Design Council

DESIGN FOR INNOVATION

Facts, figures and practical plans for growth

A Design Council paper published to coincide with the Government's Innovation and Research Strategy for Growth

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Design Council

34 Bow Street, London WC2E 7DL
Telephone +44 (0)20 7420 5200
Facsimile +44 (0)20 7420 5300
Email info@designcouncil.org.uk
www.designcouncil.org.uk

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About the Design Council

The Design Council places good design at the heart of social and economic renewal.

As a centre of new thinking and insight into the role of design in innovation, it is one of the world's leading design organisations. For more than 60 years, it has sought to provide evidence and demonstrate how design can help build a stronger economy and improve everyday life through practical projects with industry, public services and education.

The Design Council is a charity, incorporated by Royal Charter, that promotes design and architecture for the public good.

For more information please visit: www.designcouncil.org.uk

FOREWORD

"Design can help organisations transform their performance, from business product innovation, to the commercialisation of science and the delivery of public services. That is why design forms an integral part of the Government's plans for innovation and growth and features strongly in our Innovation and Research Strategy for Growth.

The UK has the potential to succeed globally but to do so we must harness our strengths. Design is undoubtedly an area where we are amongst the best in the world, with potential to do even better."

Rt Hon David Willetts MP, Minister for Universities and Science

The Design Council has produced this Design for Innovation plan to coincide with the Innovation and Research Strategy for Growth published in December 2011 which sets out how the government will boost business investment in innovation enabling greater success in the global economy.

The purpose of this design plan is to bring the design elements of the Innovation and Research Strategy together in one place and to communicate these as widely as possible across design, industry, government and education. Our aim is to provide a useful strategic framework for organisations, institutions and individual businesses with an interest in making design-led innovation happen on the ground.

Throughout this plan we have tried to add value to what now sits within the government's strategy. We have synthesised arguments, brought the underlying facts and evidence to the fore and set out the design priorities. In addition we have laid out the specific design initiatives and actions that the government is funding directly as part of its stimulus package in collaboration with the Design Council and other innovation partners.

This design plan has its origins in the Design for Growth Summit, hosted at the Design Council on 23 June 2011. A broad constituency of opinion-formers in areas of design, business, policy and education participated in the event and suggested ideas for swift practical action. We'd like to thank everyone who contributed.

David Kester, Chief Executive, Design Council

1 INNOVATION AND GROWTH

The Innovation and Research Strategy for Growth sets out the government's approach to boosting business investment in innovation and enabling UK success in the global economy. This section provides a high-level summary of the main themes of the government's strategy.

The Innovation and Research Strategy is focused on overcoming the economic challenges facing the UK by stimulating growth and employment, rebalancing the economy and delivering effective public services.

These goals have to be achieved in a challenging international context. At the same time as the global economy is slowing, it is also becoming more competitive. More countries are seeking to produce innovative products and services and to attract mobile investment capital and high value business activities. Global trends such as population growth, demographic change, resource pressures and climate change are also presenting challenges for societies all around the world.

To thrive in the global economy, the UK must rise to the challenge of achieving prosperity through increasing innovation.

The government's strategy is clear that innovation, across the public and private sectors, is the only pathway to sustainable economic growth, higher real incomes and greater quality of life in the long term.

This is illustrated by research findings on the impact of innovation on business performance. For instance, NESTA's Innovation Index shows that companies that introduced a new product between 2002 to 2004 saw average employment growth of 4.4% during the subsequent 3 years compared to 2% for non-innovative businesses.

The Innovation and Research Strategy sets out how the government's support will drive growth by addressing five critical areas:

DISCOVERY AND DEVELOPMENT

– fostering scientific and technological breakthroughs by prioritising investment in areas that have wide application and where the UK has competitive strengths to exploit emerging global markets. The government will back challenge-led innovation in those technology areas requiring interdisciplinary collaboration to develop new business models products and services. It is also establishing an elite national network of technology and innovation centres, branded 'Catapult Centres', to support business innovation in technology areas where the UK is strong internationally. The capability to use design for commercialising technology will be integrated within the comprehensive support service that the Catapult Centres will provide to business.

INNOVATIVE BUSINESSES

– supporting business innovation across all sectors of the economy. Technology-based businesses are important but future economic growth also depends on businesses across the economy investing in their own forms of innovation. Design, managerial and organisational competencies, human resources and intellectual property are increasingly important forms of innovation. The government's strategy recognises the transformational role of design in leading or supporting product and process innovation across all businesses and announces the expansion of the Designing Demand mentoring programme to build greater design capability and understanding among SMEs. The government will also work with the design sector to raise awareness of the R&D Tax Credit.

KNOWLEDGE FLOWS IN THE INNOVATION ECOSYSTEM

– encouraging high-impact collaborations between entrepreneurs, researchers and experts in design, intellectual property, measurement and standards. The UK's innovation ecosystem of institutions with a worldwide reputation is a source of competitive advantage. The government will build on this to provide incentives for greater collaboration between businesses and universities, remove barriers to cluster development and strengthen essential parts of the infrastructure. This will include continuing support for the Design Council's Innovate for Universities programme to help promote a greater understanding of how design can help university Technology Transfer Offices to commercialise academic research.

GLOBAL COLLABORATION

– responding to the international challenges and opportunities of changing innovation geography. Innovation and research are increasingly international endeavours. The government will develop and support new forms of international partnership and collaboration. It will promote UK expertise around the world including attracting inward investment and exploiting opportunities in growth markets. As part of this approach, the strategy identifies the work the Design Council will undertake with UKTI to promote the use of the UK's design strengths to support UK business and to attract inward investment.

NEW INNOVATION CHALLENGES

– encouraging innovation in all parts of our society, with the government acting as an innovation leader as a customer for new products and through delivering public services. The government can enable innovation in a number of ways including through mobilising resources and new partnerships around big societal challenges, acting as a lead customer for innovative goods and services, and through developing and promoting innovations that deliver better and more efficient public services. The government's strategy recognises the success of design-led open innovation competitions that address major societal challenges, and the important role that design can play in strengthening the public sector's capacity to be an intelligent customer delivering cost savings and improved efficiency. The integral role that design has to play in each of these areas is explored in greater detail in the following sections of this paper and is reflected in the Design for Innovation Actions summarised in section 10.

DEFINING DESIGN WITHIN INNOVATION

2

Good design is essential to good business. It turns new ideas into practical products, environments and services around the changing needs of users. This section describes design in the context of business innovation[i].

Creativity in business is the origination of new ideas.

Creative ideas that may result in innovation come from multiple sources including front-line staff within a business, specialists in technological or scientific discovery that may be external to a business, and from the engagement of citizens and consumers.

Innovation in business turns ideas into value.

Innovation applies ideas and new knowledge to the production of goods and services to improve product quality and process performance. It is driver of renewal and growth in an organisation and hence also in the wider economy.

Design is the connection between creativity and innovation.

Design shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end.

The common features of design are that it is:

A creative and user-centred approach to problem solving.

The idea of adopting design principles at the heart of business culture and management is linked to global business success stories such as at Apple, Dyson and Burberry. 'Design Thinking' builds on theories around creative culture and thinking styles and deploys design methods within strategic business management[ii].

A management process for the development of new products and services.

The design process is a highly defined series of actions and staged gateways that guides and controls research, development and production in manufacturing and service businesses. The design process typically includes both technical design (such as engineering for manufacture) and non-technical design (such as experience and identity).

A set of professions linked by a common discipline.

Good design outcomes in business are supported by professional designers and design managers, some who work in consultancy and others within client firms. The professions of design have developed over more than 150 years through the educational routes of art and design, engineering and architecture. They are closely linked and frequently taught within the same schools.

Blatchford

Chas A Blatchford & Sons' microprocessor-controlled knee, the Intelligent Prosthesis, led to the market accepting electronic control of lower limbs. It was a major step in changing amputees' lives. Saeed Zahedi OBE, the company's Technical Director and shortlisted for the 2011 Prince Philip Designers Prize, has commented "when amputees say they can walk nine miles without getting tired, I'm satisfied we're on the right path". Blatchford's experience demonstrates the role of design as a creative, user-centred approach to problem solving combining technical and customer experience aspects of product development.

THE EXPANSION OF DESIGN

3

As areas for competitive advantage, such as the use of technology, become more globally contested, design has become the differentiator for business innovation. This section looks at the expansion of design in policy, management and business education.

Business case studies

The adage that if you can't compete on cost all you have is design has been exemplified through powerful case-studies over the last decade. The turnaround of Apple from a loss-making computer company in the mid-90s to the second biggest company in the world is a consequence of a design-led approach to innovation and a powerful partnership at the top of the business between the late CEO, Steve Jobs, and the Senior Vice President of Design, Jonathan Ive. Similar examples include the turnaround of the clothes retailer Burberry to become a top performing company in the FTSE 100 over the last six years. In this case, business commentators credit the consistent growth to a similar style of partnership between CEO Angela Ahrends and Chief Creative Officer, Christopher Bailey. Leading UK manufacturers, such as Dyson, JCB and Jaguar all regard design as essential to their expansion in highly competitive global markets.

Company spending

Anecdotal case studies of an expansion of design are supported by wider evidence of business spending. UK firms cite design as increasing in importance when combating the effects of recession[iii]. A 2008 report from Cambridge University's Institute for Manufacturing calculates design expenditure in the UK at around £50bn annually[iv].

A rise in design for innovation spending is a key aspect of a wider shift in business investment over the last thirty years away from tangibles (such as plant and machinery) and towards intangibles (such as knowledge-based services including design). OECD employment in knowledge-based services increased from 50 million in 1970 to over 150 million by 2005[v].

Burberry

Burberry, under Chief Creative Officer, Christopher Bailey MBE, has used design-led innovation to rejuvenate its brand offer from a traditional British clothes manufacturer into leading luxury brand in less than a decade. The company fully integrates the fashion, materials and process elements of their operations with the use of the latest communication tools, such as digital social media, to extend its brand reach and appeal to customers.

In the final three months of 2010, Burberry enjoyed a 36 per cent increase in global retail sales, driven largely by high-end consumers in emerging markets, and posted record high share prices in early 2011. The company's turnaround shows a UK business using design to succeed in an increasingly competitive global market.

Design in policy

As businesses seek to trade in high-value goods and intellectual property, national governments have thrown their weight behind efforts to strengthen and protect local design capabilities. Respective plans reflect the varying characteristics of national innovation systems. The EU launched a design innovation policy in 2010 with funding for projects that raise the performance of SMEs. Most individual EU member states have their own bespoke policies and plans. For instance, this year the Danish Department of Construction and Enterprise published its Design Vision 2020 with a strong emphasis on challenge-led innovation and public services. The Korean government credits the success of its manufacturing industry, including global players Samsung and LG, to investment in design. In 2009 China announced a strategy to shift from 'Made in China' to 'Designed in China' as part of its plan to reduce dependency on low-value manufacturing and develop original products and brands. This has led to establishing twenty-seven design zones with incubators, prototyping and research capabilities.

Design in business education

Business schools have responded quickly to the rising demand for design teaching within their curricula. As companies seek to integrate design and accelerate innovation, the requirement for bespoke courses and modules within MBAs has proliferated.

The first so-called D-School was established within Stanford in 2003. Now sited in the $35m Hasso Plattner Institute of Design, it is one of 60 D-Schools in a growing league table recorded and monitored by BusinessWeek. Design is now integrated into teaching at Harvard, MIT, Illinois Institute of Technology, Carnegie Mellon and other leading US MBA schools. Some business schools, such as the Rotman School of Management in Canada, have placed design at the centre of their pedagogy.

Design in business teaching has spread from the US to Europe and the Far East. In Germany the complete model of the Stanford D-School has been exported to the University of Potsdam. The US educational model is interdisciplinary with business courses adapting to integrate design.

Since 2005, some UK universities have experimented in multidisciplinary programmes strengthening links between business schools and design schools. At Imperial College design has been incorporated in to the MBA as part of a long-standing relationship with the Royal College of Art. Other examples include Northumbria University which offers a Masters in Multi-disciplinary Design Innovation run by the School of Design in collaboration with Newcastle Business School and the School of Computing, Engineering and Information Sciences.

Folding plug

South Korean-born Min-Kyu Choi, an MA design graduate from the Royal College of Art won the Brit Insurance Designs of the Year Award in 2010 for his folding plug design concept. Folding flat for storage, the design reduced the overall plug size by over 70%, folding down to just 10mm wide — no thicker than a Macbook Air.

The original folding plug, shown in the image, is now being developed by Made in Mind, a venture comprising of Choi and London based businessman Matthew Judkins rumoured for release early 2012. The folding plug illustrates how design education, combining appreciation of design with creative engineering, can lead to the development of products with strong commercial potential.

4 THE UK DESIGN SECTOR

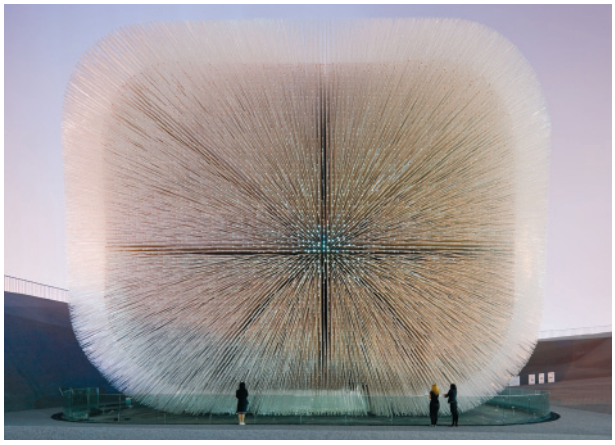
Alongside strengths in science and technology, the UK has a world-class design industry. This section provides an overview of the shape and nature of UK design.

UK design is a global success story and a powerful sector to help accelerate innovation and growth. It is supported by one of the largest design education systems with some of the most highly sought-after colleges globally. British art and design colleges have developed over 150 years and continue to educate some of the world's leading designers, who in turn are sought internationally for their creativity and skill. Some of the best-known names in design are British and many of the world's best brands, buildings and products are designed from studios in the UK.

In 2010, the Design Council's sector survey mapped the industry calculating its size at 230,000 designers, making it the largest design industry in Europe[vi]. Despite the recession the sector continues to expand. Since 2005 the design industry has grown 29% with earnings up by £3.4bn. Its turnover is calculated at £15bn including consultancy and in-house design teams.

Most UK design consultancies tend to be micro businesses selling their services nationally. A high proportion of the leading design firms, however, export their services around the world. Some of the top consultancies in areas such as industrial design and architecture now report few or even no UK clients.

The UK design infrastructure is well-regarded internationally and includes strong cultural assets such as the Victoria and Albert Museum and the Design Museum, robust trade and professional associations and strong local networks. The infrastructure is well positioned to engage in national efforts for innovation and growth.



British Pavilion at Shanghai Expo, 2010

The Shanghai Expo provided a platform for countries to demonstrate their strengths, identity and creative abilities. The Heatherwick design studio and wider project team, rather than creating a conventional advertisement for the UK, worked with Kew Gardens' Millennium Seedbank to design the iconic 'Seed Cathedral'.

Awarded the Gold Medal at the Expo, the Pavilion shows how design shapes ideas to become practical and attractive propositions for users or customers that can break the mould of traditional thinking. The Pavilion was a powerful advertisement for UK design as a global success story.

5 ECONOMIC EVIDENCE ON THE ROLE OF DESIGN

The expansion of design into innovation management and economic strategy has provided the research base used by policy-makers for insight and intervention. This section provides an overview of the economic role of design.

Design goes hand in hand with civilisation as it is a manifestation of the human impetus to make things better. As such design cannot be reduced to a set of economic metrics as its value must be understood on many levels including socially and culturally. For instance, a well-designed building or public space, such as the new Olympic Park, may deliver civic pride, build social cohesion or improve health outcomes, as well as providing jobs in the construction and engineering industry.

The value of design in business

There is, however, a body of research providing numeric data on the value of design to business. The headline numbers demonstrate the potential of design for growth and innovation:

— The Design Council tracked public quoted firms that use design intensively over a ten-year period between 1994 and 2004 and compared them to poorer design-users. The design intensive firms outperformed their peers by 200% through bull and bear markets[vii].

— 80% of UK businesses believe that design will help them stay competitive in the current economic climate. This figure rises to 97% among rapidly growing companies[viii].

— An in-depth 'Value of Design Survey' of 503 businesses by the Design Council shows that every £100 a design alert business spends on design increases turnover by £225. The survey also reports businesses that see design as integral are more than twice as likely as others to see rapid growth[ix].

— UK firms consider design to be the sixth most important factor driving business success — higher than R&D and marketing. The number one slot was quality of staff and the second was financial management[x].

Olympic Velodrome

The 6,000-seat Olympic Velodrome, built by the Olympic Delivery Authority (ODA) and designed by a team led by Hopkins Architects, has been awarded the Prime Minister's Better Public Building Award which recognises new buildings, places and spaces that improve the delivery of public services, give a sense of identity, community and local pride, and help build a sustainable future.

The Mayor of London, Boris Johnson, commented that: "Not only does the Velodrome represent a fantastic investment in sport, it's a world-class achievement in British architecture and design". The Velodrome shows how good design can promote economic, environmental and social regeneration.

Economic impact on SMEs including hi-tech and start-ups

Evidence from the Design Council and other international policy organisations identifies high potential returns from raising awareness of design with SMEs. Where larger companies benefit from dedicated design managers, smaller companies frequently lack a strategic approach to design in management, relevant design process for product or service development, as well as the confidence and know-how to commission professional designers.

In the wake of the banking collapse in 2008, the Design Council completed its 'Design in Britain' survey of 1,500 UK firms[xi]. This has been a longitudinal survey dating back twenty years. Over the three-year period since the previous survey the value firms placed on design increased significantly:

— the proportion of firms who regard design as integral doubled to 30%

— the use of the mix of design disciplines rose by 15%

— the majority of UK firms now believe design will help them stay competitive through the downturn.

The survey underlines many inherent weaknesses in the use of design by smaller companies. The discrepancy between large and small businesses commissioning design reflects a broader issue around small businesses redesigning products and innovating. For instance larger businesses are almost twice as likely to commission design (61%) compared to micro-businesses who frequently view external designers as high-risk and high cost.

Regional variations point to stronger know-how and access to design in the South East while in some areas, such as the North East a relatively high proportion of firms (23%) view design, worryingly, as having no role in their business. Similarly in some sectors where innovation is traditionally viewed as weak, such as construction and agriculture, the value placed on design is half that in strong innovation sectors such as manufacturing. This information may help policy-makers optimise the advice and support given to SMEs, including the use of incentives such as R&D Tax Credits and Innovation Vouchers.

Sugru

Sugru is a new air-curing rubber made by Jane ni Dhulchaointigh's company, FormFormForm, in East London. Sugru can be moulded into any shape, bonds like a glue and cures at room temperature to a tough flexible silicone rubber. It has been enthusiastically adopted by people looking to repair and adapt their products instead of buying new.

The Designing Demand programme helped Sugru commercialise the product starting with being clear on what differentiated it within its field. Sugru was listed as one of The 50 Best Inventions of 2010 by TIME magazine and demonstrates the importance of raising the awareness of design with start-ups and SMEs and supporting them to adopt a strategic approach to design.

A BUSINESS INNOVATION INFRASTRUCTURE WITH DESIGN INSIDE

6

The UK has a sophisticated ecosystem of organisations across the public, education and private sectors providing expertise in such areas as research, design, quality assurance, technology development and intellectual property.

Part of the government's contribution towards the ecosystem is through its 'innovation infrastructure' made up of specialist institutions such as the Design Council, Technology Strategy Board and NESTA. This section provides evidence on the role of government in strengthening connections to design and how this supports innovation in business and science.

Designing Demand

Over the last four years the Design Council has provided high-level design coaching to over 2,300 SMEs through a programme called Designing Demand, one of the government's Solutions for Business products. The purpose of this BIS-funded programme has been to counteract a lack of design capability and confidence in SMEs. It has provided further evidence on the impact of design and also the benefits of raising standards of design leadership at board level.

The service deploys trained Design Associates to mentor the CEOs and management teams of SMEs providing up to 10 days of coaching and peer-to-peer support. Typically the Associates help the management team understand how design can be used strategically to boost company performance. Together they identify opportunities, implement cultural and process changes, and instigate projects including commissioning designers.

An independent evaluation of the service in 2011 showed that every £1 invested in a design project from the service returned over £25 within a two-year period. Typical benefits for participating firms have been accelerated business growth, increased market share and successful new product, service and brand development[xii].

The priority for business support programmes, such as Designing Demand, is to maximise the impact of government investment through targeting priority sectors and incentivising businesses to contribute towards participation. As industry seeks simple and easily navigable services, the onus is on the providers to ensure that the diverse offers, such as Business Coaching for Growth and the Manufacturing Advisory Service, are smartly linked and offer a flexible and interlinked mix of activities.

White Logistics

White Logistics is a family owned, medium sized haulage business based in the West Midlands. In 2010, with the support of the Design Council, White's developed a strategic plan for a clear, sector-leading identity that communicates ambition and a distinctive brand promise.

The wider plan also addressed improved operational efficiency, a more focused customer/sales strategy, and the development of their people. The transformation of White Logistics demonstrates the role of design in areas that have traditionally been seen as lacking in innovation with little to differentiate one business from the other.

Commercialising science

The high ratio of impact to cost of the Designing Demand approach lends itself well to targeting clusters or sectors where there is high-growth opportunity. For instance, a version of the programme, called Innovate for Universities, has helped universities to commercialise science research and technology. In this instance the Design Associates are paired with programme leaders in Technology Transfer Offices.

The design advice builds capability within research teams that tend to be strong on research, pure science and technology and weak on user-led design. Practical mentoring has helped accelerate ventures to market. In the case of Oxford University the mentor supported the university's most successful spinout in recent years ultimately attracting over £4m towards the smart-metering technology. Typical benefits of bringing design to early science and technology include de-risking projects through prototyping, sorting usability issues through co-design with users, and attracting investment through visualisation and brand presentations.

Targeting clusters

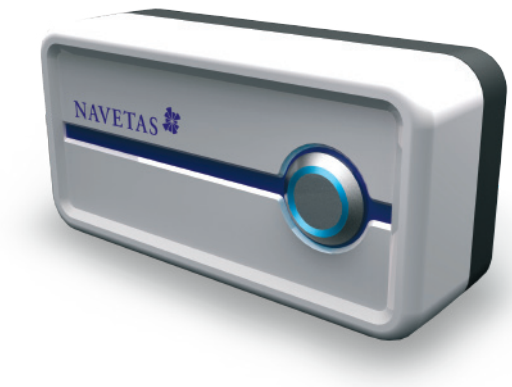
The lessons from Innovate for Universities and Designing Demand re-enforce evidence that technology intensive firms and start-ups benefit from strong embedded design skills. Mentoring is also an effective approach and can be incorporated into existing support mechanisms such as those to support technology transfer, including the new Catapult technology and innovation centres, and other forms of support such as Business Coaching for Growth.

As well as targeting high-growth clusters, the design coaching approach has proved successful in sectors where low rates of innovation and stubborn slow-growth are prevalent. For instance, Designing Demand has demonstrated high impacts in terms of profits and jobs in agriculture, haulage and low-technology manufacturing.

Navetas Smart Meter

The University of Oxford developed a new process for measuring electricity usage but needed design support to take it to a stage where they could raise seed investment for a spinout company and fund the next stage of development.

The Design Council's Innovate for Universities programme helped the team to develop the product and identify market opportunities. The original spinout was bought by energy management firm, Navetas. Further investment of £4m has been secured to enable the company to continue developing the product and run national trials with a major UK energy company.



A PUBLIC INNOVATION INFRASTRUCTURE WITH DESIGN INSIDE

7

To stimulate a culture of innovation, reform public services and meet the needs of public policy challenges, government has a role as lead commissioner and innovator. This section provides evidence on the role of design within public sector innovation.

To meet the needs of public service reform and address the many urgent public policy challenges, government must lead as an innovator. From streamlining centralised services such as road taxation, improving locally administered housing benefits, or developing new solutions to the rising tide of chronic disease and obesity, civil servants are charged with achieving the NAO description of public sector innovation — "new ideas that work at creating public value".

Many good examples of transformation and innovation within central and local authority delivery already exist. The redesign, for instance, of the Passport Agency turned a service that was in crisis in 1999 to the UK's highest rated private or public service for three years in a row by 2006[xiii]. However, evidence from within and outside government points to long-term systemic issues around public sector innovation, including the need for culture change around risk and experimentation, broader staff and customer engagement in innovation, and improved skills in engaging the private sector.

NESTA research points to public sector innovations happening despite — rather than because of — the organisational culture around them[xiv]. The tendency is for agencies to work in silos with new ideas failing to flow across departmental boundaries. According to government's own research, the impact of design on public sector organisations has also been largely neglected[xv].

New UK Passport

In 1999, at least 500 holidays were cancelled because of poor performance at the UK Passport Agency with applications taking up to 10 times longer than they were meant to. Yet in 2006, for the third year running, the agency ranked first for overall customer satisfaction in the CompariSat surveys of public and private sector organisations, with a 97% approval rate. This was achieved by prioritising customer relations and service design.

More recently, the UK Passport has been redesigned and is now one of the most secure and trusted documents in the world, meeting rigorous international standards and providing a more efficient service for UK citizens travelling abroad.

The Design Council's demonstration projects provide an action research base on the impact of design in the public sector.

Public Services by Design

The Public Services by Design programme, funded by BIS, has provided strategic support and mentoring to local and central government projects including a local authority homelessness service and HMRC's company registration scheme. Results over two years with 30 agencies point to significant potential efficiencies and savings. Independent evaluation estimates that for every £1 spent raising design capability, £26 has been saved by providers[xvi].

Design Council Challenges

The Design Council Challenges programme has demonstrated the value of 'open innovation' within the public sector. A key focus has been around security with a Home Office programme identifying innovations to Design Out Crime and a range of preventative healthcare challenges with the Department of Health, including infection control, patient dignity, assisted living for the ageing and dementia care.

Working frequently in collaboration with partners such as the Technology Strategy Board, the programmes have used design techniques to engage citizens, front-line staff and specialists in bringing new ideas to market. The emphasis has been on maximising the early participation and investment of the private sector combining design, technology and producers. The consistent results have delivered rapid acceleration and uptake of commercial ideas. Recent evaluation of two health projects identified over £25m of sales within two years for SMEs who participated in the programme and forecast returns of £23 for every £1 spent by the public sector[xvii].

Lessons from these demonstrations point to significant benefits for the public sector in achieving innovation at scale, as well as in efficiency through increasing its capability to use design as a strategic approach, embed design processes within leadership and management and commissioning design professionals more effectively.

Reducing Violence and Aggression in A&E

NHS staff experience more than 150 incidents of violence and aggression every day with a financial cost that exceeds £69m annually. Working with the Department of Health, the Design Council has run a UK-wide open innovation competition to tackle this issue.

This holistic design approach has identified solutions to improve the patient experience, support frontline staff, and inform and inspire key NHS decision-makers. The solutions are designed to give a clear return on investment both financial and in the experience of staff and patients.

PLANNING FOR THE NEXT GENERATION OF INNOVATORS

8

As the dynamics of innovation change, government has a role in working with industry to develop a workforce with relevant design skills and capabilities. This section reflects on the role of the education system.

Applying the lessons in education

Systemic issues of weak design capability within organisational management could potentially be addressed over a longer period through the education system. The siloed approach to design education in schools results in many students lacking any understanding of the basic business facts around design. For instance, current GCSE studies in business and economics fail to address design for business competitiveness and innovation. A limited number of schools benefit from cross-curricular design programmes or have specialist status such as the JCB Academy, where design and engineering are fully integrated into all subjects.

High quality Design & Technology teaching in schools is also important to maintaining and growing a pipeline of students entering design, architecture and engineering HE courses and on into the professions. Involving design and engineering practitioners in schools brings Design & Technology to life for students and teachers, enhances the quality of teaching and learning and gives students access to professional role-models that might encourage them to consider careers in design, architecture and engineering.

There are good current examples of such cross-curricular design activity that aim to broaden access to design within primary and secondary education. These include the Sorrell Foundation's National Art & Design Saturday Club which gives young people aged 14–16 the opportunity to study art and design every Saturday morning at their local art and design college or university for free. The Design Council's Eco Design Challenge is a further example. This programme gives students the opportunity to make parts of their school more sustainable by working with designers to calculate the size of their school's ecological footprint and then to create ways to make it smaller.

These initiatives help inform the education and career decisions young people take. In addition, they demonstrate that students who do not pursue design and the related disciplines further in their education and careers still benefit from the early development of decision-making and problem-solving skills that design education brings, particularly with an interdisciplinary approach.

Further research is needed to appraise the impact that the development of interdisciplinary approaches to school education could have on national innovation capability.

The JCB Academy

The JCB Academy is a University Technical College for 14–19 year-old students with a multidisciplinary approach to providing high-quality engineering *and* business education to develop, "the engineers and business leaders for the future".

The Academy's specialist programmes benefit from close links with industry — not just JCB, as the main industry sponsor, but also other major engineering firms in the area including Rolls-Royce and Toyota. This ensures that curriculum and teaching activities are embedded in real industrial practice and challenges.

DESIGN FOR INNOVATION POLICY PRIORITIES

9

The Innovation and Research Strategy for Growth provides a framework for investment in economic growth. This section reflects the government's commitment to design as an essential element of this process.

FOR DISCOVERY AND DEVELOPMENT

Strengthen the commercialisation of scientific and technological breakthroughs through design.

New investment in infrastructure, such as the Catapult technology and innovation centres, provides opportunities to match design know-how and talent to where it's most needed. Existing research funding and knowledge partnerships can be exploited to address gaps or provide new evidence on priorities that will have an impact on our capacity to innovate, such as the competitive global environment or the role of our design education system.

FOR INNOVATIVE BUSINESSES

Strengthen design capabilities and access to design.

Where government investment is being made or sustained in new technologies government can provide the connections to tried and tested design advice and networks. Targeted support for clusters and sectors through Designing Demand and other business support products, including the Manufacturing Advisory Service and Business Coaching for Growth, provide opportunities to accelerate innovation by using design and exploiting UK design capabilities. The uptake of design can also be incentivised through R&D Tax Credits and Innovation Vouchers.

FOR KNOWLEDGE FLOWS IN THE INNOVATION ECOSYSTEM

Use design to strengthen connections between universities and the wider innovation infrastructure.

A greater understanding within universities of the use of strategic design will speed up the commercialisation process by helping identify market needs, making new concepts viable and appealing, attracting new investment and reducing risk. An expansion of multidisciplinary approaches at post-graduate level in design, business, science and engineering education would strengthen the role of universities in the innovation ecosystem.

FOR GLOBAL COLLABORATION

Use design to attract inward investment and promote export opportunity.

Initiatives such as Tech City UK provide an opportunity to attract investment based on the access to UK design and creative skills. The Olympics and wider programmes of the government and UKTI provide ongoing opportunities to establish connections for design firms and design-led businesses. The existing design sector infrastructure including events, cultural institutions and organisations can help maximise trade and investment.

FOR NEW INNOVATION CHALLENGES

Demonstrate design leadership in commissioning services and public policy.

The continued efforts to reform public services provide an ongoing opportunity to engage design in achieving transformational change and in delivering efficiencies across the system. Design leadership and skills can be incorporated into broader management and leadership training. Open innovation design projects on new policy challenges can incentivise early engagement between government, technology and business.

10 DESIGN FOR INNOVATION ACTIONS

Design is a cross-cutting theme in the government's Innovation and Research Strategy for Growth. This section lists agreed and funded design-related actions that the Design Council will take forward working with partners.

ACTION FOR DISCOVERY AND DEVELOPMENT

Action 1: *A stronger bridge will be built between design and technology through the Catapult technology and innovation centres.*

The new Catapult network being established by the Technology Strategy Board will stimulate innovation, accelerate growth and anchor high value development in the UK. The Catapults will provide access to the best technical expertise, infrastructure, skills and equipment — resources which companies, particularly small ones, need to innovate and grow. The use of design for commercialising technology will be integrated within the role and mission of the Catapults. To support the development of this approach, Catapults will have access to expert help and advice including, for example, high-level guidance from a panel of design experts of international standing which the Design Council will help establish.

Each Catapult will be encouraged to work out the best approach to fit their specific circumstances. Examples of approaches they should consider include:

— offering a design mentoring service tailored to meet the needs of their technology and sector. The Designing Demand and the Innovate for Universities programmes are good models to inform such tailored services;

— bringing together the design, technology and manufacturing communities to address particular major challenges and opportunities. This approach could build on the TSB's Innovation Platforms programme by adding a specific design element; and

— participating in a design-based Knowledge Transfer Partnership (KTP) scheme. Informed by the established KTP programme, this could involve placing design graduates (KTP Design Associates) with Catapult business users. The business users would benefit from both the expertise of the Associate and the links he or she would bring to their 'parent' university or other research organisation.

ACTION FOR INNOVATIVE BUSINESSES

Action 2: *Design will be made an integral element of support for potential high growth SMEs through expanding the Designing Demand programme and delivering it in collaboration with other business support programmes.*

The Design Council is delivering Designing Demand, a BIS-funded mentoring programme, to build greater design capability and understanding among SMEs. Building on the success of this programme, the government is increasing its funding for Designing Demand to £1.3 million per annum. This expansion of the Designing Demand programme will enable up to 100 SMEs to receive support each year. Delivering it in collaboration with other business support programmes will help ensure that target businesses are provided with an enhanced, more joined-up service to help increase their productivity and competitiveness including through increasing innovation. The Design Council will work with the providers of Business Coaching for Growth and the Manufacturing Advisory Service to achieve this.

ACTION FOR KNOWLEDGE FLOWS IN THE INNOVATION ECOSYSTEM

Action 3: *The link between universities and design will be strengthened by building on the success of the Design Council's Innovate for Universities programme.*

Funded by BIS, this programme has promoted a greater understanding of how design can be integrated into Technology Transfer Office (TTO) projects and has demonstrated how design can improve the marketability of new products including through spinout companies. Benefits include: reducing risk in the commercialisation process and maximising IP value, identifying new market opportunities, increasing speed of commercialisation, attracting new investment, success with competitive funding applications, improving team collaboration and providing new skills and methods. BIS funding is allowing a further seven university TTOs around the UK to benefit from the mentoring programme in 2011/12.

Action 4: *The Design Council will work with the Arts and Humanities Research Council (AHRC) and other partners to develop an effective and consistent means of measuring the impact of design.*

The Design Council and the AHRC will work together to develop a robust programme of university-led design research that will build on previous design metrics work to improve understanding of how design, creativity and innovation impact on economic performance and social value creation. This will inform existing national and European metrics leading to greater adoption of design in the innovation process.

ACTION FOR GLOBAL COLLABORATION

Action 5: *The Design Council will work closely with UKTI to promote the use of the UK's design strengths to attract inward investment and increase exports. This will include ensuring design is an integral element of the support available for businesses in established and emerging clusters, such as Tech City UK, that provide concentrations of opportunity to build on UK competitive strengths.*

In taking this action forward, full advantage will be taken of opportunities presented by the London Olympics including the associated UK Business Ambassadors initiative.

The Tech City UK initiative in East London provides a good example of an opportunity to build on an existing cluster of technology companies. The initiative aims to support the area to become the digital capital of Europe and location of choice for technology-based entrepreneurs and companies. As well as commitment and assistance from government, it has active support from major global technology companies including Cisco, Intel and Google.

Design support should be an integral part of the services offered to entrepreneurs setting up and growing businesses in the area. To achieve this, the Design Council will:

— work closely with UKTI's Tech City Investment Organisation to help overseas-based, early stage technology entrepreneurs and high growth innovative companies first to locate or expand in East London and then to access practical support to help them scale; and

— partner with the Technology Strategy Board and the UKTI to provide design support alongside the Tech City Launchpad initiative to support and extend the existing East London tech community.

ACTION FOR NEW INNOVATION CHALLENGES

Action 6: *A toolkit and coaching programme will be developed to support government to become a design leader in the commissioning of services and public policy.*

In order to drive value for money in the current fiscal climate government must enlist innovative solutions. The lessons learnt from existing successful programmes now need to be drawn together to develop a design/innovation-led approach to commissioning that will be far more widely adopted across the public sector. The approach needs to be embedded in the culture of senior civil servants so that they provide design and innovation leadership and can act as an 'intelligent customer'.

Drawing from the success of their existing programmes and working with BIS, the Cabinet Office and innovation partners, the Design Council will develop:

— a design/innovation-led commissioning toolkit for adoption by government departments and more widely across the public sector; and

— a supporting coaching programme for senior civil servants. This could initially be aimed at the 'Top 200' group and potentially delivered in collaboration with the Institute for Government.

With the benefit of this support, the intention is that each government department with a major commissioning role will be encouraged to run at least one design/innovation-led commissioning 'competition' over the next 12 months.

Action 7: *The Design Council will work with government departments and partners to develop further design-led open innovation competitions that address major societal challenges.*

The Design Council has developed and run a number of successful design-led open innovation competitions to address major societal challenges such as crime, reducing the risk of infection in hospitals and discouraging violence and aggression in A&E departments. Building on this experience, the Design Council will work with government departments, innovation partners and the design industry to identify further challenges that would benefit from this approach. The aim will be to develop and test design-led solutions, including those best developed initially at a local level, that can be deployed at a scale that matches the scope and severity of the major public challenge addressed.

END NOTES

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P.6 ISS12 finale and runway shots
Courtesy of Burberry;
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P.9 Sugru air-curing rubber, designed by FormFormForm
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P.14 Students at JCB Academy
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Design Council

CABE

CABE is now part of the Design Council