDirect	Long Island City
53	Federated Media	San Francisco
54	Quantcast	San Francisco
55	Xiu	Shenzen
56	Habbo (Sulake)	Helsinki
57	Imperva	Redwood Shores
58	Vosto	Sao Paulo
59	ShoeDazzle	Los Angeles
60	Collective	New York
61	Rubicon Project	Los Angeles
62	Brightcove	Cambridge
63	Jive Software	Palo Alto
64	Redfin	Seattle
65	Etsy	Brooklyn
66	The Ladders	New York
67	Tremor Video	New York
68	Sugar Inc	San Francisco
69	Flipboard	Palo Alto
70	Say Media	San Francisco
71	Phreesia	New York
72	Specific Media	Irvine
73	Tagged	San Francisco
74	Mind Candy	London
75	Clearspring	McLean
76	RecycleBank	New York
77	Undertone	New York

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78	SecondMarket	New York
79	Return Path	New York
80	Meebo	Mountain View
81	Appnexus	New York
82	Vibrant Media	New York
83	Gawker Media	New York
84	Evernote	Mountain View
85	Eventbrite	San Francisco
86	Thrillist	New York
87	Media6Degrees	New York
88	Beachmint	Santa Monica
89	CafePress	Foster City
90	Xirrus	Thousand Oaks
91	Complex Media	New York
92	CafeMom	New York
93	10gen	New York
94	Better World Books	Mishawaka
95	Bleacher Report	San Francisco
96	Break Media	Beverly Hills
97	Thought Equity Motion	Denver
98	Warby Parker	New York
99	Manta	Columbus
100	RightScale	Santa Barbara
101	Rent The Runway	New York
102	Miniclip	London
103	Pontiflex	Brooklyn
104	Clickable	New York
105	PlentyOfFish	Vancouver
106	Eucalyptus	Goleta
107	Shazam	London
108	Oodle	San Mateo
109	Instagram	San Francisco
110	LearnVest	New York
111	BetterWorks	Santa Monica
112	Stack Exchange	New York
113	Lifebooker	New York
114	SB Nation	Washington
115	eBuzzing	London

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## Annex B: The World's Top Start-Up Centres

Source: Startup Compass, 2011

Notes: The work benchmarked over 13,000 start-ups around the world.

<b>Rank</b>	<b>Start-up centre</b>
1	Silicon Valley
2	New York City
3	London
4	Toronto
5	Tel Aviv
6	Los Angeles
7	Singapore
8	Sao Paulo
9	Bangalore
10	Moscow
11	Paris
12	Santiago
13	Seattle
14	Madrid
15	Chicago
16	Vancouver
17	Berlin
18	Boston
19	Austin
20	Mumbai
21	Sydney
22	Melbourne
23	Warsaw
24	Washington DC
25	Montreal

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Our world is increasingly dominated by technology, data and the internet. Reflecting this shift, the government has articulated a vision for the UK to emerge as a leading centre in the new high-tech economy, and to be the best place in the world for entrepreneurs to launch and grow innovative digital businesses.

In this report we consider the government's ambitions for the digital economy, and ask what more policymakers need to do to help digital start-ups to scale up. Our analysis is broken down across six pillars: digital skills, ambition, investment, mentors, agility and creativity. In all of these areas there are lessons to learn from success stories around the world, and clues about how public policy in the UK should be upgraded for the 21st century.

Taken together, the recommendations assembled in this report form a bold policy prescription, designed to unlock the UK's potential for growth powered by high-impact digital entrepreneurship.

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