This is the first report of the new Design Commission.

The Design Commission was established a year ago by the Associate Parliamentary Design and Innovation Group, following its report into design and public procurement. Our aim is to promote a proper understanding of the essential role of design for economic growth and social wellbeing in the UK. The Commission comprises leading designers, academics and parliamentarians, and is chaired by Lord Bichard. A list of members is provided overleaf.

We chose education as our inaugural topic because design education, at all levels, is under a degree of threat which could impair our nation’s economic growth. We have taken evidence from our most successful designers and the institutions that teach them, from Ministers, senior officials and advisers.

We posed four questions:
Why does design matter?
Where are we now with UK design education?
What are our competitor nations doing?
What must we do to continue to compete?

The answers led us to recommend changes in education at all levels. They are not revolutionary and they are not financially onerous. But we think they would safeguard the capacity of our world-class design industry and contribute substantially to our economic revival – as well as making our country a better place to live. As such, they merit serious and urgent consideration.
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WE POSED FOUR QUESTIONS:

WHY DOES DESIGN MATTER?
WHERE ARE WE NOW WITH UK DESIGN EDUCATION?
WHAT ARE OUR COMPETITOR NATIONS DOING?
WHAT MUST WE DO TO CONTINUE TO COMPETE?
THE ANSWERS LED US TO RECOMMEND CHANGES IN EDUCATION AT ALL LEVELS. THEY ARE NOT REVOLUTIONARY AND THEY ARE NOT FINANCIALLY ONEROUS. BUT WE THINK THEY WOULD SAFEGUARD THE CAPACITY OF OUR WORLD-CLASS DESIGN INDUSTRY AND CONTRIBUTE SUBSTANTIALLY TO OUR ECONOMIC REVIVAL – AS WELL AS MAKING OUR COUNTRY A BETTER PLACE TO LIVE.

THEY MERIT SERIOUS AND URGENT CONSIDERATION.
At present, the UK has a problem with growth. After a very uncertain recovery from recession, the question of growth – and how it can be achieved – has become a central concern for the nation. The economy expanded by 0.5% in the third quarter of 2011, a paltry performance for what is now three years on from the crisis of 2008. The reasons for such meagre growth are debatable, but whatever the cause, the pressure on the Government to already intense – is mounting.

We believe design is a lever for growth. Design has been proven to boost the competitiveness of businesses, selling more British products and services. 'HVLJQFDQDQGGRHVXQORFN the commercial potential of the UK’s research base – the sciences, engineering, new technologies, digital industries – by synthesising and translating between bodies of knowledge, communicating emerging ideas, and finding marketable uses for them. Design is also the hallmark of an enterprising and socially mature society. Better schools, hospitals, streets, public services, workplaces – all the things that make civilised societies function well – are dependent on good design.

The Government does not seem to fully appreciate this lever, or the significance of design as the spine that runs through industry, innovation, and social wellbeing. This mental block has been particularly apparent in recent rhetoric about boosting the productive industries. Faith in financial and other services has been shaken, and manufacturing, out of favour in recent history, has taken centre stage. The Chancellor declared an intention in his March 2011 budget speech to set the parameters for Britain to become a country ‘carried aloft by the march of the makers’.

The sentiment is clearly laudable: this is not only the best way out of recession, but also the route to economic success in the highly competitive world of the 21st century. However, whilst the Design Commission is in agreement that a more balanced approach to the nation’s industrial make-up is essential, we believe there is a certain misalignment in current policy that may prevent us from truly getting there; indeed may squander particular advantages we currently have. In short, we believe that valuing and prioritising design and creative education is the surest way for this country to continue to distinguish itself in a global community, to deal with the complexity of the challenges facing business, government and society in the 21st century, and to achieve the kind of economic growth the Government wants. However, there are a number of policy changes afoot around skills and education which may unwittingly have the effect of detracting from the UK creative education system in general – and design education in particular – and therefore jeopardise the plan for growth. We are also of the view that some patterns of design education may need to be revised.

Our central concern is illustrated by a further recent quote from the Chancellor. In his speech to the 2011 Conservative Party Conference, he declared:

I want Britain to be the home of the greatest scientists, the greatest engineers, the greatest businesses – a land of innovators.

This is a somewhat incomplete vision, and one that does a great disservice to the other skills and traditions that, in the past, have contributed to the nation’s track record in innovation. Although excellence in the sciences and engineering (in this case) are of course crucial, if that is all we prioritise we are limiting ourselves unnecessarily.

Typically, great inventions and innovations more
often than not emerge from the boundaries between disciplines. Leonardo da Vinci is perhaps the original such modern inventor – both a scientist and an artist. But a bit closer in time, H. R. Fox Talbot was only able to invent photography because he was an expert in chemistry, optics, the classics and an artist. Thomas Edison’s prolific inventions spanned traditional disciplinary boundaries. Kenneth Grange changed the hallmarks of 20th century Britain – trains, kitchen appliances, cameras, bus shelters – by applying his artistic and social nouse across a number of industries. As the knowledge base advances, innovations have increasingly come from multidisciplinary teams rather than lone operators. Steve Jobs, Jonathan Ive and the management philosophy of Apple is probably the most revered 21st century example of the interdisciplinary team. Design is a key ingredient here, translating between disciplines as well as bringing a unique set of skills and knowledge content. Some UK universities are now absorbing this lesson and using their design departments to foster interdisciplinary work programmes. This mixing and learning and strategic embedding of design happens naturally in many successful businesses, and contributes significantly to that success.

However, the importance of design in the interdisciplinary mix seems to be invisible to Government. It rarely gets a mention. The Department for Business, Innovation and Skills has recently launched, through the Technology Strategy Board, a number of Technology and Innovation Centres, based loosely on the German Fraunhofer model. One such ‘TIC’ will be a high value manufacturing technology and innovation centre:

Formed from seven research and technology facilities from across the country, it is intended to help to kick-start a sustained manufacturing revival by commercialising science – taking ideas from the drawing board to help make them into real products.

Government is talking about the design process without acknowledging it. The omission of design reveals the fact that it is not understood as it should be. ‘Design’ is not simply a matter of aesthetic appeal, it is essential to science and engineering, it is the discipline that links new ideas and new technological advances with new products, new services and new processes. Think about the value that, for example, Heathrow Terminal 5 – its buildings, services and systems – adds to the economy, and then realise that most of this value comes from its (British) design. Or, think of the growth potential of the communities of digital-centric businesses proliferating in clusters around the country. Most of these new industries are driven by, and highly dependent on, design. Not understanding this now, when a sophisticated approach from governments to design distinguishes growing economies from stagnating ones, will set us back decades. Design, as a great synthesiser, must be a key component of any future growth plan, but at present the critical nature of its role is undervalued and misunderstood.
Our national design capacity – the supply of skilled individuals into the design industry, and a sound understanding amongst others of how design can be deployed for good – is dependent on design education.

The UK has a distinguished track record in the development of design education: it is a national asset and a significant export. By design education, we mean the system that takes people through Art & Design and Design & Technology at school, through A Levels or diplomas in a number of art and design related subjects, the Foundation Diploma in Art and Design, a plethora of degrees in an ever-growing number of design disciplines, and on into the workforce or further academic study – a Masters, or Postgraduate work in design research. This pipeline is important for the preservation and development of the design industry itself. But it is also, especially in earlier years, crucial for embedding some key skills which are hard to deliver elsewhere in the curriculum.

Design is, at basis, a decision-making, and problem-solving, activity. Learning to think as a designer means learning how to approach problems and make decisions in a particular way, in order to arrive at a positive outcome: a new product that customers love, a new service that saves time and money, a new environment that promotes well-being. The ‘designerly’ approach is differentiated from any other way of making decisions by how one goes about gathering the information needed to make the decision, how learning happens, and the attitude to doing so. This involves a blend of thinking and acting, learning through doing – testing ideas and assumptions through action – rather than, for example, historic data – edging towards a solution. This natural inclination to create and invent, to find new solutions and make new things, is in fact a remarkably human and age-old approach to problem-solving, and underpins the technological progression of human societies over thousands of years.

Design is also distinguished from other problem-solving processes by allowing for the apparently irrational elements of human nature, admitting the incorporation of intuition, human-centred understanding, and emotion – or the effects of emotion – into decision-making. As Ian Callum of Jaguar noted recently ‘people mostly buy cars through emotions’: emotional impact is therefore a valid consideration in the design process. Design prizes visual literacy: how things look is an important element of their function, and interpreting visual cues is a life skill. And it teaches the individual to tolerate ambiguity and uncertainty whilst still moving forward: essential for entrepreneurial activity.

The design skillset is broadly definable as a range of both intellectual and practical skills. The very nature of the design process is one of synthesising information acquired through both thinking and acting, using it to set up a new hypothesis, and testing again in an iterative process. It is hard to see how this capacity, to whatever degree, could not be relevant for everyone – regardless of profession, occupation, and ‘academic’ ability.

But design education is now going through a period of change. The National Curriculum Review and the recently introduced English Baccalaureate appear to disregard creative subjects, by default implying that they are academically second-rate, when in fact, in the 21st century, it is creativity we are most desperately in need of. There is already evidence that schools are now less likely to provide for teaching these space- and resource-intensive subjects. Teacher training places for art and design have been cut back.

Resource-intensive university courses are underfunded, and specialist courses are closing. The new arrangements around tuition fees are discouraging applications of students to study art and design subjects – numbers are down this year. There is very little vocational provision of design education at all.

All of the above seems very odd for a government proclaiming a desire to rebalance the economy. In order for design to perform, to help the country back toward growth, we need designers, and we need a commonly held understanding of the value and contribution of design, including in Government.
It is because we believe design education is both fundamental to national prosperity, and under threat, that we carried out this inquiry. We interviewed a number of key players in the field, invited and received written evidence from educational institutions, businesses and individuals, and surveyed a mountain of existing literature on the subject.

Our primary conclusion is that government needs to recognise design, and in turn, design education, as a positive lever for growth, and act on that understanding.

We set out here four recommendations. Areas requiring further analysis are noted in the full length report.
WE HAVE FOUR RECOMMENDATIONS:
1. Government needs a national design strategy that it takes ownership of in a well-informed and pro-active way.

2. Whilst government should oppose any move to remove design from the national curriculum, we also need to think again about how design operates in schools.

3. Further education routes into the sector need to be expanded and developed.

4. Higher education centres of excellence – resource-intensive high quality centres teaching tomorrow’s innovators and researching future practice – need protecting and funding.
Government needs a National Design Strategy that it takes ownership of in a well-informed and proactive way.

A clear and Government-owned design strategy should be a fundamental part of any developed economy’s industrial and innovation policies. ‘Industrial policy’ is a somewhat uncomfortable and contested term that has languished in recent years, but an intelligent approach to supporting and enabling industries is critical for any government trying to coax the national economy back to growth. Ensuring a productive education base is a key component of such strategies.

As a positive lever for growth, design must be written into the new Innovation and Research Strategy, the next phase of the Growth Review, and the review underway into the mechanics of collaboration and knowledge transfer between business and HE.

Further, beyond industrial policies, the UK Government needs – as other countries are also quickly learning – to develop a wider cross-governmental strategy with regard to design, particularly regarding its potential contribution to the very act of governing and policymaking. How design might meet social challenges, and interact with policies on innovation, education, and public service reform, is a complex matter that should be allotted its own governmental resources.

We recommend that Government develop a comprehensive National Design Strategy (beyond delegating tasks to the Design Council), appoint someone inside Government to lead on it, and draw in experts, design practitioners and the business community to assist and advise.

Whilst Government should oppose any move to remove design from the school curriculum, it also needs to think again about how design operates in schools.

The Commission is concerned about the ethos that is being encouraged, through the Department for Education’s (DfE) reforms, for mainstream school education. Creative education does not appear to be valued. Undermining it will, in ten years time, or perhaps less, thwart any other investments in the nation’s innovative capacity, and seriously hamper our competitiveness. We urge the Government to reconsider the direction being taken by the DfE – with the Curriculum Review, the constituents of the English Baccalaureate, and the reduction of teacher training places in art and design – and whether this is truly aligned to the wider growth agenda.

However we also recognise that patterns of design education need reforming. First, there is disagreement about where on the curriculum design ought to appear; currently it is present in both Art & Design and Design & Technology. Second, the original ambition of Design & Technology – to be a subject that breaks down boundaries between disciplines, synthesises and builds on learning in other areas, turns out individuals who are three-dimensionally capable and critical appreciators of the ‘made world’ – has not yet been fully achieved. This is in part due to the milieu in which it has been tasked to operate.

To be appropriate in the 21st century context, we need to shift education to an interdisciplinary approach. In other words, from a system that operates in discrete specialist subjects, towards an integrative system that promotes adaption as skills needs change. Schools should use the naturally interdisciplinary nature of design projects to break down silos between subjects. This could be as simple as setting design challenges that engage students outside their subject classes in creative problem-solving projects.

Further Education routes into the sector need to be expanded and developed. There is a distinction in many industries and occupations between the pioneers and innovators, the knowledge...
workers, and the technicians, and this is true in design. However, the typical pathway into the design industry is currently very narrow – school to university to (probably) postgraduate degree to employment – and employers frequently complain about the lack of industry-relevant skills in otherwise able and highly creative graduates. This pathway is also about to significantly increase in cost.

All of these problems could be addressed by the creation of some higher level vocational qualifications in design disciplines. Many design courses started life in polytechnics and graduated into the university domain with the wider transformation in the Seventies. We are not suggesting the loss of university design courses. Indeed the teaching of design in an academic environment has been invaluable for its effects on the wider institution within which it sits, and this should be protected. However, the loss of any vocational pathway is lamentable, especially as design is, at heart, an applied discipline. The re-creation of a vocational pathway – blending a high level of technical and creative learning with a greater focus on skills for industry – might help a wider range of students find a more appropriate route, and create a greater diversity in the graduate marketplace. Government and the design industry could also think afresh about how apprenticeships in design – currently few – can be made to work well.

Higher Education centres of excellence – resource-intensive high quality centres teaching tomorrow’s innovators and researching future practice – need protecting and funding.

Design doesn’t exist in a vacuum, and this is as true of design education as it is of design in industry. A central tenet of our argument is that design is an important contributor to interdisciplin ary practice and innovation in HE, particularly with the STEM subjects and business. In order to fully unlock the innovation potential of our academic institutions, universities must promote interdisciplinary practice. Whilst some examples exist, there is always room for more. The onus for developing such activities is very much on the institution.

It would also be advantageous to develop clarity about centres of excellence: UK universities must consider their strengths and play to them. This is already happening as institutions see the benefits, in terms of attracting students and research funding. In order to continue to compete for home students in the new, allegedly ‘free’, market, and in the face of increasing competition from abroad as overseas institutions improve their offerings, specialising at a higher level will help universities to differentiate their offering. Clarity over centres of excellence would also help employers locate the skills they need.

Further, advanced design research needs to actively apply itself to other domains, learning more about other disciplines, and build up its supporting library of rigorous academic literature. It is in this area that the UK is best-placed to retain a global lead.

To achieve all this, design needs to be properly funded. Specialist institutions and centres of excellence require money. At present, all design courses receive ‘Band C’ funding, which is not necessarily reflective of the true costs of provision when studio space, workshop space, expensive equipment and materials are taken into account. Institutions are unlikely to continue to subsidise courses which cost more to provide than they generate in student fees. We believe that some design courses ought to be placed on a par, funding-wise, with science and engineering subjects. The Higher Education Funding Council for England should look to investigate and revise the present funding arrangements for some design subjects on the basis that they are strategically important and vulnerable.
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HOW DOES DESIGN RELATE TO ECONOMIC GROWTH IN THE 21ST CENTURY?

The mental capital of a nation...is generated not only by those who create value in exchange, but also ‘the instructors of youths and of adults, virtuosos, musicians, physicians, judges, and administrators’.

The productive powers of any nation are inherently dependent on the intellectual and creative capital of its citizens and workforce. The skill and competence of individuals are the foundations of both sustainable economic achievement, and a better society. In the UK this capital is increasingly that of knowledge workers, contributing to a knowledge economy.

This chapter explores some current thinking on the skills businesses and governments will need to navigate the 21st century world, and describes how design neatly fits present and future skills needs. It describes the relationship between design and innovation, growth, and the knowledge economy.

1.1 Navigating a 21st century world
1.2 Invention, innovation and growth
1.3 The future economic landscape for the UK
1.4 The facts and figures

1.1 Navigating a 21st century world

Complexity is that property of a model which makes it difficult to formulate its overall behaviour in a given language, even when given reasonably complete information about its atomic components and their inter-relations.

In his book, *Adapt*, economist Tim Harford exemplifies the increasing complexity of the world around us through comparing the number of separate identifiable objects a primitive community might have had – approximately three hundred – with the number that are stocked by Walmart today – hundreds of thousands. His book is devoted to explaining the extraordinary complexity of the world we have constructed, and the inherent difficulty of intervening and effectively changing anything.

In its 2010 survey of fifteen hundred CEOs, *Capitalising on Complexity*, IBM reports that:

*The world’s private and public sector leaders believe that a rapid escalation of ‘complexity’ is the biggest challenge confronting them. They expect it to continue, indeed, to accelerate in the coming years. They are equally clear that their enterprises today are not equipped to cope effectively with this complexity in the global environment.*

In a paper called *The Age of Design*, Jeff Conklin characterises the nature of knowledge, and how it has changed over the last two hundred years:

*The job of humanity is now shifting from understanding our world (what he terms ‘The Age of Science’) to being conscious about creating it – that is, designing it.*

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3 IBM, Captalising on Complexity, 2010
These writers all remind us that in the 21st century, governments and global corporations are presiding over complex systems they are no longer confident they can control. Reading Adapt is a salutary lesson in how clumsy much policy intervention can be. It is becoming evident that the skills required to navigate the world are different than before, and consequently public education systems are often out of date.

So what would a 21st century skillset look like? Adapt argues that there are three main principles for problem-solving in the face of complexity: seek out new ideas and try new things; when trying something new, do it on a scale where failure is survivable; and learn how to tell the difference between success and failure.

This sounds remarkably similar to a designerly approach: action is an inherent part of learning, the approach is inclusive, failure is inherent to progress. In fact, these principles were indeed established by a design mind – a Russian engineer, Peter Palchinsky – in the early years of the 20th century. Helsinki Design Lab has articulated a similar formula for intervention, proposing ‘strategic design’ as a toolkit for navigating, and altering the state of, complex systems. For IBM ‘creativity has become a more important leadership quality than attributes like management discipline, rigor or operational acumen’. It is ‘the single most important leadership competency for enterprises seeking a path through this complexity.’ Sir George Cox agrees that ‘creativity should be a part of equipping everyone for life and work in the 21st century.’

This has implications for the direction of education. Andreas Schleicher of the OECD, responsible for the influential Programme for International Student Assessment (PISA), notes that:

> Educational success is no longer about reproducing content knowledge, but about extrapolating from what we know and applying that knowledge to novel situations. Education today is much more about ways of thinking which involve creative and critical approaches to problem-solving and decision-making.

He introduces the notion of ‘versatilists’, people who can respond creatively to new challenges and situations, and he believes that the paradigm of what schools are preparing citizens for has changed irreversibly:

> Today, because of rapid economic and social change, schools have to prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that we don’t yet know will arise.

The Work Foundation posits a similar theory in terms of the types of individuals required to operate successfully in a modern context. Although we still need deep expertise in many areas, we equally need ‘stronger and supportive co-operation and relationships between individuals and organisations within society (a renaissance society).’ Schleicher, the Work Foundation, and McKinsey with its definition of ‘T-shaped people’, are all describing a similar specification of skilled person: ‘specialists, with a passion and empathy for people and other subject areas’.

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5 A US organisation, the Partnership for 21st Century Skills, describes the core skillset as the 3Rs, plus the 4Cs: Critical thinking and problem solving, Communication, Collaboration, and Creativity and innovation. http://www.p21.org/
6 Harford, Tim, Adapt: Why success always starts with failure, 2011
7 Helsinki Design Lab, (2011), Recipes for Systemic Change
8 IBM, Capitalising on Complexity, 2010
9 Cox Review of Creativity in Business, p28
10 The Organisation for Economic Co-operation and Development
11 http://www.oecd.org/document/2/0,3746,en_2649_201185_46846594_1_1_1_1,00.html
12 http://www.oecd.org/document/2/0,3746,en_2649_201185_46846594_1_1_1_1,00.html
13 Levy, Charles, Sissons, Andrew and Holloway, Charlotte, A Plan for Growth in the Knowledge Economy, 2011
14 Tim Brown, CEO, IDEO
All of the above organisations and individuals are calling for increased creative capacity. To tackle complex (or even ‘wicked’) problems, we need people equipped to first understand them, and second, know how to make appropriate interventions. As we will see, design education can create individuals able to think and work in this way. Design skills and behaviours, which we describe in the following chapter, are well-matched to the demands of learning and working in a globally integrated, complex, 21st century world.

‘A design degree is about a way of thinking and interrogating a problem. It’s about the power of good ideas, ideas that have the capacity to make society better. This should have equal value to industry and government as a degree in Maths or English.’

Whilst a designerly approach is an asset to anyone managing a business or other organisation, and therefore a valuable component of general education, as the technological and industrial complexity of the world has increased, the domain where professional design skills are required has grown:

‘Our century has witnessed an ongoing, indeed accelerating, industrialisation process, not so much in the manufacturing of products than in the production of all those so-called services which shape and condition our ways of life: education, health, leisure, food, birth and death, etc.’

We now need designers of ‘immaterial objects and complex systems’ as much, perhaps more, than we need designers of domestic appliances.

Incidentally, design is not the only future skillset we need, strategically-speaking. Digital literacy is increasingly important. What computer programming for games and visual effects, and other design disciplines broadly share, is a territory that blends art, science and technology – a mix of disciplines that teaches the mind to direct creativity towards specific outcomes.

1.2 Invention, innovation and growth

You need to bring art and science back together. Think back to the glory days of the Victorian era. It was a time when the same people wrote poetry and built bridges. Lewis Carroll didn’t just write one of the classic fairytales of all time, he was also a mathematics tutor at Oxford. James Clerk Maxwell was described by Einstein as among the best physicists since Newton - but was also a published poet....

- Eric Schmidt, chief executive, Google

Typically, great inventions and innovations more often than not emerge from the boundaries between disciplines. Leonardo Da Vinci is perhaps the original such modern inventor – both a scientist and an artist. But a bit closer in time, H. R. Fox Talbot was only able to invent photography because he was an expert in chemistry, optics, the classics and an artist. Thomas Edison’s prolific inventions spanned traditional disciplinary boundaries. Kenneth Grange changed the hallmarks of 20th century Britain – trains, kitchen appliances, cameras, bus shelters – by applying his artistic and social nous across a number of industries.

As the knowledge base advances, innovations have increasingly come from multi-disciplinary
teams rather than lone operators. Steve Jobs, Jonathan Ive and the management philosophy of Apple is probably the most revered 21st century example of the interdisciplinary team. Design is a key ingredient here, translating between disciplines as well as bringing a unique set of skills and knowledge content.

This function is all the more useful since we have increasingly tended to concentrate highly specialist knowledge in silos. This relates to the operation of the professions as well as standard notions about teaching. Andreas Schleicher describes the changing requirements of teaching thus:

Conventionally, our approach to problems was to break them down into manageable bits and pieces, confined to narrow disciplines, and then to teach students the techniques to solve them. Today, however, knowledge advances by synthesizing these disparate bits... If we spend our whole lives in the silo of a single discipline, we cannot develop the imaginative skills to connect the dots or to anticipate where the next invention, and probable source of economic value, will come from. Yet most countries, with the possible exception of the Nordic countries, provide few incentives for students to learn and teachers to teach across disciplines.

It has been acknowledged that – especially in higher education – the UK needs to get much better at working across disciplines, particularly in relation to commercialising knowledge generated through research (and in silos). Some UK universities have absorbed this lesson and are using their design departments to foster interdisciplinary work programmes: in chapter ____ we list some examples. These programmes recognise that ‘design’ is not simply a matter of aesthetic appeal, it is a great synthesiser, and therefore essential to science and engineering. It is the discipline that links new ideas and new technological advances with new products, new services and new processes.

Dr. Paul Thompson, Rector of London’s Royal College of Art, in giving evidence to the inquiry, described the alchemy of the Design London incubator (an RCA partnership with Imperial) thus:

We’ve just done a project that’s a low energy using, ‘green’ air conditioning unit. You’ve got to have the engineer there to make sure the thing screws effectively into the ceiling, and the designers hadn’t figured that out. You’ve got to have the designers to actually understand that you can’t have this big whirring beast of a machine that will drive everyone in a meeting room completely crazy, because that is called user need; and then you’ve got to have the MBAs come in and say there’s no chance of ever selling that product if you can’t do it in modularised units, just-in-time, etc. It’s the combination of those three, very different skill sets that is important. I think the Government tends to think that it’s just the MBA and the engineer.

Professor David Robertson, of the School of Informatics at Edinburgh University, posits a similar theory:

For an idea to survive and thrive, three elements must coincide: the basic idea; the design to realise it; and the entrepreneurial skill to bring it to market

Edinburgh University has one of the world’s leading computing departments, and already runs a very successful incubation unit called Informatics Ventures. They are now proposing, and have

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19 http://www.oecd.org/document/2/0,3746,en_2649_201185_46846594_1_1_1_1,00.html
20 From proposal regarding the new centre
21 http://www.informatics-ventures.com/
been awarded funding to establish, a new ‘Design-Informatics’ centre in collaboration with the Edinburgh College of Art and Design. This will:

*take advantage of the existing confluence of research and entrepreneurial activity at Edinburgh to provide a unique hub for design informatics, focused at Edinburgh but serving the broader community. Scotland and the UK can become a centre for innovative products, services, tools and methods, nurturing a new breed of design-informatician, supported by a rich vein of relevant research.*

Designers and makers can also bring some very specific expertise: a deep understanding of material possibilities, for example. Matt Durran, a glass maker and artist, has recently developed with Professor Alexander Seifalian of UCL, a series of glass moulds on which to grow ‘human spare parts’. The type of glass form required for this medical application was only discovered as a result of techniques Durran had previously developed in the pursuit of artistic goals. This new collaboration has resulted in the world’s first made-to-measure trachea transplant, as well as noses and ears for cancer patients.

Such projects demonstrate the appetite in the academic community, and particularly the STEM community, for design input into project development and advanced research, and the potential this has for bringing new ideas to market.

‘Good design is good business’
– Thomas Watson Jr., President of IBM, 1952-1971

Strategic embedding of design – and learning between departments – happens naturally in many successful businesses, and contributes significantly to that success. The argument linking design and innovation in relation to business and industry is now well-recognised, having been made many times before. Most powerfully so in the UK government-commissioned Cox Review of Creativity in Business. The Cox Review’s conclusion was that ‘our creative capabilities – one of the UK’s undoubted strengths – lie at the very core of our ability to compete’; a very similar conviction to Thomas Friedman’s notion that the most important competition is no longer between countries or companies, but between ourselves and our imagination. These ‘creative capabilities’ have grown largely from the quality of our creative education system, and it is the sense that this point has not been wholly absorbed by Government that has prompted this inquiry.

However, for business, creativity on its own is of limited value. A designerly approach helps to direct creativity towards outcomes, and design is thus a driver of innovation across many industries, a property the UK Government recognises:

*(design is) crucial to economic growth and innovation... the innovation and research strategy which will contribute to the Government’s growth agenda and will have design at its heart.*

This recognition has mirrored the fact that design’s use as a tool for innovation has developed rapidly in recent years – witness the emergence of new terms such as design thinking, design management, and strategic design. ‘Design thinking’ was a concept pioneered by IDEO to help companies understand how to think like designers in order to embed design in business practice. ‘Design management’ is the body of knowledge around managing the way an organisation uses
design. ‘Strategic design’ is perhaps the next iteration of these two theories, and refers to the use of design to both originate strategies and implement them.

The common appreciation that design contributes to innovation in business has been slightly ahead of the numbers that prove it. Later we will discuss some of the systemic problems with metrics for design and the creative industries, although accuracy in measurement is steadily improving. The accounting of innovation now includes ‘intangibles’, of which design is one.\textsuperscript{25} NESTA have pioneered this through the Innovation Index, produced in partnership with BIS, recognising that the traditional proxies for innovation – typically R&D spend – were presenting an incomplete picture. BIS’s own Innovation Report 2010 cites investments in design by UK firms, as share of GVA, as just under 5\%.\textsuperscript{26}

In 2008-9, the European Commission, recognising the gap in understanding of design’s contribution to innovation, conducted a Europe-wide study. The results were compelling:

*Companies that invest in design tend to be more innovative, more profitable and grow faster than those who do not. At a macro-economic level, there is a strong positive correlation between the use of design and national competitiveness.*\textsuperscript{27}

This reflected the findings of research undertaken for a 2005 DTI economics paper on Creativity, Design and Business Performance, which found that:

*Firms with higher design intensity have a greater probability of carrying out product innovation and that design expenditure has a positive association with firm productivity growth.*\textsuperscript{28}

A quick scan of the leading companies in any one field normally points to organisations where design is fully embedded in the management of the business: Apple, Dyson, Ikea, Virgin Atlantic, Jaguar, M&S. The Design Council undertook to prove this assumption, that design-savvy businesses perform better, and created a Design Index of more than 150 quoted companies, recognised as effective users of design, which tracked their stock market performance over ten years (1994 – 2004).\textsuperscript{29} The share prices of those in the Design Index out-performed the FTSE 100 by 200 per cent over that period.

The Design Business Association has similarly been working to make the case for design in business, through their annual ‘Design Effectiveness Awards’. These are awarded to agencies who can prove that their work on a particular project has made a significant positive improvement to a company’s profit. The back catalogue of award winners makes a compelling case for design in business.

Seeing the potential of design-led improvements, NESTA recently led a pilot for a business support programme which sought to prove the innovative benefits of creativity and design in business. Called Creative Credits, this gave small businesses in Manchester money to spend on creative services.

\textsuperscript{25} The full list of intangibles is: organisational improvement, R&D, software development, training & skills development, design, market research & branding, other (copyright and mineral exploration).

\textsuperscript{26} BIS, Annual Innovation Report, 2011

\textsuperscript{27} Commission of the European Communities, Commission Staff Working Document, Design as a driver of user-centred innovation, 2009

\textsuperscript{28} DTI Creativity, Design and Business Performance, 2005

\textsuperscript{29} http://www.designfactfinder.co.uk:8080/design-council/pdf/TheValueOfDesignFactfinder.pdf and http://www.designcouncil.org.uk/publications/design-index/
According to the report published in May 2011, 79% of businesses spent their credit on design or web design, and the innovation outcomes of the scheme as a whole were impressive:

*Ninety-three per cent of projects achieved either all or some of their innovation objectives, with around 25 per cent being associated with other unanticipated benefits.*

Metrics on the benefits of design — and its return on investment — are also being produced by other national governments. Singapore’s trade development body, International Enterprise Singapore, commissioned a report which showed that:

*while investing in banking services provided an output multiplier of 1.4 and investing in computing equipment provided an output multiplier of 1.47, investing in product and visual design resulted in a multiplier of 1.76. In other words, investing in design represents a 26% better return than banking and a 20% improvement over investing in computing.*

In some cases businesses in the UK have gone straight to design departments of HEIs for some creative input. Whilst this practice tends to infuriate consultancies who could charge for the same service, the benefits and outcomes can be striking, and inject some much-needed creative provocation.

AGA Rangemaster set a challenge to MA Product Design students at Birmingham Institute of Art and Design. The task was to design a cast iron storage radiator, matching the AGA cookers design aesthetic within one week. AGA was so impressed with the proposals it offered two students placements in the company. Students on the same course also collaborated with Triumph motorcycles, using parts from the bikes to invent new products. The results included tables, chairs, a fan, a desk lamp, speakers, cutlery and a hat stand. Again the company gave a student a placement.

There would also undoubtedly be great benefits to SMEs — in terms of accessing specialist
knowledge, research, and facilities – if more could be persuaded to work with HEIs in this way. In considering ways to boost growth, persuading more SMEs to invest in design generally is a plausible option.

1.3 The future economic landscape for the UK

The Work Foundation, as part of its much wider project to advance thinking on the nature of work in the UK, has proposed the ‘Knowledge Economy’ as the UK’s only viable route to prosperity: ‘balanced growth can only come from one place: the knowledge economy’. We are already one of the leading nations on this front – although certain other nations are aiming for the same market share: Korea even has a Ministry of the Knowledge Economy. So the question is how to maximise and develop our own knowledge economy, and knowledge workers.

What is the Knowledge Economy?

At its heart, the knowledge economy refers to activities which create value from exploiting knowledge and technology rather than physical assets and manual labour. It has grown because we now buy different types of products and services, and because the methods involved in making them have changed.

New technologies and business processes may have destroyed some jobs, but they have also created new, highly skilled jobs in managing and applying these knowledge-based assets.

The Work Foundation identifies Knowledge Economy sectors in which the UK is likely to thrive as: Low Carbon activities; Creative Industries; Manu-services; and Knowledge-based business services.

Education is, self-evidently, a key resource for the knowledge economy. Increasing numbers and, perhaps more urgently, quality of graduates, is important.

Design education fits into the development of the knowledge economy in a number of ways: first, by helping produce the kind of ‘versatilist’ graduates we think we need; and second, by supporting the activity of design itself, one of the ‘intangibles’ supporting innovation in knowledge-intensive industries.

British businesses already invest heavily in intangible assets, which goes a long way to explaining why the UK design industry has grown so healthily. A recent Intellectual Property Office (IPO) report found that ‘the most intensive spenders on design are business services, manufacturing, and construction, accounting for 39 per cent, 20 per cent and 12 per cent of all design spending.’ This is also one of the clearest signs that we are largely a knowledge-based economy:

Private sector investment in intangible assets stood at £140 billion in 2008 - almost £40 billion more than investment in tangible assets. This makes the UK one of the world’s biggest investors in intangible assets.

The Government has recently, as part of the drive to ‘rebalance’ the economy, been urging a
manufacturing renaissance. This is not incompatible with thinking of the UK as a knowledge economy. The concept doesn’t necessarily favour services over productive industry, but it does indicate the kind of productive industry – knowledge-intensive, employing a highly-educated workforce, technology-driven – that will be likely to thrive. Indeed, as low-value manufacturing has increasingly migrated elsewhere, our home manufacturing sector has largely made this transition: 50% of capital expenditure in manufacturing is already in intangible assets like brands, training and design.

Manufacturing businesses of the 21st century need design input across a range of products, and to develop and invent new ones. As Richard Hamer of BAE Systems commented in contributing to the inquiry:

Because we’ve got a whole range of different businesses – submarines, ships, planes – and because we need skills across a wide range of areas, we need the full range of design skills. We want people who can work on the electronics in the headsets for pilots, down to sheet metal fabrication and design.

Similarly, design is a key skillset for Rolls-Royce, one of the UK’s foremost engineering companies:

‘Design’ is one of the five core Engineering disciplines within Rolls-Royce, and the role of ‘Designer’ is held in high regard. Designers are responsible for providing creative solutions to complex sets of requirements, and it is this innovation that generates intellectual property for the Company and maintains a competitive advantage across its product ranges.

Alongside product innovation, knowledge economy manufacturers must invest in processes, services, brand and communications. Vitsoe is one example of a UK manufacturer that would more properly be termed a ‘manu-services’ business. They sell a service as much as a product, and design comes into every aspect of company operations. The product is a simple shelving system, one developed by German designer Dieter Rams in the Fifties – ‘a classic that has endured’ – and the business itself is the epitome of good design. Socially and environmentally responsible, their supply chain is almost exclusively UK-based. Further,

Vitsoe... is a brand and service which might have been designed by Rams himself. There’s an easy-to-use guide to help you plan your layout and choice of components with a graphic simplicity rare in any instruction leaflet. If you choose to self-assemble, you are provided with idiot-proof tools, and these come with prepaid packaging for ease of return. Here is understated beauty, doing a job responsibly and profitably.

These added-value areas are where the UK can compete globally on manufacturing, and design investment is part of what helps make the difference.

Design is also an important component of emerging digitally-based industries, like the cluster proliferating in East London. New uses for new technology is what many of these businesses have in common. They identify a market need and match-make it with a technology. Although the platforms are often digital, the content has to come from somewhere – the technology in itself is not the answer. Design can be seen to be present in the processes of understanding the potential

37 IPO, Design services, design rights and design life lengths in the UK, 2011
38 Levy, Charles, Sissons, Andrew and Holloway, Charlotte, A Plan for Growth in the Knowledge Economy, 2011
40 http://www.vitsoe.com/en/gb
41 David Kester in The Times, Oct 2004
user group, developing content, building the service or product, and marketing it. Many of the people behind leading brands in this field are designers. Pachube\(^3\) founder Usman Haque\(^4\) has spent a number of years in a variety of academic design environments. Berg\(^5\) founder Matt Jones trained as an architect. The community draws on the creative breeding ground of London universities and art colleges like London Met and University of the Arts.

The creative industries (CI) are another key sector for the UK. Design is one of them. These are industries which have in common

\[\text{the management of creativity and innovation in complex knowledge flows; a cycle from the generation of original ideas to their realisation and consumption, whether as performances, products or services.}\] \(^6\)

The UK already has a higher percentage of the workforce engaged in these activities than any other nation. The Confederation of British Industry (CBI) notes that ‘as a proportion of GDP, the UK’s creative industries sector is the largest in the world, accounting for 6-8% of national output,’ \(^7\) and the UK’s CI sector is believed to be growing at around twice the rate of other UK sectors. The Work Foundation predicts that the creative and cultural sector is one of four areas where ‘the 2020 UK economy will see a rising share of economic activity, innovation, exports and jobs.’ \(^8\) Beyond their undeniable social value, the expressive value generated therein represents an important driver for many other industries.

They can also have a positive impact on place, as noted by Prof. Bob Cryan, Vice Chancellor of the University of Huddersfield:

\[\text{Huddersfield was formally designated as a creative town, and a lot of these creatives actually came through design education at the institution. So we have a media centre populated with students at the institution, we have got lots of small enterprises that came out of the institution. The University is feeding that whole sector. That is a very positive thing.}\] \(^9\)

Although there are structural differences and needs between the different creative industries, the one place they converge (or originate from), and the reason the UK has such a lead in these industries, is its high quality creative education system. Spillovers between creative disciplines and others create a rich and diverse learning environment. Any undercutting of this will damage our national creative capacity – including design capacity.

1.4 The facts and figures

Since it has become apparent how much design can contribute to business, there have been numerous attempts to quantify this contribution. But separating out design activity, or finding proxies for measuring it, is tricky. As with all industrial analysis, the task normally begins with accounting for the design industry and design occupations. Later, in Chapter 5, we will discuss the shortcomings of Standard Industrial Classification and Standard Occupational Classification codes. But in short, as design does not map easily on to that system of measurement, the picture of design tends to be partial, and not reliably the same twice.

Creative & Cultural Skills (CCSkills) defines the design industry as ‘communications, interior and...\(^{10}\)
exhibition design’, ‘product and industrial design’, and ‘stage and set design’. Their analysis finds
that these areas ‘collectively employ 263,470 people in the UK, with 20% of all employment being
based in London.’ The estimated contribution to the economy of these occupations is £8.25 billion
GVA ... and over £88 million in direct taxation, equating to approximately £2,200 per employee
in the sector.’ CCSkills expects employment in these sectors to grow over the next decade ‘by 32%,
in comparison with 6% for the economy as a whole. The design industry has a projected growth in
employment of approximately 47%.’

The Design Council, as part of its core activity, also monitors the size, shape, and performance
of certain design industries, although a slightly different selection to CCSkills (‘communications,
digital & multimedia, interior & exhibition, product & industrial, fashion and service design’).
In autumn of 2009, the Design Council conducted a comprehensive survey of these industries,
interviewing ‘2,200 design businesses including in-house design teams, design consultancies and
freelance designers’. Their findings show that:

the UK design industry has grown since 2005, despite the recession. There are 232,000
designers, 29% more than in 2005 and earnings have increased by £3.4bn. The combined
budget of in-house teams and fee income of freelances and consultancies is £15bn.

The discrepancies between CCSkills’, and the Design Council’s numbers, collected in the same
year, are attributable to their slightly different definitions of what constitutes the design industry.
In fact, this variation can be seen in other surveys, and suggests that each tally is only a fraction of a
much larger design picture.

In his recent review of Intellectual Property (IP) legislation for Government, Professor Ian
Hargreaves noted that the confusion in design IP regulation was symptomatic of a generally
poor understanding of how design functions in the economy. There are a proliferating number of
different occupations that could be classed as design, and even more that involve some design skill,
and almost every study on the subject takes a slightly different combination of these into account.

The IPO report counts architecture and some engineering alongside other design disciplines to
calculate ‘the value of the AEGPD (architecture, engineering and design) services bought in the
marketplace and those which companies produce inhouse for internal use.’ The inclusion of
architecture and engineering immediately bumps the numbers significantly. The IPO found that in
2008 (admittedly before the recession), ‘UK private sector firms purchased about £26bn worth of
architectural and engineering design services, but produced about another £7.5bn worth on their
own-account.’ The report concludes that, as Professor Hargreaves pointed out, ‘there is still more
to learn about the extent to which the activities of designers create lasting assets.’

But it is nevertheless clear that the contribution of design to national economic achievement has
historically been underestimated, and is significant.

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51 CCSkills evidence to the inquiry.
52 IPO, Design services, design rights and design life lengths in the UK, 2011.
In this chapter we explore the skills and attributes that pertain to design, and how those differ from or complement other skillsets. Additionally, as a discipline that is generally poorly understood by those outside of it, this is an opportunity to explain in clear and simple terms, what we mean by design, and the value of design skills.

2.1 Skills
2.2 Behaviours
2.3 Design as a component of general education
2.4 A note on the history and source of misconceptions about design

‘Design’ is a term that can be used to mean many things. Design as a discipline has been described as a field without its own subject; as an educational zone that unites the academic and the vocational; as a discipline that is ‘restive, itinerant, a non-discipline’. So, one of the primary questions addressed in the call for evidence was: what are we doing when teaching design, what is the nature of the set of skills, attributes, body of knowledge that a ‘design education’ produces, and what is the point of doing so?

2.1 Skills
Design is, at basis, a decision-making, and problem-solving, activity. Learning to think as a designer means learning how to make decisions and approach problems in a particular way, in order to arrive at a positive outcome: a new product that customers love, a new service that saves time and money, a new environment that promotes well-being. But what is special or different about the ‘designerly’ approach? How does it differ from any other way of making decisions?

It is differentiated by how one goes about gathering the information needed to make the decision, how learning happens, and the attitude to doing so. This involves a blend of thinking and acting – testing ideas and assumptions through action (rather than, for example, historic data), edging towards a solution. This is in fact a remarkably human and age-old approach to problem-solving.

The design skillset thus comprises both intellectual and practical skills. It was notable that in responses to our call for evidence few submissions mentioned one without the other, although there were variations in the blend.

This suggests that the very nature of the design process is one of synthesising information acquired through both thinking and acting, using it to set up a new hypothesis, and testing again in an iterative process. Breaking it down further, there are some very particular intellectual and practical skills that need to be refined to a level of sophistication in order to be a good designer.

On the intellectual side, skills include:
- lateral thinking, conceptual thinking, analytical and critical thinking, the ability to hold multiple and potentially contradictory possibilities in mind simultaneously
- social, historical, cultural and political awareness
- enhanced perception and observation skills – an inclusive approach to research
- the ability to generate new ideas: creativity

Kimbell and Perry, (2001), Design and Technology in a knowledge economy
On the practical side, skills include:
- visual communication skills – through drawing, making, or digital manipulation
- visual appreciation skills
- understanding and manipulation of materials and processes particular to the discipline in question (e.g. pattern-cutting, website construction, industrial manufacturing processes)\(^5^4\)

With regard to the intellectual skills mentioned, there are probably many other educational arenas that would engender some of these skills. Unique to design, however, is the interplay with the range of advanced practical skills, that in turn develop specific patterns of thinking in an iterative process: learning through doing.

Design is also distinguished from other problem-solving processes by allowing for the apparently irrational elements of human nature, admitting the incorporation of intuition, human-centred understanding, and emotion – or the effects of emotion – into decision-making. As Ian Callum of Jaguar noted recently ‘people mostly buy cars through emotions’: emotional impact is therefore a valid consideration in the design process.\(^5^5\)

On the point about creativity, whilst it is an attribute that is extraordinarily difficult to define and distinguish, and an apparently complex thing, it is clear that it can be taught, or nurtured. Rather than a question of some kind of magical alchemy, ‘having new ideas’ is a habit of mind that can be encouraged or stamped out.

On the practical side, there has been a tendency recently to downplay the visual and material aspects of design in favour of emphasising the critical thinking skills inherent in the design process. This has been driven by the well-meaning intention of claiming an intellectual place for design beyond the production of objects. Design can be applied equally usefully to business management, to policy, to public services, to entire systems. The ‘design thinking’ terminology – emphasising thinking over doing – has been put to use in making the case for design skills in all of these contexts. However, such an emphasis on thinking means that the crucial interplay with ‘doing’ is lost. The design process demands ‘stewardship’\(^5^6\) of projects, beyond a plan, through to delivery.

Additionally, the importance of the ‘way things look’ should not be underestimated. Designers are normally distinguished, and drawn into the profession, by being those individuals who fundamentally do believe in the importance of appearance for the functioning of the made world. The old adage of form follows function is no longer accepted: form is an inherent part of function.\(^5^7\)

Design prizes visual literacy: how things look is an element of their function, and interpreting visual cues is a life skill. Amongst non-designers, a paucity of visual literacy can lead to all kinds of problems: from unintelligible signage to unrealistic notions of body image. As much as designers can use form and image to manipulate, users can be manipulated. Visualisation – finding ways to picture or describe what would otherwise remain intangible – is a basic part of the design skillset. Indeed, although it sounds rather reductive, this is one of the key abilities designers can bring to multi-disciplinary groups, enabling ideas to be clarified and debated more swiftly.

### 2.2 Behaviours

In responses to the call for evidence, a number of other qualities were repeatedly mentioned, which would perhaps be more accurately described as attributes or behaviours, rather than skills.

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\(^5^4\) Also see the Appendix for the list of National Occupational Standards for Design


\(^5^6\) Helsinki Design Lab, In Studio: Recipes for Systemic Change, 2011

\(^5^7\) Richard Seymour, TED talk: How beauty feels, 2011
Designers tend to be people who:
- are able to collaborate and work in teams
- are user-focused in the way they proceed in problem-solving – and can perceive unarticulated needs as well as articulated ones
- are naturally entrepreneurial and enterprising, which is related to having a mature approach to risk, not fearing small failures, knowing how to develop a portfolio of possibilities
- are curious, and relentlessly question or challenge assumptions
- are self-reflective and insightful
- are able to tolerate ambiguity and uncertainty whilst still moving forward

On the point about entrepreneurial behaviour, Universities, and particularly art and design departments, are crucibles of creative activity and wealth generation: Last.fm, an online radio service and social network, was created as a student project at Ravensbourne, and subsequently sold to CBS for $280million. It was noted by the Creative Graduates, Creative Futures report that surveyed graduates from Art and Design courses, that such graduates were more likely to start their own businesses than other kinds of graduates:

> Just under one half of all graduates had worked on a freelance basis (45 per cent) and around one quarter had started a business during their early careers. At the time of the survey, 23 per cent of respondents were self employed or undertaking freelance work and 18 per cent were running a business, and this was seen as a serious ambition for the future with 40 per cent of all graduates expressing an interest in running a business as their careers progressed.

Trends in the pathways of recent graduates reflect the make-up of the design industry itself:

> 39% of people working in the design sector are self employed, either as individuals or with employees working under them. This is far higher than the UK economy as a whole, where only 13% are self-employed.

This could be taken as evidence that design skills incline people to invent their own job, rather than seek a pre-existing one. This should be an important consideration for an economy that is seeking to grow by encouraging new start-ups. It also suggests something about the skills that might help a 'lost' generation find or create work.

### 2.3 Design as a component of general education

We also believe a design education ought to be useful to more than those few individuals who choose to pursue a design career.

In interviewing the RSA’s Head of Design, Emily Campbell, for the inquiry, the Design Commission asked for an account of the point or purpose of teaching design, to all pupils, at school. Her response was as follows:

> The point of teaching design to children in school is to teach them that the made world around them – the world of objects, and structures, and environments – is not accidental. It is a compound of decisions that people make. Once you understand that principle, then you begin

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58 From evidence submitted to the inquiry by…  
59 Ball, Linda., Pollard, Emma., Stanley, Nick, Creative Graduates, Creative Futures' 2010, p.xxiii  
60 Creative & Cultural Skills, Impact and Footprint 2010/11, 2010  
61 Chancellor George Osborne’s first budget stressed the need for an enterprise-led recovery http://www.hm-treasury.gov.uk/junebudget_speech.htm  
62 Gunnel, Barbara and Bright, Martin, Make a job, don’t take a job (no date)
to have some sense of how these things can be controlled, shaped, made different, changed. You begin to see how you might be able to fit in as an agent of change. You can move on from that to teaching children that everything is part of a system – an economic system of production, the social system – and that changing any one part of the system changes the rest of it. Design is often seen as the design of ‘a chair’, or the design of ‘a cup’, rather than seeing these things as part of a much larger system.

Teaching design gives children a sense of agency; a sense of their ability to change or influence their environment, through thinking critically about it, and through their practical skills. By the simple fact of being able to make something, to think something through in terms of its physical production. The practical ability to make things gives people a sense of self-reliance and confidence: knowing how things are made, that decisions have gone into making them, and knowing how to make them.

It is important to give children an extra language – that is a visual language – to express themselves. They have literal language. They have the languages of mathematics and objective truth in science. But learning design teaches visual language. One can make an argument, for example, in shape and colour and form, as much as you can in language.

I think it’s very important to show that the critical and logical thinking that children are expected to do in academic subjects – in English, or in science – can be equally applied to objects and environments. You can analyse the logic and function and form of a chair in the same way you can apply your critical thinking to a passage of Shakespeare. Or to the description of an experiment in science: does this genuinely prove or not prove what we are seeking to prove?

Finally, an important thing that design teaching can do, is give young people a logical structure and a framework for creative thinking. There is a process to creativity and a structured way of doing it. It’s not just whimsical style choices. We tend to think that creativity comes out of nowhere, or we’re born with it. To some extent this is true, there are obviously people with talent. But at the same time, we can help everybody to go through a logical process of analysis and questioning that may lead to a new idea.

2.4 A note on the history and source of misconceptions about design

Everything is designed. Few things are designed well.

A common complaint within the design community relates to misconceptions and limited understanding of the term ‘design’. Associations in the popular imagination might be with interior decoration programmes on television, luxury fashion brands, logos, handbags, etc. This is not incorrect – all of those things involve some design – but they are a small fraction of design activity, and they place the emphasis on objects – and luxury objects at that – rather than something as broad as ‘the bridge between theory and the way we actually live our lives’. They suggest that design is fundamentally about how things look, rather than how they work.

This mental block, which makes it more difficult for designers to be employed as usefully as they might – is a peculiarly British one. In Sweden, Denmark or Italy would the word design be met with the same misunderstanding? Typically not, and the reasons for this are to be found in a complex
mix of culture and history. Perhaps British culture tends to prize and ennoble words and literature over other artistic and intellectual pursuits. Perhaps we have less developed critical faculties when it comes to the visual and material: whilst we can boast Shakespeare, and the largest vocabulary in Europe, we don’t have the same richness in history of visual arts and architecture of continental Europe, nor the craft history of Scandinavia.

Paradoxically, this public blindness to design is also a side-effect of the sophistication of the construction of the made world: complex, highly developed, technologically advanced. It would be difficult to imagine life in the absence of any design input – say in laptops, phones, tables, chairs, houses, lights, cars, paved streets – but most people have no conception of the specialist processes, skills and global supply chains that support their daily lives, precisely because they are specialist.

Human beings are natural designers. Civilization and culture would not exist without this inherent inclination to conceptualise problems and invent solutions. But as the complexity of the constructed world has increased, so too has the complexity of its design. Before the industrial revolution, personal experience of making, fixing, inventing the objects of everyday life was commonplace. This is no longer the case. Industrial and technological revolutions have divorced humans from their designing selves, and developed the designed world to the point where extensive expertise is required to manage it: a very limited number of people would know how to make something as everyday as a toaster. We can no longer fix our own cars. So we need designers both to continue to make the things we already have, and to invent new solutions to some very pressing and complex problems. Directly or indirectly, designers of many kinds are now in control of our environments.

Problems arise from this not being recognized. The separation of people from their natural designing selves means that those people who use and are responsible for environments, products and services often have no conception of the design that underpins them, or even what the term design signifies.

The simplest way to address this generalist lack is through education.
The great success of our creative industries owes much to the quality of our arts education and the stature of our leading arts colleges. Many of the people we have spoken to in the course of the inquiry described our world-leading creative education system as a national asset. The fact that the UK has had such a rich creative history – and the largest creative economy – owes much to the breadth and diversity of creative education. If this goes unrecognized it is all the more likely to be neglected in policymaking decisions.

This chapter will describe and map where and how design education is delivered at present; the UK’s unique strengths – what makes UK design education special; how this is intimately bound to our creative history as a nation; and how enhancing the widespread design capacity is equally as important as ensuring the continuing supply of design professionals. These last two objectives represent the dual goals of the report.

3.1 Teaching design
3.2 The origins and nature of design education in the UK
3.3 Where ‘design’ is delivered in the education system at present: the pipeline
3.4 Enhancing the national design capacity

3.1 Teaching design
As with most disciplines, there is an ideal, or perhaps a range of ideals, to which the formative process of design education should aspire. There are competing notions of how the design skillset should be nurtured, and there have been numerous attempts to define the learning process and its steps. A popular shorthand is ‘Discover, Define, Develop and Deliver’. Generally, the simplest approach to teaching people to think in this way is to simulate and repeat the designing process itself. Design education – at many levels – occurs through the posing and solving of problems.

One example provided by the D&T Association describes a Key Stage 2 project (age 10-11 years) to design and make a bridge that would cross a local canal. The bridge needed to fit with the local environment and provided a much-needed short cut to the shops for the local community. The children were given the width of the canal and a minimum load of 1 kg to represent people crossing the bridge. They were split into teams and assigned roles, designed and constructed their bridges, reported back, and were assessed on the success of their proposal.

From a very early age, design projects can incorporate learning and knowledge from many different areas. As the level of education becomes more advanced, the complexity of the problems posed and the requisite level of expertise and knowledge required increases.
Description of an HE design programme: Product Design
Bsc at Brunel University

Teaching
The third year programme looks at
- Innovation Management
- Human Factors
- Environmentally Sensitive Design
- Graphics
- Contextual Design
- Embedded Systems for Design

These themes are pursued through:
Practical design projects emphasise the application of technology throughout the course, with integrated project work playing a substantial part at all levels. In the earlier part of the course, design focuses on closely defined and monitored tasks which lead to more open-ended projects. As the course progresses, students have more opportunity to develop their own individual strengths and portfolios towards the design career of their choice.

Students are guided through a comprehensive workshop practice course as an integral part of their Level 1 studies. This gives a grounding in production processes and a feel for materials and their potential. Most importantly, students learn the craft skills needed to construct models and prototypes throughout the course.

Lectures provide a broad overview of key concepts and ideas relating to your course and give you a framework from which to carry out in-depth study.

One-to-one supervision is provided for all project work, throughout all levels.

Assessment
Knowledge and understanding are tested by means of a range of assessment tasks, including:
- written and multiple-choice examinations
- laboratory reports
- written coursework
- individual and group design projects
- problem-solving exercises
- oral presentation
- visual media projects
- computer programming exercises

Students are expected to discuss or demonstrate the approaches and methods used to solve design problems as well as their final solutions. In written activities students must research and critically analyse the material gathered, appropriate to the level.

Where practical skills are taught on the programme these are assessed by coursework requiring the application of the skill in question, eg workshop skills are tested by the production of various artefacts in wood, metal and plastic, and computing skills are assessed by the generation of suitable programs or models depending on the software used.

Reports and oral presentations in various modules assess written and oral communication skills. Self-organised learning is encouraged at all levels of the programme and increases as students progress, but is mainly demonstrated through the undertaking and completion of the Major Project.

Group projects are used in various modules, which will show the ability of students to work in teams.
3.2 The origins and nature of design education in the UK

Design education has developed alongside and slightly behind the emergence of design as an industrial practice. Design as a distinct practice grew – originally in the service of industrialisation – from the fields of arts, crafts, science and technology, eventually becoming a distinct discipline in the mid-20th century, and the development of training followed. To a certain extent this continues to be the case: service design training courses are now being developed when service designers have been plying their trade for some time.

The Design Research Society, in its submission of evidence, enumerates the strengths of the British system today. The longevity of the design education tradition is itself an important quality: we have a rich history of creative education, with a plethora of success stories and role models, and the system is now a mature one. It is unique in the range and breadth of design specialisms of which it can claim world-leading courses: fashion, textiles, jewellery, architecture, graphics, digital, industrial, product, service, etc. These have grown and proliferated as the industries they feed have become more sophisticated, and are perhaps now too numerous to list here.

In the Sixties and Seventies, a design education movement gathered pace. D&T was introduced as a foundation subject in the national curriculum, intended to replace the traditional subjects – woodworking, cooking – with something much more multi-disciplinary. Design courses were introduced into universities and polytechnics. Distinct art colleges sprung up. The movement to unify and expand the HE sector has now pushed most design education into an exclusively academic setting, opening up the possibilities for research and multi-disciplinary working. The UK has a strong STEM research base with which to collaborate. Design departments, appropriately, also tend to be enterprise themselves, understanding the importance of taking risks and integrating this within the curriculum. We boast high quality teaching staff, with most courses using sessional staff alongside core academic staff, thus developing communications between education and industry.

From a complex beginning has grown a system which is by nature disruptive and questioning of the status quo. The particular virtues of the system – qualities that have thus far eluded countries who are attempting to emulate them, such as China – have been variously described as eccentric, subversive, avant-garde, innovative, multi-cultural. Sir Christopher Frayling, former rector of the Royal College of Art, describes this as a certain ‘institutional bolshiness’.

3.3 School and general education

Design education in schools is delivered through two things: Art & Design and Design & Technology. As always, the quality of the education that is provided depends on the teachers and it depends on content. My experience over the last 10/11 years working with secondary schools around the country is that it’s ok in some places, it’s very good in others and it is not good at all in others.67

As design is as much about an approach to problem-solving as a body of knowledge, these are not necessarily the only subjects in which students can learn a designerly approach. For example, visual literacy can be developed through studying source documents in history. Critical thinking can be taught in English literature. Problem-solving through experimentation can happen in the Science classroom. However D&T and Art & Design are our primary focus here.68
D&T has the shorter history, and it is perhaps worth saying something about the educational gap it was conceived to fill. It was originally introduced as the subject in the new National Curriculum in 1988 – believed to be relevant and useful for all – that would develop in students the ‘capability to operate effectively and creatively in the made world’. It was intended to be multi-disciplinary, a place on the curriculum where students would bring and incorporate learning from other areas, and engage in a design process. Such a subject would enhance citizenship, engender critical appreciation of the ‘made world’, build on an innate human tendency to create and improve, and produce people who were effective economic contributors.

In terms of routes into careers, D&T is believed to help inspire enthusiasm for manufacturing and technical occupations, an important skills base for industrial growth. At its best, D&T does inspire, and develop design skills. However, for reasons we discuss in greater detail in chapter 5, it has not been an unqualified success. As an alternative to the efforts of making a thoroughly designerly education work within the curriculum context, entirely new models are being piloted at present.

The forthcoming wave of University Technical Colleges (there are 18 now in planning or operation), which take students from 14 to 19 years, structure themselves around a different educational model in which design is firmly embedded. Pioneered by Lord Baker, the original architect of D&T on the curriculum, they embody much of the same thinking that prompted that innovation in the Eighties – turning out young people who are three-dimensionally capable.

Studio Schools are another new state school model for 14 to 19 year olds, which seek to address the growing gap between what young people require to succeed in life, and the skills and knowledge that the current education system provides. Students learn the National Curriculum through ‘enterprise-themed projects’, which are developed with, and carried out by working with, local businesses and employers.

There are also, in response to the Department for Education’s invitation to establish entirely new ‘free schools’, a number of creativity-led schools in gestation. These are being developed by the Creative Education Trust with the express intention of proving, as some similar attempts in the US (see Chapter 4), that this approach can drive attainment in other areas, such as literacy and numeracy. The Design Commission awaits with interest the results achieved by these new institutions. But, as has been noted before, the value of free schools is primarily as incubators of a particular pedagogic practice. They are unlikely to have a cascading effect on mainstream education, precisely because they are operating outside of it.

We believe providing good design education in mainstream schooling is still a priority, especially given the need for greater design capacity amongst non-designers. Improving this capacity would have various benefits: helping people to be less dependent upon commercial industrial supply and state provision – ‘design as resourcefulness’; fostering citizenship through a better understanding and critical appreciation of the ‘made world’; and producing people who are more able to positively contribute to the economy.

There are also arguments for the positive educational externalities associated with having creative subjects embedded in general education. This is often believed to improve educational standards in other areas (the ‘Mozart effect’) as the brain prioritises ‘emotionally tinged information’ which is therefore more likely to be retained. More simply, it is unsurprising that students might engage

69 http://www.utcolleges.org/newsfolder/utc-announcement
70 http://studioschoolstrust.org/studio-schools
71 http://www.creativeeducationtrust.org.uk/
72 http://www.thersa.org/projects/design
73 President’s Committee on the Arts and the Humanities (2011), ‘Reinvesting in Arts Education’, p23
more in subjects that harness their natural creativity and allow for freedom of expression. D&T is often reported to have the lowest truancy rates.\(^\text{74}\) In the US, Obama has rubber-stamped an education policy for greater arts integration as a way of tackling the 25\% high school dropout rate.\(^\text{75}\)

Further, critical appreciation matters. The work of the Sorrell Foundation focuses on this aspect of design learning. Their projects aim to create a new generation of critical appreciators, and good commissioners, of design. This is important not only for young people to be able to negotiate the ‘made world’, but also, as Sir Christoper Frayling commented in his evidence to the inquiry, ‘an infrastructure of public understanding is required to sustain design.’ National cultural institutions such as the V&A, the Design Museum, the Science Museum, the Natural History Museum, and others, play a very important role in enthusing and educating people of all ages about design.

Whilst we need people who are skilled designers, we also need a greater number of people who understand design – how to commission and use it. Poor design understanding leads to poor decision making in many areas – not least in the administration of the built environment, which affects us all. It is equally important in business, as another contributor to the inquiry noted:

\[\text{Design is still seen by many non-designers as ‘styling’, which leads too many British companies to be poorer at commissioning than their counterparts elsewhere. This is why many British designers end up working abroad. There are too many Alan Sugars in the UK and too few Steve Jobs.}\] \(^\text{76}\)

In our earlier discussion of design skills, we identified a basic understanding of design as a necessity in the 21st century working environment. It is hard to see how a capacity to problem-solve creatively, and a critical eye for their environment, could not be relevant for everyone – regardless of profession, occupation, and ‘academic’ ability. Whilst not everyone needs to be a professional designer, most people will need to deal with complexity in their (working) lives.

\section*{3.4 Specialising: academia and employment}

Within Further Education and Vocational Education pathways, there are a small number of courses – comparatively few – dealing specifically with design. There are around 65 registered vocational qualifications on the Qualifications and Credit Framework that focus solely on design, although a greater number include design as some element of the course. Despite this, only six of these courses are NVQs (a status which confirms they deliver candidates with satisfactory occupational competencies). A new level 3 qualification, the Pre-University Art and Design, has been developed by the UAL awarding body for students who wish to progress on to degree level study in art and design. This has been designed for 16-18 year olds, and is intended as an alternative to the ‘A Level plus Foundation’ route into HE.\(^\text{77}\)

The Foundation Diploma in Art and Design (FAD), is something of an anomaly in relation to the rest of the education system. It corresponds to NQF Levels 3 and 4, but in reality it is the gateway through which many students – from both academic and further education backgrounds – access HE arts courses. At its best, this functions as an exploratory year, where students can pursue any number of creative or arts-based disciplines in order to find their niche before committing to a three year university degree. It can also be an excellent training ground in creative thinking and self-directed study. The Foundation course does not prepare students for work, and is solely used as a route into further university study. It has been noted that there is some confusion over the

\(^{74}\) Kimbell and Perry (2001) mentioned low truancy rates in D&T reported by OfSTED
\(^{75}\) President’s Committee on the Arts and the Humanities (2011), ‘Reinvesting in Arts Education’, Executive Summary
\(^{76}\) From DBA evidence to the inquiry
\(^{77}\) [http://www.arts.ac.uk/media/awardingbody/documents/Pre-USpec%20v0.6.26-09-11.pdf](http://www.arts.ac.uk/media/awardingbody/documents/Pre-USpec%20v0.6.26-09-11.pdf)
need for the FAD, with relation to entry onto design courses at university. As it is not specific solely to design, students can be left unsure as to whether the qualification is necessary to ensure their entry onto three year university courses.\(^7^8\)

At university level, there is a multitude of design courses which fall under the ‘design studies’ grouping.\(^7^9\) However, as previously noted, courses classified elsewhere – architecture and some engineering disciplines – are also primarily design-driven, and the reason for the distinction in administrative grouping is historical. For example it is not clear why interior design and architecture should be treated separately within the subject classification codes. Some institutions are beginning to group these subjects together in practice. London Metropolitan University is merging its architecture and design faculties, and integrating Metropolitan Works – its recently-opened technical facility – throughout this new faculty.

In 2010, there were approximately 20,000 graduates from ‘design studies’ courses, both undergraduate and postgraduate.\(^8^0\) 62% of people working in the design sector are now qualified to NQF level 6 (degree level). This is far above the average of the UK economy and therefore shows the level of higher education qualifications seemingly needed to gain entry or progress within the design industry.

Beyond undergraduate degrees are a plethora of post-graduate qualifications. As in other disciplines, as the body of knowledge grows larger, the wider the range of specialisms becomes. And the longer it takes for any one individual to reach the leading edge of their field.

Today’s designer is catering to a completely different world than the designer of the 19th and 20th centuries. The designer of the future will be different again. In response to the evolution of the uses of design in business and industry, interdisciplinary activity is becoming more prevalent. Design modules are being embedded into MBAs and business school curricula, and into science and engineering courses. Design departments are increasingly working with others within their own university on multi-disciplinary projects.

Following the rationale that, in order to innovate, individuals need to both develop expertise within one field, and be adept at working with experts from other disciplines, some higher education institutions are now offering multi-disciplinary Masters programmes. Northumbria University, a prestigious design school, whose alumni include Apple’s Jonathan Ive, is one such example. In 2008, the University launched 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. The course brings together students with a background in either design, engineering or business, and emphasises multidisciplinary collaboration.\(^8^1\)

The benefits of this kind of working are multiple. It enables knowledge transfer between businesses and university departments: now in its third year, the Northumbria course has already developed good working partnerships with a number of businesses looking for innovative input on some of the trickiest challenges they face. It generates revenue for both partners. It helps students understand the constraints of operating in a real business context. It enables students from different disciplines to learn from each other and appreciate the range of skills and differences between kinds of expertise.

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\(^7^8\) Creative and Cultural Skills, Level 3 Visual Arts Consultation – Draft Report, 2011

\(^7^9\) All design studies courses are coded W---. See Appendix for full and current list.

\(^8^0\) Taken from HESA statistics: Table 16 - HE qualifications obtained by subject of study(#1), level of qualification and class of first degree 2009/10

\(^8^1\) Northumbria University, Connecting for Impact, 2011 and http://www.northumbria.ac.uk/?view=CourseDetail&code=DTFMDI6
As Sir George Cox wrote in the Cox Review:

'We need business people who understand creativity, who know when and how to use the specialist, and who can manage innovation; Creative specialists who understand the environment in which their talents will be used and who can talk the same language as their clients and their business colleagues; And engineers and technologists who understand the design process and can talk the language of business.\(^\text{82}\)

Similarly progressive offerings have been developed at Design London (between Imperial College London Faculty of Engineering, Imperial Business School and the Royal College of Art); The Centre for Competitive Creative Design (C4D, between Cranfield University and the London College of Communication); ImaginationLancaster (between Lancaster University’s Management School and Lancaster Institute for the Contemporary Arts); The University of Nottingham Institute for Enterprise and Innovation (UNIEI); Nottingham Trent University (a masters open to students from five NTU schools: Art and Design; Architecture, Design and the Built Environment; Business, Science and Technology; and Animal, Rural and Environmental Sciences); Kingston University; and University College Falmouth (UCF).\(^\text{83}\) The challenge now is to make this way of working the norm rather than the exception.

A small but growing number of design departments also conduct advanced design research, an exciting and rapidly developing field. ImaginationLancaster is one such. Current activities including research into emergency management and response, data visualization and communication, responsive environments, design and health, sustainable regeneration, and the mechanics of knowledge exchange structures.\(^\text{84}\)
The UK has traditionally been a pioneer in design policy – one of the first countries to implement design promotion programmes – although there is no national strategy as such. Chapter 6 discusses the history of design in policy in the UK in more detail.

This chapter will discuss the development of design policies in other countries.

4.1 National design policies elsewhere
4.2 Design education policies elsewhere

4.1 National design policies elsewhere

In the last two centuries a generic process seems to have set in, with national economies industrialising initially on the basis of copying, poaching and appropriating skills and governments seeking to protect their nascent industries and encouraging them to move up the value chain. This has been widely evident in the US, Europe and East Asia. Recently, China has embarked on a very similar policy.  

Whilst economic performance and innovation scoreboards have existed for some time, making comparisons between countries regarding design capacity is not as easy. This is mainly because of disparities in what and how different governments measure when it comes to design. The Institute for Manufacturing at Cambridge University has published the first ever International Design Scoreboard. Although acknowledging that their results present a partial picture, they do confirm the suspicion that, whilst the UK still performs strongly in design education, other countries are catching up and overtaking quickly:

Korea, Singapore, Taiwan, China, Brazil and Russia are all emerging as important players in design globally...While the UK has well-established capabilities in design education and design employment, these are threatened by the steady shrinkage of the design services sector. Indeed, it has previously been speculated that design will follow manufacturing to the emerging economies, and this study appears to confirm this trend. Nations that have in the past competed on price and low labour rates are increasingly competing through design.

Internationally, design education is seen as a tool of either an industrial or innovation strategy, or both, and is normally a key element of a wider design policy. This section will look at a variety of approaches to design policy, before going on to discuss educational policies in particular.
Design promotion: 
Design promotion schemes are usually targeted at the wider public with the objective of raising awareness of the benefits of design through many different ways (such as exhibitions, awards, conferences, seminars and publications).

Design support: 
Design support programmes include schemes implemented to assist businesses in using design in order to improve their businesses (Raulik, 2004; Sung et al., 2007). Design support programmes usually have specific and more tangible outcomes than promotion schemes and work closely with businesses to achieve their objectives. As an example, these programmes build ‘bridges’ between design and industry (Dahlin & Svengren, 1996).

Design education: 
Education is targeted at designers and includes the traditional education (degrees and post graduate courses) as well as professional training.

Design policy: 
In general, policy can be understood as ‘a set of principles, purposes, and procedures about government intentions on a particular topic’ (Heskett, 2002). Design policy can be defined as the process by which governments translate their political vision into programmes and actions in order to develop national design resources and encourage their effective use in the country.

Design support, promotion and education are the main axis for fostering the use of design for competitiveness. However, to gain maximum advantage the implementation of these schemes should be determined by strategic plans or policies. Design policy is the fourth element in this context, which strategically guides the development and implementation of design programmes in a country.

‘National Design Systems’ — a tool for policy-making, Gisele Raulik-Murphy, Gavin Cawood, Design Wales, University of Wales Institute Cardiff

The range, combination and mode of implementation of design policies differ from place to place, but there are four recurring features, noted below.
Europe in general has had variable success at implementing policies, as noted by the SEE Project:

Despite few national policies for design, countries have been implementing design programmes for more than a century. Today, practically all developed countries have some national initiatives in support of design, although with varying levels of maturity.\(^90\)

The European Commission commented in its 2010 innovation White Paper\(^90\)

‘Design is of particular importance and is recognised as a key discipline and activity to bring ideas to the market, transforming them into user-friendly and appealing products. Although some European countries are world leaders in design, others lack a robust design infrastructure and design capability in companies and engineering schools. This systemic gap has largely gone unnoticed but must now be tackled.’\(^91\)

To tackle this gap, the European Commission has now (as of June 2011) established a European Design Leadership Board to investigate how design’s role in European innovation can be further enhanced.\(^92\) The results of this new initiative remain to be seen, but it is evident that other parts of the world have already overtaken Europe in the design promotion stakes. ‘The most advanced level of design policy is a dedicated design policy or strategy, with objectives, targets and actions agreed at ministerial level’,\(^93\) and this approach can be seen in places like Singapore, Hong Kong and South Korea.

Broadly, the intention of most countries pursuing aggressive design policies is to move up the industrial value chain. There are many examples of this working very well, not least in our own country. Post-war investment in the UK led to some mid-20th century design icons.

In Finland, the recession in the 1990s was tackled by policies with long term impacts, which included a huge investment in R&D and a national design policy. This was based on a survey on the impact of design for innovation, industrial and economic development by Sitra, Finland’s National Innovation Fund, and resulted in a plan called Design 2005! This policy had three main goals: ‘to improve design quality; to promote extensive use of opportunities inherent in design with a view to improve competitiveness and employment; and to develop the quality of the living environment and promote a distinctive national culture.’\(^94\) In 2005, designated the ‘Year of Design’, ‘they invested C$40.9\(^95\) million in design research, education and promotion. This investment in design has dramatically improved Finland’s global competitiveness.’\(^96\) The Finns essentially designed themselves out of a recession: Nokia is a good example of one of the key industrial beneficiaries of this policy.

South Korea has one of the most pro-active design strategies of any nation. Over the years between 1993 and 2007 the government, under the auspices of the Ministry for the Knowledge Economy, has implemented three iterations of the Comprehensive Plan for Industrial Design Promotion. It is this aggressive approach to embedding design for competitiveness that led to the re-orientation and global success of companies such as LG and Samsung. Over the years

\(^89\) http://www.seeproject.org/policyinnovationdesign
\(^91\) Ibid., p.23
\(^92\) http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=action-points&view=all
\(^93\) http://www.deaca.dk/file/166262/mapping_of_design_policies.pdf
\(^94\) Raulik-Murphy, Gisle; Cawood, Gavin, Larsen, Povl, Lewis,Alan, A comparative analysis of strategies for design in Finland and Brazil, 2009
\(^95\) Douglas MacLeod, Larissa Muller, David Covo and Richard Levy (2007); Design as an Instrument of Public Policy in Singapore and South Korea, Asia Pacific Foundation of Canada
\(^96\) Ibid
since they instituted a national design strategy, the focus has begun to shift from increasing industrial competitiveness to ‘the public realm — from the design of street furniture and mass transportation to public documentation and textbooks.’ Seoul was thus the first designated World Design Capital (WDC). This is an initiative that celebrates cities which utilise design in social, cultural and economic settings to increase the liveability, efficiency and attractiveness of a city. Work is now well underway in the city for the completion of the 85,000 m² design park (by British practice Zaha Hadid Architects), which will combine a commercial exhibition hall with a design museum, and design centre. The Korean Institute of Design Promotion has a programme called Good Design, running since 1985. The selection of winners is used to promote awareness of design and encourage innovation. It is also a key part of the Government’s procurement strategy.

Other countries have seen such examples and pursued similar strategies. The instances that follow – Singapore, Poland, India, and China – are a small selection from a very long list.

Singapore’s design policies aim to engage SMEs in using design strategically, with, for example the Design Pioneer Programme. This programme targets companies to incorporate design into their business strategy. It also ran several programmes to raise public awareness. One of these was ‘10 Touchpoints’, in which the public nominated products which needed redesigning to improve quality of life. An open competition was then launched to redesign these products. In this way, the public was involved in recognising and challenging design issues.

In Poland, the government has recognised design ‘as one of the strategic elements for the country’s development’, and as part of their innovation strategy for the period 2007-2013, ‘€186 million has been allocated solely for industrial design support’. Further, the Ministry of Higher Education ‘chose design as a strategic discipline and allocated extra funds for the support of design universities.’

India aims to establish and nurture ‘a culture of value adding through design for the nation’s economic and social growth.’ Their National Design Policy, established in 2007, is overseen by the Ministry of Commerce and Industry, and delivered by the India Design Council. IDC has three main areas of focus:

(1) benchmarking Indian design education; (2) studying and recommending tax incentives for investment in design related R&D in industry and research institutions; and (3) design promotion and the implementation of a good design-selection system by introducing the “India Design Mark”.

And it would be remiss here to not mention China, given the concerns that its rapid industrialisation seems to provoke. As is often noted, as this vast nation continues to prosper, there is a widespread and government-backed move to ‘reposition China, and particularly Beijing, as a place where ideas are created rather than appropriated. As the well-worn saying goes, we want to replace the words ‘Made in China’ with ‘Designed in China’.

In September 2010, the Chinese government drafted a policy ‘reposition China, and particularly Beijing, as a place where ideas are created rather than appropriated. As the well-worn saying goes, we want to replace the words ‘Made in China’ with ‘Designed in China’.” In September 2010, the Chinese government drafted a policy ‘specifically to encourage manufacturers to adopt industrial design practices.’ In developed and developing economies design is thus intrinsically

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97 Douglas MacLeod, Larissa Muller, David Covo and Richard Levy, Design as an Instrument of Public Policy in Singapore and South Korea, 2007
98 Helsinki will be World Design Capital 2012, with the theme of ‘Design embedded in Everyday Life’. WDC in 2014 will be Cape Town, themed ‘Live Design. Transform Life’
99 Douglas MacLeod, Larissa Muller, David Covo and Richard Levy, Design as an Instrument of Public Policy in Singapore and South Korea, 2007
100 Michal Stefanowski, President, The Association of Industrial Designers (SPPF), www.sppf.diz.pl , in See Bulletin Issue 3, May 2010
101 http://www.seeoproject.org/map
102 http://www.ft.com/intl/cms/s/2/d68614ec-e2be-11e0-897a-00144feabdc0.html#axzz1db0QvR7b
linked to innovation and industrial policies, and recognised as a lever for economic growth.

Many countries have now understood and implemented design-for-industry policies, and to succeed as a first world manufacturer, the UK needs to boost design capacity in the same way. But the next, more interesting, and as yet underdeveloped field is design for governing, and for tackling social and systemic problems. This means conceiving of the state and society as relational, the whole as a constructed system which, although complex, can be (re)designed; and it means conceiving of design as a process for shaping strategies and decisions.

*The definition of design and its role in the world continues to evolve. Broadly speaking conventional definitions of design revolved around shaping objects and symbols, but more and more design is also expanding into shaping decisions; the latter is how we define strategic.*

If we want to continue to compete as a manufacturing nation we should pay attention to what the Asian and Latin American countries are up to. If we want to continue to lead in design thinking, the competition is slightly closer to home, especially the Nordic countries. Design for governing is also a theme in US discussions of design policy ('Policy as Designed'), although the US as yet has no National Design Policy.

The three (soon to be four) iterations of Denmark’s design policy demonstrate neatly this move downstream. The first looked at how policymakers could promote design uptake in companies to improve competitiveness. The second extended this to emerging markets and social design. The third emphasised the importance of strategic design for public bodies pursuing user-centred development projects. The next one is expected to place an increased priority on design research.

Finland has also made inroads on theory and practice in the area of design for governing. As noted by Thomas Lockwood of the DMI Journal:

*Last winter, the government of Finland invited me to participate in a Government Meets Design three-day workshop in Helsinki. A relatively small group of 120 people from around the world was selected to look into topics from innovation to leadership, education, sustainability, and policy. They picked architects, sociologists, policy makers, business executives, entrepreneurs, industrial designers, communicators, engineers, and, yes, design managers to help them probe into the future. I found it … encouraging that a national government would sponsor such an event.*

Sitra describes its work as design *within* government rather than designing *for* government, ‘using design to create policies’. It has a think-and-do tank, the Helsinki Design Lab, which has just published a very well-received book called *Recipes for Systemic Change*. This documents a series of ‘studios’, which applied strategic design to governmental challenges. As well as being an acute assessment of the nature of knowledge, professional expertise and systems of governing in the 21st century (all predominantly siloed), Recipes for Systemic Change provides some good concrete examples of the design process applied to typical challenges for government. Their education studio, starting with the problem of school dropouts, identified as key to this problem the underlying question of how to transform the Finnish education system from the existing one – oriented to 19th century world – to one better suited to 21st century needs. The book describes

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106 This account paraphrased from one given in SEE Bulletin Issue 6: June 2011
107 http://www.dmi.org/dmi/html/publications/journal/fullabstract_d.jsp?itemID=10214LOC05
other studios and their outcomes, and also provides a loose guide to setting up and running a similar process. The interesting thing about this approach is that the outcome is akin to what might shape a white paper, and yet the evidence-gathering process is wholly different.

The Design Council has similarly begun to push its practice into new areas and developed a number of similar projects, bringing together multi-disciplinary teams to tackle particular problems; most recently, looking at ways to reduce aggressive incidents in A&E departments. By acting as a broker, the Design Council can circumvent public procurement process requirements that would normally hinder this kind of exploratory project. But there are also a small number of independent practices pursuing similar ends with and for government. The Innovation Unit recently started a project looking to design a pathway that helps re-offenders (with substance misuse and alcohol problems) in order to stop them from committing criminal acts. However the findings, and principles behind, such projects, would have even greater value – and this constitutes the difference between Sitra/ HDL and Design Council’s work – if they could be truly internalised by government, and established as recognised ways of proceeding, rather than special projects.

4.2 Design education policies elsewhere

Policies specifically relating to design education vary tremendously between countries, reflecting cultural norms and expectations regarding education in general, and the propensity of governments to see their education system as a tool of industrial policy.

The cutting edge of design education internationally is interdisciplinary practice – at whatever level. Once again, the Finnish system performs across the board. It consistently does well in the OECD PISA tests, coming out on top in 2006 and in the top three for maths, reading and science in 2009.108 This success is normally attributed to a mixture of very high quality teachers (related to the high degree of autonomy given to schools and teachers), the high cultural value placed on education and learning (and reading particularly), and high levels of state spending on education: slightly above the OECD average.109

The Finnish system also demonstrates an interesting point about how achievement in literacy and numeracy often go hand-in-hand with creative approaches to teaching. Literacy and numeracy scores are more likely to be high when students are engaged and interested in their own education. And this engagement is more likely to happen when there is room for development of the individual – imparting skills rather than notions. If the system is already accomplished at turning out creative individuals, this can be seen to be a direct result of an approach to teaching which values equality and autonomy of teachers and pupils, and provides a learning environment that is conducive to creative development of the individual.

Additionally, Finland, as the other Nordic countries, has a much stronger craft history than the UK, and design is generally well understood in comparison. As a representative of the Dansk Design Centre recently commented to a London audience, ‘in Denmark design is practically in the mother’s milk.’ Still, the Design 2005! plan recognized a need to improve design education in Finland, and both the Ministry of Trade and Industry and the Ministry of Education take an interest in improving design education at school, in higher education, and in better integrating it in technical and business training.110

109 http://www.pearsonfoundation.org/oecd/finland.html
110 http://npa.ktpmalta.com/resources/Finnish_Design_Policy.doc
In the States, there are a number of interesting educational initiatives around primary and secondary level education. These tend to explore new structures and modes of teaching (often interdisciplinary) – integrating design or the arts across curricula.

The President’s Committee on the Arts and the Humanities has published the results of an inquiry into the impact and benefits of ‘arts education’. This is slightly broader than our subject of design, but there are a number of interesting parallels. This report takes as a given that ‘creative habits of mind’ are necessary for the 21st century, and suggests that learning ‘with’ or ‘through’ the arts is a more reliable way of students achieving this. The other benefits are listed as increased motivation and engagement of pupils (a key issue in the States where the average high school dropout rate is 25%), improved attainment in literacy and numeracy, improved ability to transfer skills between areas, and greater development of social competencies (collaboration, teamwork, tolerance, confidence).

The report cites a number of existing initiatives, including A+ Schools and Project H.

### A+ Schools (US)

The A+ School programme is a whole school reform model introduced in North Carolina in 1995. The programme was introduced to 25 schools initially and grew to 45. The model views the arts as fundamental to teaching and learning and aims at establishing a network between pupils, teachers, parents, administrators, etc that enables the school to ‘work for everyone’. The rationale is that by changing some aspects of how the school practice, other areas will be positively affected and therefore cause gradual reform throughout the entire school. The main emphasis is on incorporating arts education in all subjects and pupils are instructed in one of the arts subjects everyday, and in each subject at least once a week. Children are taught in an interdisciplinary way, including art in every aspect of learning. Evaluators have identified the contribution of the arts based approach to teaching as highly contributing/the children’s intellectual, social and emotional growth.

### Project H (US)

Project H is a small team of designers, builders and teachers who have established a high school programme in Bertie County in North Carolina. The programme works with pupils in year K-12 on one community programme per school year. Pupils are required to identify a project within their own community through ethnographic research and then spend three hours a day in the design studio (within the school) to brainstorm, visualise, prototype etc. The project then gets build by the pupils over the summer period, for which they get employed by Project H. (the “H” stands for the core values that guide our work: Humanity, Habitats, Health, Happiness, Heart, Hands, and more)

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111 President’s Committee on the Arts and the Humanities (2011), ‘Reinvesting in Arts Education’
113 [http://www.projecthdesign.org](http://www.projecthdesign.org) and [http://www.ted.com/talks/emily_pilloton_teaching_design_for_change.html](http://www.ted.com/talks/emily_pilloton_teaching_design_for_change.html)
Both Singapore and South Korea are re-examining design education as they move towards a more interdisciplinary and comprehensive approach. In Singapore, design had traditionally been more closely allied to technical education. Now, when the government is aiming to create a national culture of design, it is valued across all education. Singapore’s strategic blueprint (Dsg-II, 2009-2015) focuses both on the need for delivering

the quantity, quality and right type of professionals to support Singapore’s aspirations to be a global city for design, and in nurturing the next generation of discerning design consumers who would understand and demand good design.

To deliver this requires an approach to the whole education system:

Design Singapore Council is working with the relevant governmental agencies to ... redefine and introduce design learning at both secondary school level, high school level, university level and in the continuing education and training programs for the Singapore workforce.\(^{114}\)

Children are exposed to design education programs in both elementary and secondary school. ‘Design and technology’ is compulsory in lower secondary school levels and remains optional thereafter.

As mentioned already, education for the 21st century will increasingly have to be interdisciplinary. Although there are no apparent moves to instigate this in mainstream schooling in the UK, we do have a strong and growing group of interdisciplinary institutions and courses in higher education.

The Finns, however, have gone one better and established the first wholly interdisciplinary university, Aalto University in Helsinki. This new institution is the result of a merger between The Helsinki School of Economics, Helsinki University of Technology and The University of Art and Design Helsinki. The venture builds on Finland’s experience of using design to pull the national economy out of recession in the early 1990s: they have named their new institution after, and are thus striding into the future on the reputation of, one of their most famous 20th century designers, Alvar Aalto.

*The Aalto University focuses its research on major global issues. The merger is planned to create new research environments with larger research programs or units through themes that require a cross-disciplinary approach.*

The University’s funding comes from a foundation, but one that has been built from a combination of public and private money:

*Capital will be accumulated in stages between 2008-2010 by a Government donation of EUR 500 million and donations of at least EUR 200 million from Finnish industries and other financiers.*\(^{115}\)

Singapore’s policy for universities is to

move towards a more holistic, multidisciplinary design education and... at the same time, to embed design in the teaching and learning of other disciplines and capabilities, such as in business and engineering schools\(^{116}\)

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114 Quarz + Co, Mapping of international design policies and strategies for leading design schools and research institutions, 2011, p22
115 Quarz + Co, Mapping of international design policies and strategies for leading design schools and research institutions, 2011
116 Singapore Design Initiative, p2, quoted in: Douglas MacLeod, Larissa Muller, David Covo and Richard Levy, Design as an Instrument of Public Policy in Singapore and South Korea, 2007
In line with this, the government announced in 2005 that it was opening ten new specialist institutes with a design focus.\textsuperscript{117}

Korea’s approach to design education has shifted from a purely art orientation to a more interdisciplinary approach that combines art with humanities (such as design marketing), science (such as multi-media design) and engineering. The current five-year Design Promotion Plan, which runs from 2008-2012, focuses on ‘Fostering Globally Competitive Designers and Fostering Multi-disciplinary Education Courses.’ The latter strategy is primarily focused on undergraduate courses, with eight universities receiving funding and developing curricula, but it is thought that the next iteration of the design promotion plan (2013-2017) will extend this to postgraduate courses also.\textsuperscript{118}

In China, there are now ‘1275 universities and colleges in the country, with design courses producing over 300,000 design graduates per year.’\textsuperscript{119} Design is the third most popular university subject, after English and Computer Science.\textsuperscript{120}

Finally, it is notable that in places like Korea, Singapore and China, businesses are keen to either invest in, or develop links with, HE, and primarily as a route to securing the future designers they will need. The Samsung Art and Design Institute (SADI) is one such example: a private design school, offering a three year programme, funded by Samsung.
This chapter describes a number of concerns around the future of design education in the UK, some of which were the motivating factors behind setting out on the inquiry, and some of which emerged throughout the process. They are:

5.1 Limited understanding within Government
5.2 Inadequate metrics
5.3 The National Curriculum Review and the English Baccalaureate
5.4 Do schools stifle creativity?
5.5 Reinvigorating design in school
5.6 HE: Funding
5.7 HE: Ensuring quality and relevance
5.8 HE: Competitiveness

‘Art and Design is at an interesting crossroads. It is lauded for being a good working blueprint for design education internationally, whilst at the same time needing to justify its position in the UK as a part of the new knowledge based economy.’

5.1 Limited understanding within Government
Design is seen to be poorly understood and represented within Government in the UK. This means that politicians and policymakers do not talk about design a great deal, send mixed messages about what they value, and develop contradictory policies with regard to design.

Many respondents to the inquiry’s call for evidence complained that design and creativity are not recognised strongly enough by the Government as drivers of growth. Whilst the importance of the creative and cultural industries for the UK is repeatedly emphasised, not including any of them as ‘priority subjects’ for teaching funding at university, and cutting teacher training numbers for art and design in 2011-12, sends a contrary message. This would perhaps conflict with what Government believes itself to say and do – George Osborne’s March 2011 budget statement ended in praise of British design. This is at least a step in right direction. If the Chancellor were to mention design in every budget speech, it would help improve awareness of design as a relevant skillset. But in reality the problems are deeper than language.

Evidence submitted to the inquiry suggested there may be some contradictions between current departmental policies.

For example, there is a risk that the Department for Business’s attempts to boost innovation and manufacturing, and to reinvent the image of careers in industry, may be hampered by the Department for Education’s renewed focus on distinguishing academic from vocational subjects. This threatens to perpetuate the culture of first and second rate students, identifying subjects like D&T as only appropriate for the latter. Across all industries at present the UK is seeing a shortage of higher level technical skills (although actually this is not especially true of design), and more needs to be done to encourage young people to see a technical route as a worthy pathway.

Another example: on one hand, whilst UKTI is working hard to invest in the growth of new digital

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121 Andrew Selby, evidence to the inquiry
industries, as with Tech City, on the other hand the Department for Education is considering removing core curriculum status from the school subjects most needed to support those industries – Art, Design & Technology, ICT.

It does not help that ‘design’ is administered by two ministries – Culture Media and Sport, and Business Innovation and Skills – and also affected by decisions made in a third – the Department for Education. Whilst this seems to be normal practice all over the world, with the responsibility for design policy shifting gradually from the portfolio of ‘culture’ to ‘enterprise’ or ‘industry’, it is all the more likely to lead to mixed messaging and poor co-ordination between policies. Education, equally, is split between ministries:

There is a real problem in the fact that we have two different government departments for education. One of which, of course, is the Department for Education and the other is the Department for Business, who are responsible for universities. This really is a problem if, like me, you work right across the piece through primary, secondary and further and higher education because you cannot have a single conversation about design with anybody.  

But even within departments, there are signs that design is perhaps not understood as it should be, as noted by Will Hutton recently:

The growth of intangibles makes the hook-up between the scientific, and the experiential wants and needs of the user. Do we really get the point that design bridges technology and experience? 

It seems the result of numerous statistical studies is that policymakers have learned to say things like, ‘design contributes £8.25 billion GVA’, but without fully believing it, and perhaps because they don’t truly understand why.

Government has tended to view the STEM disciplines – upping the numbers of STEM graduates – as the lever for boosting innovation. But this is an incomplete picture and there is a limit to how far it will work. The relationship (of STEM skills) to invention is undeniable, but this reflects only a portion of innovation processes. Other necessary skills include design skills, communications skills, and commercial skills. Prioritising STEM without design was frequently cited by respondents as shortsighted.

This gap in knowledge leads to problems. As mentioned above, Government has shown itself to be very keen on encouraging new industries, start-ups, entrepreneurial activity. To support the cluster of innovative, largely digital, but almost always creative, businesses developing in and around East London, UKTI has established the ‘Tech City Investment Organisation’, which is overseeing the development of this burgeoning local business ecology. However the digitally-focused language used to describe and promote this cluster omits the crucial contributions of other creative industries. The importance of design in particular is rarely mentioned, in spite of the fact that 46% of these new and growing businesses locating around Silicon Roundabout class themselves as ‘digital design businesses’. If this is true of the flagship digital cluster initiative, it is equally likely to be true of others.

124 Sir John Sorrell, evidence to the inquiry
126 Levy, Charles, Sissons, Andrew, Holloway, Charlotte, A plan for Growth in the Knowledge Economy, 2011
128 Cities Institute, Mapping the Digital Economy
It is exactly these industries Government should look to for creating growth, but nurturing this kind of cluster is of course reliant upon a decent understanding of its character. There have in the past been comparisons with Silicon Valley, and believing Old Street to be the epicenter of its European counterpart, the name ‘Silicon Roundabout’ attached itself to the cluster. This label has some value in as much as the word ‘silicon’ carries connotations of innovation, but in more literal terms it’s not a great fit. The hybrid mix of digital and creative industry in London is more culturally diverse than the Californian counterpart, both in terms of economic profile and community.

With instances like this, there is a sense that Government is somehow blind to the UK’s greatest strengths.

5.2 Inadequate metrics

In fact, in some ways design is largely invisible to policymakers – as the standard system for analyzing the economic output of industrial sectors is ill-equipped to measure design. This is true for all the creative industries. One of the main criticisms in the Demos report ‘Risky Business’, is the skewed – or non-existent – picture of the creative industries generated by data taken from Standard Industrial Classification (SIC) codes, data on which Government is reliant for generating industrial policy, and from which all sorts of other analysis is driven.

Standard Industrial Classification codes, which were brought into play in the UK in the mid-20th century are ‘an agreed listing of the elements of the economy, based on a fundamental split between manufacturing and services, and using a characterization such as the final product’. The picture presented by this split was simplistic on its introduction, but now, this division into ‘people who make and people who serve is not a good reflection of current industrial organisation’.

Whilst Government has paid a certain amount of lip service to the creative industries, a proper grasp of the matter is still lacking. This has serious implications. Ministers are happy to attend London Fashion Week shows, welcome the UK’s top designers to receptions at No. 10, and mention design and the creative industries in speeches on growth. But they get little real resource, as noted in Risky Business,

(whilst) all the significant policy initiatives that might support businesses in the sector originate from BIS, BIS has no civil servants in its enterprise team focused on the creative industries... No civil servant at BIS has a specialism in (for example) fashion, although there are 15 civil servants focusing on retail, services and construction. By comparison, the department has 19 civil servants specialising in aerospace, marine, defence, manufacturing advisory service, 21 civil servants specialising in automotive, advanced manufacturing showcasing and 33 civil servants specialising in electronics, materials, chemicals. And yet, the contribution to UK GDP of the car manufacturing and chemical manufacturing industries are each half the size of fashion’s contribution, at £10.1 billion and £10.6 billion respectively. When will there be a team of 20 civil servants at BIS specialising in fashion manufacturing, retail and export, as is appropriate for a sector of its size? How much more would the Government know about the sector, and how it might assist it, if Whitehall had such expertise?

130 Demos, Risky Business, 2011, p33
Martin Bright of New Deal of the Mind explains the neglect of the creative industries slightly differently:

>If this (impressive economic performance) has not won its business leaders a place at the top table in debates on “the future of the British economy”, that is largely because, unlike banking or manufacturing, it has no big industry champions, few multi–millionaire presidents or CEOs and only a handful of well–known spokespeople.\(^{131}\)

It is hoped that the work of the newly-established Creative Industries Council may address some of these shortcomings.

Design is disadvantaged by similar afflictions to the wider creative industries grouping. It is under the radar, in terms of economic accounting through SIC and SOC codes. Not only are its disciplines not accurately reflected, there is no way of recognising in this system the design elements within other non-design industries.

Design, as a skillset, a service, a process that can be put to use in many ways for many industries, underpins many of the other creative industries. ‘Design’ is an inherent part of fashion, architecture, or advertising. So whilst ‘design’ has become a set of industries and professions in its own right, the content that these professions generate is often in the service of a third party. That third party may be one of the other creative industries, or it may be something else entirely: a law firm, an investment bank, a food and drink manufacturer, a local authority. For example, the value generated through advertising and branding, at present one of the UK’s leading industries, is partly driven by design skills, which explains why ‘communications design remains the dominant discipline in the UK, followed by digital and multimedia design’\(^{132}\). Much economic analysis finds it very hard to capture this embedded value, in spite of what we might know intuitively, or from experience, to be true.

### 5.3 The National Curriculum Review and the English Baccalaureate

Most respondents expressed concern that the direction being taken by the Department for Education, as signalled through the National Curriculum Review and the English Baccalaureate, is out of kilter with the needs of students, and the kinds of skills and knowledge they will require in their working lives. Art, design, technology, and ICT’s place on the timetable looks to be at risk. In spite of the fact that many of them are facing teaching funding cuts, most university departments who responded cited as their greatest concern the quality of creative education at school.

The Crafts Council’s response is representative of a much wider view:

>Recent initiatives, including the framework of the National Curriculum Review, the introduction of the E-Bacc, recommendations in the Wolf Review and declining numbers of arts teacher training places in 2011/12, signal a renewed emphasis on a core of academic subjects and threaten the provision of practical and cultural education in schools.\(^{133}\)

There is already evidence of a drop in provision of D&T timetabling, believed to be as a result of the emphasis the EBacc places on traditional academic subjects.

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131 Gunnel, Barbara and Bright, Martin, Make a Job Don’t Take a Job, n.d.
132 Design Council, Design Industry Insights 2010
133 Crafts Council, evidence to the enquiry
Results of an NAS/UWT survey\textsuperscript{134} with 2,400 respondents reported that:

\begin{quote}
  in relation to all subjects excluded from the EBac, the proportion of teachers indicating plans in their school to decrease provision in these areas exceeded those reporting a planned increase to a significant extent. Particular issues in this regard were highlighted in the case of ICT, where 15\% of respondents reported that their school planned to reduce provision, as well as in design and technology, where intended reductions in provision were reported by 17\% of those surveyed.\textsuperscript{135}
\end{quote}

This is consistent with a study commissioned by the Government from the National Centre for Social Research, which found that

\begin{quote}
The EBacc is increasing the proportion of pupils at GCSE stage focussing on ‘core academic’ subjects. 33 per cent of pupils taking GCSEs next year will take a combination of subjects that could lead to an EBacc; 47 per cent of pupils taking GCSEs in 2013 will be doing a combination of subjects that could lead to an EBacc.
\end{quote}

Although the government may view this as a positive change, the Education Select Committee expressed concerns about the distorting or narrowing effects of the E-baccalaureate on a broad education.\textsuperscript{136} The Committee said that the decision not to include music and the arts in the EBacc ‘could be seen as odd in light of the Government’s view that ‘Involvement with the arts has a dramatic and long-lasting effect on young people.’ Both the Education Select Committee, and the CBI in a report on skills for the creative industries, recommend that at least one so-called ‘creative’ subject be included in the portfolio of subjects for which the E-baccalaureate is awarded.\textsuperscript{137}

Reduced provision of practical, cultural and creative education is a real concern for the design industry, problematic in terms of the supply and flow-through of people with the requisite interests and skills to become professionals. But it should also be of concern that design skills – if, as we have argued, they are a 21st century necessity – are not being developed to some degree in all students. Beyond staffing the design industry, there is a need for creativity and the dynamism of design education to be harnessed to influence other industries and sectors.

It was notable in the responses to the call for evidence that numeracy and literacy skills were sometimes found lacking by employers of design graduates. This is consistent with a much wider concern about general levels of literacy and numeracy in the UK. OECD data suggests the UK is falling behind other nations – coming 25th for reading, and 28th for maths, out of 65 countries assessed in 2009.\textsuperscript{138}

This is alarming and the Government is right to be concerned about these fundamental skills. But it does not necessarily follow that outcomes will be improved by stripping back teaching time on other subjects to focus more narrowly on the ‘3 Rs’, and enforcing more rigorous assessment. The evidence presented in \textit{Reinvesting in Arts Education}\textsuperscript{139} points to creative education itself as a way of improving outcomes in other areas (like literacy and numeracy): this is the theory behind a number of creative-led schools in the US, and a few that have recently opened in the UK. There is a similar culture behind impressive educational outcomes in the Nordic countries: more tests are not necessarily the answer.

\textsuperscript{134} The NASUWT (National Association of Schoolmasters Union of Women Teachers) is a trade union representing teachers, including headteachers, throughout the United Kingdom.
\textsuperscript{135} NASUWT, English Baccalaureate Survey Summary, p4
\textsuperscript{136} Education Select Committee, The English Baccalaureate, 2011
\textsuperscript{137} Education Select Committee, The English Baccalaureate, 2011 and CBI, Skills for the creative industries, 2011
\textsuperscript{138} CBI, Skills for the creative industries, 2011
\textsuperscript{139} President’s Committee on the Arts and Humanities, Reinvesting in Arts Education, 2011
5.4 Do schools stifle creativity?

500 students were asked what they valued more in teachers, and creativity came out as one of the most valued items. Moreover, it was found that creativity was linked to teachers’ effectiveness. (Milgram, 1990)

Creativity now is as important in education as literacy, and we should treat it with the same status. (Sir Ken Robinson, 2006)

As the quotes above indicate, there has been a debate raging for some time about how the structure and delivery of education, in its most widespread form, can promote creativity. Evidence suggests that most contemporary systems are ill-equipped to do so.

Despite the assumption that creativity is the current icon of the educational world the claim is that schools and educators actually kill creativity. This is because in formal education there is a tendency to look for an “answer that is known before the question is posed”, thus depriving pupils from investigating the issue by themselves... Teachers prefer learners who have characteristics that are in sharp contrast with creative personality traits.

The idea that school systems might actually be stifling creativity is not new. As noted eloquently by Sir Ken Robinson in one of the most-viewed TED talks of all time (a sign that the idea resonates with a large number of people):

If you’re not prepared to be wrong, you’ll never come up with anything original. And by the time they get to be adults, most kids have lost that capacity. They have become frightened of being wrong. We also run our companies like this. We stigmatize mistakes. And we’re now running national education systems where mistakes are the worst thing you can make. The result is that we are educating people out of their creative capacities.

This is not just hyperbole. There is evidence that the creative capacities of nations and individuals is declining. In the States, surveys of national results of The Torrance Test, which is commonly used as an indicator of creative ability, show that creativity scores have been steadily falling:

after analyzing almost 300,000 Torrance scores of children and adults... (the research team) found creativity scores had been steadily rising, just like IQ scores, until 1990. Since then, creativity scores have consistently inched downward. “It’s very clear, and the decrease is very significant,”... It is the scores of younger children in America—from kindergarden through sixth grade—for whom the decline is “most serious.”

Robinson suggests that how we measure success in school is antithetical to encouraging creativity, and this is as true in the science laboratory as it is in the art room. Meeting specific learning outcomes has to be measurable, which does not always sit easily with the art of encouraging enquiring, questioning minds. This is symptomatic of the fact that most current systems and their modes of assessment are based on principles developed to prepare learners for an archaic concept

140 Ferrari, Anusca, Cachia, Romania and Punie, Yves, Innovation and Creativity in Education and Training in the EU Member States: Fostering Creative Learning and Supporting Innovative Teaching, Literature review on Innovation and Creativity in E&T in the EU Member States (ICEAC), 2009
141 Ken Robinson, Ken Robinson says schools kill creativity, TED Talk, 2006
142 Anusca Ferrari, Romina Cachia and Yves Punie, Innovation and Creativity in Education and Training in the EU Member States: Fostering Creative Learning and Supporting Innovative Teaching, Literature review on Innovation and Creativity in E&T in the EU Member States (ICEAC), 2009
143 Ken Robinson, Ken Robinson says schools kill creativity, TED Talk, 2006
of the workforce, 'to prepare students for a focused, task-specific form of attention demanded by the late-19th-century assembly line and then, later, by the similarly hierarchical and regulated corporation.' There is a wide structural reorganisation required to shift education systems from 19th to 21st century practices, from siloed to interdisciplinary working. As we explore further below, it is apparently difficult to make design work, as a curriculum subject, within such a siloed system.

Over the past century the UK has stopped nurturing its polymaths. - Eric Schmidt

Design is also conceptually difficult for a system that prefers to class students as ‘arts’ or ‘science’, not fitting entirely into either camp. The persistence of this entrenched idea about the cultural separation of the arts and the sciences is depressing. Maths and Art, for example, make an excellent basis for many careers, not least – as noted in NESTA’s Next Gen report – the strategically important industries of games, digital design and special effects. They are also perfect prerequisites for many design disciplines. This problem should not be hard to reverse: often it is as simple as schools arranging timetables in such a way that students are forced to choose between a broadly arts-based route, and a sciences-based route, or not.

5.5 Reinvigorating design at school

Critics of the D&T experiment note that it has been stymied by the requirements of performing within the curriculum. These problems have been well summarised by an RSA-commissioned pair of papers, examining how D&T has fared over the 23 years of its existence. The work was undertaken in response to the current review of the National Curriculum, and the introduction of the English Baccalaureate, both of which have challenged D&T’s centrality as a core curriculum subject. What's Wrong With D&T? and the complementary Review of Literature on Design Education in the National Curriculum indicate that there is almost a systemic problem with D&T as it is currently delivered within the parameters of the National Curriculum.

_It has been pre-occupied with assessment and content prescription to the extent that it has failed to resemble the logical and instrumental but essentially open-ended process of design._

If D&T has had a hard time living up to its original ambition – to be a cross-disciplinary synthesiser of learning acquired in other areas, and an opportunity to investigate new problems – it is perhaps because teaching and learning in that way has proved too unpredictable to be manageable within the curriculum model.

Design work ought, of course, to be assessed, and we are not arguing against assessment per se. Rather it is a question of what is being assessed. Picking the wrong metrics means limiting subjects like D&T and Art & Design: students ought to be judged on their ability to respond creatively and productively to a brief, rather than their ability to follow some predetermined process, or draw neat borders on their presentation sheet. Ultimately, it is the quality and ability of the teacher that matters. Simply making time for so-called creative subjects on the school curriculum will not necessarily always lead to a decent creative education; just because D&T and Art & Design are currently curriculum subjects does not mean decent design education is uniformly being delivered.

147 http://www.thersa.org/__data/assets/pdf_file/0007/409507/RSA_Whats-Wrong-With-DT.pdf
149 Emily Campbell, evidence to the Inquiry
Unfortunately, instances of poorly-delivered design education can easily undermine the argument for design education in general, and evidence gathered during the inquiry suggests delivery is variable.

It was notable in the written evidence submitted that D&T and Art & Design were not always mentioned as requirements for studying design at university. The fact that the Foundation Diploma in Art and Design is considered by many universities to be a more reliable preparation for a creative arts degree suggests that Art and Design A Levels may be falling someway short.

Design at school is rarely taught by designers, let alone by those with career experience in the industry. In many cases it suffers from not quite being able to shed the academically second rate reputation of the traditional craft and workshop-based subjects it replaced on the timetable. The subject remit was confused from the outset by the inclusion of Food Technology.

However the initial aim of the subject was and is laudable, and design, as we have demonstrated, contributes a great deal to a general education when well taught. In light of the National Curriculum Review, the specification and modes of teaching of design at school ought to be reviewed and refreshed. Greater input from the industry itself would help, and there are already programmes, such as Speakers in Schools, which would be a perfect vehicle for doing so. Further, more design graduates ought to be encouraged to consider teaching.

### 5.6 HE: funding

The full effects of the changes to funding of Higher Education are yet to play out, but there is reason to expect some particular problems for design courses, distinct from the general concerns about students being put off by the prospect of incurring higher levels of debt.

A fact which seems to have slipped by unnoticed in the allocation of funds, is that design courses – being studio-based and practical – are highly resource intensive. Anecdotal evidence suggests it is as expensive to train an industrial designer as it is to train a medic. Equipment for some of the design disciplines is incredibly expensive: current high end technologies for digital image capture and media production, digital design and manufacture have price tags comparable with those for electron microscopes and tensile testing equipment. Some of the specialist craft disciplines are also expensive to resource.

There is a trend in the HE sector towards compressed working spaces, hot desking, and reduction of workshops. This is understandable from a budgeting point of view. Design colleges will struggle to support good quality workshop facilities on the basis of fees levels and funding shortfalls for non-STEM subjects. However this could have a real impact on quality of education. Designers of the future – even if they are increasingly focused on the digital – will still need a foundation of materials and making knowledge.

This costliness in equipment, physical space, and student-tutor contact time is not reflected or recognised by the funding status of design courses. Most fall into the 'band c' bracket – the cohort of courses which will no longer receive teaching funding outside of income from tuition fees, as was previously the case. Again, it is not clear why a subject such as engineering design (band b) should benefit from continued teaching funding, and a course such as industrial design (band c) should not. However decisions about funding allocation are dictated by evidence provided by...
universities about the relative costs of their courses: if design courses are in Band C, it is because of information submitted by HEIs. If this is the case it is unclear why so many design educators complain about inadequacy of funding.

The new arrangements may put added pressure on minority, single discipline subjects that are expensive to deliver, and cause overcrowding of popular subjects (e.g. graphics and fashion) at the expense of quality in the rush to maintain incomes. A number of the craft disciplines – ceramics, glass – are already suffering. The Crafts Council has recorded at least 12 notable crafts course closures since 1993. The dependence on student numbers for funding will potentially put the emphasis on quantity of throughput to an even greater degree – which responses suggest is already a weakness of the system. Too many students trained on too few resources results in graduates of sub-optimum quality. And if courses start to close, this may have a detrimental effect on the local workforce, especially in places where it is reliant on creative graduates.

HEIs’ ability to compete, with each other and internationally, will depend on the quality of service they can provide to the student, and high quality facilities cost money. Although there is some disparity between design disciplines in terms of cost, the Higher Education Funding Council for England (HEFCE) should consider, as a matter of economic urgency, reviewing the funding status of some design courses.

As with other courses, there is a concern about new tuition fee levels adversely affecting their social diversity, already relatively narrow for design: the industry is predominantly white and male. Creative & Cultural Skills’ research shows that 92% of the design industry is white (almost identical to the creative and cultural industries as a whole), and 66% of the design industry is male (6% higher than the creative industries as a whole).

On the question of access, a satisfactory solution to funding postgraduate education has yet to be proposed. After graduating with over £30,000 of debt, it is perhaps less likely that students will be able or willing to spend further money on postgraduate study. Funding opportunities for PGT and PGR are already very limited for home/EU students. These need to be established to help deliver a higher level of skills and knowledge into the design sector, to maintain the UK’s international reputation. At present, the primary PG funding option is to take out a career development loan. However, as borrowers must start paying back the loan regardless of employment status, they are inherently riskier than the undergraduate loan.

Finally, the international market for design education may suffer due to perceived uncertainty in institutions, especially if cuts start to reduce programme offerings, experience and contact time.

5.7 HE: Ensuring quality and relevance
The design HE sector is large and diverse, and, at its best, a world-leader. However there were certain misgivings which appeared frequently in evidence received.

Although most design employers who responded said they still mainly recruit from UK institutions, they nearly all complained of an oversupply of mediocre students, it then being a lengthy process to sift through applications to find the graduate they are seeking. The system does produce thousands of graduates every year (more than is needed to fill the available jobs in industry) with ostensibly very similar educational routes and profiles.
An oversupply is perhaps no bad thing in itself, if the surplus can be put to use in a constructive manner. If those graduates can be shown where else in the jobs market their skills are applicable, we have a ready-made supply of creative thinkers who can support design in other areas of business and industry. Not all creative graduates can practice as professionals, but if the private and public sectors were able to channel some of this interest in creativity into other jobs that would benefit from more creative thinking, then we could fully harness the education investment. This has been a deliberate policy in South Korea, one tactic of whose design plan is to saturate the general workforce with design graduates.

As with HE more broadly, there are many more students coming through the system than at any previous time. In some respects this is positive: more knowledge economy workers. But it also means, for art and design courses, that student-tutor contact time and studio space is in shorter supply. This is perhaps one of the reasons that arts courses tend to perform poorly in student satisfaction surveys. This may also be attributable to the degree of autonomy and self-directed study that is required, but perhaps not anticipated by students.

With the new funding arrangements, design courses, as all others, will be dependent on their ability to attract students for income. Historically design has been a popular choice and hopefully it will continue to be so. But it may also fall foul of some new performance indicators, designed to allow students to make informed choices. For example, it is not very common for design graduates to be in fulltime employment six months after graduation. But this is a statistic that universities are now required to provide as part of the new ‘Key Information Sets’. Partly this is not in the nature of creative careers: research suggests creative graduates are much more likely to pursue portfolio careers. This will look like a failing against the current standards of success. Key Information Sets will include student satisfaction – already a problem as noted; employment and salary data – again unlikely to be attractive six months after graduation; and financial information – for design courses there will be significant material costs over and above fees.

Finally, there is an ongoing problem around business skills in design. Lack of commercial acumen, industry awareness, understanding of manufacturing processes, or an ability to work within the constraints of business, were all mentioned by employers. This in spite of the fact that most institutions who responded said they provided for enterprise education. The mismatch may be due to a somewhat unavoidable tension between the mission of academic institutions and the needs of employers. Students want the time at college to develop their creative ability. Employers want work-ready graduates with the requisite skills for operating in a business context. Although it is clearly in the interests of all for students to be better prepared for their post-university life, it is also valid to point out that an academic environment is not necessarily the place to be developing ‘commercial acumen’.

Above being frustrating to employers, this shortcoming may also lead to a more systemic problem in the industry. Creative and Cultural Skills note that

\[\textit{the lack of entrepreneurial skills, employability skills and other abilities ...may later have a bearing on the make-up of business sizes within the sector. People are more likely to be employed in smaller businesses in size in the design sector than the creative and cultural}\]

151 Wayne Hemingway, quoted in the Cox Review of Creativity in Business, p32
152 During Korea’s second five–year design plan (1998 to 2002), the country increased its number of design graduates by 27% from 28,583 to 36,397
153 http://education.guardian.co.uk/students/tables/0,1574402,00.html
154 Orr, Susan, Mind the gap: expectations, ambiguity and pedagogy within art and design higher education, 2011
156 Ball, Linda, Pollard, Emma and Stanley, Nick, Creative Graduates, Creative Futures, 2010
industries as a whole, and are far more likely to be in smaller businesses than people in the UK economy as a whole.

It seems then that small design businesses are less able to grow into large international businesses, and this is largely due to the skills of the workforce.

71% of the occupations in the design industry are associate professional and technical roles. Workers may have the correct technical skills within their jobs, but not the ability to grow a business into a larger design practice.¹⁵⁷

One way of circumventing academic institutions’ (understandable) reluctance or inability to provide for commercial training, would be to diversify the qualification and training landscape by developing some higher level vocational qualifications – currently missing.

Finally, design research is still a relatively young practice, and one in which the UK can already boast a number of centres of excellence. Whilst the field is advancing rapidly, this is one area where we could focus funding and efforts to great impact. The AHRC are already prioritizing funding for research in design. However they note that quality and rigour is sometimes not up to the standards maintained in other disciplines. As noted by Dr Leon Cruikshank from Lancaster University:

there needs to be thought given to new forms of design education and research (especially PhDs) that recognise the importance of academic quality, and the need to be more relevant to, and connected to, external stakeholders.

5.8 HE: Competitiveness
Because of a generally very positive global reputation, the design education HE sector is a significant export for the UK. In 2009/10, 12% of all students in Creative Arts and Design courses, and 16% of Architecture, Building and Planning students were from overseas.¹⁵⁸

However, as in many other areas, we are facing mounting competition. As fees increase for Home and Overseas students, and other countries improve their own native HEI base, the numbers of overseas students will likely begin to decline. This could conceivably be a problem for HEIs from a funding point of view, but also with regard to the multi-cultural mix of students on design courses, credited with contributing to the creative capital and cultural awareness of design graduates. On the other hand, if HEIs are driven to reserve a greater percentage of places for overseas students, this could be detrimental for a number of reasons, not least regarding widening access for Home students.

A more immediate concern for HEIs and employers is the change to visa regulations for overseas students. There apparently has been recorded a drop in overseas recruitment, perceived to be because of changes to these rules, introduced by the UK Border Agency in the past 18 months to minimize abuse of the system. While the UKBA would claim that these new rules have been introduced to support HEIs by combating bogus institutions, universities would instead claim that the negative effects of the new rules have been significant for ‘proper’ HE providers as well. The real impact will only be visible in this year’s recruitment figures.

¹⁵⁷ Creative & Cultural Skills, Impact, Skills and Productivity Forecasting for the Creative ????
¹⁵⁸ http://www.ukcisa.org.uk/about/statistics_he.php
As concerns design (or Art & Design more generally), these programmes may perhaps suffer additional negative effects from the Tier 2 Visa changes:

only those graduates who have an offer of a skilled job from a sponsoring employer, in Tier 2 of the points-based-system, will be able to stay to work.159

Previously students had been able to stay in the UK for a limited period of time to work. This has now been tightened and students are only allowed to stay for a year if they earn at least £24,000. Given the low salaries and high prevalence of unpaid or poorly paid internships in the UK design industry, this is likely to make it much more difficult for overseas students to remain in the UK for a year after their studies.160

There are some foreseeable positive outcomes. There is some reassurance for Overseas students of getting a decent education, as universities and courses now need to be accredited as sponsors. With a higher level of English now required, other students will not find themselves in courses with classmates unable to keep up because of inadequate language skills. But in general the concern is that these new visa rules have sent a message to potential overseas applicants that Britain has become a much less welcoming place to study.

Finally, whilst there is a strong argument for international and social mixing in design courses, there is also a worrying reality that many designers trained in the UK return to their home country after study, taking their skills with them – all the more likely if they cannot stay to work. In fact it is not only the UK that is managing this situation, the US is in a similar position.161 This migration of skills not only represents a loss to the UK workforce, it is also a very effective transfer of expertise and know-how in the field of design and design education. Essentially, one could argue that we are training our competitors. As countries like China, India and Korea intensively develop their design capacity, they frequently buy consultancy from UK designers, design educators, and design policy experts in how to do so. Their institutions are starting to benefit from staff trained in the UK, and can now offer a similar style of design education.

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159 The Tier 2 (General) category is for foreign nationals who have been offered a skilled job to fill a gap in the workforce that cannot be filled by a settled worker. http://www.homeoffice.gov.uk/media-centre/news/major-student-changes
160 As advised by CHEAD
161 Evidence provided by John Thackara, Design Commission member: “I was astonished to learn...that 40% of masters students at the Parsons design school in New York are Korean. The percentage of foreign students is expected to rise quite a lot further (with mainly Chinese and Indian Masters students) because the impact of high tuition fees is now deterring even wealthy US families from putting their offspring through college. Some Professors are in despair at the de-skilling of the US design industry that they see unfolding. One told me: “We are handing comparative advantage to Korea, China and India on a plate”.
As is true in many other sectors, in design the UK faces increasing competition in an area where it was once a world-leader. In the course of its interviews, the Commission frequently heard tales of academics returning from trips to China, Korea, Singapore, alarmed at the pace of change and progression they witnessed, and concerned about what, by comparison, looks like a certain complacency at home. Having held a leading position both in design education and in design policy for some time, we have set an example which other nations are only too keen to emulate. This is no problem so long as we keep moving forward ourselves. The concern now is that we are not.

The UK has always been a pioneer in design policy at a national level. As far back as the Great Exhibition of 1851, through to Sir George Cox’s 2005 review of creativity in business, this has typically been driven by an anxiety that we are not keeping up with our competitors. The Council of Industrial Design (CID), established in 1944, ‘to promote by all practicable means the improvement of design in the products of British industry’ was the first organisation of its kind. Now called the Design Council, over the last century it has grown and adapted, established new agendas and frontiers for design. This role ranged from ensuring that Britain had the industrial designers needed in the post-war economy, to increasing awareness of good design in business, in schools and amongst the general population, to being pioneers in bringing design-led solutions to problems in all spheres of business and society. Education and skills has always been a key part of its operations – either promoting the education of skilled designers, or educating the non-designing population as to the importance of understanding and critically appreciating design. It has recently expanded to incorporate the Commission for Architecture and the Built Environment, so its remit now includes buildings and places as well as products, communications and services.

The Design Council both generates and advises on policy, and is an instrument of policy delivery for Government. As such it represents one element of a wider design infrastructure. Other elements include design departments in HEIs, design societies, associations and institutes, local design support networks, and national assets such as the V&A Museum, the Design Museum, The Crafts Council, and design festivals and exhibitions such as the London Design Festival.

Although in the UK we have been good at design policy and support with a small ‘p’, we have no National Design Policy or Strategy, a status which means the Design Council, as primary driver of design policy, seems to have to continually fight to be heard. In early 2010 as part of a BIS review and economic paper, and again later in the year as part of the spending review of the new Coalition Government, the Design Council had to justify its existence. The BIS paper confirmed that there was a reasonable economic rationale for a body such as the Design Council. As did the spending review, although its funding was reduced and status altered to move it slightly further away from government – whilst it still receives some government funding it is now no longer a Non Departmental Public Body. Its role now is to provide ‘design demonstration, knowledge networks and design policy advice to government’. There is a certain irony here in that this scepticism about the Design Council at home is in direct contrast with its standing abroad, where it is studied and copied by other governments as a model of design policy implementation.

Design is a key component of any industrial or innovation policy, and it was this appreciation – the importance of good design to successful UK manufacturing – that prompted the creation of the CID after WWII. Education, similarly, is a key enabler for industrial progress – ensuring the right mix and level of skills are entering the workforce. Design education therefore represents an important lever for industrial policy. By industrial policy we mean a long term vision, and a
strategic approach to the different components of, and parameters for the development of, UK industry – not simply targeted investment in production.

Industrial policy, as a term and concept, has been somewhat out of favour in recent years. As Peter Mandelson recently characterised the situation, there have been ‘big lingering doubts about state involvement in shaping the country’s industrial portfolio. For the past 30 years there has been an unwritten rule in Whitehall that ministers and markets don’t mix’. As design education was originally a tool of industrial policy, but there has, of late, been a rather laissez-faire approach to industry, design education has therefore stopped being seen as a potential lever. The fact that it has flourished anyway is an indication of the value the private sector finds in design and design graduates.

Taking a more active stance with regard to industry is slowly coming back into favour as policymakers realise the importance of a balanced economy. National design capacity should be of concern to policymakers attempting to nurture the nation’s wider industrial ecology. The UK will only be able to compete in the high value-added sectors, a level of sophistication where design is what makes the appreciable difference.

But for some time now design has had to rely for its policy relevance on attaching itself to innovation, a relationship that policy professionals, whose background is unlikely to be in design, might find difficult to grasp, in spite of assurances by the design community. (This is also reductive: technological innovation, or new product development, is only one of several areas design where can contribute.) Design could help itself by entering with more gusto and rigour into the academic terrain, substantiating its claims. It is also undermined by metrics. As noted previously, it is very difficult for statisticians and economists to measure something they cannot see.

The two groups – designers and policymakers – also operate within very different conceptual frameworks. The history of thinking and philosophy in design about the economy and society comes from a socialist tradition – William Morris and his intellectual descendants – that puts the emphasis on human capital: higher quality of products is not possible without higher quality of productive power, indeed, of all productive powers. Thinking in government about industry in the UK and US has largely followed the economic doctrines derived from Adam Smith, ‘emphasising individualism and the market as the defining forces of an economy.’

What ‘design policy’ means in each country is specific to that country’s economic and social context, and is implemented in a variety of ways depending on the country’s governing structure. As noted by Qian Sun, what works in one place may not be relevant in another. Accordingly, what British industry needs from design, and what the British design industry itself needs now in terms of policy will differ from that of other nations. Whilst it makes sense to investigate practice in other places as a reference point for what we do in the UK, to maintain our leading position as a design-driven nation will require internal innovation. A good understanding of the UK’s national design system – where we are now – and defining where we would like to be, should underpin any National Design Policy. Importantly, designers should be involved in this process.
WHAT MUST THE UK DO NOW?

‘Our standards are slipping as other nations invest and improve the global development of design. We currently have one of the best reputations for design in the world, and it is sad to watch this diminish as we under-invest in this exciting and lucrative service industry.’

The UK’s great strength in design education at the moment is in the presence of design in education at all levels, and the size and diversity of its HE system. There are already a good number of centres pursuing advanced design research, setting up interdisciplinary programmes of study and research, and collaborative ventures with business. We should be taking steps to bolster and improve this, not endangering it. Further, we need to push our own practice into new areas – to maintain our lead.

We must continue to develop new areas of expertise, and new disciplines.

We can develop a better understanding of design management, and innovation processes, in businesses, and better quality academic work in relation to this.

We can develop a body of knowledge around how government uses and works with design. Some other countries are already stealing the lead on this, but none that are quite the size and complexity of the UK – the challenge here is greater, and there is a good academic and industry base from which to proceed. There is currently a systemic gap in government skills and knowledge with which it struggles on a daily basis. Government requires sound, ideally objective, evidence in order to make decisions. The professions it relies on for such evidence – economists, accountants, lawyers – are rarely able to provide reliable predictions beyond those based on analysis and assessment of historic information. There is therefore an empty space when considering the future which design can help describe and fill. This is the thinking behind the Helsinki Design Lab studio model. Developing methodologies, thinking, processes and research around this is something the UK is well-placed to do.

We can nurture interdisciplinary working in industry. A re-engagement between technology development, design and the creative industries – particularly in industries which are believed to be crucial to the UK, such as low carbon, manufacturing, business services. This is important not only for innovation within those areas, but for transference of technologies and innovations to other areas. This is key to being an effective first world manufacturer. Having accepted the importance of the manufacturing base, we still have far to go in engaging design and manufacturing. The UK’s manufacturing capability and renaissance depends on turning out high quality products, and services, which depends on design. The sector is also underperforming in how it presents, markets, and brands itself. In a competitive market, being attractive and convincing to prospective buyers is critical.
Our Recommendations
On the basis that we need a certain number of designers educated to an appropriate level entering the industry every year, and advancing the design knowledge base, and we need to further enhance the general level of design awareness and capacity in the wider population, we have four recommendations.

Government needs a National Design Strategy that it takes ownership of in a well-informed and pro-active way.

A clear and Government-owned design strategy should be a fundamental part of any developed economy’s industrial and innovation policies. ‘Industrial policy’ is a somewhat uncomfortable – and contested – term that has languished in recent years, but an intelligent approach to supporting and enabling industries is critical for any government trying to coax the national economy back to growth. Ensuring a productive education base is a key component of such strategies.

As a positive lever for growth, design must be written into the new Innovation and Research Strategy, the next phase of the Growth Review, and the review underway into the mechanics of HE and business collaboration and knowledge transfer.

Further, beyond industrial policies, the UK Government needs – as other countries are also quickly learning – to develop a wider cross-governmental strategy with regard to design, particularly regarding its potential contribution to the very act of governing and policymaking. How design might meet social challenges, and interact with policies on innovation, education, and public service reform, is a complex matter that should be allotted its own governmental resources.

We recommend that Government develop a comprehensive National Design Strategy (beyond delegating tasks to the Design Council), appoint someone inside Government to lead on it, and draw in experts, design practitioners and the business community to assist and advise.

Whilst Government should oppose any move to remove design from the school curriculum, it also needs to think again about how design operates in schools.

The Commission is concerned about the ethos that is being encouraged, through the Department for Education’s reforms, for mainstream school education. Creative education does not appear to be valued. Undermining it will, in ten years time, or perhaps less, thwart any other investments in the nation’s innovative capacity, and seriously hamper our competitiveness. We urge the Government to reconsider the direction being taken by the Department for Education – with the Curriculum Review, the constituents of the English Baccalaureate, and the reduction of teacher training places in art and design – and whether this is truly aligned to the wider growth agenda.

However we also recognise that patterns of design education need reforming. First, there is disagreement about where on the curriculum design ought to appear; currently it is present in both Art & Design and Design & Technology. Second, the original ambition of Design & Technology – to be a subject that breaks down boundaries between disciplines, synthesises and builds on learning in other areas, turns out individuals who are three-dimensionally capable and critical appreciators of the ‘made world’ – has not yet been fully achieved. This is in part due to the milieu in which it has been tasked to operate.
To be appropriate in the 21st century context, we need to shift education to an interdisciplinary approach. In other words, from a system that operates in discrete specialist subjects, towards an integrative system that promotes adaption as skills needs change. Schools should use the naturally interdisciplinary nature of design projects to break down silos between subjects. This could be as simple as setting design challenges that engage students outside their subject classes in creative problem-solving projects.

Further Education routes into the sector need to be expanded and developed. There is a distinction in many industries and occupations between the pioneers and innovators, the knowledge workers, and the technicians, and this is true in design. However, the typical pathway into the design industry is currently very narrow – school to university to (probably) postgraduate degree to employment – and employers frequently complain about the lack of industry-relevant skills in otherwise able and highly creative graduates. This pathway is also about to significantly increase in cost.

All of these problems could be addressed by the creation of some higher level vocational qualifications in design disciplines. Many design courses started life in polytechnics and graduated into the university domain with the wider transformation in the Seventies. We are not suggesting the loss of university design courses. Indeed the teaching of design in an academic environment has been invaluable for its development, with beneficial effects on the wider institution within which it sits, and this should be protected. However, the loss of any vocational pathway is lamentable, especially as design is, at heart, an applied discipline. The re-creation of a vocational pathway – blending a high level of technical and creative learning with a greater focus on skills for industry – might help a wider range of students find a more appropriate route, and create a greater diversity in the graduate marketplace. Government and the design industry could also think afresh about how apprenticeships in design – currently few – can be made to work well.

Higher Education centres of excellence – resource-intensive high quality centres teaching tomorrow’s innovators and researching future practice – need protecting and funding. Design doesn’t exist in a vacuum, and this is as true of design education as it is of design in industry. A central tenet of our argument is that design is an important contributor to interdisciplinary practice and innovation at HE, particularly with the STEM subjects and business. In order to fully unlock the innovation potential of our academic institutions, universities must promote interdisciplinary practice. Whilst some examples exist, there is always room for more. The onus for developing such activities is very much on the institution.

It would also be advantageous to develop clarity about centres of excellence: UK universities must consider their strengths and play to them. This is already happening as institutions see the benefits, in terms of attracting students and research funding. In order to continue to compete for home students in the new, allegedly ‘free’, market, and in the face of increasing competition from abroad as overseas institutions improve their offerings, specialising at a higher level will help universities to differentiate their offering. Clarity over centres of excellence would also help employers locate the skills they need.

Further, advanced design research needs to actively apply itself to other domains, learning more
about other disciplines, and build up its supporting library of rigorous academic literature. It is in this area that the UK is best-placed to retain a global lead.

To achieve all this, design needs to be properly funded. Specialist institutions and centres of excellence require money. At present, all design courses receive ‘Band C’ funding, which is not necessarily reflective of the true costs of provision when studio space, workshop space, expensive equipment and materials are taken into account. Institutions are unlikely to continue to subsidise courses which cost more to provide than they generate in student fees. We believe that some design courses ought to be placed on a par, funding-wise, with science and engineering subjects. HEFCE should look to investigate and revise the present funding arrangements for some design subjects – at BA, Masters and Postgraduate Research level – on the basis that they are strategically important and vulnerable.
Art and Design Statement from Department for Education
In art, craft and design, pupils explore visual, tactile and other sensory experiences to communicate ideas and meanings. They work with traditional and new media, developing confidence, competence, imagination and creativity. They learn to appreciate and value images and artefacts across times and cultures, and to understand the contexts in which they were made. In art, craft and design, pupils reflect critically on their own and other people's work, judging quality, value and meaning. They learn to think and act as artists, craftspeople and designers, working creatively and intelligently. They develop an appreciation of art, craft and design, and its role in the creative and cultural industries that enrich their lives.169

Design and Technology Statement from the Department for Education
In design and technology pupils combine practical and technological skills with creative thinking to design and make products and systems that meet human needs. They learn to use current technologies and consider the impact of future technological developments. They learn to think creatively and intervene to improve the quality of life, solving problems as individuals and members of a team.

Working in stimulating contexts that provide a range of opportunities and draw on the local ethos, community and wider world, pupils identify needs and opportunities. They respond with ideas, products and systems, challenging expectations where appropriate. They combine practical and intellectual skills with an understanding of aesthetic, technical, cultural, health, social, emotional, economic, industrial and environmental issues. As they do so, they evaluate present and past design and technology, and its uses and effects. Through design and technology pupils develop confidence in using practical skills and become discriminating users of products. They apply their creative thinking and learn to innovate.170

Design Studies Higher Education Courses
The study of design for everyday objects, taking into account technology and commerce as well as appearance and current art thinking. May involve the use of computers as design tools.

W210 Graphic Design
The study of/training in the use of artistic techniques effectively to communicate ideas and information to business and consumer audiences via forms of printed media.

W211 Typography
The study of/training in the use of artistic techniques in the design and production of printed matter.

W212 Multimedia Design
The study of/training in the use of artistic techniques in design using a variety of materials.

W213 Visual Communication
The study of/training in the use of artistic techniques in design to impart information.

W220 Illustration
The study of/training in the use of artistic techniques effectively to communicate ideas and information to business and consumer audiences via drawn or painted images.

W230 Clothing/Fashion Design
The study of/training in the design and use of textiles and other materials to create items of apparel.

W231 Textile Design
The study of/training in the design of textiles.

W240 Industrial/Product Design
The study of/training in the design of industrial and consumer products to meet aesthetic, functional and commercial requirements.

W250 Interior Design
The study of/training in the use of artistic techniques in the planning, designing, equipping and furnishing of residential, commercial and public interior spaces.

W260 Furniture Design
The study of/training in the design of furniture for residential, commercial and public environments.

W270 Ceramics Design
The study of/training in the design of ceramic artefacts.

W280 Interactive and Electronic Design
The study of/training in the design of non static computer-generated images.

W290 Design studies not elsewhere classified

Full HESA codings for Design Studies online at http://www.hesa.ac.uk/dox/jacs/JACS_complete.pdf
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4Electronics
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Aether-Hemera
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BDI
BIID
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CCSkills
CHEAD
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CSD
D&AD
D&T Association
DBA
De Montford University, Faculty fo Art & Design
Design London
Design Museum
Design Network North
Design Research Society
Design Wales
Dyson
e3design Ltd
Ecodesign Centre Wales
Gospelware Ltd
Habitat
Hardy & Greys Ltd
Hasbro
HEFCE
Helen Storey Foundation
HMRC
Holmes & Marchant
House Magazine
IHG
Innovate Product Design Ltd
John Lewis
Lawray Architects
LCC
London 2012
London College of Fashion
London Metropolitan University
Loughborough University
Mace Group
National Grid
NCR
North Wales School of Art & Design
Northumbria University
Norwich University College of the Arts
Nottingham Trent University
NSEAD
Open University
P.D.M. (North East) Ltd
Proskills
Pufferfish
RAE
RCA
Retired Lecturer/interior designer
Rolls-Royce
Royal Mail
RSA
School of Engineering and Computing Sciences, Durham University
Science Museum
Sebastian Conran Associates
Sevcon
Siemens
Sorrell Foundation
Stanley Black Decker
Stephen Lawrence Trust
Swansea Metropolitan University
Tangerine
Teeside University
Tesco
The Brand Union
The Civic, Barnsley (Barnsley Civic Enterprise Ltd)
The Gatsby Foundation
The Society of British Interior Design
Thermacore Europe Ltd
TIGA
UAL
UKTI
University College Falmouth
University for the Creative Arts
University of Brighton, Faculty of Arts
University of Derby
University of Edinburgh
University of Hertfordshire, School of Design & Design Teaching
University of Huddersfield
University of Lancaster
University of Leeds, School of Design
University of Lincoln
University of Northampton
University of Plymouth
University of the Arts London
University of Wales Newport
University of Northampton
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Vitsoe
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