

UK 2070 Commission: Call for evidence

Design Council response

Key points:

- Design is central in reducing the spatial inequalities across the UK.
- Design is highly valuable to the UK economy and UK regions. Investing in design will make the country more productive and innovative.
- Design is highly concentrated in London. A spatial policy with a focus on design will help to correct this issue.
- Areas most at risk of automation have the lowest concentrations of design firms which means they are more likely to be adversely impacted by future economic changes with risks such as high unemployment and a low skills base.
- Design must be at the heart of housing and infrastructure to create places where people want to live and work.
- Design Council is very happy to share its research with the commission and join any symposium/roundtables to support this work.

Introduction

1. Design Council is an independent charity and the government's advisor on design. Our vision is a world where the role and value of design is recognised as a fundamental creator of value, enabling happier, healthier and safer lives for all. Through the power of design, we help create better places, better products, better processes and deliver better performance.
2. Design uses creativity to solve problems. It uses a number of techniques, tools and principles involved in the development of products, processes, services and systems. It cuts across the whole economy and links innovation and new ideas to people's lives. Design is not just about how something looks, it unlocks solutions to complex problems by placing the needs of people at the centre of the product, service or place.
3. Design is responsible for shaping the built environment, infrastructure, the digital world and the products and services we use every day. It's design that creates better places, better products, better processes and better performance. Yet too few places, people and businesses benefit from the full potential of design.
4. Outlining the need for change, the commission outlines five areas in which disparities are reflected. The only way to improve productivity, the housing market, infrastructure, our use of assets and our use of resources is through design.
5. Design will be central to solving the future economic challenges of the Fourth Industrial Revolution. From the need to increase exports, to the need to equip people with skills for an age of automation. Design Council's latest research 'Designing the Future Economy' published in December 2017, focusing on design skills, and 'The Design Economy 2018' published in July 2018, focusing on the value of design to the UK, makes clear the link between design and the needs of the future economy.

The importance of design to improving productivity and supporting innovation

6. Design offers a huge opportunity for the UK in the future economy, yet the value of design is often underestimated, sectioned off and confined to the creative industries. This substantially undervalues the economic importance and impact of design.
7. On 5 July 2018 Design Council published its latest research, 'The Design Economy'. The report builds from our 2015 research, which was the first time that the value of design had been comprehensively measured and evidenced how all businesses are using design and how well design is accessed across the country.
8. The research tells a compelling story of escalating growth, the rapid rise of digital design and deep-rooted connection to UK innovation. In 2016 the design economy generated £85.2 billion in gross value added (GVA) for the UK. This is 73% of the value of the financial and insurance industry, highlighting its importance to the economy. Importantly 68% of this value was created by designers operating in non-design industries such as aerospace, automotive and banking.
9. Our research found that firms engaged in design are 8.1% more likely than other businesses to be a product or service innovator. In 2015, UK firms invested £14.7bn in design. When firms invest in design, they are more likely to invest in other intangible assets such as R&D and get them working in synergy to generate new innovations and create additional value.
10. Analysis conducted by the Enterprise Research Centre for Design Council found that over a ten-year period, businesses we supported survived longer and grew faster than average UK businesses. It found:
 - **Design Council-supported businesses survive longer:** 91% of businesses we supported were still trading after 5 years, compared to 49% of a control group.
 - **Design Council support appears to have played a key role:** even after accounting for wider government support programmes accessed by participating businesses, 85% of those supported by Design Council survived compared to 48% in our control group samples.
 - **Design Council-supported businesses grow twice as much:** over the long term the DC-supported firms (either with or without BEIS support) grew by around 40% between 2008 and 2016, more than double that of the control group. Considering that the control group acts as the counterfactual this suggests a relatively strong impact from DC support, not only on survivability, but also on employment growth prospects.
 - **Design Council-supported businesses are more productive:** the fact that turnover growth exceeded growth in employment amongst DC-supported firms suggests that there was an increase in productivity amongst these survivor firms (i.e. it means that firms are becoming more productive without shedding labour; these firms are often termed 'growth heroes').

Regional disparities in design

11. Every region in the UK bar Northern Ireland has experienced a growth in the number of design firms since 2010. But design is becoming more concentrated in London and the South East. London is the design powerhouse with one in three design firms and one in five

design workers. It generates 28% of the design economy's GVA. There are 342,000 people employed in design in London, while across the whole of 'the North' (North East, North West, Yorkshire and the Humber) there are 296,000.

12. Our recent research also found that London and the south-east continue to benefit most from the design economy. Almost one in three design firms operate in London, facilitating wide access to the range of design sectors and jobs, that combined contribute to innovation and growth. In contrast design activity outside the capital and its surrounding counties operate in clusters with cities like Manchester and pockets of the West Midlands benefiting from growth in high level design skills and firms, with little impact outside of these clusters. This uneven distribution of design risks a growing divide between those businesses, places and people that have access to design and those that do not.
13. The Centre for Cities estimates that by 2030 the fourth industrial revolution will contribute to considerable job losses across the country, with one in five jobs in an occupation that is 'very likely' to shrink. This is equivalent to 20.2% of the current workforce in cities.¹
14. Comparing Design Economy Data with that from Centre for Cities suggests a growing divide between those local economies (such as Cambridge, Reading and London) where valuable intangible assets such as design appear to have a considerable presence in the form of design firms, and local economies (such as Doncaster and Blackburn) which have a below average presence of design firms.
15. Our analysis suggests that the areas with the lowest concentrations of design firms are those which have been most adversely affected by the decline of heavy industry, and these tend to be concentrated in northern England. (Appendix 1)
16. This presents a long-term risk to these areas of high unemployment, low productivity and reduced innovation, partnered with a low skills base to recover from the impacts of automation. For instance, over a quarter of jobs are at risk of automation in Doncaster, and the area has half the average concentration of design firms. As design and design skills are more resilient to the impact of automation, this could bring into sharp relief areas that have the jobs of the future and those that don't.

The importance of design skills to solving regional inequalities

17. A 2017 World Economic Forum study² of how countries invest in their workforces found that while the UK has access to highly skilled talent (and is ranked 10th in the world on this measure), it is concentrated in specific parts of the economy. When it comes to using the advanced skills and knowledge that are predicted to be required in the economies of the future, the majority of the UK workforce currently does not have exposure to these skills. The UK is instead ranked 54th in the world for the capacity of its workforce to deliver high-value outputs, and 51st in the world for the deployment of these advanced skills and knowledge. As a practice that spans sectors and occupations and will be in high demand in the future economy, increasing design skills across the country is key. Furthermore, of the Top 10 Skills identified by the World Economic Forum in 2016 as the skills you will need to thrive in the

¹ Centre for Cities (2018) *Cities Outlook 2018* [\[online\]](#)

² World Economic Forum, (2017), These are the 10 best countries for skills and education [\[online\]](#)

Fourth Industrial Revolution, five are design skills (complex problem solving, critical thinking, creativity, emotional intelligence, cognitive flexibility)³ (Appendix 2)

18. Design embodies the skills needed to create the intelligent products services and systems of the future. Designers fuse knowledge of design and cognitive abilities, such as visualisation or problem solving, with technical skills, such as drawing, coding and modelling. Our 2017 report, 'Designing a Future Economy' found:
 - **Design skills drive higher productivity:** Design Council's research found that people who use design skills are 47% more productive than the average UK worker, delivering almost £10 extra per hour in GVA.
 - **Design skills are central to innovation:** Design Council's analysis found 43% of workers using design skills were more likely to be in jobs requiring and generating innovation, carrying out activities using their creative thinking and problem-solving skills to develop new ideas for and answers to work-related problems, compared with an average for the wider UK workforce of just 6%.
 - **Design skills gaps amongst the existing workforce:** One in eight design employers report they have staff who are not fully proficient in their current jobs. An estimated 59,000 people working in design skills-intensive industries have skills gaps.
 - **Existing design skills gaps cost the UK billions:** Design Council estimates that skills shortages and gaps amongst those already working in design- skilled occupations costs the UK economy £5.9bn per year. For design industries, skills gaps can be caused by the development of new products and services, the introduction of new working practices and the introduction of new technology.
19. Our analysis in Designing a Future Economy identified 13 core skills for design (Appendix 3) as well as the core skills for each design group (such as digital design) (Appendix 4). In the research we also looked at the skills people say are most important for their job. These knowledge skills are likely to grow in demand in the future as referenced by Nesta in their recent research on future of work ⁴(Appendix 5).
20. In 2018, just over 127,000 GCSE students took Design and Technology subjects, a year on year fall of 23%. This has also been accompanied by a decrease in the number of teachers and teaching hours dedicated to the subject at secondary level. Likewise, between 2011/12 and 2015/16, the number of people leaving higher education with undergraduate or postgraduate qualifications in creative arts and design subjects fell by 7%. These subjects are pathways for the current crop of designers that are contributing significant value to the economy, so this trend is major cause for concern.
21. The supply of designers in the economy is at significant risk if the numbers of students studying design between 14 and 18 continues to decline at a rapid rate. To make sure people from all backgrounds have the right skills for the future economy, and that the UK has the diversity of thought and ideas required, it is vital that design and technology becomes a core Ebacc subject. If not, there is a significant risk that design will be left as a pursuit for those who can afford it through their own means, exacerbating regional inequalities.
22. Along with art, there is a need to incorporate design methods, tools and approaches into STEM subjects. This will teach future generations the skills required for the future economy. The inflexibility in the current curriculum has already had been seen to have an impact. Roger Kneebone, professor of surgical education at Imperial College London has argued

³ World Economic Forum (2016) The 10 skills you need to thrive in the Fourth Industrial Revolution [\[online\]](#)

⁴ Nesta (2017) *The Future of Skills: Employment in 2030* [\[online\]](#)

that young people have so little experience of craft skills they struggle with anything practical. He has said that he has seen a decline in the manual dexterity of students over the past decade. This is particularly important for surgeons who are required to stitch patients.⁵

The importance of design to housing and infrastructure

23. To improve housing and infrastructure, design has to play a much more significant role. By design we are referring not only to the visual quality and layout of new developments, but also to the functionality and liveability of those developments and their contribution to wider social, health and economic objectives.
24. There is a growing body of evidence⁶ that shows how the design of buildings, streets, parks and neighbourhoods can support good physical and mental health, help reduce health inequalities and improve people's wellbeing. The built environment can also contribute to a more equal, inclusive and cohesive society if the places where we live, the facilities we use, and our neighbourhoods and meeting places are designed to be accessible and inclusive.
25. Improved physical and mental health can be supported by designing neighbourhoods that enable:
 - Physical activity: to increase walkability in buildings and neighbourhoods and encourage healthy modes of transport
 - Healthy food: to improve access to healthier foods
 - Social contact: to design well-connected housing and neighbourhoods that provide access to facilities and amenities to reduce social isolation and loneliness,
 - Contact with nature: to provide access to the natural environment, including parks
 - No pollution: reducing exposure to air and noise pollution
26. Healthy Placemaking is joint research from Design Council and Social Change UK, published in April 2018⁷, which takes an in-depth look at barriers faced by built environment professionals to create healthy places. The report surveyed over 600 built environment professionals across the UK to understand their views and experiences across multiple areas on healthy place making. The key findings from those surveyed are:
 - There is strong awareness of healthy placemaking and there are some who are embracing it in their work
 - When considering healthy places practitioners prioritise the outdoor environment over the indoor environment
 - Data and insight is not being fully utilised to design and create healthy places.
 - People and public are consulted, but the timing, tools and techniques used by practitioners vary.
 - Healthy interventions are excluded from design plans due to the perceived cost to implement them.
 - Very few professionals can demonstrate impact
 - The structure, culture and processes of the planning and building systems are not always fully supportive towards healthy place making.
 - The vision for healthy place making is clear but this vision does not always filter into delivery of projects on the ground.
27. A growing number of national organisations are establishing design principles including, for example, Highways England and Network Rail. Highways England's principles are set out in

⁵ BBC (2018) Surgery Students 'losing dexterity to stitch patients' [\[online\]](#)

⁶ Public Health England (2018) 'Spatial Planning for Health: An evidence resource for planning and designing healthier places [\[online\]](#)

⁷ The full report can be accessed online [here](#)

Appendix 6 are an example of what can be developed. In his introduction to the principles the Chief Highways Engineer states: “The design principles will help us place good design at the heart of everything we do and ensure that our roads better serve the people who use them and the environments through which they pass. And we will embed them for the future, ensuring a design-led approach becomes central to the requirements and advice contained in the Design Manual for Roads and Bridges.”

Conclusion

28. Design helps to unlock solutions to complex problems. The commission makes clear that its purpose is to tackle the deep-rooted inequalities that exists in the UK. If we are to create a more productive, innovative economy which is able to withstand the shocks of automation, as well as building the infrastructure and homes we need, it is vital that the commission explores the role of design to unlock the potential that exists in all communities.

Appendix 1: Location quotients of design firms⁸ compared with share of jobs in occupations likely to shrink through automation by 2030, by city

City	Firm LQs by city, 2017 (all those above UK average)	Percentage of jobs likely to shrink (%)	City	Firm LQs by city, 2017 (bottom 20 below UK average)	Percentage of jobs likely to shrink (%)
Cambridge	2.09	12.9	Doncaster	0.45	26.5
Reading	1.63	15.4	Blackburn	0.47	26.3
London	1.60	16.1	Blackpool	0.48	18.6
Milton Keynes	1.48	21.5	Luton	0.48	20.1
Oxford	1.41	12.8	Grimsby	0.51	-
Bristol	1.28	19.1	Bradford	0.57	24.2
York	1.20	18.7	Sunderland	0.58	29.2
Worthing	1.19	16.0	Wigan	0.59	24.7
Bournemouth	1.12	21.9	Rochdale	0.60	-
Hastings	1.11	-	Bolton	0.62	-
Cardiff	1.09	20.4	Middlesbrough	0.65	22.4
Sheffield	1.06	23.5	Mansfield	0.68	29.4
Leeds	1.06	21.3	Newport	0.68	23.4
Swindon	1.01	23.9	Burnley	0.68	23.8
			Preston	0.69	21.4
			Huddersfield	0.69	25.3
			Crawley	0.70	20.6
			Swansea	0.70	23.2
			Birkenhead	0.72	21.8
			Peterborough	0.72	24.6

Note: - indicates that a value is not available.

Source: Office for National Statistics (2018) 'UK business counts 2010-2017'; Centre for Cities (2018) *Cities Outlook 2018*

⁸ An LQ of 1.0 indicates that the concentration of firms within an area matches the national average. An LQ of 1.5 means that there is 50% more of a particular activity in the area than one might expect to find based on the national average. Conversely, an LQ of 0.5 means that there is 50% less of an activity in the area than one might expect. We have presented the 14 locations with an LQ of above 1.0, and the bottom 20 with an LQ below.

Appendix 2: World Economic Forum – The 10 skills you need to thrive in the Fourth Industrial Revolution

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People management
5. Coordinating with others
6. Emotional intelligence
7. Judgement and decision making
8. Service orientations
9. Negotiation
10. Cognitive flexibility

Appendix 3: Top 13 skills required for design.

Skill	O*NET 'domain'	Importance premium	O*NET definition
Design	Knowledge	40%	Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
Operations analysis	Skills	23%	Analysing needs and product requirements to create a design.
Programming	Skills	22%	Writing computer programs for various purposes.
Drafting, laying out and specifying technical devices, parts and equipment	Work Activities	20%	Providing documentation, detailed instructions, drawings, or specifications to tell others about how devices, parts, equipment, or structures are to be fabricated, constructed, assembled, modified, maintained, or used.
Engineering and technology	Knowledge	18%	Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures and equipment to the design and production of various goods and services.
Fine arts	Knowledge	15%	Knowledge of the theory and techniques required to compose, produce and perform works of music, dance, visual arts, drama and sculpture.
Technology design	Skills	10%	Generating or adapting equipment and technology to serve user needs
Building and construction	Knowledge	9%	Knowledge of materials, methods and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.

Computers and electronics	Knowledge	5%	Knowledge of circuit boards, processors, chips, electronic equipment and computer hardware and software, including applications and programming.
Geography	Knowledge	4%	Knowledge of principles and methods for describing the features of land, sea and air masses, including their physical characteristics, locations, interrelationships and distribution of plant, animal and human life.
Visualisation	Abilities	3%	The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.
Thinking creatively	Work Activities	2%	Developing, designing, or creating new applications, ideas, relationships, systems, or products, including artistic contributions.
Interacting with computers	Work Activities	1%	Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information.

Source: Ortus Economic Research analysis of the O*NET database

Appendix 4: Top skills by design group

Design Group	Top skill (and Importance Premium)	Second top skill (and Importance Premium)	Third top skill (and Importance Premium)
Architecture and Built Environment	Building and construction (71%)	Design (70%)	Geography (65%)
Advertising Design	Fine arts (88%),	<i>Sales and marketing (81%) Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques, and sales control system</i>	<i>Communications and media (59%) Knowledge of media production, communication, and dissemination techniques and methods. This includes alternative ways to inform and entertain via written, oral, and visual media</i>
Clothing Design	<i>Manual dexterity (39%) The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects</i>	<i>Rate control (37%) The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene</i>	Fine arts (37%)
Craft Design	<i>Rate control (48%)</i>	<i>Production and processing (47%) Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximising the effective manufacture and distribution of goods</i>	<i>Reaction time (47%) The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears</i>

Digital Design	Programming (112%)	Computers and electronics (57%)	Operations analysis (55%)
Graphic Design	Fine arts (211%)	Design (93%)	<i>Communications and media (54%)</i>
Multidisciplinary Design	Fine arts (137%)	Drafting, laying out, etc. (116%)	Design (107%)
Product and Industrial Design	<i>Physics (104%) Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub-atomic structures and processes</i>	Engineering and technology (99%)	Design (84%)

Source: Ortus Economic Research analysis of the O*NET database

Appendix 5: Future demand for design skills

Skill	Importance to Design Economy occupations (Importance Premium)	Predicted future demand (rank by Pearson correlation of the importance of O*NET variables to future demand for UK occupations (Source: Nesta 2017))
Operations analysis	23%	22
Fine arts	15%	51
Programming	22%	58
Computers and electronics	5%	60
Geography	4%	61
Visualisation	3%	64
Design	40%	68
Engineering and technology	18%	76
Building and construction	9%	82

Source: Ortus Economic Research analysis of the O*NET database/Nesta, (2017) The future of skills: employment in 2030

Appendix 6: Highways England's 10 principles of good road design

Good road design:

1. makes roads safe and useful
2. is inclusive
3. makes roads understandable
4. fits in context
5. is restrained
6. is environmentally sustainable
7. is thorough
8. is innovative
9. is collaborative
10. is long-lasting