

International Design Scoreboard: Initial indicators of international design capabilities



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Project Partners

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Design for the 21st Century



Foreword

Having recently returned from trips in Europe, the Far East and India, I have been involved in economic forums where design is discussed as a midwife of innovation – and one of the prime routes to competing on value-added rather than cost.

But policy and business leaders have a problem. When discussions focus on taxation, R&D or other common issues, definitions are relatively clear and conclusions can be drawn. When the subject turns to design, it sometimes feels that we are all back in the tower of Babel. We don't share enough common data and our approaches to defining design are too often at variance.

There is little doubt that design is a vital component for economic prosperity. A recent report from the UK Treasury described design as the journey between creativity and innovation. In this context, design has a huge role to play in tackling some of the most urgent issues such as climate change and helping industry unlock the value of technology breakthroughs.

However, in order for policy-makers to take concerted efforts around the application of design, we need strong evidence and common metrics. Over many years the Design Council has carried out its own research and provided economic evidence that has informed UK government's understanding on design.

We are delighted to support this new work from Cambridge University. It provides some novel methodologies that could make a significant difference to how we share and compare data across borders. Clearly this is just a beginning, as the study only includes a small sample of countries. However, the approach is interesting and we look forward to working further with Dr James Moultrie and his team to test the approach with partners around the world.

A handwritten signature in black ink, appearing to read 'David Kester', written in a cursive style.

David Kester
Chief Executive
Design Council

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Executive summary

This report presents findings from a study to develop an international design scoreboard. A framework for ranking nations has been created that considers design at a national level as a system comprising enabling conditions, inputs, outputs and outcomes. A series of indicators has been identified that collectively enable a picture of national design capability to be considered, in both absolute and relative terms. The 'relative' indicators (e.g. number of design graduates per million population) help to show the relative intensity of design capabilities within a nation. The 'absolute' indicators (e.g. total number of design graduates) show the overall scale of the design capability in each country.

This framework has been used to collate data on 12 countries. This data has been used to compile the national rankings provided opposite. Every effort has been made to ensure that the picture painted is as reliable as possible. In all cases, the sources are provided and wherever possible, the basis of the data used has been made explicit. In some cases, this serves to highlight the difficulties of comparing one nation with another.

It is evident that Korea is emerging as a new design powerhouse, with other countries in East Asia displaying similar ambitions. The UK retains leading capabilities in design education, but the design services sector has reduced in size over the past ten years.

This report highlights the difficulties in providing a comprehensive international comparison, as reliable and comparable data is sparse. For this reason, several important and emerging nations for design are not included in the detailed analysis (e.g. China, Spain, France, Germany, and Taiwan).

This lack of reliable, consistent and up-to-date data is problematic in creating an ongoing International Design Scoreboard. Thus, a set of clearly defined measures is proposed. A key objective of this report is to encourage discussion and agreement on using a consistent set of measures, to enable more effective measurement and comparison in the future.

Initial ranking of national design capabilities

	Rank based on absolute measures	Rank based on relative measures	Commentary
USA	1	11	<ul style="list-style-type: none"> — Overall highest for the absolute number of design graduates, World Intellectual Property Office (WIPO) trademarks, and the design services sector. Lower rankings relative to GDP and population — No federal investment, but many commercial and state agencies supporting design — Comparatively little international trademark and design registration activity per million population
Korea	2	2	<ul style="list-style-type: none"> — High public investment in design in both absolute and relative terms — High numbers of design graduates per million population and international design registrations — The design services sector is still developing; with inconsistent data on turnover in this sector in comparison with other measures
Japan	3	10	<ul style="list-style-type: none"> — Established capabilities in design education and leading for WIPO registration of designs and trademarks — A comparatively small design services sector, reflecting the industrial preference for the development of in-house skills
UK	4	6	<ul style="list-style-type: none"> — Historic capabilities in design education, with a comparatively large number of design graduates — High employment in design per million population, with a large design services sector (second behind the USA). However, this sector has shrunk over the past ten years
Canada	5	5	<ul style="list-style-type: none"> — A large and well-established design services sector, with high design employment relative to the overall population — Average number of WIPO designs and trademark registrations, with low relative numbers of registrations
Singapore	6	1	<ul style="list-style-type: none"> — Although ranked 1st for the relative measures, Singapore is less dominant in absolute terms. This is unsurprising, given the small size of the country — Very high public investment in design — in comparison to other nations, alongside a clear and ambitious national policy for design — A comparatively small design services sector, but with growing capabilities
Sweden	7	4	<ul style="list-style-type: none"> — The absolute ranking is brought down by the comparatively low number of design graduates, and low activity in the international registration of designs and trademarks — However, the design services sector and public investment are both large relative to the size of the country
Hong Kong	8	12	<ul style="list-style-type: none"> — Average absolute public investment, but a strong national policy for design — A small design services sector. But proximity to China needs to be taken into account when interpreting these measures
Norway	9	8	<ul style="list-style-type: none"> — High public investment in design (3rd, behind Korea and Singapore) — High numbers of WIPO trademark registrations per million population
Denmark	10	7	<ul style="list-style-type: none"> — A clear national policy for design, but low relative public investment — High numbers of WIPO design registrations per million population
Finland	11	9	<ul style="list-style-type: none"> — An ambitious national policy for promotion and support of design, although with comparatively low funding as a proportion of GDP — A relatively small design services sector, albeit with apparently high turnover as a proportion of GDP
Iceland	12	3	<ul style="list-style-type: none"> — The high performance in relative terms of Iceland is balanced by consistently low scores in absolute terms — A large number of design graduates per million population

Initial ranking of national design capabilities – based on absolute indicators



- 1 USA
- 2 Korea
- 3 Japan
- 4 UK
- 5 Canada
- 6 Singapore
- 7 Sweden
- 8 Hong Kong
- 9 Norway
- 10 Denmark
- 11 Finland
- 12 Iceland



Initial ranking of national design capabilities – based on relative indicators



- 1 Singapore
- 2 Korea
- 3 Iceland
- 4 Sweden
- 5 Canada
- 6 UK
- 7 Denmark
- 8 Norway
- 9 Finland
- 10 Japan
- 11 US
- 12 Hong Kong



Part one: Summary report





Introduction and approach

Design is increasingly being recognised as important for national competitiveness. However, to date there has been no comprehensive collation of available data to enable reliable comparison between nations for performance in design. This report provides a framework for measuring national design capability and brings together the best available data for 12 countries and their design capabilities. The report has the following aims:

- To provide an initial comparison of nations' design capability based on currently available data
- To highlight the challenges in comparing data from different nations
- To develop a framework to enable ongoing data collection and international comparison.

It is widely acknowledged that the production of low-value goods has moved overseas. Within the UK, this move is accepted, with the anticipation that high-value activities will remain; research and development, technology, innovation and design. However, it is becoming increasingly evident that not only is manufacturing moving overseas, but many higher-value activities are moving too. Countries such as Korea are hugely ambitious in developing their indigenous design capabilities. In 2005, Sir George Cox noted that many emerging economies are positioning themselves as sources of creativity and design, not just providers of low-cost production. The Cox Review concluded that strength in design at a national level is necessary for ongoing economic sustainability. However, to date, evidence on the role of design at a national level has been lacking.

This report seeks to address this gap. For the first time, data on key indicators of design have been collected and are compared to identify national capabilities.

Examples of existing scoreboards

There is a strong tradition of measuring and comparing aspects of national competitiveness and economic performance. These comparisons enable changes in the strengths and capabilities of different nations to be assessed. Measurement of R&D and Innovation performance in particular has been instrumental in establishing policies and setting national targets for improvement. Some of the better-known scoreboards include:

- *European Innovation Scoreboard*:¹ a comparison of measures of innovation of firms throughout the EU based on survey data. Enables comparison of strengths and weaknesses across the EU states of several innovation-related

¹ http://www.trendchart.org/tc_policy_infointro.cfm

² Department of Innovation, Universities and Skills, (2008), *The 2008 Value Added Scoreboard*

³ http://www.innovation.gov.uk/rd_scoreboard/?p=46

indicators. These indicators draw on data from national statistics, and the Community Innovation Survey.

- *Value Added Scoreboard*:² Value added is a measure of the wealth created by a company and is typically defined as ‘revenue from sales less costs of bought-in goods and services. This scoreboard provides a comparison of the top 800 UK firms and 750 EU firms by Value Added. Values are aggregated to indicate national performance.
- *R&D Scoreboard*:³ Based on reported spend on R&D from firms and compiled nationally and for comparison across the EU and other nations. The R&D Scoreboard has specifically enabled the development of clearly articulated targets for public and private investment in R&D.

However, these existing scoreboards fail to take sufficient account of the role of design. Design is not the same as innovation or research and development (R&D). Nevertheless, design is often viewed narrowly as a sub-set of innovation and specifically as the ‘aesthetic’ element of new product development. The Community Innovation Survey treats design in a very narrow way, asking firms if they are engaged in ‘All forms of design’, where design is ‘for the development or implementation of new or improved goods, services and processes’.

Similarly, guidelines on accounting for R&D are based on definitions in the Frascati manual, where design is treated as ‘An essential part of the innovation process that covers plans and drawings; technical specifications; and operational features necessary for the conception, development, manufacturing and marketing of new products and processes.’ Thus, within the accounting standards, design is essentially viewed as producing drawings within new product development.

In both cases, design is treated as a sub-set of R&D or innovation. However, it is increasingly apparent that strength in technology development and exploitation is not sufficient. While innovation and R&D are important, many products and services rely for their profitability and value added not only on their physical or functional aspects but also on the experience they deliver. Design is fundamental in supporting the exploitation of ideas, but it is also important to firms who are not engaged in R&D or who are not viewed as traditionally innovative. This might include sectors such as furniture and clothing⁴ or retail, hotels and leisure. The emphasis on exploitation and development of technology is less relevant to many service-based firms, where creating new brands and experiences is the driver of success. Thus, within firms, design plays an important role, including:

- Technical design to enable the development of new products and services with a technological component. In many companies, this technical component of design does not qualify as contributing towards R&D investment.
- User-focused design within product and service development considering the experience of the user and their interface with the product/service.
- Design of promotions and communications in the exploitation of products and services.
- Design of the corporate identity and promotion of the business.

⁴ DTI, (2005), DTI economics paper number 15: Creativity Design and Business Performance, Department of Trade and Industry, UK

Structure of the report

Part I provides an overview of the objectives, framework and limitations of this study. It concludes with definitions of indicators to be used as a basis for ongoing work.

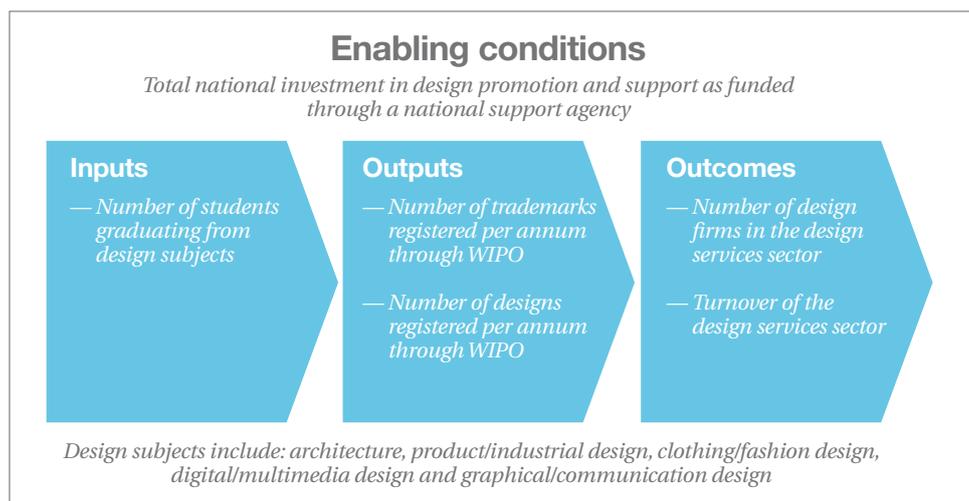
Part II gives detailed overviews for the 12 countries included in this sample. In addition, a brief summary of design capabilities in Belgium, China, France, Germany and Spain is included. Finally, *Part III* provides all of the raw data, including full references and explanations where appropriate.

Framework for the Design Scoreboard

In measuring and comparing innovation, it is recognised that no single indicator can provide a comprehensive picture of performance, and thus it is necessary to look across a range of indicators.⁵ A common approach for innovation is to consider a set of indicators that collectively describe the overall ‘innovation system’⁶ in a nation. A similar approach has been taken here, recognising that no single indicator can adequately represent the complexity of design in a nation.

A model of a ‘national design system’ is proposed, drawing analogies from this concept of a national innovation system. This model provides a framework for the consideration of potential metrics associated with each aspect and is illustrated in *Figure 1*.

Figure 1: Framework for a national design system



Using this generic framework, it is possible to describe the specific issues that would be relevant to design for each category:

- *Enabling Conditions*: including national policies, strategies, institutions and endowments. Many national governments are actively involved in design promotion through programmes that promote design to both business, particularly small and medium sized firms, and the general public.
- *Inputs/capabilities*: the development of human capital relating to design, including design graduates, designers in the workforce and those working in the design sector.
- *Outputs*: intellectual capital generated as a result of design activity, including design registrations, trademarks and receipt of design awards.

⁵ DTI, (2003), *Competing in the global economy: the innovation challenge*, Department of Trade and Industry, UK

⁶ Livesey F, Minshall T, Moultrie J, (2006), *Investigating the technology-based innovation gap for the United Kingdom*, Report for the UK Design Council, University of Cambridge, Institute for Manufacturing

- *Outcomes*: reflecting the impact of the outputs on the overall economy. A significant indicator here is the overall strength of the design services sector in terms of turnover, employment and exports.

Selection of indicators

Using this model as a template, potential measures were explored in a workshop with 20 participants from government, the design services sector, academia and industry. Participants were invited as ‘experts’ in their sector and also as potential stakeholders for the design scoreboard. Participants were asked to identify measures which would be of use in a design scoreboard and which would potentially enable international comparison.

Around 45 potential indicators were identified, although many were focused at the company level. This initial set was simplified to seven key indicators, which were viewed as both important, and for which data was also likely to be currently available. These seven are listed, with definitions, in *Table 3*.

Table 3: Definitions of indicators used in this study

Absolute measure	Relative measure	Comments/Issues
Total public investment in design promotion and support	Public investment in design promotion and support as a percentage of GDP	Government investment and not investment from the private sector Difficulties arise in capturing all investment, when it is spent on diverse initiatives and also in the different regions of a nation Thus, this value includes only investment in recognised national bodies
Total number of design graduates	Number of design graduates per million population	Subjects include: graphic/communication design, interior design, industrial/product design, digital/web/media design, fashion design
Total number of WIPO design registrations	WIPO design registrations per million population	Although WIPO is only one route for design registration, it indicates an intention to trade internationally, and is thus a valid source of comparison
Total number of WIPO trademark registrations	WIPO trademark registrations per million population	Although WIPO is only one route for trademark registration, it is indicative of an intention to trade internationally, and is thus a valid source of comparison
Total number of design firms	Number of design firms per million population	Design subjects include: graphic/communication design, interior design, industrial/product design, digital/web/media design, fashion design
Total turnover of the design services sector	Turnover of the design services sector as a percentage of GDP	Employment should include all employees, not just those engaged in design
Total employment in the design services	Employment in the design services sector per million population	

International design data

Inherent difficulties are involved in collecting and comparing data on design between different countries. Few nations actively collect design-related data as part of their national statistics. In most nations, design itself tends to fall between different government bodies. Some aspects of design are encompassed in government departments related to culture, media and the arts. Other aspects of design fall under the department responsible for industry, technology or innovation. In either case, specific statistics on design are rarely collected, and when they are, they are not collected with clear definitional precision. The reason for this is self-evident, as most broad definitions of design span the entire spectrum from the creation of new technology through to the generation of individual works using craft skills.

For each of the chosen indicators, there are specific complexities in obtaining comparable information (see over):

- *Design promotion and support*: many countries have a body specifically mandated to promote and support design. However, in some nations, this role is fulfilled at a regional rather than national level. In other countries, there are no government-funded bodies, but professional associations that have similar ambitions.
- *Design graduates*: in most developed nations, education programmes are defined by a classification system. However, these systems vary greatly between countries. Furthermore, design typically falls under multiple headings. In the UK, for example, ‘design studies’ includes subjects such as multimedia, graphic, interior, industrial and furniture design. However, there are other degree subjects with a design bias that fall under different subject headings. These include engineering design, landscape design, software design, advertising, corporate image and architecture. The problem is compounded, as the data available from different nations each includes a different set of subjects under the broad remit of design.
- *Trademarks and design registrations*: any company wishing to protect a design or trademark can opt to register via national, regional or international routes. A firm in the UK may register through the UK office, through the EU, through another country’s office or through the World Intellectual Property Office (WIPO). Each route has advantages, but it becomes difficult to compile a single indicator that reflects the breadth of activity in any one country. In this study, only registrations through WIPO are used.
- *Design services sector*: data on the design services sector is typically not available through any national statistics agencies. The industrial classification systems vary between countries, and in the UK ‘design’ falls under the Standard Industry Classification code for ‘other business activities’. Under the North American system, there is a specific category for design services. Thus, data on design services turnover and employment is typically only available through independent country surveys and is not always easily comparable.

Recognising these difficulties, this report presents a first attempt at comparing the data that is available. It is acknowledged that in some cases the data may not be directly comparable due to subtle definitional differences. Every effort has been made to highlight these differences. It must be stressed that this analysis is based exclusively on data that is readily available.

Data collection

Data for each country was collected using a variety of sources:

- *National statistics*: wherever possible, data was collected from the National Statistics agencies of the individual countries. However, in many cases, data on design is not collected in a systematic manner, and is therefore not available.
- *Published surveys*: in many countries, there are periodic surveys of the design sector, and these provide valuable snapshots of the nature of these sectors.

- *Published reports*: when reliable survey data was not available, evidence was taken from other published reports and documents. This is often the least reliable, as the basis of the estimations is not readily available.
- *National design support bodies*: the agencies for design promotion and support in more than 25 countries were approached for help in collecting comparable and consistent data.

Detailed spreadsheets were compiled for each nation, and were used as the basis of an initial draft report. This draft was circulated to representatives in each of the countries included for their feedback and comments, to ensure the data and its interpretation are as reliable as possible.

Ranking countries' design capabilities

Two alternative national rankings are presented in this report. The first is based on 'relative' measures of national performance. The second is based on 'absolute' indicators. Both schemes have advantages and disadvantages, and it is felt that by including them both, a more complete picture is presented.

The absolute indicators provide a view of the overall magnitude of design investment, activity and capability in nations. Here, the overall ranking is based on the absolute amount for each indicator. Thus, country size is not a factor. The weakness of this scheme is that although large countries (e.g. the USA) score highly in absolute terms, this might still represent a comparatively small proportion of the national economy.

The relative indicators provide insight into the 'intensity' of design within a nation. Thus, although a small country may have few design firms, in relative terms, the design sector might constitute a large portion of the economy. Thus, for this ranking scheme, all indicators are relative to either national GDP or national population. The weakness of this ranking is that very large countries (e.g. USA) may appear relatively weak, and very small countries (e.g. Singapore) might appear relatively very strong. This relative approach is commonly used in other approaches to comparing international performance.

Country selection

Data was initially collected for 40 countries. These included the top 20 nations on the World Economic Forum's Global Competitiveness Index.⁷ The countries chosen also score highly as being 'innovative nations', according to the INSEAD global innovation index.⁸ In the course of this search, if useful data for other nations was identified, then these countries were added to the sample.

From this initial sample, data on multiple indicators was collected for around 20 nations. However, in some cases data was only available for a small set of indicators. Thus, the 12 countries presented in this report were the only nations for which data was available for at least six of the seven indicators.

Ranking

The simplest approach to providing a comparative ranking is to score each nation from 1–12 depending on relative position for each indicator. An overall ranking can then be determined by averaging the positions for each score. However, this produces even gaps

⁷ <http://www.weforum.org/en/media/publications/CompetitivenessReports/index.htm>

⁸ <http://www.managementtoday.co.uk/news/625441/>

between each country for each indicator. In a large sample this might be appropriate, but it is a substantial disadvantage in a small sample, as the differences in performance are unlikely to be evenly spaced. Indeed, in this study, many of the indicators display a significant skew, as one country outperforms others significantly.

An alternative approach for comparing performance is to normalise the scores for each indicator to a consistent scale. In this case, a 0-4 scale has been used, with the formula:

$$\text{Normalised score (per indicator)} = 4 \times \frac{(\text{country score} - \text{sample min})}{(\text{sample max} - \text{sample min})}$$

Thus, for each indicator, the country with the lowest comparative performance scores zero and the country with the largest scores 4. This normalisation enables the indicators to be compared directly on a consistent scale, while preserving the relative gaps between the performance of each country.

The final positional ranking was determined by averaging the normalised scores for each indicator. Again, this maintains the relative position of each country for each indicator.

Initial ranking for each absolute indicator

	Enabling conditions	Inputs	Outputs	Outcomes				
	Total public investment in design	Total number of design graduates	Number of WIPO design registrations	Number of WIPO trademarks in force	Number of design firms	Turnover of the design services sector	Employment in the design services sector	Overall ranking (Absolute indicators)
Canada	NA	5	6	5	3	3	3	5
Denmark	7	9	9	9	6	7	9	10
Finland	8	6	10	12	11	6	11	11
Hong Kong	6	NA	5	6	9	9	6	8
Iceland	NA	11	12	10	12	11	12	12
Japan	NA	3	1	2	8	4	4	3
Korea	1	2	2	3	7	NA	5	2
Norway	3	10	11	8	10	10	10	9
Singapore	2	7	8	11	5	8	7	6
Sweden	5	8	7	7	4	5	8	7
UK	4	4	4	4	2	2	2	4
USA	9	1	3	1	1	1	1	1

Initial ranking for each relative indicator

	Enabling conditions	Inputs	Outputs	Outcomes				
	Public investment in design as a percentage of GDP	Design graduates per million population	WIPO design registrations per million population	WIPO trademarks in force per million population	Number of design firms per million population	Turnover of the design services sector as a percentage of GDP	Employment in the design services sector per million population	Overall ranking (relative indicators)
Canada	NA	8	10	8	4	8	1	5
Denmark	6	9	4	5	3	7	4	7
Finland	8	6	8	9	8	2	10	9
Hong Kong	4	NA	12	12	11	10	12	12
Iceland	NA	4	9	1	5	5	8	3
Japan	NA	2	3	7	12	11	11	10
Korea	2	1	1	4	10	NA	9	2
Norway	5	11	7	3	7	6	7	8
Singapore	1	5	2	2	2	1	2	1
Sweden	3	10	5	6	1	3	5	4
UK	7	3	6	10	6	4	3	6
USA	9	7	11	11	9	9	6	11

Initial ranking of national design capabilities

		Rank based on absolute measures	Rank based on relative measures
USA		1	11
Korea		2	2
Japan		3	10
UK		4	6
Canada		5	5
Singapore		6	1
Sweden		7	4
Hong Kong		8	12
Norway		9	8
Denmark		10	7
Finland		11	9
Iceland		12	3

Issues and discussion

Several methodological issues might affect these results:

- *Best data available*: we recognise there are limitations in the data used. In all cases, it is the best data available, and wherever possible, data has been sourced from the relevant national bodies. However, some inconsistencies remain. For example, the turnover of the design services sector in both Denmark and Korea appears to be inconsistent with other values on the number of firms and employment. In general, the data produced by national statistics agencies has a greater degree of reliability than data from industry surveys. In some cases, the lack of reliable data has resulted in headline statistics being repeated across differing reports, where the source of the data is not clear. It is worth noting that even obtaining data in the UK was difficult, as terminology is not always clear and data is not necessarily easily available. If this is replicated across other nations, then it is evidently difficult to obtain reliable and comparable data.
- *Relative vs absolute measures*: in all cases, this data has been normalised to either the national population or the size of the economy. This normalisation enables a relative assessment of performance. However, it masks the absolute magnitudes. For example, although relatively the USA is 12th for design registrations, with Korea first, in absolute terms, Korea filed 27,000 registrations compared with 15,000 from the USA. Thus, the differences are not quite so extreme.
- *Snapshot data*: much of this data is not collected on an ongoing basis, and thus is only available as snapshots for specific years. Thus, in some cases, evidence from 2000 is being compared against data from 2007.
- *Definitional inconsistencies*: it is clear that in some cases, the definitional basis of the reported data is not consistent between countries. For example, data on the number of design graduates varies in the design-disciplines that are included. Similarly, data on the design services sector includes different disciplines. Every effort has been made to ensure that the definitional basis of any data has been preserved in any values used. The most substantial differences occur between countries that include or omit architecture as a design discipline.
- *Skews due to country scale*: ratios based on measures of country scale (e.g. population or turnover) have the advantage of enabling relative comparisons. However, they become less reliable when dealing with very large or small countries. Singapore and Iceland are small nations, and design activity appears comparatively intense. The USA is federal and has a

large rural economy, and thus has low design intensity nationally. However, it should be noted that this approach is widely accepted and is used in other similar methodologies for national comparisons.

- *Country selection:* although data was collected on many countries, this sample only includes the nations for which sufficient data was available. However, from the data available, it is evident that China, Taiwan and India are growing rapidly in capability and should be included in future studies.
- *Scale issues:* in some instances, the source data is substantially smaller than the denominator (e.g. national GDP or population) used to create the relative measure. As a result, any errors present in the source data might be overwhelmed by errors in estimating GDP. This is especially relevant for indicators such as ‘public investment in design as a percentage of GDP’, and ‘turnover of the design services sector as a percentage of GDP’.

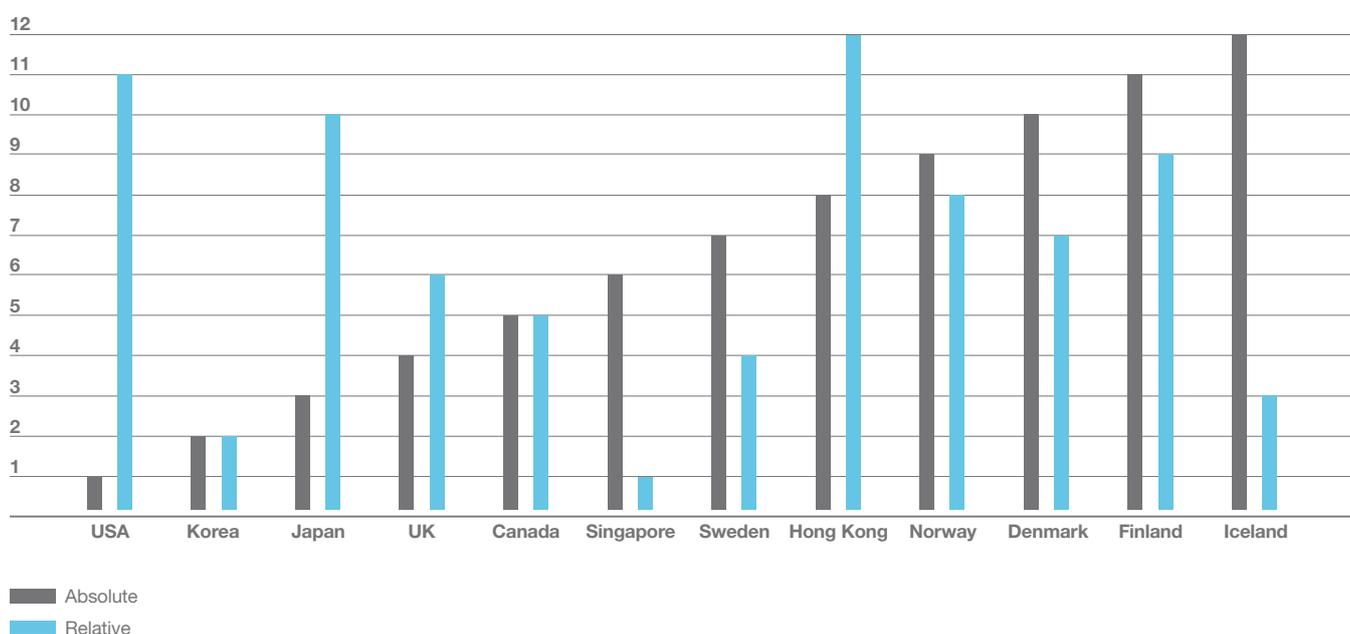
Recognising these methodological issues, the overall ranking appears to be believable and consistent with expectations. The ambition and growth of design in East Asia is reflected in the leading positions for Korea and Singapore. Western Europe has historic strengths, especially in education, but is falling behind in comparison.

Country profiles

Detailed profiles for each country included are provided in part 2 of this report.

Figure 2 provides a summary of the national rankings, for both the absolute and relative indicators. While the USA is leading internationally in absolute terms, it is 11th in this sample in relative terms. Thus, there is comparatively low design intensity, due to the overall size of the country. This is unsurprising, as design capabilities are focused on the industrialised coastal regions. At the opposite end of the scale, Iceland has low capabilities in absolute terms, but design is important relative to the small population and GDP. Korea is placed second in both relative and absolute terms. This highlights Korea’s growing capabilities, and also the importance of design within the overall economy.

Figure 2: Absolute vs. relative rankings



In 2005, the Cox Review, led by Sir George Cox, recognised the emerging threat from the new economies and proposed recommendations for how the UK might meet this challenge. Korea, Singapore, Taiwan, China, Brazil and Russia are all emerging as important players in design globally. In the UK, there has been a steady reduction in total employment in manufacturing and a reduction in turnover of manufacturing as a proportion of GDP. In response, the UK, like many countries, hopes to continue to compete on high-value activities. But this study confirms the emergence of Korea as a future design powerhouse. It also highlights the ambitions of Singapore, China and Taiwan to develop their indigenous design capabilities. 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 which have in the past competed on price and low labour rates are increasingly competing through design.

In both Singapore and Korea, sustained public investment is beginning to result in clear design capabilities, as evidenced through design education and the international registration of trademarks and designs. Public support in both nations is exceptionally ambitious, with substantial funding to support an explicit national vision for design. In both nations, the design services sector is still developing, but is already well established and internationally competitive.

The UK is recognised for its capabilities in design education and the use of design in industry. The UK Design Council is internationally recognised as a provider of support to firms, with many innovative schemes. However, it is evident that the design services sector has reduced in size over the past eight years, following a period of growth towards the end of the 1990s. The size and performance of this sector appears to be coupled with the strength of the wider economy. Following the dot-com crash in the early 2000s, turnover in the design sector fell, only to recover in 2005. The overall trend, however, is downwards, and in the current economic climate it is possible to expect that this trend might continue. UK firms are also comparatively slow to protect designs and trademarks internationally, suggesting a UK and EU bias, rather than a global focus. In comparison with the emerging nations, public investment is relatively low. The UK remains effective in the education of designers, with a comparatively high number of design graduates, although a growing number of them originate from overseas. But, if the design services sector is shrinking, there remains a question about the long-term employment prospects of these graduates.

The Scandinavian nations are vocal in their ambitions for design, with comparatively high public investment as a proportion of national GDP in Iceland, Sweden and Denmark. In comparison, Norway and Finland invest less. On relative measures alone, Iceland is ranked in third place, behind Singapore and Korea. However, in absolute terms, Iceland is last in this sample. This contrast demonstrates a high intensity of design within Iceland, despite low absolute scores across all measures.

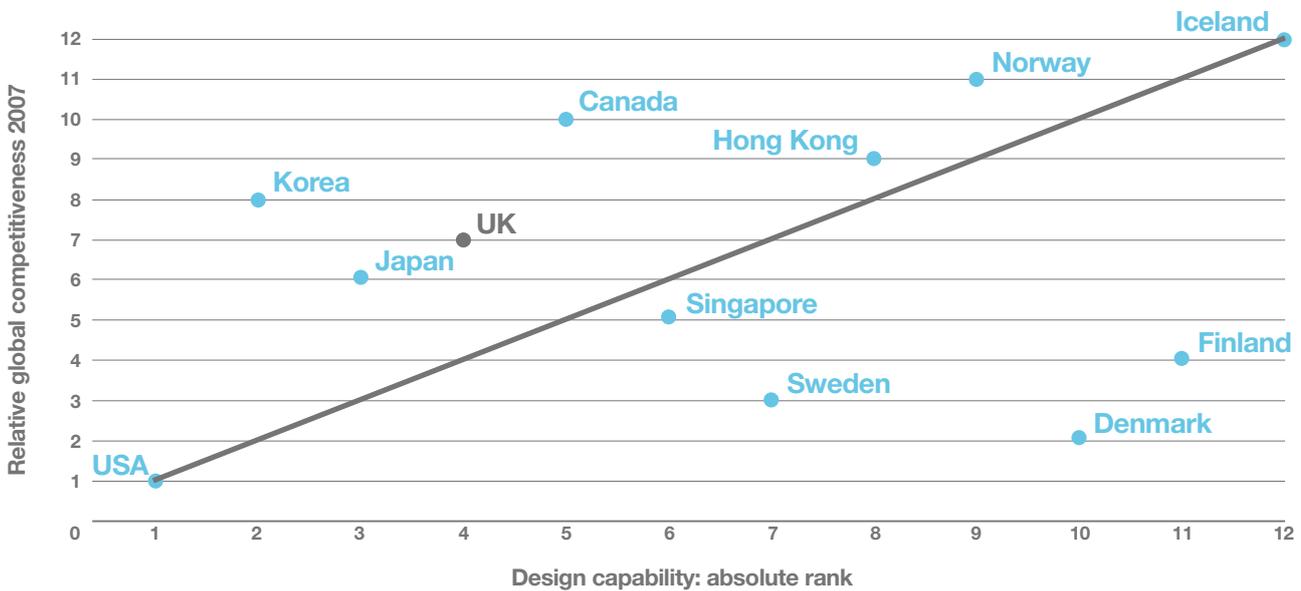
The USA and Japan rank highly on absolute measures, but compare less favourably for the relative indicators. The USA ranks first for almost all of the absolute indicators, but ranks 11th in relative terms. This reflects the large scale of the US economy and population. In addition, it is evident that design capabilities are dispersed to the industrialised regions. In Japan, a similar picture emerges, with high absolute and low relative scores. This is further influenced by a cultural preference for the development of in-house capability, and as a result, the design services sector appears to be comparatively small.

One of the long-term objectives of this study is a desire to understand the linkages between national design capabilities and economic performance. However, it is currently not possible to draw any strong conclusions, as the data is not sufficiently complete.

In 2003, Walton⁹ produced a novel comparison of the global competitiveness ranking of nations (from the World Economic Forum 2002) against a ‘design-index’ derived from the data used to compile the Global Competitiveness Report (GCR). This design-index drew on existing measures within the GCR, including: extent of branding; capacity for innovation; uniqueness of product designs; production process sophistication; and extent of marketing. However, this approach had methodological weaknesses, both in the selection of criteria for the design-index and also in the potential circularity introduced by the inclusion of the same measures along both axes. Using the rankings for national design capability derived in this study, a similar analysis is provided (Figure 3). Each nation’s position in the 2007–8 GCR (Figure 3) is plotted against their absolute ranking for design capability. Each country in the sample has been ranked from 1–12 according to its position in the 2007–8 GCR.¹⁰

The grey line shows a theoretical one-to-one mapping between the rank for design capability, and the rank for competitiveness. Korea has a higher ranking for design than competitiveness. However, it is useful to note that Korea was ranked at 23rd in the 2006–7 GCR, compared with 11th in the 2007–8 report, suggesting rapid improvement. Sweden, Denmark and Finland rank highly for competitiveness, but lower than might be expected for design capability. Clearly more data is needed if any reliable patterns are to be identified.

Figure 3: Design capability vs. relative global competitiveness



⁸ Walton M, D. I. (2003). Building a case for added value through design: report to Industry New Zealand, NZ Institute of Economic Research

⁹ World Economic Forum, (2007), The Global Competitiveness Report 2007-8, Palgrave Macmillan, USA

Recommendations for further work

This report provides an initial comparison of nations based on available data. It is recognised that there are limitations in this work, relating to comparability and availability of data as described above.

In addition to providing this initial comparison, the underlying motive of this work is to highlight these difficulties and propose a framework to enable more effective data collection. It is hoped that this will enable ongoing debate, but also provide the basis for future collection and comparison of data. A single snapshot comparison is interesting, but the real value of similar scoreboards is in the ongoing collection and analysis of data to enable trends and relationships to be identified. A vision for this work is that the defined measures might form the basis of a longer-term study, with support from many nations.

A revised set of indicators

The indicators used in this study reflect the current availability of data. They do not on their own, however, provide a complete picture and further indicators would be useful.

A significant issue in capturing data on design is the use of a consistent terminology. For example, when capturing data on design graduates and the design services sector, it is necessary to ensure that the subjects or disciplines included are comparable. In many nations, design is the responsibility of both the ministries for industry/innovation and also the ministries for culture and the arts. In education, for example, design appears in both the arts and sciences. This difficulty in positioning design is a major issue in collecting data through national statistics bodies, as summary data is of little use. Instead, data needs to be collected at a finer level of detail.

A revised set of indicators is proposed below. It is hoped that these might provide the basis for ongoing collection of data.

Revised enabling-conditions indicators

In the current study, public investment in design has been limited to funding provided directly to the established 'national body' representing design. This pragmatic decision reflects the availability of current data. However, in many nations, further government funding is provided, through regional centres and also specific initiatives.

Thus, an additional measure of public investment would usefully capture this wider spend. A summary of revised measures of enabling conditions is provided in *Table 5*.

Table 5: Revised enabling conditions indicators

Absolute measure	Relative measure	Comments/Issues	
Total public funding of 'national bodies' for design promotion and support	Public funding of 'national bodies' for design promotion and support as a percentage of GDP	This should include only government investment and not investment from the private sector.	This should include only government investment and not investment from the private sector.
Total national public investment in design promotion and support	Total national public investment in design promotion and support as a percentage of GDP	This value should represent all investment in design, including any national bodies.	Other investment might include specific policy initiatives and regional centres.

Revised input indicators

The current input measure capturing the number of design graduates is effective. However, difficulties arise in providing comparisons when the subjects included are not consistent between nations. The indicator might be improved by providing data on individual design disciplines separately.

It is also evident that in some nations, many design graduates originate from overseas. This might usefully be captured. Revised indicators for 'inputs' are shown in *Table 6*.

Table 6: Revised input indicators

Absolute measure	Relative measure	Comments/Issues	
Total number of design graduates in a given year	Total number of design graduates per million population	Care needs to be taken in ensuring that the subjects included are explicit.	Data on architecture graduates should be reported separately
Total number of design graduates of overseas origin in a given year	Total number of design graduates of overseas origin per million population	Subjects should include: graphic/communication design, interior design, industrial/product design, digital/web/media design, fashion design	Ideally, data should be provided for each discipline, to enable comparison at a finer level of detail

Revised output indicators

The internationalisation of business makes it difficult to establish true origins and flows of intellectual property. A global firm may design in the UK, register the design through the USA and produce the goods in China. In addition, there are many routes a firm may take to registering a design or trademark. However, although many alternative routes for registration exist, it is felt that the registrations through WIPO remain the most effective indicator of an expectation of international trade. Thus, no additional output indicators are proposed (*Table 7*).

Table 7: Revised output indicators

Absolute measure	Relative measure	Comments/Issues	
Total number of WIPO design registrations	WIPO design registrations per million population	Although WIPO is only one route for design registration, it is indicative of an intention	to trade internationally, and is thus a valid source of comparison
Total number of WIPO trademark registrations	WIPO trademark registrations per million population	Although WIPO is only one route for trademark registration, it is indicative	of an intention to trade internationally, and is thus a valid source of comparison

Revised outcome indicators

Given the different ways in which design is represented in the industry classification schemes of different nations, reliable data on the size and turnover of the design services sector can be difficult to establish.

In most nations, the design services sector is made up of a very large number of sole-traders or small firms. Currently, it is unclear whether a design sector comprising many small firms is more productive than one with fewer small firms and many larger businesses. Thus, it might be also be appropriate to capture the number of design service firms above a specific size (e.g. 10 people).

In some nations, the design services sector is small, as there is a cultural preference for keeping design work in-house. Thus, in addition to understanding employment in the design services sector, it would be useful to capture data on the employment of designers within industry. This is not simple, though, as a qualified designer might not be engaged in design. Similarly, a practising designer might not have formal qualifications. Pragmatically, this data can be captured only through national statistics for the appropriate occupational codes. Furthermore, as with industry classification schemes, occupational codes typically do not accurately capture design subjects.

In most nations, the architecture sector is of a similar size to the other design disciplines combined. Data from some countries does not include architecture, so when it is included it introduces a substantial skew to the results. Ideally, as an important design sector architecture should be included, but should be isolated to highlight its specific impact in both outcomes and inputs.

Understanding the exports from the design services sector would provide useful insights into the maturity and international focus of the sector.

A potential indicator of design intensity within a nation is to capture the export of goods with a large design content. This would be an indirect measure, and it is possible for the design of the goods to be geographically separate from the production. However, it might also be a leading indicator, as design often follows production in geographic relocation. Exports from a small sample of goods (e.g. automotive, furniture, clothing and consumer electronics) could provide some useful insight.

These additional indicators are summarised in *Table 8*.

Table 8: Revised outcome indicators

Absolute measure	Relative measure	Comments/Issues	
Total number of design firms	Total number of design firms per million population	Design subjects should include: graphic/communication design, interior design, industrial/product design, digital/web/media design, fashion design Data on architecture graduates should be reported separately	Ideally, data should be provided for each discipline, to enable comparison at a finer level of granularity Employment should include all employees, not just those engaged in design
Total number of design firms with more than ten employees	Number of design firms with more than ten employees per million population	Subjects as described above Acknowledging the predominance of sole-	traders in the design services sector, this measure would provide a strong indication of the maturity of the sector in a nation
Total turnover of the design services sector	Turnover of the design services sector as a percentage of GDP	Design disciplines as described above	
Total employment in the design services sector	Employment in the design services sector per million population	Design disciplines as described above	
Total number of designers employed in industry	Total number of designers employed in industry per million population	This would enable commentary on the relative importance of in-house design as opposed to outsourced design This should include designers as reported through design-related	occupation codes Design disciplines should include: graphic/communication design, interior design, industrial/product design, digital/web/media design, fashion design
Total exports from the design services sector	Exports from the design services sector as a percentage of national exports	This would enable the degree to which the indigenous design sector is operating internationally to be determined	
Total export of designed goods	Export of designed goods percentage of national exports	This would provide an indication of the national activity in producing and exporting goods with high design content. It would not be necessary to include all goods,	but a representative sample, to capture the range of design disciplines. Goods could include: automobiles, furniture, consumer electronics, and clothing

A revised ranking

Using these revised indicators, it should be possible to produce a more reliable and consistent national ranking on a regular basis. It is hoped that a follow-on project will enable the collection of data for 2009–10 for a wider range of nations, to produce the first internationally-agreed ranking of design capability in different nations.

Part two: Country overviews



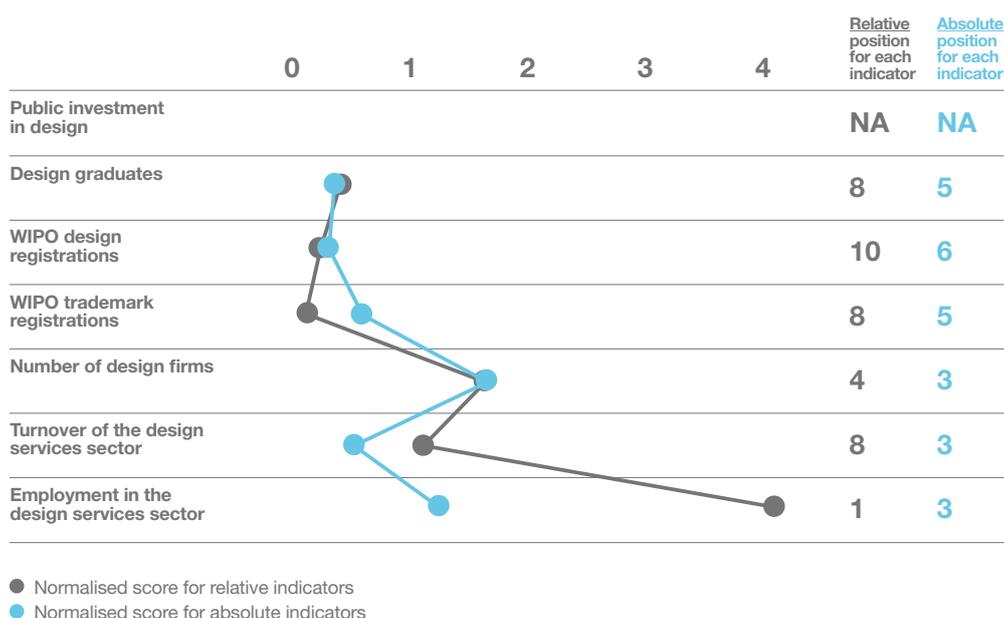
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Canada

Canada ranks fifth in this sample based on the absolute measures, and also fifth based on the relative measures.

The strength of the Canadian design system varies, with low levels of design graduates and international intellectual property protection but with a high number of firms and a leading position in terms of employment in the design services sector.



		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (CAN \$ M)									NA
	Total investment US \$ M 2007 prices									NA
	as a percentage of GDP (x 10 ⁻³)									NA
Design graduates	Total number						3,308			3,308
	per million population						102			102
WIPO design registrations	Total number		2,761	2,845	2,178					2,178
	per million population		90	92	69					69
WIPO trademark registrations	Total number			16,829	17,065	25,520	30,754	26,726	22,878	22,878
	per million population			542	544	806	961	827	701	701
Number of design firms	Total number					12,014	11,854	12,411		12,411
	per million population					376	367	380		380
Turnover of the design services sector	Total turnover (CAN \$ Bn)				2.02	2.23	2.33	2.54		
	Total turnover US \$ Bn 2007 prices				1.66	1.78	1.96	2.37		2.37
	as a percentage of GDP (x10 ⁻³)				1.85	1.98	2.01	2.13		2.13
Employment in the design services sector	Total number		45,900	44,000	44,000					44,000
	per million population		1,496	1,418	1,402					1,402

Canada: Absolute and relative data (for full references, see appendix)

Although there is a national innovation strategy for Canada,¹¹ there is no explicit policy for design. The innovation strategy recognises the importance of developing and exploiting new products, but does not comment on the role of design in this process. Indeed, there is very little mention of design in the innovation strategy.

Provision for design support in Canada is predominantly regional, with no national-level voice. As a result, it is difficult to compile a single value for national investment in design promotion and support. However, it should be noted that several of the regional bodies are extremely strong, and provide significant support to businesses in the use of design. The Quebec government, for example, administers a design tax credit for both industrial design and fashion design whose aim is to help small firms use design to help improve competitiveness.¹² The tax credit is available to any manufacturing firms with an annual revenue of less than C\$150K and who either employ design skills in-house, or who buy in the design services. The in-house designer must hold a Certificate of Qualification and be engaged in design work. The aim of this scheme is to help small firms use design to help improve competitiveness.

The design workforce in Canada is well educated, with around one-third of designers having a university degree. However, there are no published statistics for the whole of Canada relating to the number of design graduates and this data is also not available for all regions. A national estimate has been calculated for this report based on the number of design graduates in Ontario, which has been scaled relative to the total number of graduates in Ontario compared with Canada as a whole. There is no time-series data available, and thus it is not possible to comment on whether this is growing or shrinking.

Outputs in terms of international design registrations and trademark activity through WIPO are comparatively low, in both relative and absolute terms. However, this may be explained by a possible tendency for Canadian firms to trade primarily in North America, and thus protect designs through the US Patent Office as opposed to WIPO. By comparison, there are just two Canadian brands in the Interbrand top 100 brands.¹³

Data on specialised design services for Canada is comparatively reliable, being generated from national statistics based on the North American Industry Classification System. This specifically distinguishes between industrial design, interior design, graphic design and other design services. Revenue from the design services sector is dominated by interior design, which accounts for roughly 60% of the overall total. As in most countries, the specialised design sector comprises many small firms, with few having more than 20 employees. The size of the design services sector in terms of revenue, turnover and employment appears to be static, based on the data available. In absolute terms, the sector is the third largest, behind the USA and UK.

The main centres of design activity in Canada are in Ontario and Quebec, which together account for around three-quarters of the overall revenue from the design services sector. Toronto has the largest design workforce in Canada, and is third to New York and Boston in North America.¹⁴

It should be noted that employment in the design services sector is surprisingly high in comparison with data on turnover and the number of design firms. If the values are reliable, then this indicates low productivity in this sector. Data on employment is taken from a different source to data on the number of firms and turnover. The employment values are taken from an OECD/Statistics Canada-sponsored report. It may be that these indicators are using different base definitions of the service sector.

¹¹ Government of Canada, (2001), *Achieving excellence: investing in people, knowledge and opportunity: Canada's Innovation Strategy*

¹² <http://www.mdeie.gouv.qc.ca/index.php?id=4117> (viewed on 02/02/09)

¹³ http://www.interbrand.com/best_global_brands.aspx (viewed on 02/02/09)

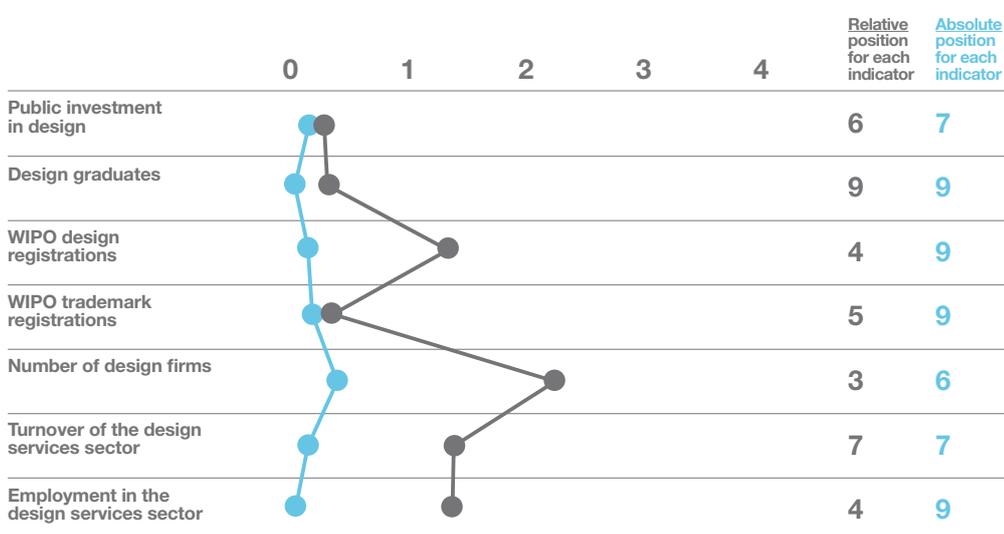
¹⁴ Gertler M S, Vinodrai T, (2004), *Designing the economy: a profile of Ontario's design workforce, prepared for the design Industry Advisory Committee (DIAC)*

Although Canada ranks fifth for the absolute and relative indicators, the overall picture for is somewhat inconsistent. It must be recognised that as a large nation, there is greater intensity of design within specific regions and cities. By comparison against the whole population or economy, the result is a relatively low intensity of activity, although an apparently large design services sector.

Denmark

Denmark ranks 11th in this sample based on the absolute measures, but seventh based on the relative measures.

Denmark has a strong tradition of design, and although public investment is low, the government has established a strong policy to encourage growth and strength in the design sector and to promote Danish design internationally. The importance of exports nationally is reflected in strong relative performance in design-related intellectual property. However, potential weaknesses in the education of designers and low turnover in the design sector might point to longer-term difficulties.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (DKK M)					12.50	12.50	12.50	12.50	
	Total investment US \$ M 2007 prices					2.23	2.15	2.21	2.25	2.25
	as a percentage of GDP (x 10 ⁻³)					0.00853	0.00807	0.00761	0.00760	0.00760
Design graduates	Total number								450	450
	per million population								82	82
WIPO design registrations	Total number	1,421	1,279	1,166						1,166
	per million population	266	239	217						217
WIPO trademark registrations	Total number		12,003	10,042	9,551	9,094	9,766	7,694		7,694
	per million population		2,240	1,869	1,773	1,684	1,803	1,416		1,416
Number of design firms	Total number		2,860							2,860
	per million population		534							534
Turnover of the design services sector	Total turnover (DKK Bn)						3.50	3.94		
	Total turnover US \$ Bn 2007 prices						0.60	0.70		0.70
	as a percentage of GDP (x10 ⁻³)						2.26	2.40		2.40
Employment in the design services sector	Total number		2,846							2,846
	per million population		531							531

Denmark: Absolute and relative data (for full references, see appendix)

Danish designers have an international reputation for producing work embodying simple lines, functionalism and the use of natural materials.¹⁵ Famous brands such as Bang & Olufsen embody these principles. Building on this rich design history, Denmark was one of the first industrialised nations to have formulated an explicit policy for the design industry. Although there is an explicit national policy for design, public investment in design promotion and support is low in comparison with the leading nations.

The most recent policy initiative was in 2007, with the launch of the publication *Design Denmark* by the Danish government.¹⁵ The primary objectives articulated were to generate growth in the design industry and to make better use of design to encourage growth in the wider business sector. This ambition is underwritten by an explicit vision from the government for 'Denmark to be restored to the international design elite' and for Denmark to be 'amongst the world's best nations at applying design in the development of products and services'. The policy is the result of a collaboration between four ministries: culture, business, education and research. This highlights the inherent difficulty faced by design, as it typically falls between the jurisdictions of different ministries. Implementation of *Design Denmark* is through a number of initiatives, including worldwide promotion of Danish design, and promotion/support for industry. Financial support is also provided for firms to access design consultancies for the first time under the 'Icebreaker' programme.¹⁶ In 2005, a Commission of Danish Design Promotion was also established.¹⁵

While the high quality of Danish design graduates is widely acknowledged, there are few such graduates (per million population and in absolute terms) in comparison with other nations in this sample. It is not clear whether there is a downward trend, or whether the number of graduates is growing, as reliable data is not available. A large proportion of Danish designers are degree-educated, and it is estimated that employment within the design services sector accounts for around 50% of the total number of qualified designers.¹⁷

Given the importance of exports to the national economy, it would be expected that activity in the generation of international trademarks and design registrations might be comparatively high. The number of design registrations has remained relatively static over a ten-year period to 2002. In contrast, the number of international trademarks has reduced from around 12,000 (or 2,200 per million population) in 2002, to just 7,700 (or 1,400 per million population) in 2006. In both cases, Denmark is placed 10th in this sample, but is placed higher in relative terms. This low number of trademarks is interesting, as there are no Danish brands in the Interbrand top 100 for 2008. In comparison, Danish applications for trademarks through the EU in 2006 were also relatively low, at only 1.5% of the world total.

Data on the Danish design sector is somewhat inconsistent. In absolute terms, Denmark is below average in the number of design firms, turnover in the design services sector and employment within the design sector. However, in relative terms, Denmark is third in this sample for the number of design firms per million population. As in most countries, the design sector is dominated by very small firms. Indeed, of the approximately 5,000 design firms, only around 50 of these employ more than 10 people. Graphic design accounts for roughly 32% of Danish design firms, with product design a close second at around 26%.¹⁷ The sector has had a period of rapid growth since the late 1990s. This growth may be as a result of the policy to encourage new design firms, and indeed start-ups account for around 10% of the total number of firms.

¹⁵ The Danish Government, (2007), *Design Denmark*, ISBN 978-87-7862-266-2

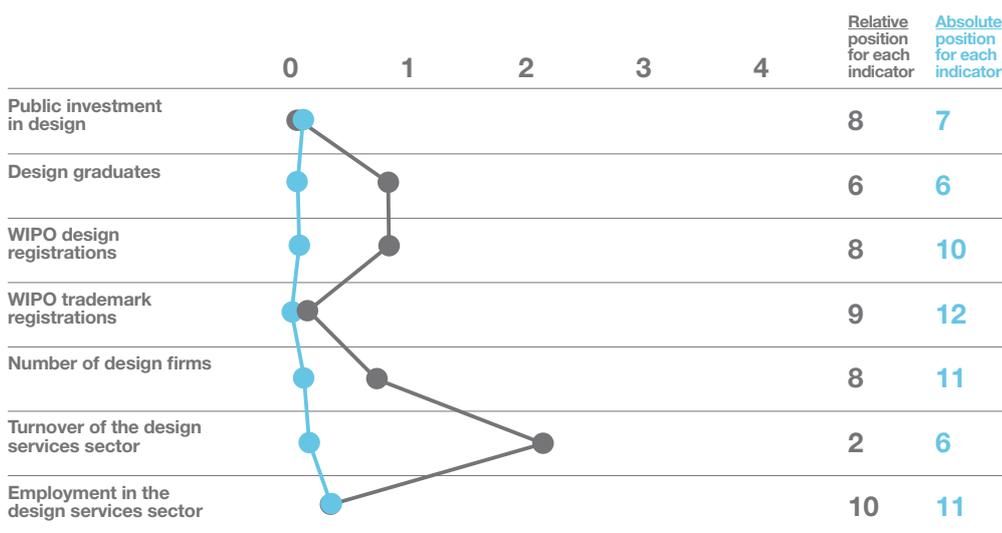
¹⁶ Husman T B, Lorenzen M, (2004), *Country Report: The Danish design industry*, prepared for the research project: *The Future in Design, the competitiveness and industrial dynamics of the Nordic design industry*, Copenhagen Business School

¹⁷ Copenhagen Business School, (2005), *A Mapping of the Danish Design Industry*, published by IMAGINE, Creative Industries Research at Copenhagen Business School, May 2005

Finland

Finland ranks 11th internationally based on the absolute measures, but ninth based on the relative measures.

Finland has a comparatively small design services sector, and produces few international design registrations and trademarks. However, a highly ambitious national policy is seeking to address this and substantially develop national capabilities.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (Euro M)			1.36	1.60	1.70	1.75	1.66		
	Total investment US \$ M 2007 prices			1.46	2.14	2.26	2.24	2.20		2.20
	as a percentage of GDP (x 10 ⁻³)			0.00026	0.00028	0.00027	0.00031	0.00026		0.00026
Design graduates	Total number	714	816	819	886	881	812	827	944	944
	per million population	138	157	157	170	169	155	157	179	179
WIPO design registrations	Total number	765	763							763
	per million population	148	147							147
WIPO trademark registrations	Total number		8,132	8,079	7,507	6,681	8,102	3,121		3,121
	per million population		1,567	1,553	1,440	1,278	1,544	593		593
Number of design firms	Total number					921				921
	per million population					176				176
Turnover of the design services sector	Total turnover (Euro Bn)		0.44	0.50	0.57					
	Total turnover US \$ Bn 2007 prices		0.43	0.54	0.76					0.76
	as a percentage of GDP (x10 ⁻³)		3.05	3.49	3.64					3.64
Employment in the design services sector	Total number			865						865
	per million population			166						166

Finland: Absolute and relative data (for full references, see appendix)

As in other Scandinavian countries, Finnish design emerged during the post-war period as synonymous with functionality and simplicity. Finnish design was arguably the most distinctive, as it embodied the more individualistic approach of the local designers.¹⁸ In the post-war period there were few design agencies, and businesses instead drew on the skills of the few design personalities. By the late 1980s, the design sector had begun to develop and firms were frequently using professional agencies.

The Finnish government has long recognised design as an important contributor to economic growth, and that without intervention, firms will not maximise their use of design. Indeed, Finland is widely perceived as having national strength in design. In a study published by the New Zealand Institute of Economic Research in 2003, Finland was placed top for competitiveness in design.¹⁹ However, the indicators used in this study were only loosely correlated to actual design activity.

In response to a perceived fall in national competitiveness, in the late 1990s the National Council of Crafts and Design of the Arts Council in Finland suggested that a more formal national policy for design was necessary. In 2000, the Finnish government established a formal national policy, to make design a significant factor in the country's competitiveness and the national innovation system.²⁰ This became the foundation for the national policy entitled Design 2005! An explicit ambition was to promote Finland as an international design leader. This included, for example, the development of the built environment to represent a strong national identity. A specific focus was raising standards in design education. The programme was delivered through several initiatives, including the establishment of Designium, the centre for Innovation in Design, and a design support for SMEs scheme. Together, these initiatives sought to use design to improve businesses performance and hence national competitiveness. The policy also recognised the importance of Finland's location among the Nordic and Baltic nations and also aimed to increase the value generated by the creative industries and strengthen the development of Nordic and Baltic creative businesses.

More recently, the revised national ambition is for Finland to be recognised as one of the best-known design countries in the world by 2010, and to be internationally recognised as a leader in design and design competence.²¹

Although this policy initiative appears ambitious, public funding is still comparatively low in absolute terms, and is carefully targeted. As a result, Finland has a below average public investment in design in comparison with other nations in this study. Interestingly, government funding accounts for only 40% of total investment, with the remainder coming from the private sector. It is worth noting, however, that this funding has remained consistent over a long period, rather than being a large injection of funds at a single point.

Although Design 2005! mentioned a desire to improve the quality of design education, the number of design graduates is below average compared with other nations. However, there has been a steady growth over the past ten years, with 95 design graduates per million population in 1996, compared with 178 in 2006. This latter value represents nearly 1,000 design graduates per year, and it is intended that this should grow to around 2,500 by the end of the decade and to nearly 3,000 by 2015.²⁰ This planned growth indicates the perceived need for growth in the number of highly trained designers to meet demand in all sectors. If this ambition can be achieved, then in relative terms Finland would be second only to Korea in design education.

¹⁸ Valtonen A, (2006), *Getting attention resources and money for design: linking design to the national research policy*, University of Art and Design Helsinki, School of Design

¹⁹ New Zealand Institute of Economic Research, (2003), *Building a case for added value through design*, Report to Industry New Zealand

²⁰ Salimaki M, Ainamo A, Salmenhaara K, (2004), *Country report: The Finnish design industry*, prepared for the research project: *The Future in Design, the competitiveness and industrial dynamics of the Nordic design industry*, Helsinki School of Economics

²¹ Design Forum Finland, (2005), *Annual Report*, Design Forum Finland: The Finnish Society of Crafts and Design

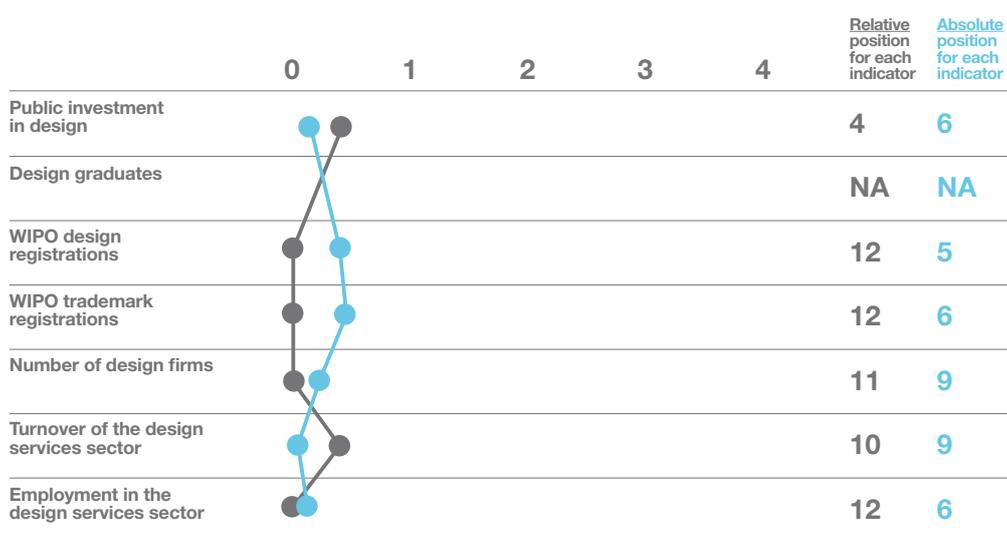
Activity in the international registration of designs and trademarks is also low in comparison with other nations in this study. In both cases, the number of registrations has been in steady decline. There may be several explanations for this. First, very few Finnish companies are recognised as operating multi-nationally. The exception is Nokia, which was placed fifth in the Interbrand top 100 brand list for 2008. In addition, Finnish firms may view Scandinavia and the Baltic region as their primary market, so there may be a preference for registration through the EU. However, data for Finnish applications for trademarks in the EU in 2006 was also low, at less than 1% of the world total.

The small indigenous industrial base may be a factor in the comparatively small number of design firms, and low employment in this sector. However, in comparison with other nations, turnover from this sector is surprisingly high. This possibly suggests a highly productive sector, and might indicate high export activity, although data is not available to verify this. As in other nations, the majority of firms in this sector have few employees, with around 60% being sole traders.

Hong Kong

Hong Kong (HK) ranks eighth in this sample, based on the absolute measures, but 12th based on the relative measures.

HK is a small nation, with a powerful economy, and is located close to a major industrial powerhouse. As a result, great care needs to be taken in interpreting the comparative position of design in Hong Kong. For most measures, the performance is low in comparison with other nations. However, HK's unique position as a bridge to mainland China may not be adequately reflected in the available data.



● Normalised score for relative indicators
● Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (HK \$ M)					20.00	20.00	20.00	20.00	
	Total investment US \$ M 2007 prices					2.79	2.69	2.66	2.56	2.56
	as a percentage of GDP (x 10 ⁻³)					0.01548	0.01447	0.01355	0.01240	0.01240
Design graduates	Total number									
	per million population									NA
WIPO design registrations	Total number	2,684	2,864	2,992						2,992
	per million population	40	43	44						44
WIPO trademark registrations	Total number		14,219	16,240	20,356	26,440	19,686	17,907		17,907
	per million population		211	241	301	389	288	259		259
Number of design firms	Total number	1,586	1,725	1,797						1,797
	per million population	24	26	27						27
Turnover of the design services sector	Total turnover (HK \$ Bn)	0.99	1.16							
	Total turnover US \$ Bn 2007 prices	0.15	0.17							0.17
	as a percentage of GDP (x10 ⁻³)	0.77	0.91							0.91
Employment in the design services sector	Total number	5,062	5,547	5,659						5,659
	per million population	75	82	84						84

Hong Kong: Absolute and relative data (for full references, see appendix)

Hong Kong (HK) has been an active design centre for around 30 years. The HK government has recently had the ambition to build on its existing expertise, to increase its potential for export into Asia (specifically China) and improve the application of design skills in the 60,000 (plus) enterprises in the Pearl River Delta region.²² HK has a primary advantage in comparison with other East Asian nations in sharing a common language with the large manufacturing centres of China. Trade between China and HK is also supported by CEPA, a free trade agreement that ensures duty-free exports for HK made goods and services.²³

Policy relating to design issues is driven by several different players. The Home Affairs Bureau (equivalent to the UK Ministry of Culture) is responsible for the creative arts. The Central Policy Unit is responsible for policy research. The HK Trade Development Council aims to facilitate opportunities in international trade for HK companies, especially SMEs. The HK Design Centre is the primary means of delivering the national design policy and views design as a professional business activity that can add value and increase competitiveness of products or services by interfacing with aesthetics, science and technology.²⁴ Specific initiatives include the Design Smart initiative, comprising a coherent set of programmes seeking to strengthen support for innovation through design. Programmes include finance for businesses to access specialist design skills, awards for talented young designers and the creation of an Innovation and Design Centre (Inno Centre) to accommodate a cluster of high value-added design activities.²²

Given the small size of HK, there is comparatively extensive government support in the promotion and support of design through the Hong Kong Design Centre. In relative terms, there is more public investment only in Singapore, Korea and Sweden. HKDC has a visible presence both in HK and internationally. Thus, rather than be a source of support to local firms, HKDC plays a substantial role in building international awareness of the potential for HK as a route into China for production.

There is little reliable data on the number of design graduates, although several well-established design schools have an international reputation. However, the HK design system is highly structured, and thus there is ongoing concern that more attention should be given to communication, presentation and creativity.²³

As much of the design work originating in HK is being produced in mainland China, protection of intellectual property rights remains a big issue. The more robust legal system in HK offers firms greater protection than elsewhere in mainland China, but there is still a lot of pirating or copying of designs in production. International trademark and design registrations activity in HK are both low in comparison with other nations, especially per million population. Difficulties in defending intellectual property might provide an underlying reason. In addition, the lack of registrations might reflect the lack of industrial activity in HK compared with mainland China.

HK's design sector has historically blended elements of traditional Chinese design with western influences. The graphic design sector grew in the first half of the 20th century, and the advertising sector remains strong, reflecting the growth in financial and service organisations based in HK.²¹ Over the past 20 years, HK design has become intimately intertwined with the growth of industry and manufacturing in the Pearl River Delta in mainland China. More recently, HK-based design firms have begun to establish a more permanent presence in mainland China. The introduction of CEPA has enhanced this transition. A consequence of this relationship is that the design sector in mainland

²² Innovation and Technology Commission, (2004), Consultation paper: Promotion of innovation and design – Design Smart initiative, Hong Kong, March 2004

²³ Centre for Cultural Policy Research, (2006), Study on the relationship between Hong Kong's cultural and creative industries and the Pearl River Delta: Final Report part II, commissioned by the Central Policy Unit HKSAR Government, The University of Hong Kong

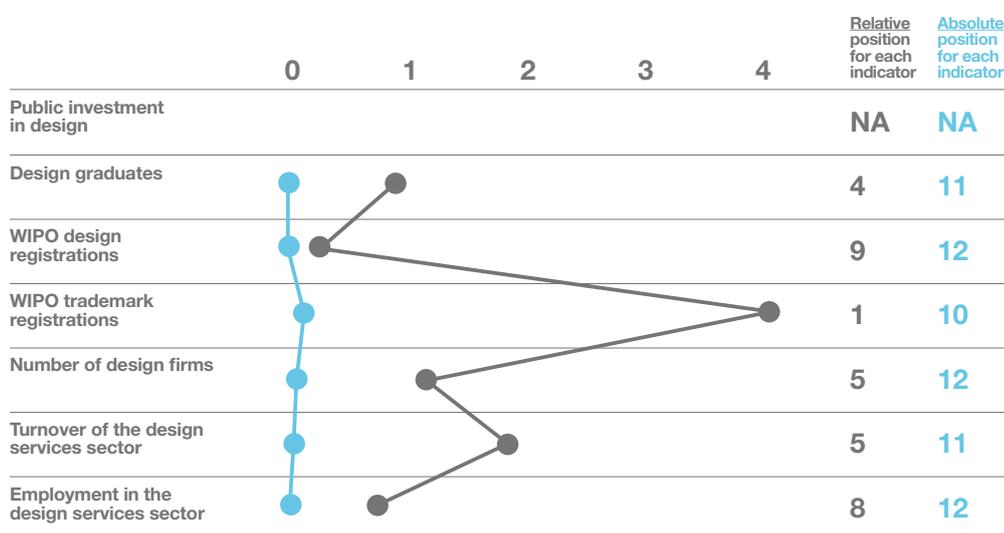
²⁴ Hong Kong Design Centre, (2007), Creating value through design, HKDC

China is developing with support from HK-based firms. In contrast, the sector in HK remains small (in relative and absolute terms). The picture is further complicated as many firms in the Pearl River Delta are owned by HK investors, who often favour HK-based designers. These firms may not be apparent in any national statistics. Thus, there are few design firms, with correspondingly low turnover and employment in this sector.

Iceland

Iceland ranks 12th in this sample, based on the absolute measures, but third based on the relative measures. This discrepancy can be explained by the small size of Iceland, resulting in an apparently very high intensity of design activities.

The picture that emerges for Iceland appears to include some contradictions. Overall, performance is average, with comparatively high numbers of design graduates and exceptionally strong performance in design registration. However, the small population and economy mean that care must be taken in interpreting these numbers. In comparison to the scale of the country, performance is strong. But in absolute terms, Iceland performs less well.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (Euro M)									NA
	Total investment US \$ M 2007 prices									NA
	as a percentage of GDP (x 10 ⁻³)									NA
Design graduates	Total number		39	40	48	54				54
	per million population		139	140	167	188				188
WIPO design registrations	Total number		32	31	22					22
	per million population		114	109	77					77
WIPO trademark registrations	Total number		3,664	3,313	3,113	3,271	2,889	4,357		4,357
	per million population		12,854	11,521	10,761	11,180	9,765	14,683		14,683
Number of design firms	Total number		50	54	64	82				82
	per million population		178	189	223	283				283
Turnover of the design services sector	Total turnover (Euro Bn)		0.02	0.03	0.02	0.03				
	Total turnover US \$ Bn 2007 prices		0.02	0.03	0.03	0.03				0.03
	as a percentage of GDP (x10 ⁻³)		3.20	3.68	3.43	3.22				3.22
Employment in the design services sector	Total number				90					90
	per million population				311					311

Iceland: Absolute and relative data (for full references, see appendix)

Government support for design in Iceland is limited, although the creation of a Design Centre has been on the agenda for several years. Funding was initially provided in the early 1990s, but later withdrawn.²⁵ Responsibility for promotion of the design services sector falls within the remit of the Ministry for Industry and Commerce, the Trade Council of Iceland and the Federation of Icelandic Industries. The Trade Council in particular has been active in promoting Icelandic design overseas. However, although Iceland is often perceived as being a creative nation, there is no tradition of design that is internationally recognised, unlike other Scandinavian nations.

The indicators for Iceland need to be read carefully. Iceland has an exceptionally small economy and population, and as a result the relative indicators collectively suggest a high level of intensity of design activities. However, in absolute terms, for all of the indicators Iceland is towards the bottom of this sample of countries.

There are comparatively large numbers of design graduates per million population, although the absolute numbers are very small. There has been a steady increase in the number of Icelandic students studying design, with 138 per million population in 1999 and nearly 190 in 2003 (representing growth from 39 to 54 graduates). However, this growth does not reflect the true number of students studying design. While there were a total of around 163 students (all years) studying design in Iceland in 2003, a further 272 were studying in Europe, Canada and the USA. The data presented does not capture these home students studying abroad, which for a small country such as Iceland may be significant.

Thus, Iceland appears to be extremely strong in the intensity of trademark registration in comparison. The reason for this is not clear. One explanation might be that many firms have chosen Iceland as their base for economic reasons. As a result, registrations might appear to originate from Iceland, even though the work may be based elsewhere. Given the high trademarking activity through WIPO, registrations through the EU are exceptionally low, representing only 0.01% of the world total for 2006.

Iceland is first in the sample for the number of WIPO trademarks relative to population. However, it is useful to note that while there is ten times the amount of trademark activity in the USA, the economy there is roughly 40 times larger than that of Iceland. This produces a result that is potentially misleading. In absolute terms, Iceland is 11th in this sample for trademark activity. There are also comparatively few international design registrations. This balance between designs and trademarks suggests a bias towards graphics and brand identity, and comparatively little design and manufacturing. Again, this might be explained by the migration of manufacturing. However, as the numbers are so small it is difficult to draw any strong conclusions.

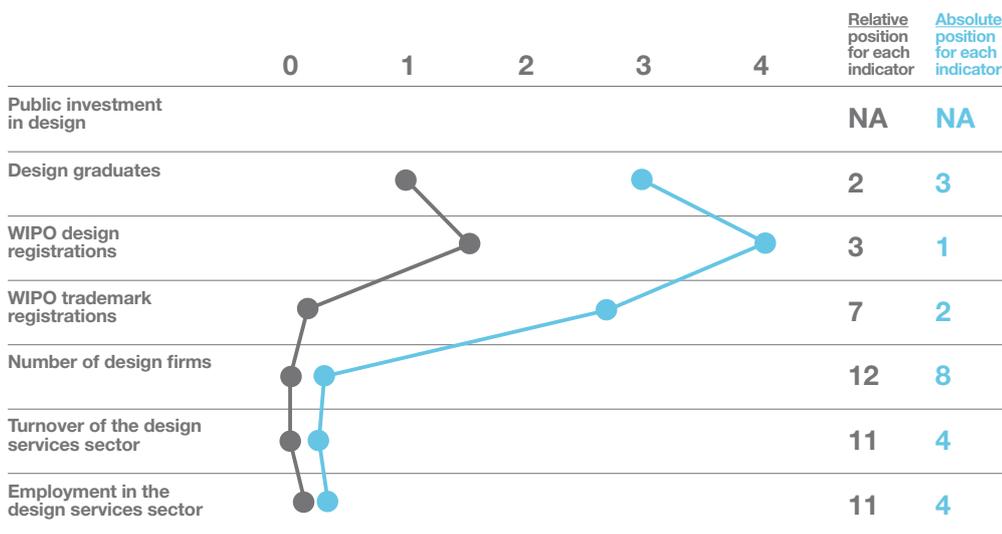
The number of firms in the design services sector has more than doubled since the late 1990s, with a total of 283 firms per million population in 2003. Turnover from this sector has grown at a similar rate. The design services sector, however, is exceedingly small, with a total of around 82 firms in 2003, excluding architecture. Most of these firms employ fewer than five people, and many are sole traders. However, due to the small size of this sector and the economy, it is possible for good performance or high employment in any one firm to affect the overall ratios substantially.

²⁵ Sigurdardottir M S, O'Keefe N, Engilbertsson H, (2004), Country report: The Icelandic design industry, Prepared for the research project: The future in Design: the competitiveness and Industrial dynamics of the Nordic Design industry

Japan

Japan ranks third in this sample, based on the absolute measures, but 10th based on the relative measures.

Japan shares many similarities with the UK. They are both island nations, with historically strong manufacturing sectors. With the growing strength of other nations in East Asia, Japan, like many countries, is seeking to move towards a more knowledge and service-based economy. However, the available data suggests a comparatively small design services sector, due to a cultural preference for development and control of in-house capabilities. In contrast, Japan is second only to Korea in the production of design graduates.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment									NA
	Total investment US \$ M 2007 prices									NA
	as a percentage of GDP (x 10 ⁻³)									NA
Design graduates	Total number					28,000				28,000
	per million population					219				219
WIPO design registrations	Total number	40,037	32,934	31,503						31,503
	per million population	315	259	247						247
WIPO trademark registrations	Total number		94,832	104,968	108,901	97,443	95,553	104,440		104,440
	per million population		745	824	853	763	748	817		817
Number of design firms	Total number	2,640			2,349					2,349
	per million population	21			18					18
Turnover of the design services sector	Total turnover (Yen Bn)	162.00			139.60					139.60
	Total turnover US \$ Bn 2007 prices	1.74			1.26					1.26
	as a percentage of GDP (x10 ⁻³)	0.32			0.28					0.28
Employment in the design services sector	Total number	14,323			11,113					11,113
	per million population	113			87					87

Japan: Absolute and relative data (for full references, see appendix)

The Japanese Ministry of International Trade and Industry (MITI) is responsible for industrial development and has been a strong supporter of design.²⁶ MITI views design as strategically important to the economy, and founded the Japan Industrial Design Promotion Organisation (JIDPO) in 1969 to promote industrial, packaging and interior design.²⁷ Other agencies support different design disciplines, and in many of the 47 prefectures, regional governments also take responsibility for promoting design. For example, the International Design Centre established in Nagoya in the 1980s and the Japanese Design Foundation both provide support and promotion activities. 1989 was named as Japan's Year of Design, marking the hosting of the World Design Expo and congress for the International Council of the Societies of Industrial Design.²⁸ These initiatives are indicative of a high level of national support and similar programmes exist in Tokyo and Osaka. Finally, the G-Mark design award was established to encourage and promote high-quality Japanese design. This is now one of the leading design award schemes internationally. The overall level of design support is high, but also devolved. This devolution makes it difficult accurately to estimate an overall value for public spending in design promotion and support.

Japan has long-term capabilities in design education, with around 28,000 design graduates per year; third behind the USA and Korea. However, as little precise data is available, it is not possible to comment on the specific design disciplines included within this value. It is likely that in addition to industrial, interior and graphic designers, this total also includes graduates from engineering programmes.

Japan's historically renowned engineering capabilities are reflected in their leading position in terms of international design registrations (a total of 31,500, or 247 per million population, in 2002). It is worth noting, however, that the number of design registrations has been steadily falling from a peak of 326 per million population in 1999 to 247 in 2002, the lowest rate since before 1996. There are also high numbers of international trademark registrations, placing Japan second behind the USA in absolute terms, and third behind Singapore and Korea in relative terms. These high values for international design and trademark registrations are interesting, recognising that exports account for a comparatively small proportion of GDP at around 10%. In the UK, this is closer to 17%. It might be expected from this activity that Japan would have many internationally-recognised brands. However, in Interbrand's top 100 brands, there were seven entries from Japan in 2004 and only five in 2008.²⁹ It is worth noting, however, that this list is produced in the USA and dominated by firms from that country.

The prevailing culture within many Japanese firms is to take a holistic approach to business. Many firms remain family owned, and are highly vertically integrated, enabling close control over important business functions. Thus, Japan has not developed a large indigenous design consultancy sector, as firms generally prefer to retain skills in-house. Indeed, large companies such as Sony employ several hundred designers.²⁷ As a result, the total number of designers in Japanese firms may be around ten times that employed within consultancies. However, precise data is not available. While in-house skills and capabilities may be well established, growing design capabilities elsewhere in East Asia are placing competitive pressures on Japan as a design centre. Despite this, the overall number of design agencies and employment in the consultancy sector are both decreasing, in both relative and absolute terms. Thus, there are relatively few design consultancies in Japan in comparison with other nations. Of these, graphic design agencies account for around 65%, with interior design at 17% and industrial design at 14% of the total.²⁷

²⁶ Queensland Government, (2008), Smart state = design state, prepared by a working group of the Smart State Council, Queensland Government

²⁷ Trade Partners UK, (2002), Design in Japan fact-finding mission, accessed on 02/02/09 from <http://www.britishdesigninnovation.org/der/Opportunities%20in%20Japan%20Report.pdf>

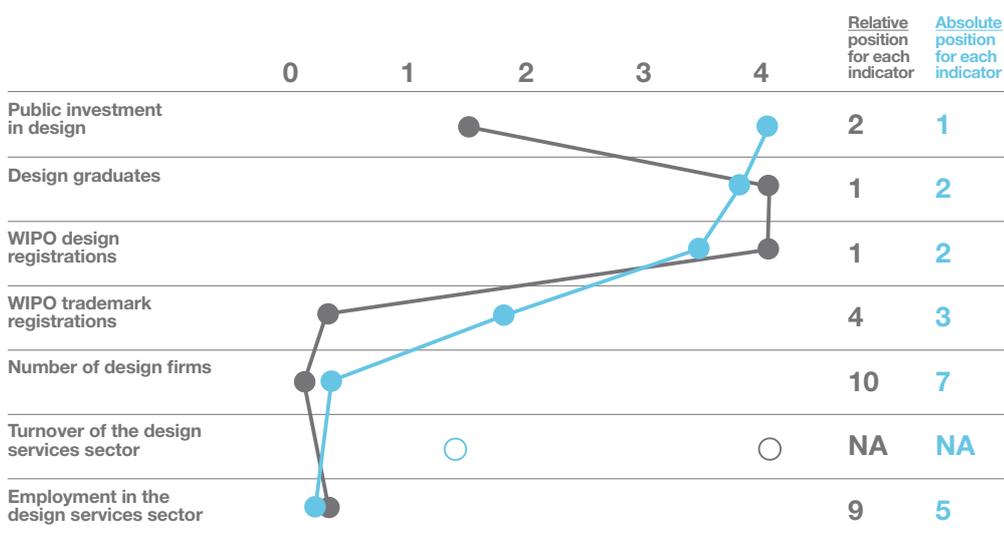
²⁸ The Australian Academy of Design, (1995), Competing by design: the national design review report, Prepared by the national design review steering committee through the Australian Academy of Design

²⁹ Interbrand, (2008), Best global brands 2008, Interbrand/Business Week

Korea

Korea ranks second in this sample, based on the absolute measures, and also second based on the relative measures.

The overall story in Korea is one of high ambition and of rapid growth in design education and the design sector. However, the emerging design sector is still immature in comparison with its western counterparts. The results of top-down policy measures are starting to bear fruit, with evidence of successful outputs in terms of design registrations, awards and trademarks.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (US \$ M)							66.80		
	Total investment US \$ M 2007 prices							68.80		68.80
	as a percentage of GDP (x 10 ⁻³)							0.06004		0.06004
Design graduates	Total number			36,397						36,397
	per million population			766						766
WIPO design registrations	Total number	18,845	18,650	27,235						27,235
	per million population	401	394	573						573
WIPO trademark registrations	Total number		33,683	40,588	47,123	53,952	59,547	69,359		69,359
	per million population		712	854	985	1,123	1,237	1,436		1,436
Number of design firms	Total number				1,215			2,500		2,500
	per million population				25			52		52
Turnover of the design services sector	Total turnover (US \$ Bn)				6.00					
	Total turnover US \$ Bn 2007 prices				6.78					6.78
	as a percentage of GDP (x10 ⁻³)				6.59					6.59
Employment in the design services sector	Total number			8,383		8,384		112,000		8,384
	per million population			176		175		2,319		2,319

Korea: Absolute and relative data (for full references, see appendix)

To understand the role of design in Korea, it is necessary briefly to summarise Korea's industrial transformation over the past 40 years. Korea has progressed from one of the world's five poorest countries, to one of the world's larger economies.³⁰ This has been achieved through a sequence of five-year development plans and the development of around 30 major conglomerates, or Chaebols. Although these were reduced in the late 1990s economic downturn, many still survive and are now global brands (e.g. Samsung, Hyundai, LG). As a measure of this progression, since 2001 Korea has risen from 28th to 11th in the Global Competitiveness Rankings.³¹

With falling competitiveness in the 1990s, the government's Committee for Globalisation Policy developed its design agenda, starting with the first of three five-year plans; 1993–1997, 1998–2002 and 2003–2007.³² These initiatives were the remit of the Ministry of Commerce, Industry and Energy, administered through the Design and Brand Policy Division.³³ The successive five-year plans have sought to improve the indigenous design industry, increase employment opportunities for designers and raise design awareness in the general public. An underlying ambition has been to improve 'brand Korea' and the reputation of Korean goods in export markets. It is also the national ambition to establish Korea as a design industry hub within the East Asian region.³⁴ The most recent plan had ambitious targets to increase the number of firms with in-house designers from 20,000 to 100,000 and to treble the value of the design sector. Novel initiatives included the development of 'star designers', encouraging more firms to employ chief design officers and developing a 'Korea brand' campaign.³⁴ People with an industrial design master's degree are even exempt from military service. Foreign consultancies have also been encouraged to establish a presence in Korea, as a means of raising the quality of design locally. This national ambition is matched by investment, with reported spend making Korea the leading nation for public investment in design in absolute terms (around US\$ 68 million per annum), and second only to Singapore in relative terms.

The result of this ambition is visible in the education of new designers. There has been a dramatic increase in the number of design graduates, with numbers doubling in the past ten years. Some estimates place the number of students enrolled in design courses as high as 49,000 per annum, but, definitive figures are hard to establish. This growth is in line with growth in other university education, and it is estimated that there are more than 200 institutions teaching design in Korea. If architecture is included, then there may be as many as 100,000 students enrolled at university level.

Korea's strong manufacturing base might explain the high level of international design registrations. Indeed, between 2000 and 2005, design registrations increased from 18,845 (around 400 per million population) to 27,235 (nearly 600 per million population). This places Korea as the leading nation within this sample for international design registrations in relative terms, and second behind Japan in absolute terms. International trademark activity is similarly strong, with around 69,000 in 2006 (or around 1,400 per million population). This places Korea third in absolute terms, behind Japan and the USA and fourth in relative terms, behind Iceland, Singapore and Norway. The number of trademark registrations has from 700 per million population in 2001 to nearly 1,400 in 2006. This growth is firm evidence of some success in the explicit national ambition of growing international brands. This is also reflected in the Interbrand top 100, where Korea had three brands in 2008 compared with just one in 2004.²⁹ The most recent five-year design plan sets an ambition of six global Korean brands in addition to Samsung. Furthermore, there are a growing number of Korean firms winning awards in major international design competitions.

³⁰ Kyung Won Chung, (1993), *The miracle of Han River: Korean Government Policy and Design Management in the Motor Industry*, Design Management Journal, Summer 1993

³¹ www.weforum.org/en/initiatives/gcp/Global%20Competitiveness%20Report/index.htm

³² MacLeod D, Muller L, Covo D, Levey R, (2007), *Design as an instrument of public policy in Singapore and South Korea*, Canadian Design Research Network, Asia Pacific Foundation of Canada

³³ UK TI, (2003), *Report on the South Korean Design Services Sector*, accessed on 30/09/08 from www.britishdesigninnovation.org/der/Korea%20Design%20Report%20-Final%20Version.pdf

³⁴ Korean Institute of Design Promotion, (2008), *Korea Design Policy*, accessed on 02/02/09 from http://www.designdb.com/english/kidp/intro_04.asp

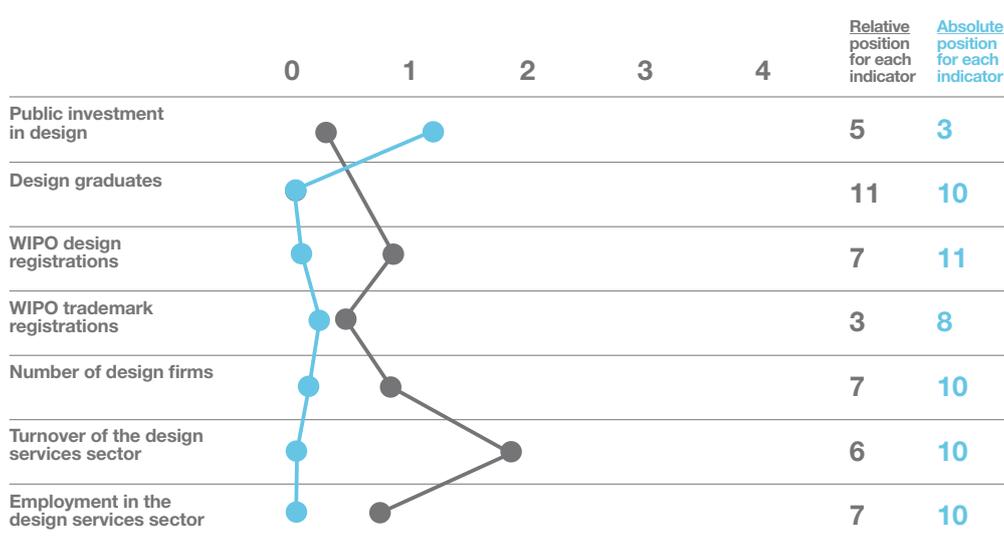
As the manufacturing base has grown in Korea and the Chaebols have matured, they have understood the importance of not competing solely on cost and are increasingly seeking to differentiate themselves through design and brand. As a result, design has emerged as a core strength in many firms, and the design services sector has flourished. There has been a rapid growth in the number of design firms, revenue and employment in the design services sector. The number of design firms has doubled over the past ten years, from around 1,215 in 2003 to around 2,500 in 2006. However, this is still low in comparison with many nations. Data available on the turnover of the design services sector suggests that Korea is third in absolute terms, behind the UK and USA, with a sector turnover of around US\$ 6.8 billion. If the data is correct, then this is not consistent with other data on employment in the design services sector and the total number of design firms. This might indicate that the sector is characterised by a small number of large design agencies, and would also indicate that this sector is extremely productive. Due to these inconsistencies, data on the turnover of the design sector has not been included in the overall rankings.

The growth in the design services sector is underpinned by substantial economic growth and strength in exports of goods that demand design input, including automobiles, computers and telecommunications.

Norway

Norway ranks ninth in this sample, based on the absolute measures, and eighth based on the relative measures.

Unlike its Scandinavian counterparts, Norway does not have a historically founded international reputation for design. This is reflected in the overall performance in comparison with other nations. The indicators for design graduates, design and trademark registrations and the design services sector are all consistently low. By contrast, the higher level of investment is indicative of a national ambition to improve this situation.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (Euro M)							15.00		
	Total investment US \$ M 2007 prices as a percentage of GDP (x 10 ⁻³)							19.81		19.81
								0.01018		0.01018
Design graduates	Total number		167							167
	per million population		37							37
WIPO design registrations	Total number	653	683							683
	per million population	145	151							151
WIPO trademark registrations	Total number	12,904	6,263	5,948	6,114	7,646	8,088			8,088
	per million population	2,859	1,380	1,303	1,331	1,654	1,739			1,739
Number of design firms	Total number			591	927					927
	per million population			130	203					203
Turnover of the design services sector	Total turnover (NOK Bn)			0.60	0.89					
	Total turnover US \$ Bn 2007 prices as a percentage of GDP (x10 ⁻³)			0.09	0.15					0.15
				10.69	12.95					12.95
Employment in the design services sector	Total number			1,035	1,483					1,483
	per million population			228	325					325

Norway: Absolute and relative data (for full references, see appendix)

Norway's close neighbours, Sweden and Denmark, both have an established reputation for design. In comparison, design in Norway is relatively nascent. Two national bodies are influential in the development of design, the Norwegian Design Council (NDC) and Innovation Norway. NDC, like the equivalent design councils in other countries, provides both promotion and support for design, targeted at firms. The primary goal of NDC is to increase the competitiveness and profitability of Norwegian industry.³⁵ Innovation Norway provides direct financial support and information to firms engaged in innovation.³⁶ NDC and Innovation Norway are both involved in developing policies relating to the use of design. There is no explicit or coherent national policy, and instead there are several smaller initiatives relating to design. As a cultural bias, design-related policy initiatives in Norway are less based around industrial competitiveness and instead emphasise wider social issues such as transport and cities.

Although data on public investment on design promotion and support is limited, available data suggests that investment is comparatively high in absolute terms (third behind Singapore and Korea), and average in relative terms. However, the design services sector is small, and thus, this level of investment indicates strong governmental ambition for design.

There is little recent data available on design graduates, with the most recent being for 2000. The number of design graduates is comparatively low, with fewer than 200 in total (or around 37 per million population). There has also been a steady growth in the number of design graduates since the late 1990s.

In absolute terms, both international design and trademark registrations are below average in the sample, with a slightly higher ranking for trademarks than designs. Interestingly, however, in relative terms, both design and trademark activity are higher. In 2006, Norwegian firms registered around 1,700 trademarks per million population through WIPO. This places them third in the sample, behind Iceland and Singapore. This emphasis on trademarks might indicate that the economy is strongly based on services.

The design services sector overall is small in comparison with other nations in this sample, at around 1,000 firms. In absolute terms, only Finland and Iceland have smaller design sectors. This may be a reflection of the comparatively small industrial base in Norway and a national bias towards service-based firms. However, relative to GDP and population, the Norwegian design services sector is just below average in size. This suggests a comparatively high intensity of design activity. It is also evident that the design services sector has grown in terms of the number of firms (rising from 591 in 2002 to 927 in 2003), employment and turnover.

³⁵ Heikkinen H, (2004), Innovation network of art and design universities in Nordic and Baltic countries: preliminary survey, Designium: the new centre of innovation in design, University of Art and Design Helsinki

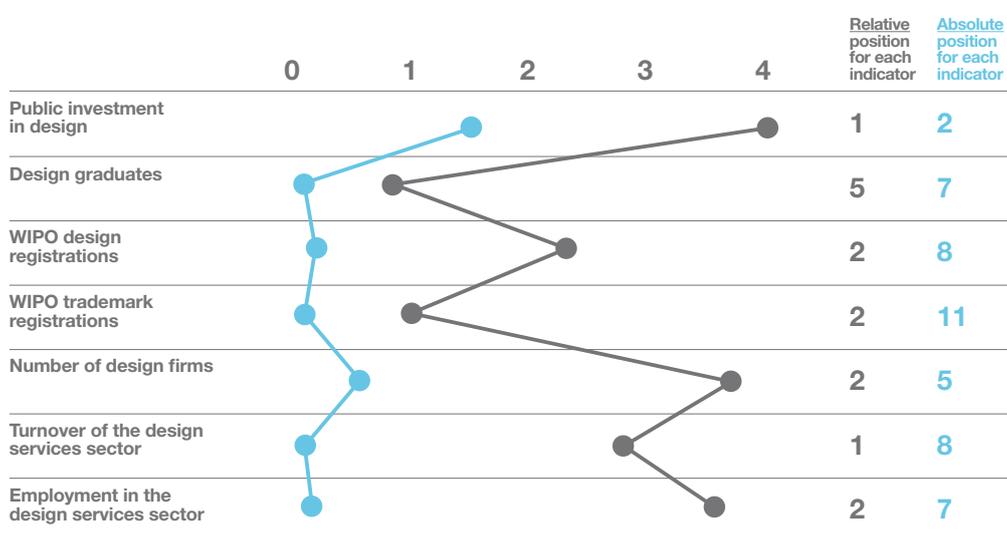
³⁶ Solum N H, Hubat M, (2004), Country report: the Norwegian Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, December 2004, accessed from www.norskdesh.no/getfile.php/Filer/Artikler/Design_Norway.pdf on 29/09/08

Singapore

Singapore ranks sixth in this sample, based on the absolute measures, but first based on the relative measures. This suggests a high ambition for design relative to the size of the nation.

In absolute terms, Singapore appears to be relatively average internationally. However, as a proportion of its economy, design appears to be highly important. Design intensity is high, with strong education and a growing design services sector. Thus, in relative terms, Singapore is a leading nation for design.

Close proximity with production has provided a foundation for developing indigenous capabilities.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (Singapore \$ M)					40.00	40.00	40.00	40.00	
	Total investment US \$ M 2007 prices					25.59	25.07	26.04	26.12	26.12
	as a percentage of GDP (x10 ⁻³)					0.21679	0.20063	0.18434	0.16449	0.16449
Design graduates	Total number		767							767
	per million population		185							185
WIPO design registrations	Total number			1,473						1,473
	per million population			353						353
WIPO trademark registrations	Total number		4,520	5,352	7,027	4,041	4,367	4,002		4,002
	per million population		18,702	22,348	28,910	16,834	18,626	17,615		17,615
Number of design firms	Total number					3,657				3,657
	per million population					889				889
Turnover of the design services sector	Total turnover (Singapore \$ Bn)		0.68							
	Total turnover US \$ Bn 2007 prices		0.47							0.47
	as a percentage of GDP (x10 ⁻³)		4.70							4.70
Employment in the design services sector	Total number		5,049							5,049
	per million population		1,254							1,254

Singapore: Absolute and relative data (for full references, see appendix)

Over the past 20 years, the Singapore government has sought to move the economy from one based on low-wage, labour-intensive production to one based around skills and knowledge.²⁸ As a result, in 2007, Singapore had risen to seventh place in the annual Global Competitiveness Report, from 10th in 2001.⁷ This progression is underpinned by this explicit desire to progress from being primarily a manufacturing centre to a design centre. As evidence of its success, Singapore has become the base for the R&D facilities of several multi-national corporations.³⁷

Singapore has established itself as a strong design centre in this rapidly growing region. While Hong Kong has the advantage of being physically close to the manufacturing base in China, and Taiwan is a historical bridge between the USA and Asia, Singapore is uniquely placed as an English-speaking gateway to the developing markets of East Asia.³⁸

The design industry and design capabilities of firms in Singapore have been nurtured by two government agencies – the Economic Development Board (EDB) and International Enterprise Singapore (IES). The EDB is charged with developing industrial design companies in Singapore. The IES promotes and develops design as a strategic tool for the competitiveness and internationalisation of businesses. The Singapore government's most significant recent strategy is called Design Singapore, administered by the Design Singapore Council within the Ministry of Information, Communications and the Arts.³⁹ Its goal is to make Singapore the 'design-excellence' gateway to Asia, through the development of a cluster of integrated design services with improved design research and design education. This scheme aims to promote design excellence as a driver of national competitiveness and creativity in an 'ideas-driven economy'.⁴⁰ Individual initiatives include assistance schemes for firms, a design referral services, seed funding for start-up design consultancies and a national award scheme. Another programme is the Iconic Design Initiative, under the Design for Internationalisation scheme, to help businesses develop 'iconic products' for competing in international markets.²⁶

These programmes are the result of a consistently high level of public investment in design over the past five to 10 years. This investment is second only to Korea in magnitude, and is leading in this sample in relative terms. In absolute terms, it is more than double the amount invested in the UK. This funding is provided to both national and regional centres, whose focus is to raise the awareness and use of design at all levels.

While government ambition and national investment are high, Singapore produces fewer skilled designers at a university level than most countries in this sample. However, there is limited data available and the most current estimation of design graduates is from 2001, with approximately 185 graduates per million population (a total of around 760 annually). It may well be that this has since increased. The Singapore government is keen to develop national capabilities, and thus design and technology is compulsory at lower school, and optional at senior school. Design is also embedded in all levels of education, especially schools and polytechnics.

The high levels of national investment and ambition are visible in the high numbers of international design and trademark registrations per million population. For relative design registrations, Singapore ranks second behind Japan. For international trademark registrations, Singapore ranks second behind Korea. It should be noted, however, that in absolute terms Singapore is below average in both cases.

³⁷ Japan Design Foundation, (2003), 1st Asia Design Network Conference: A step towards New Asia Design Sphere of the 21st Century, Report on the Conference, Osaka International Convention Centre, 20-23 October 2003

³⁸ www.designsingapore.org

³⁹ Toh Mun Heng, Choo A, Ho T, (2003), Economic contributions of Singapore's creative industries, Economic survey of Singapore, First Quarter 2003

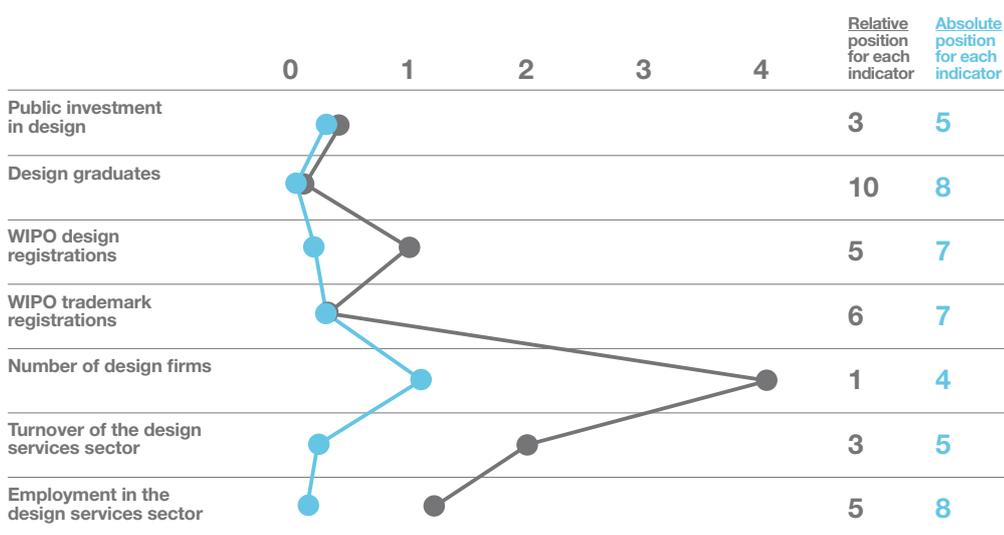
⁴⁰ Carr K, (2008), Design works: towards a national policy – reviewing the national innovation system a response from the sector, Monash University, Art and Design

The design services sector is also large in comparison with the scale of the country, in terms of designers employed, number of firms and turnover. However, only snapshot data is available, and so it is difficult to establish whether this sector is growing, static or shrinking. Anecdotal evidence would suggest growth. The design services sector has a total of around 3,600 firms (or nearly 900 per million population), employing around 5,000 people (or nearly 1,250 people per million population).

Sweden

Sweden ranks seventh in this sample, based on the absolute measures, but fourth based on the relative measures.

Public investment in design in Sweden is high, and particularly so relative to the overall size of the economy. There is clear government ambition for design, focusing on both competitiveness and also benefit to society. There are many firms in the design services sector. However, the comparatively low number of design graduates indicates possible long-term difficulties. Activity in registering designs and trademarks is average in this sample.



- Normalised score for relative indicators
- Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (Euro M)					4.23	4.23	4.23		
	Total investment US \$ M 2007 prices					5.63	5.43	5.59		5.59
	as a percentage of GDP (x 10 ⁻³)					0.01823	0.01778	0.01679		0.01679
Design graduates	Total number						540			540
	per million population						60			60
WIPO design registrations	Total number	1,609	1,893	1,635						1,635
	per million population	181	213	183						183
WIPO trademark registrations	Total number		13,417	12,654	9,877	8,948	11,442	11,753		11,753
	per million population		1,508	1,418	1,103	995	1,267	1,295		1,295
Number of design firms	Total number	5,150	7,750	8,459						8,459
	per million population	580	871	948						948
Turnover of the design services sector	Total turnover (Euro Bn)				0.84					
	Total turnover US \$ Bn 2007 prices				1.12					1.12
	as a percentage of GDP (x10 ⁻³)				3.52					3.52
Employment in the design services sector	Total number	4,950	4,600	4,238						4,238
	per million population	558	517	475						475

Sweden: Absolute and relative data (for full references, see appendix)

Sweden's national design policy comprises several design-related initiatives that fall under the jurisdiction of different ministerial agencies. The national approach to design is that it can help to serve the dual goals of innovation and improvement in the quality of life.⁴¹ Design can contribute to high levels of quality in the environment from a functional, technical, ecological, aesthetic and social perspective. From an industrial perspective, the government recognises that effective use of design in industry can strengthen competitiveness, and contribute to economic growth and development. This unique approach aims to demonstrate that design can not only stimulate the economy, but also provide improvements to society as a whole.

Recognising the multi-faceted nature of design, there is no single agency responsible, and measures relating to design are administered by the ministries of culture, industry and education. However, as a result, the ministries might not always work in a coherent fashion. Specific design-related initiatives include 'Design for All,' which aims to make all public spaces accessible by 2010; the creation of a European Institute for Innovative Caring Design to support research and education; and a Swedish Centre for European Design Research.⁴²

Several public bodies have responsibility for the promotion of design, including the Council for Architecture Form and Design, the Swedish Society for Crafts and Design and the Swedish Industrial Design Foundation (SVID). SVID was formed by the Swedish Business Development Agency, the Swedish Academy of Engineering Sciences and the Swedish Society of Crafts and Design. This study only captures public investment in SVID, as the primary body with responsibility for both promotion of design and provision of support to firms. SVID operates both nationally and regionally.⁴² 2005 was designated the Swedish Year of Design, and received additional investment.

Sweden produces comparatively few design graduates, coming eighth in this study in absolute terms, and 10th in relative terms. In 2005, there were 540 design graduates (around 60 per million population), in fashion design, graphic design, interior design and industrial design. However, it should be noted that many education programmes include elements of design, although the extent of this varies greatly. Anecdotally, Sweden has ambitions of increasing the number of design graduates,⁴³ although there is no data available to demonstrate whether this ambition is bearing fruit.

The number of international trademarks and design registrations are both slightly below average in this sample, with total numbers fluctuating over the past five to 10 years. In 2001, design registrations peaked at 1,893 (or 212 per million population), but fell in 2002 to 1,635 (or 183 per million population). Trademark registrations have remained slightly more consistent at around 11,000 per annum. Firms in the UK register around three times the amount of trademarks internationally. However, as Sweden is a much smaller nation, in relative terms Swedish firms were 2.5 times more active than UK firms in 2006. Thus there is a greater degree of intensity of trademark activity, suggesting that Swedish firms are comparatively more internationally focused.

The most recent data on the design services sector is from 2002, when there were around 8,500 design firms. This places Sweden first in this sample in relative terms, with nearly 950 design firms per million population. However, data on turnover and

⁴¹ Ministry of Industry Employment and Communications, (2004), *Innovative Sweden: a strategy for growth through renewal*, The Ministry of Industry, Employment and Communications and Ministry of Education

⁴² Kolmodin, A. and A. Pelli (2005). *Design for innovation and growth – a promising competitive concept in the future?*, ITPS, Swedish Institute for Growth Policy Studies.

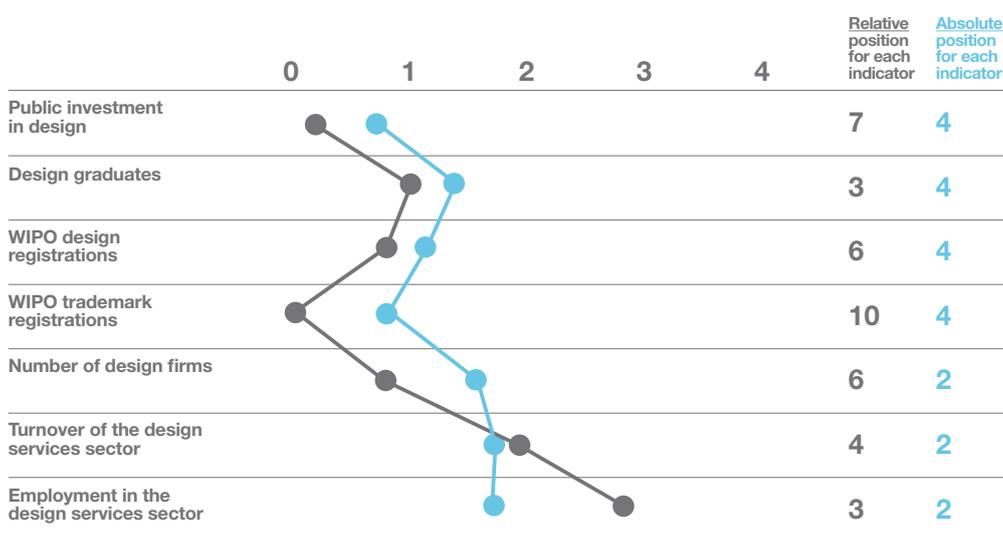
⁴³ Power D, Lindstrom J, Hallencreutz D, (2004), *Country report: The Swedish Design Industry*, prepared for the research project *The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry*, December 2004, accessed from www.step.no/design/Design_Sweden.pdf 29/09/08

employment suggest that the sector is somewhat smaller, with fewer employees than there are design firms. Due to this inconsistency, these values need to be interpreted with care. If the reported values are reliable, then this might suggest that while there are many design firms, they are generally small or sole traders, and that these firms are reasonably productive.

United Kingdom

The UK ranks fourth in this sample, based on the absolute measures, but sixth based on the relative measures.

The UK has a historic reputation for excellence in all types of design. However, there are emerging threats, especially from East Asia. Employment in design is internationally competitive, although it has been falling steadily over the past ten years. Similarly, design education is a core national strength, but is threatened by the diminishing UK market for design graduate employment. When considered as a system, there appears to be a mismatch between the number of graduates produced, and the demand for employment in design.



● Normalised score for relative indicators
● Normalised score for absolute indicators

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Public investment in design	Total investment (UK £ M)					7.25	7.83	8.50	6.00	6.000
	Total investment US \$ M 2007 prices					14.51	14.90	16.36	11.89	11.89
	as a percentage of GDP (x10 ⁻³)					0.00612	0.00635	0.00653		0.00653
Design graduates	Total number	11,605	12,159	12,684	13,005	12,645	13,110	13,420	13,270	13,270
	per million population	197	206	214	218	211	218	222	218	218
WIPO design registrations	Total number	9,768	7,828	9,192						9,192
	per million population	166	132	155						155
WIPO trademark registrations	Total number		34,534	30,595	28,351	28,755	29,821	32,044		32,044
	per million population		584	516	476	481	495	529		529
Number of design firms	Total number						12,450			12,450
	per million population						207			207
Turnover of the design services sector	Total turnover (UK £ Bn)	6.50	6.70	5.90	5.30	3.90	4.59	4.31	3.98	
	Total turnover US \$ Bn 2007 prices	11.53	11.10	9.89	9.87	7.80	8.72	8.29		8.29
	as a percentage of GDP (x10 ⁻³)	6.84	6.74	5.65	4.74	3.29	3.72	3.31		3.31
Employment in the design services sector	Total number	76,000	82,000	67,000	68,000	70,000	70,759	64,847	61,680	61,680
	per million population	1,291	1,387	1,129	1,142	1,170	1,175	1,071	1,014	1,014

United Kingdom: Absolute and relative data (for full references, see appendix)

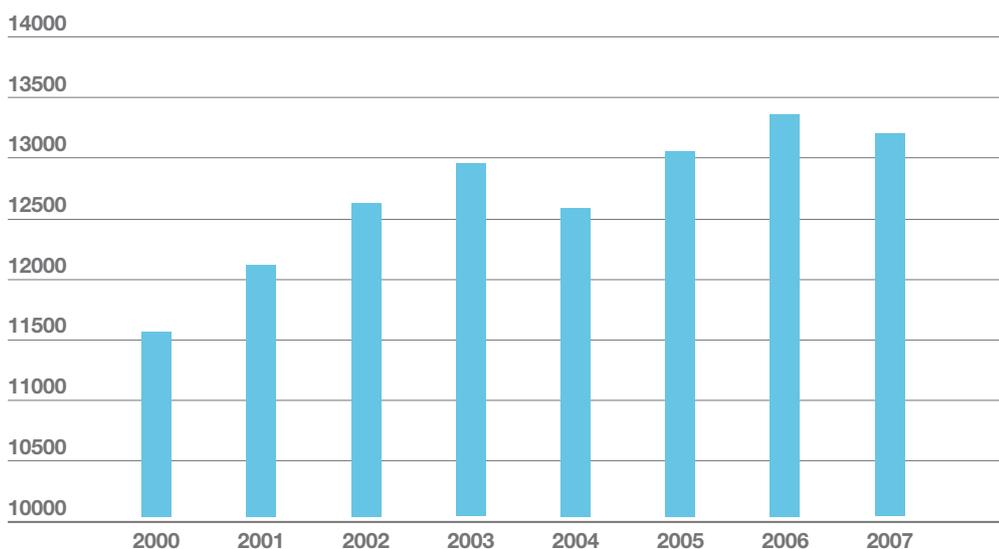
The UK Design Council was established in 1944 to promote the importance of Industrial Design to industry and support firms in the use of professional design skills. Over the past 50 years, the remit of the Design Council has broadened to encompass all aspects of design, and the UK has become internationally recognised for the quality of its designers.⁴⁴

Although the Design Council is the best-known body supporting design in the UK, there are several other important agencies. Design Wales and the Lighthouse in Scotland are important regional bodies supporting design. In addition, other private and public bodies also play important roles in championing design (e.g. British Design Innovation, Design Business Association, the Crafts Council, and the Design Museum). However, to enable international comparison, only public investment in the UK Design Council is included in this study. In 2007, this was around £6 million. This places the UK fourth in this sample, behind Korea, Singapore, and Norway. In relative terms, the UK is seventh for public investment as a proportion of GDP.

The total number of design graduates has steadily increased over the past ten years, from 11,600 in 2000 (around 197 per million population) to 13,200 in 2007 (218 per million population). The growth in graduates is broadly in line with the overall growth in the population, and growing numbers of students in further education. In absolute terms, the UK ranks fourth in this sample, behind the USA, Korea and Japan.

The total spend on design reported by the 358 companies in this survey was £92 million, with an average spend of £260K. However, there is significant skew in the sample, with just over 15% of companies reporting no design spend and 37% of respondents indicating a spend of between zero and £10K. The average of design as a percentage of turnover is just below 4%, higher than the ratio of total reported design spend to total turnover for the whole sample (2.1%) due to the skewed nature of the reported spend.

Total number of design graduates in the UK



⁴⁴ DTI, (2005), DTI economics paper number 15: Creativity Design and Business Performance, Department of Trade and Industry, UK

Firms in the UK are active in the international registration of designs and trademarks. For designs, the UK ranks fourth in this sample, with a total of nearly 9,200 (or 155 per million population). In contrast, firms in Japan register 31,500 designs internationally per year. However, in relative terms, Korea is the most active, with 574 registrations per million population. Trademarks follow a similar pattern, with the UK fourth in this sample, behind the USA, Japan, and Korea. However, in relative terms, the UK is 10th for international trademark registrations, with only 529 per million population. This compares with Hong Kong in 12th place, with 259 per million population. It may well be that UK firms have a preference for registration through the EU only, and in 2006, UK applications for EU trademarks were 12% of the world total. For comparison, the UK has three brands in the Interbrand top 100. This compares with five brands four years ago.²⁹

Establishing reliable data on the design services sector is difficult, as design is not an explicit category within the UK Standard Industry Classification Scheme.⁴⁵ Design falls under two categories:

- *Classification 71.12*: engineering activities and related technical consultancy, including industrial design
- *Classification 74.10*: specialised design activities, including fashion, interior design, jewellery and furniture

This lack of precision in the classification scheme means that no clear data on design is held in National Statistics. As a result, estimates on employment, turnover and the size of the design sector must come from other sources. There are two main sources of evidence for these indicators. British Design Innovation (BDI), the trade body for the design services sector in the UK, maintains and publishes annual data regarding its membership. This has the advantage of being consistent year on year, with clearly defined categorisations. The UK Design Council has also published data based on surveys and available national statistics. Together, these two sources enable a picture to be established.

In 2002, BDI estimated there were around 6,700 design firms within the UK (including branding/graphics, engineering design, exhibition design, interior design, fashion/textile design, product/industrial design, multimedia/new media and design & manufacture). Branding and graphics represented about 55% of this sample. A limitation in this estimate is that it only includes agencies associated with BDI. In contrast, the Design Council estimated there were 12,450 consultancies in the UK in 2005, and a further 47,400 freelance designers. The Design Council estimate has been used in this study, but in practice the figure might fall between the two estimates. This places the UK design sector as the second largest in this sample, behind the USA. Unfortunately, data is only available for a single year, and thus no trends can be established.

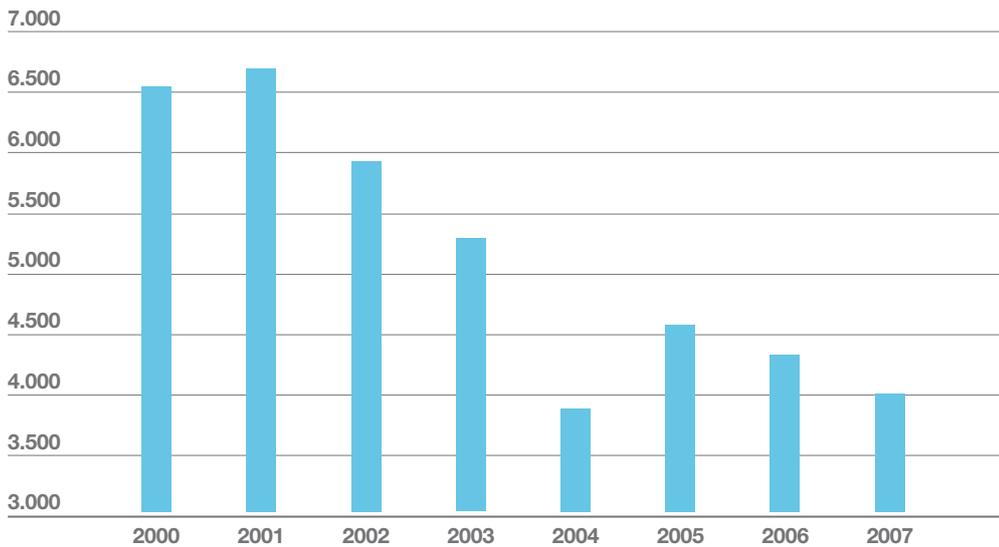
Estimates of the turnover of the design sector also vary, with BDI estimates in the region of £3.9 billion for 2007,⁴⁶ having fallen from a peak of £6.7 billion in 2001. Estimates from the Design Council Business of Design survey in 2005⁴⁷ have a similar order of magnitude. Turnover of design consultancies was estimated at £5.1 billion, compared with £4.6 billion as estimated from BDI. The BDI figures have been used in this study, as data is available for several years. Although the design services sector is large in comparison with other nations, it has been gradually reducing in size over the past ten years. Prior to 2000, the sector had grown comparatively rapidly.

⁴⁵ DCMS, (2007), *The creative economy programme: a summary of projects commissioned in 2006/7*, Department of Culture, Media and Sport, Evidence and Analysis Unit

⁴⁶ BDI, (2007), *The British design industry valuation survey 2006 to 2007*, British Design Innovation

⁴⁷ Design Council, (2005), *The business of design: design industry research 2005*

Turnover of the UK design services sector (UK £ bn)

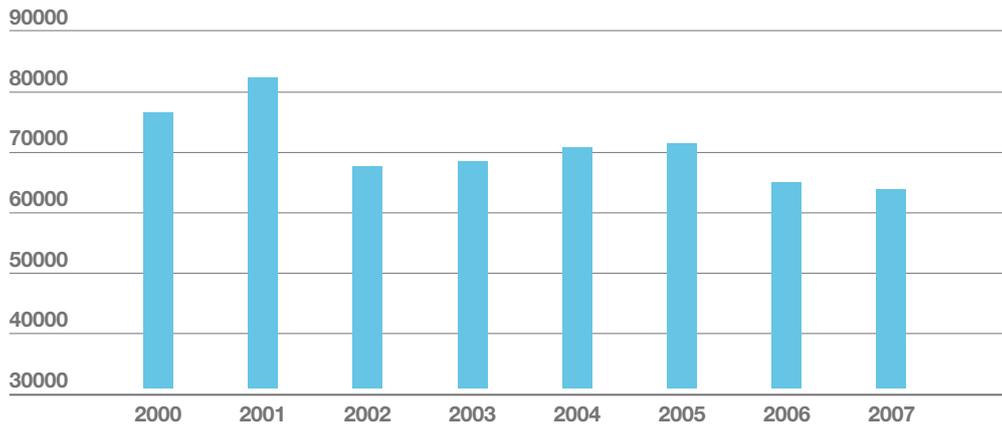


Employment in the design services sector is also difficult to establish, with estimates ranging from 60,000 to 134,000. The Department of Culture, Media and Sport (DCMS) publishes annual data on employment in the creative industries, including design and designer fashion.⁴⁸ In 2006, it was estimated that there were 3,800 designers within the creative industries (but only fashion, as no SIC codes are available for design) and a further 114,900 employed in businesses outside of the creative industries. This makes a total of 118,700 designers employed. The 2003–4 UK labour force survey indicated that the UK employed around 134,000 designers, within business and the design services sector.⁴⁹ In the Design Council's 2005 Business of Design survey, it was estimated that the design services sector employed 60,900 designers.⁴⁷ In contrast, for the same year, BDI estimated a total of 70,759 people employed within the design services sector. As a single reliable number is not available, the BDI value has been used. It relates explicitly to the design services sector and it is clearly articulated which design disciplines are included. Interestingly, the DCMS estimates show a growth in overall design employment from 98,500 in 2000 to 118,700 in 2005. This corresponds to a falling employment in the design services sector, from 1,291 per million population (76,000 people) in 2000 to 1,014 per million population (61,680 people) in 2007.

⁴⁸ DCMS, (2007), Creative industries economic estimates: statistical bulletin, Department of Culture, Media and Sport, October 2007

⁴⁹ <http://www.statistics.gov.uk/statbase/Source.asp?vlnk=358>

Total employment in the UK design services sector



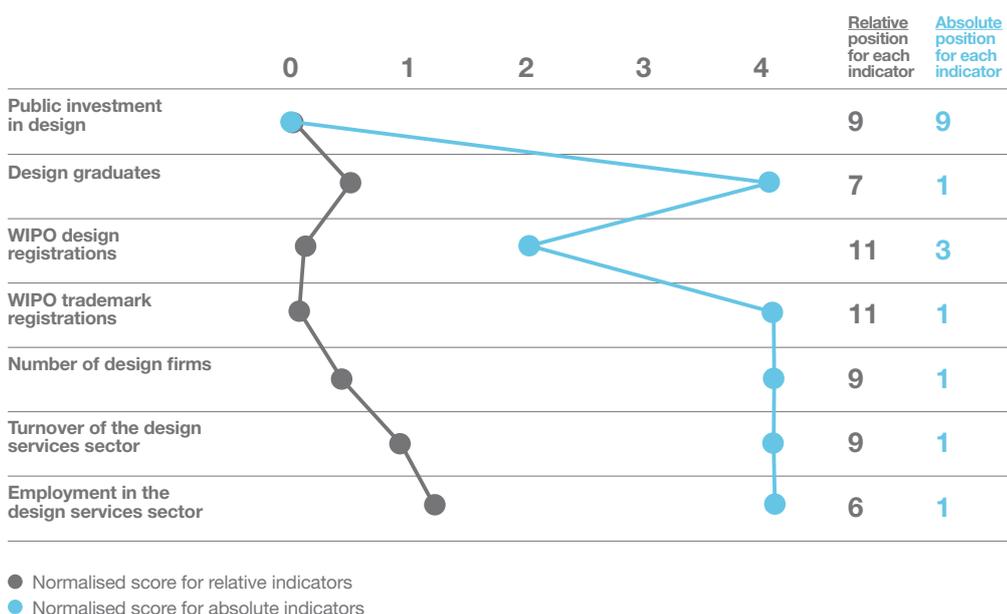
Both employment and turnover data show that the design services sector was affected by the dot-com crash in the early 2000s. Employment fell rapidly, with a steady recovery in subsequent years. Turnover, in contrast, fell steadily from its peak in 2001, with a small resurgence in 2004. But the sector has continued to reduce in size in more recent years. It might therefore be speculated that turnover in the design services sector is strongly influenced by the strength of the wider economy.

For the sector as a whole, the UK is second in this sample to the USA on absolute terms, and is third in relative terms in comparison with other nations in this study. However, the underlying reduction in the scale of the sector suggests potential problems in the longer term, particularly in the current economic climate

United States

The USA ranks first in this sample, based on the absolute measures, but 11th based on the relative measures. This extreme difference is a direct consequence of the large scale of the USA, resulting in comparatively low performance relative to the overall economy or population.

In absolute terms, design within the USA is vibrant, despite low public investment. With the exception of design registrations, the USA is leading in almost all areas.



	2000	2001	2002	2003	2004	2005	2006	2007	Most recent						
Public investment in design	Total investment (US \$ M)								0.00						
	Total investment US \$ M 2007 prices as a percentage of GDP (x 10 ⁻³)								0.00	0.00					
									0.00000	0.00000					
Design graduates	Total number								38,000	38,000					
	per million population								131	131					
WIPO design registrations	Total number								17,414	16,872	15,451	15,451			
	per million population								62	59	54	54			
WIPO trademark registrations	Total number								108,839	146,536	129,117	114,412	123,160	154,812	154,812
	per million population								382	509	445	390	416	518	518
Number of design firms	Total number								30,485					30,485	
	per million population								106						106
Turnover of the design services sector	Total turnover (US \$ Bn)								16.97						19.51
	Total turnover US \$ Bn 2007 prices as a percentage of GDP (x10 ⁻³)								19.51						19.51
									1.62					1.62	
Employment in the design services sector	Total number								117,146					141,390	141,390
	per million population								407						469

United States: Absolute and relative data (for full references, see appendix)

In the USA, there is no direct support for firms in the use of design, or promotion of the value of design at a national level. Some support exists regionally, although this is rather sporadic. However, while there are no public bodies supporting design, there are several high-profile private organisations:

- The Industrial Design Society of America⁵⁰ (IDSA) is vocal in its support for design and the creation of a coherent industrial sector.
- The Design Management Institute⁵¹ (DMI) is internationally recognised as the leading forum for encouraging better management of design within organisations. It is a professional body, with membership from consultancies, industry and academia.
- The American Institute of Graphic Arts⁵² (AIGA) has provided support to the design community nationally since 1914, and is the largest communication design organisation in the world, with 20,000 members. Arguably, AIGA has been the most active voice for the power of design in the USA over the past century.

In addition to these professional groups, the media and notably Business Week are consistently vocal in their championing of design for industry. Business Week and the IDSA support the annual IDEA design awards, and as a result, both the winners and the importance of design gain wide publicity.

In contrast with many nations, there is a clear design demand from the private sector, rather than a push from government, and as a result there is very little public investment in promotion and support. This lack of direct investment does not necessarily correlate to a lack of leadership from government, with funding and support being provided indirectly.

The USA produces the largest number of design graduates internationally, at around 38,000 per annum. However, as a percentage of the overall population, this is low at around 130 per million population. This compares with 220 per million population from the UK. Universities within the USA have recently been leading the development of design education through the creation of multi-disciplinary courses bringing together designers, technologists and business students. This new approach is being widely copied in other nations.

The USA is third behind Japan and Korea for the total number of international design registrations, at 15,451. This equates to nearly 53 per million population, which places the USA 11th in this sample in relative terms. This difference between the absolute and relative positioning demonstrates the low intensity of design in the nation as a whole. The story for trademarking is similar, with the USA first in this sample in absolute terms, with nearly 155,000 registrations in 2006. Again, however, in relative terms, the USA is ranked in 11th place. The low intensity of international trademark registrations is perhaps not surprising, as the home market is large, and many new firms will not seek to trade internationally. However, the USA is also renowned as the home of the branding phenomenon and remains an international leader in brand development. Some of the world's best-known brands hail from the USA, and more than 50% of the Interbrand top 100 brands are US-based.

⁵⁰ www.idsa.org

⁵¹ www.dmi.org/dmi/html/index.htm

⁵² www.aiga.org

There is a strong history of design as a service to industry within the USA. In the early 20th Century, the first industrial design agencies, such as Dreyfuss Associates and Walter Teague, flourished by providing styling services to the producers of machines. Today, the USA boasts some of the world's largest and leading design consultancies, who operate in global markets. IDEO employs in the region of 500 people, and has offices in London and Munich. Frog Design employs more than 170 people, and Herbst Lazar Bell employs around 100 people. Other major players include Lunar Design, ZIBA and Design Continuum.⁵³ However, as in other nations, a high proportion of design firms (around 70%) employ fewer than five people, with only 2% employing more than 50.

This historic strength is reflected in the available data, with the USA having the largest design sector overall, with more than 30,000 firms, employing 141,000 people. Furthermore, the number of design firms increased between 1997 and 2002. Turnover and employment have also increased, but at a slower rate. However, in comparison with the national population and economy, turnover and employment have reduced. With a concentration of large design agencies, the high turnover in comparison with the number of design firms indicates that this is a relatively productive sector. Data on the design services sector in the USA is particularly reliable, as the North American Industry Classification Scheme makes specific distinctions between different design disciplines.

⁵³ IBISWorld, (2006), IBISWorld industry report: industrial design services in the US: 54142, IBISWorld Inc, USA, November 2006

Other nations

Data was collected on many countries, but in most cases, there was insufficient data to be included in the overall comparison. This section provides some insights into the data available, and some commentary on the potential status of design in Belgium, China, France, Germany and Spain. Many other countries which anecdotally are developing their design capabilities, including India and Brazil, were also investigated. However, in these cases, there was insufficient data to enable any detailed commentary.

Belgium

Design in Belgium is supported and promoted by Design Flanders, whose mission is to 'promote design to companies and to promote designers, to show that design adds value to the economy'. They are funded through the government body responsible for enterprise, as part of the Ministry of Economy.⁵⁴

Data on design in Belgium is limited, with no available data for public investment, trademarks or design registrations. There are around 500 design graduates (interior, product, graphic, industrial, and textile design) per annum (or 48 per million population), which would place Belgium as equivalent to Sweden and Denmark in our main sample.

Interestingly, available data on the design services sector (graphic design, product design and interior design) indicates that this sector is similar in size to that of the USA, UK, and Canada, with around 12,000 firms (or 1,134 per million population).⁵⁵ The reported turnover of this sector is also large, at around US\$ 21 billion, which would imply that the design services sector is larger than the equivalent in the USA, and nearly three times larger than the UK. The story is similar for reported employment in the design sector, with around 220,000 people.⁵⁵ However, the apparently large size of the design services sector is not necessarily consistent with the overall size of the country. Thus, due to insufficient data and this apparent inconsistency with data on the size of the design services sector, Belgium has not been included in the main sample.

China

Data on design in China is sparse, and is generally based on informed estimates, as there are no relevant and readily available national statistics. There is no data for public investment in design, turnover of the design services sector or the number of design firms.

As with many countries, design in China falls under the remit of a range of government ministries and publicly-financed bodies. The Chinese Ministry of Culture is

⁵⁴ Valcke J, (2007), Design Flanders, Transcript of presentation at SEEdesign, European workshop on design support, Brussels, 16 May 2007

⁵⁵ Design Flanders, (2006), Design in figures, access on 10/02/09 from http://grips.proinno-europe.eu/knowledge_base/view/289/design-in-figures-in-flanders-belgium/

⁵⁶ UK Trade & Investment, (2004), Changing China – the creative industry perspective: a market analysis of China's digital and design industries, UK Trade & Investment June 2004

⁵⁷ Bruce M, Daly L, (2005), International evidence on design: near final report for the DTI, Centre for Business Research, Manchester Business School

⁵⁸ Xiang Li, (2007), What are the roles of intermediation in the design industry? The Chinese and European case, A thesis presented to Erasmus University Rotterdam, March 2007

⁵⁹ Tharp B M, Munson S, (2005), We got sick of hearing about design and China so we got on a plane and went there, Core 77 – Industrial Design SuperSite

responsible for the creative industries, encompassing TV and film, music and video, cultural entertainment, cultural tourism, arts training and arts and handicrafts.⁵⁶ Environmental and industrial design fall under multiple ministries, including the National Development Reform Commission, the Ministry of Science and Technology and occasionally the Ministry of Commerce.⁵⁶ Graphic design, fashion design and brand identity do not fall under the policy remit of any specific ministry. Interior design and architecture are overseen by the Ministry of Construction.⁵⁷ In addition, different design issues are also the focus of specialist national or regional bodies. For example, industrial design is supported by the Beijing Industrial Design Promotion Organisation (BIDPO), Shanghai Industrial Design Organisation, Shenzhen Design Forum and the China Industrial Design Association (CIDA). CIDA is perhaps the nearest equivalent of the UK Design Council, with a mission to promote design, support members, and collaborate with government on policy issues.⁵⁸ CIDA has around 3,000 individual members as well as many institutional members, including companies, consultancies and universities.⁵⁶ The smaller regional centres also promote and support design, with BIDPO being the most active. As a result of this complexity, it is not possible clearly to identify national investment in design promotion and support.

Such complexity means there is no single or coherent policy for design across China as a whole. This is despite a clear ambition in industry and the design sector to progress from 'made in China' to 'designed in China'.^{56, 59} The role of design in growing China's share of international markets is also recognised by policy-makers, especially in the industrialised regions. For example, the city of Shenzhen has set out to establish itself as the 'Design Capital' of China.⁵⁶ This initiative is supported by the municipal government, which estimates Shenzhen is home to around 20,000 professional designers. Its proximity to Hong Kong and location in the heart of China's export manufacturing region provides Shenzhen with a unique opportunity.

Anecdotally, there has been rapid growth in the education of designers over the past 10 years, with around 200 Chinese universities running some 130 design-related courses. It is reported that these have produced around 30,000 industrial design graduates over the past 20 years, with the majority graduating in the past five to seven years. While reliable numbers are hard to find, it is estimated that there are as many as 10,000 industrial design graduates per year,³² and in 2004, around 20,000 graduates from arts and design courses (with no further subdivision of the subjects included).⁵⁵ More recent estimates indicate there may be as many as 55,000 design graduates per year.³² If these values are to be believed, this would place China ahead of all other nations in this study for design graduates, with the USA second with 38,000 per annum.

To develop the quality of their design education, many universities have formed strategic partnerships with international design schools (Shanghai DongHua University and LaDalle-DHU Design School Canada, Qinghua University and Illinois Institute of Technology's Global Design Research Initiative).³² However, there is a danger the present supply of design graduates is far greater than industrial demand.

Surprisingly, Chinese firms were responsible for registering nearly 260,000 international trademarks in 2005, and this has grown from only 150,000 in 2000. The USA is nearest in absolute terms, with nearly 155,000 trademark registrations in 2005. This is especially high, given the limited number of internationally recognisable Chinese brands, including Haier (white goods), Lenovo (computers), Changhong (Tvs) and Ningbo Bird (phones).⁶⁰ This supports anecdotal evidence that Chinese industry is focusing on the development of independent (Chinese) brands for international markets. Chinese firms

register fewer designs internationally, with 53,400 in 2002, placing China ahead of Japan and Korea. Registration of designs has grown rapidly, from only 13,000 in 1996. If this growth has continued since 2002, then China would be leading internationally. Data on the design services sector in China is limited, although some evidence is available for the industrialised regions. It is estimated that there are around 170 design consultancies in Beijing, Guangzhou, Dong Guang and Foshan; with the most in Guangzhou (80). Each of these is typically small, with fewer than 10 staff.⁶¹ In Shenzhen, it is estimated that there are in the order of 20,000 professional designers of all disciplines. In Shanghai, there are nearly 10,000 design firms, employing nearly 100,000 people.⁵⁷ It is also evident that many graduate designers are employed in-house by manufacturing firms.

The emergence of design in China is perhaps unsurprising, given the growing expertise in manufacturing. China is the fourth largest automotive producer in the world, with exports worth US\$15–\$20 billion in 2005. Increasingly, car producers are exploring design services. Partnerships between major producers (e.g. GM and Shanghai Automobile Industry Corp, and Hafei and Pininfarina) are resulting in new products and also major design centres. For example, the Changhan Automotive Technology Design Centre has 400 Chinese designers. In addition, international firms (e.g. Lotus Engineering) are beginning to establish design bases in China. Similarly, in consumer electronics, China produces 70% of the world's radios, 50% of its cameras, 38% of its televisions and dominates several other sectors such as mobile phones. International firms located in China are frequently engaged in in-house design in addition to manufacture. For example, Philips China has a design team of more than 300 designers, largely recruited locally and often given further training in Eindhoven.⁶⁰

France

In France, as in many geographically large nations, policy, support and investment for design is managed at a regional level.⁶² The primary national body responsible for design support is APCI (Agence pour la Promotion de la Creation Industrielle), under the French Ministry of Industry. It is estimated that the annual budget of APCI, in 2003, was around 1 million euros. In comparison with other nations in this sample, this is low in both absolute and relative terms, and would place France below Finland and Denmark.

There is no available data on the number of design graduates per annum, and also no data on international trademark activity. For designs, French firms registered nearly 64,000 internationally in 2002. This has grown from 47,000 in 1996. This is twice the number of registrations from Japan, and six times the amount from the UK. This would place France above all firms in the scoreboard sample. In relative terms, France would also be leading, with around 1,000 design registrations per million people.

The design services sector is considered to be relatively young in France, and over 50% of design firms have been operating for less than 10 years.⁵⁷ This might be explained by a preference for firms to build and utilise in-house capabilities.

For example, only 26% of small and medium-sized firms use external designers.⁶³ It is estimated that the design services sector in France is comprises around 4,750 firms, employing approximately 25,000 people.⁶⁴ It is therefore apparent that the sector is characterised by few, large agencies. Turnover in this sector is estimated as being between 2.2–3 billion euros. In absolute terms, France would lie in between Canada and Japan for the size of the design services sector. In relative terms, as the country is large, the ranking would be lower.⁵⁷

⁶⁰ Claydon Gescher Associates, (2004), *Changing China – the creative industry perspective: a market analysis of China's digital and design industries*, Report to UK Trade & Investment

⁶¹ Heskett J, (2005), *State of design in the Far East; Taiwan, Korea and China*, Review to inform the Cox Review

⁶² Design Flanders, (2005), *Benchmarking of European design centres Study: final report*, Ministry of Flanders: Administration for Economy and Design Flanders, 9 April 2005

Germany

Many separate bodies, both privately and publicly funded, promote the importance of design and provide support to industry in the use of design. The main national body is the German Design Council, which was founded in 1953 to 'meet the growing need of the business world for information about design.'⁶⁵ However, many other regional organisations exist, and there are individual design centres in each of the country's 16 states. For this reason, identifying the amount invested at a national level in design promotion and support is difficult. It is estimated that public investment is relatively small in comparison with other nations, at about £1.4 million in 2004.

Design education in Germany is the responsibility of each state, and generally takes place at technical universities, and in some of the traditional universities. Many design graduates will have completed an apprenticeship before going to university, and as a result, the average age of design graduates is 29. Given the overall size of Germany, relatively few graduates are produced, at around 4,500 in 2006 (or 55 per million population).⁶⁶ In comparison, there are nearly 13,000 graduates per year in the UK.

German firms register more international designs than any other nation in this study, at 65,000 in 2002. For international trademarks, Germany would lie ahead of the UK, with 58,500 registrations in 2005.

There is no data available on the design services sector in Germany.

Spain

Design has developed significantly within Spain since the 1980s, and has become professionalised through the establishment of cultural and professional bodies. Unlike many countries, however, no single 'style' is identifiably Spanish. Instead, the outputs of design work reflect the diversity of influences, nationalities and cultures within the nation. Spanish design might be termed a 'Mediterranean style'. Over the past 20 years, design has become commonplace within all sectors of industry, with both in-house and external design service providers.⁶⁷

National support and promotion for design in Spain is highly dispersed, with several agencies at a national and regional level. Nationally, support and promotion of design is provided by a publicly-owned body called DDI: Development of Design and Innovation (DDI). DDI is financed by the Ministry of Science and Innovation, and aims to promote and disseminate design and innovation as key factors in the competitiveness of Spanish firms, and for the wellbeing of society. In addition to DDI, there are around 15 autonomous regional and local authorities which promote design, the oldest of which is the Barcelona Centre de Disseny Foundation, created in 1973. These bodies are collectively represented by the Federación Española de Entidades de Promoción del Diseño (FEEDP).⁶⁸ As a result of the complexity of this design support, it is difficult to estimate total public investment.

Precise data on the number of design graduates is also difficult to establish, due to the complexity of the Spanish education system, and the way degree statistics are reported. Data for 2007 suggests that there were a total of 2,766 design graduates (or 62 per million population).⁶⁸ This includes graduates in industrial design and audio-visual communication, from both private and public universities. In absolute terms, this is comparable with Canada, but low in comparison with the UK, USA, Japan and Korea.

⁶³ Ministère de L'économie Des Finances e De l'industrie, (2002), *Les pratiques du design en PMI (SMEs), Rapport d'étude, design France et Tremplin Protocoles*, November 2002

⁶⁴ APCI, (2002), *L'offre de design en france*, Ministère de L'Economie des finances et de L'Industrie

⁶⁵ www.german-design-council.de

⁶⁶ Data provided by the German Design Council, and includes graduates in applied art, jewellery design, graphic design, communication design, industrial design, product design, and textile design

⁶⁷ Provided by DDI (Development and Design and Innovation), Spain Federación Espanada de

⁶⁸ Entidades de Promocion de Diseno, (2001), *El Diseno En Espana: Estudio Estrategico*, accessed on 30/09/08 from www.bai.bizkaia.net/images/stories/publicaciones/libros/disenospana.pdf

⁶⁹ Data taken from Instituto Nacional de Estadistica, Spain, http://www.ine.es/en/inebmenu/mnu_educan.htm

Note: Data for Spain is difficult to source, due to the names given to courses, and as the Spanish education system is relatively complex. Data is taken for 2007 only, relating to graduates from university. The total number of graduates is taken from two tables. The first, (table 5.7: The student body who finished studies in the year 2007 by university, sex and study – Architecture and Engineering), for figures relating to industrial design. This results in a total of 694 industrial design graduates. The second, (table 7.11: The student body who finished studies in the year 2007 by university, sex and study – Degrees) for other design-related graduates. Here, graduates in audio visual communications are included, resulting in 1,855 graduates.

The international protection of designs in Spain has grown, from 2,696 in 1996 to 3,241 in 2002 (around 79 per million population). This places Spain behind the UK (producing around 9,000 design registrations). The number of international trademark registrations, in contrast, has fallen from nearly 80,000 in 2001 to just over 55,000 in 2006. Despite this fall, Spain would still appear high in the ranking, behind the USA, Japan and Korea. Interestingly, despite this activity in trademarking, in the Interbrand top 100 for 2008, only retail company Zara appears as a high-profile Spanish brand.²⁹

As with public support, activity in the design services sector is highly regionalised, and tends to be most active in localised industrial areas. Madrid is one of the most active design regions, with around 1,000 design firms, employing around 2,500 designers.⁷⁰ For the whole nation, Spain would rank behind the USA, UK, Canada, and Japan for the overall size of the design services sector with around 4,240 design firms in 2001.⁷¹ However, the most recent data available is for 2001, and it is likely that the number of firms may have increased in recent years. While there are established design capabilities in the industrialised regions, there is lower design intensity when the whole economy is considered. The graphic design sector in Spain is particularly large, to support the publishing sector providing Spanish-language titles internationally.

Taiwan

Since the late 1980s, the Taiwanese government has had an ambitious goal of transforming Taiwan from a low-cost manufacturing nation into a producer of sophisticated and technological products. This ambition has been implemented through a series of five-year plans, produced by the Industrial Development Bureau and Ministry of Economic Affairs. In 1989, the first plan emphasised industrial design education and the import of skills from Japan and the USA. In 1994, the second plan focused on promoting the role/status of industrial design in enterprises, particularly SMEs. The most recent plan in 2000 concentrated on modernising industrial design companies and enabling the development of an e-business environment.⁷² These plans have been supported by substantial government funding, with around US\$ 170 million over six years.²⁸ For a single year, this is equivalent to around US\$ 30 million, which is second only to Korea in absolute terms.

In addition to the five-year plans, Taiwan's Design Promotion Centre (DPC) provides a comprehensive design support service, including promotion of design, competitions and exhibitions, publications, and sponsorships. One third of the funding for DPC is from private businesses, the remainder from business. The centre is a key goal of the 2002 'Cultural and Creative Industries Development Plan (part of 'Challenge 2008: Taiwan Development Plan'). The centre's mission is to place Taiwan as the Asian-Pacific creative design centre, building on Taiwan's current role as a bridge between many US multi-nationals and mainland China.⁷³

It is estimated that there are nearly 6,000⁷⁴ design graduates per year from 39 college and university programmes. Up to 2,000 of these graduates have studied industrial design.⁷⁵ In absolute terms, this would place Taiwan below the UK, which produces around 13,000 design graduates per annum. However, in relative terms, Taiwan produces 260 design graduates per million population, which would place it below Korea, and close to Japan. In addition to producing large numbers of graduates, it is also claimed that the standard of the education system is excellent, with a growing research capability.⁶¹

⁷⁰ Design in Madrid, (2007), Design Madrid, Observatorio Económico Coordinación General de Economía, Área de Gobierno de Economía y Participación Ciudadana, Ayuntamiento de Madrid, ISSN: 1885-0324

⁷¹ Federacion Espanada de Entidades de Promocion de Diseno, (2001), El Diseno En Espana: Estudio Estrategico, accessed on 30/09/08 from www.bai.bizkaia.net/images/stories/publicaciones/libros/diseno_espana.pdf

Note: these figures include firms in product design, graphic design, interior design, fashion design and multi-sectoral design. Architecture is not included.

⁷² Blaich R, Blaich J, (1993), Made in Taiwan: designing a new image, Design Management Journal, Vol. 4 No. 3

⁷³ Chang T, (2004), Newly Established and Opened Taiwan Design Centre, Press Release, Taiwan Design Centre, Taipei, Taiwan

It is estimated that there are around 7,000 designers in Taiwan, and this is increasing at a rate of nearly 400 per year.⁵⁹ The design services sector has been valued at around NTD1.4 billion (£0.02bn), with an estimated 6,500 firms (encompassing all design disciplines).⁷² Thus, in comparison with other nations, the design services sector is average in size, but there is evidence it is growing quickly.

In addition to an emerging design services sector, Taiwan's Ministry of Economic Affairs is also encouraging major multi-national corporations to establish 'innovation R&D' centres in Taiwan.⁷⁵ Companies such as Microsoft, Dell, IBM, Sony and Hewlett Packard have all established such facilities. The Taiwan government has realised that as manufacturing has moved offshore to lower-cost locations, innovative design becomes necessary.

⁷⁴ CEPD, (2004), An analysis of Taiwan's design services industry, July 23

⁷⁵ Henderson S, (2003), Designed in Taiwan, Design Management Journal, Vol. 14 No. 2

Part three: Summary of indicators



11

15



Public investment in design

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent	Source
Canada	Total public investment									NA	
	As a percentage of GDP (x10-3)									NA	
Denmark	Total public investment (DKK M)					12.50	12.50	12.50	12.50	12.50	1
	As a percentage of GDP (x10-3)					0.0085	0.0081	0.0076	0.0076	0.0076	
Finland	Total public investment (Euro M)			1.36	1.60	1.70	1.75	1.66		1.66	2
	As a percentage of GDP (x10-3)			0.00026	0.00028	0.00027	0.00031	0.00026		0.00026	
Hong Kong	Total public investment (HK\$ M)					20.00	20.00	20.00	20.00	20.00	3
	As a percentage of GDP (x10-3)					0.01548	0.01447	0.01355	0.0124	0.0124	
Iceland	Total public investment									NA	
	As a percentage of GDP (x10-3)									NA	
Japan	Total public investment									NA	
	As a percentage of GDP (x10-3)									NA	
Korea	Total public investment (US\$ M)							66.80			4
	As a percentage of GDP (x10-3)							0.06004		0.0600	
Norway	Total public investment (Euro M)							15.00		15.00	5
	As a percentage of GDP (x10-3)							0.01018		0.0102	
Singapore	Total public investment (Sing\$ M)					40.00	40.00	40.00	40.00	40.00	6
	As a percentage of GDP (x10-3)					0.21679	0.20063	0.18434	0.1645	0.1645	
Sweden	Total public investment (Euro M)					4.23	4.23	4.23		4.23	7
	As a percentage of GDP (x10-3)					0.01823	0.01778	0.01679		0.0168	
UK	Total public investment (UK£ M)					7.25	7.83	8.50	6.00	6.00	8
	As a percentage of GDP (x10-3)					0.00612	0.00635	0.00653	NA	0.0065	
USA	Total public investment (US\$ M)								0.00	0.00	9
	As a percentage of GDP (x10-3)								0.0000	0.0000	

The apparently high spend on design promotion and support in Singapore is somewhat surprising. It is more than three times higher than its nearest competitor, Korea, which in its own right is three times greater than any EU nation. These exceptionally high investments might possibly be explained by large infrastructure spend in the establishment of new facilities, whereas in many nations the investment is to cover only ongoing staff and resource costs. Whatever the explanation, the high comparative spend indicates the ambition and expectations of growth in design in East Asia.

Sources:

- 1 The Danish Government, (2003), Denmark in the culture and experience economy – 5 new steps, The Danish Growth Strategy, ISSN 87-7960-052-2
- 2 Data provided for this study by the Finland Design Forum
- 3 The HK Design Smart Initiative, http://english.peopledaily.com.cn/200611/14/eng20061114_321163.html
- 4 Thailand Creative Design Centre, (accessed on 2008), What is design and why was TCDC established?, www.tcdc.or.th/pdf/Design_Promotion_en.pdf
- 5 Cawood G, Raulik G, (2006), Sharing Experience on Design Support, SEEdesign Bulletin, Issue 3, September 2006, www.seedesign.org, National Centre for Product Design and Development Research, Design Wales, ISSN 1748-5401
- 6 MacLeod D, Muller L, Covo D, Levey R, (2007), Design as an instrument of public policy in Singapore and South Korea, Canadian Design Research Network, Asia Pacific Foundation of Canada

The State of Queensland (Department of the Premier and Cabinet), (2008), Smart state = design state, Working group of the Smart State Council
- 7 The State of Queensland (Department of the Premier and Cabinet), (2008), Smart state = design state, Working group of the Smart State Council
Kolmodin, A. and A. Pelli (2005). Design for innovation and growth – a promising competitive concept in the future?, ITPS, Swedish Institute for Growth Policy Studies.
- 8 The Design Council, (2006), Annual report and financial statements 2005–6
The Design Council, (2006), Design Council Business Plan 2006–7: National design policy in practice
- 9 Although the USA has many privately funded bodies supporting design, there is no single government funded national body, and thus spend is zero

Design graduates

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent	Source
Canada	Total						3,308			3,308	1
	Per million population						102.4			102.4	
Denmark	Total								450	450	2
	Per million population								82.3	82.3	
Finland	Total	714.0	816.0	819.0	886.0	881.0	812.0	827.0	944.0	944	3
	Per million population	137.9	157.3	157.5	170.0	168.5	154.8	157.0	178.6	178.6	
Hong Kong	Total									NA	
	Per million population									NA	
Iceland	Total	39	40	48	54					54	4
	Per million population	138.7	140.3	166.9	187.8					187.8	
Japan	Total					219				219.3	5
	Per million population										
Korea	Total			36,397						36,397	6
	Per million population			766.3						766.3	
Norway	Total	167								167	7
	Per million population	37.2								37.2	
Singapore	Total		767							767	8
	Per million population		185.3							185.3	
Sweden	Total						540			540.0	9
	Per million population						59.8			59.8	
UK	Total	11,605	12,159	12,684	13,005	12,645	13,110	13,420	13,270	13,270	10
	Per million population	197.1	205.7	213.8	218.4	211.3	217.7	221.7	218.2	218.2	
USA	Total				38,000					38,000	11
	Per million population				130.8					130.8	

There is no standardisation of the design subjects that are included within the different estimations of a nation's number of design graduates. In some cases, the specific design disciplines are not listed (e.g. for Japan). In others, precise subjects are listed, but these are not the same for all countries. For this reason, this indicator is difficult to compare across nations. Accepting these limitations, Korea stands out as producing the largest number of design graduates by a substantial margin.

Sources:

- 1 Ministry of Training Colleges and Universities Ontario, (2006),
Employment profile: A summary of the employment experience of 2004/5
college graduates six months after graduation, ISSN 1 492-045X.

A value for Canada has been calculated, assuming that the total number of
graduates in Canada is approximately 2.5 times that of Ontario. The number
of design graduates in Ontario includes graduates in advertising, graphic
design, interior design, fashion design, landscape design, industrial design,
and packaging design.
- 2 Data provided for this study by the Danish Design Centre

Design subjects include: Architecture, Product/Industrial design, clothing/
fashion design, digital/multi-media design, graphical/communication design
- 3 Data provided for this study by the Finland Design Forum

Design subjects include: Architecture, Product/Industrial design, clothing/
fashion design, digital/multi-media design, graphical/communication design
- 4 Sigurdardottir M S, O'Keeffe N, Engilbertsson H, (2004), Country report:
The Icelandic design industry, Prepared for the research project: The future in
Design: the competitiveness and Industrial dynamics of the Nordic
Design industry

Note: this includes 3-D design, Architecture, Graphic design, Product design,
Pottery and Textile/Fashion design
- 5 Dong-Sun C, (2004), Design economic development and national policy;
lessons learnt from Korea, Design management Review, Vol. 15 No.4

Note: Dong-Sun claims that 28,000 graduate annually in Japan, although there
is no indication of exactly which design subjects are included within this value.
- 6 KIDP Design Strategy Team, (2005), Report on the national design policy
in Korea 2004

Note: it is not evident which subjects are included, as the document only
reports on the number of people who graduated from design related
universities and colleges (36,397). These values are also quoted in: Heskett J,
(2005), Report on design in Asia, submitted to the Cox review. An alternative
value of 49,000 is quoted in MacLeod D, Muller L, Covo D, Levey R, (2007),
Design as an instrument of public policy in Singapore and South Korea,
Canadian Design Research Network, Asia Pacific Foundation of Canada.
This value is presented as the number studying design at Korean Universities
excluding architecture. The more conservative estimate has been used in
this study.
- 7 Power D, Lindstrom J, Hallencreutz D, (2004), Country report: The Swedish
Design Industry, prepared for the research project The future in design:
the competitiveness and industrial dynamics of the Nordic Design Industry,
December 2004, accessed from www.step.no/design/Design_Sweden.pdf
29/09/08

Note: Number of graduates is derived from the number of students enrolled
in design courses, assuming a three year course. In 2003, 7072 students
were enrolled in a design course, including architecture, design, interior and
information design. Extrapolating from the graph provided, Architecture accounts
for around 2600 of these students, but these remain in the data presented.

- 8 Ministry of Trade and Industry Singapore, Creative Industries Working Group, (2002), Creative Industries Development Strategy, Chapter 3: Design Singapore Initiative, Subcommittee on service industries, Economic Review Committee, 25 September, 2002; accessed from <http://app.mti.gov.sg/default.asp?id=507> on 29 September 2008

Note: This encompasses 'design related' diploma courses, with 1500 students registered at Polytechnics and 800 in Art Schools. Subjects include product, fashion, environment and graphic design as well as design related courses such as film and media studies and visual arts.

MacLeod D, Muller L, Covo D, Levey R, (2007), Design as an instrument of public policy in Singapore and South Korea, Canadian Design Research Network, Asia Pacific Foundation of Canada

The values above are corroborated in this paper, and these authors comment that the first industrial design programme in Singapore produced its first group of 20 graduates in 2003, indicating that design is still a new discipline in this country.

- 9 Solum N H, Hubat M, (2004), Country report: the Norwegian Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, December 2004, accessed from www.norskdesign.no/getfile.php/Filer/Artikler/Design_Norway.pdf on 29/09/08

Note: subjects include fashion design, graphic design, interior design and industrial design. Architecture is not included and would roughly double the overall number from 167 graduates in 2000 to 275.

- 10 Data for 2003–2007 obtained for this study from the Higher Education Statistics Authority for UK design graduates in 'design Studies'. Data for 1996–2002 taken from the UK Design Council, (2004), Design in Britain 2003/4.

Note: subjects include software design, engineering design, design studies, graphic design, multimedia design, fashion/clothing/textile design, multimedia design, industrial/product design, and interior design. Architecture is not included.

- 11 Dong-Sun C, (2004), Design economic development and national policy; lessons learnt from Korea, Design management Review, Vol. 15 No.4

Note: no breakdown is given of the design subjects included or the specific source of this estimate of 38,000 design graduates annually in the USA.

WIPO design registrations

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Canada	Total	2,761	2,845	2,178						2,178
	Per million population	90.0	91.7	69.4						69.4
Denmark	Total	1,421	1,279	1,166						1,166
	Per million population	266.1	238.7	217.0						217.0
Finland	Total	765.0	763.0							763
	Per million population	147.8	147.1							147.1
Hong Kong	Total	2,684	2,864	2,992						2,992.0
	Per million population	40.0	42.6	44.5						44.5
Iceland	Total	32	31	22						22
	Per million population	113.8	108.8	76.5						76.5
Japan	Total	40,037	32,934	31,503						31,503.0
	Per million population	315.4	258.7	247.2						247.2
Korea	Total	18,845	18,650	27,235						27,235
	Per million population	400.9	394.3	573.4						573.4
Norway	Total	653	683							683
	Per million population	145.4	151.3							151.3
Singapore	Total			1,473.0						1,473.0
	Per million population			353.0						353.0
Sweden	Total	1,609	1,893	1,635						1,635
	Per million population	181.4	212.8	183.2						183.2
UK	Total	9,768	7,828	9,192						9,192.0
	Per million population	165.9	132.4	155.0						155.0
USA	Total	17,414	16,872	15,451						15,451.0
	Per million population	61.9	59.2	53.7						53.7

All data is taken from the World Intellectual Property Organisation statistics for trademarks www.wipo.int/ipstats/en/statistics/designs/. Data is only available to 2002.

The figures include all new registrations from each country of origin. Firms may register designs nationally, through the EU, in specific countries or through WIPO. These figures only include registrations through WIPO, as these are indicative of an intention for international commercial activity.

Korea stands out for both the overall volume of registrations and also their growth in registration. In contrast, the USA has a very low comparative registration rate. In part, this may be US firms may prioritise local registration, where Korean firms have an early expectation of export for their goods.

In many countries, there has been a recent decline, following a period of steady growth during the late 1990s. This is evident in the UK, Japan, Denmark and the USA.

WIPO trademark registrations

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent
Canada	Total		16,829	17,065	25,520	30,754	26,726	22,878		22,878
	Per million population		542.5	543.9	805.7	961.4	827.4	701.3		701.3
Denmark	Total		12,003	10,042	9,551	9,094	9,766	7,694		7,694
	Per million population		2,239.9	1,868.6	1,773.0	1,683.8	1,803.2	1,415.8		1,415.8
Finland	Total		8,132.0	8,079.0	7,507.0	6,681.0	8,102.0	3,121.0		3,121
	Per million population		1,567.5	1,553.5	1,440.1	1,277.9	1,544.4	592.6		592.6
Hong Kong	Total		14,219	16,240	20,356	26,440	19,686	17,907		17,907
	Per million population		211.3	241.5	300.9	389.0	287.9	259.2		259.2
Iceland	Total		3,664	3,313	3,113	3,271	2,889	4,357		4,357
	Per million population		12,853.7	11,521.1	10,761.5	11,179.6	9,764.6	14,682.9		14,682.9
Japan	Total		94,832	104,968	108,901	97,443	95,553	104,440		104,440
	Per million population		745.0	823.7	853.3	763.1	747.9	817.5		817.5
Korea	Total		33,683	40,588	47,123	53,952	59,547	69,359		69,359
	Per million population		712.1	854.5	984.6	1,123.1	1,237.0	1,436.1		1,436.1
Norway	Total		12,904	6,263	5,948	6,114	7,646	8,088		8,088
	Per million population		2,858.8	1,380.1	1,303.0	1,331.5	1,653.8	1,739.0		1,739.0
Singapore	Total		4,519.6	5,351.5	7,027.2	4,040.8	4,367	4,002.5		4,002
	Per million population		18,702.0	22,348.0	28,910.0	16,834.0	18,626.0	17,615.0		17,615.0
Sweden	Total		13,417	12,654	9,877.0	8,948.0	11,442	11,753.0		11,753
	Per million population		1,508.2	1,417.8	1,102.6	994.9	1,267.2	1,295.3		1,295.3
UK	Total		34,534	30,595	28,351	28,755	29,821	32,044		32,044
	Per million population		584.2	515.7	476.1	480.6	495.3	529.4		529.4
USA	Total		108,839	146,536	129,117	114,412	123,160	154,812		154,812
	Per million population		381.7	509.0	444.5	390.2	416.2	518.2		518.2

All data is taken from the World Intellectual Property Organisation statistics for trademarks www.wipo.int/ipstats/en/statistics/marks/. Data is only available to 2006.

The raw data includes the total number of trademarks registered in the particular year. This includes those registered directly, or through the Madrid system. The Madrid system gives a trademark owner the possibility to have their trademark protected in several countries by simply filing one application directly with their own national or regional trademark office.

Firms may either register nationally or internationally through WIPO. By focusing on international registrations, the data better reflects activity within the nation that has an expectation of export or international trade.

The value for Iceland is notable, as although the individual number of registrations is only 4,357, this is disproportionately high given the small population (around 250K people).

Registrations per million population from the UK are low, and this is somewhat explained by the propensity for UK firms to register trademarks for protection in the EU. Indeed, there has been a substantial growth in EU Community registrations from UK firms in recent years. Similarly, in the USA, there is a greater tendency to register nationally, rather than focus on international trade.

Registrations from Korea have doubled in the five years indicated.

Number of design firms

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent	Source
Canada	Total					12,014	11,854	12,411		12,411	1
	Per million population					375.6	367.0	380.4		380.4	
Denmark	Total								450	450	2
	Per million population								82.3	82.3	
Finland	Total					921.0				921	3
	Per million population					176.2				176.2	
Hong Kong	Total	1,586	1,725	1,797						1,797	4
	Per million population	23.6	25.6	26.7						26.7	
Iceland	Total	50	54	64	82					82	5
	Per million population	177.8	189.4	222.6	283.5					283.5	
Japan	Total	2,640			2,349					2,349	6
	Per million population	20.8			18.4					18.4	
Korea	Total				1,215			2,500		2,500	7
	Per million population				25.4			51.8		51.8	
Norway	Total			591	927					927	8
	Per million population			130.2	203.1					203.1	
Singapore	Total					3,657.0				3,657	9
	Per million population					888.9				888.9	
Sweden	Total	5,150	7,750	8,459						8,459	10
	Per million population	580.5	871.2	947.8						947.8	
UK	Total						12,450			12,450	11
	Per million population						206.8			206.8	
USA	Total			30,485						30,485	12
	Per million population			105.7						105.7	

As with the other indicators, inconsistencies in the definition of this sector introduce difficulties in comparing nations. In particular, the lack of a universally agreed scheme for industry classification makes data especially difficult to establish. The exceptions are Canada and the USA, who both use the North American Industry Classification Scheme, where the design services sector is clearly identified. Singapore appears to have the strongest sector, with Japan the weakest.

Sources:

- 1 Statistics Canada, (2006), Service Bulletin: Specialized design services, Catalogue No. 63-251-X

Note: these figures include firms in the design services sector involved in Interior design, industrial design, graphic design and 'other specialized design services' (including Fashion, Jewellery and Footwear). Architecture is not included.
- 2 DENMARK: Statistics Denmark (interior and industrial design) http://www.dst.dk/HomeUK/Statistics/focus_on/focus_on_show.aspx?sci=1132
- 3 Salimaki M, Ainamo A, Salmenhaara K, (2004), Country report: The Finnish design industry, prepared for the research project: the future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, Norden: Nordic Innovatin Centre

Note: these figures include firms in the design services sector involved in graphic design and industrial design. Architecture is not included.
- 4 University of Hong Kong, (2003), Baseline study on Hong Kong's creative industries: for the Central Policy Unit, HK Special Administrative Region Government, Centre for Cultural Policy Research

Data for the design services sector is sourced from HK Census and Statistics Department

Note: Includes registered design firms, with no indication of specific design discipline
- 5 Sigurdardottir M S, O'Keeffe N, Engilbertsson H, (2004), Country report: The Icelandic design industry, Prepared for the research project: The future in Design: the competitiveness and Industrial dynamics of the Nordic Design industry

Note: these figures include firms in the design services sector involved in design (textile, fashion, furniture and industrial) and engineering, but not Architecture or Graphic design.
- 6 Japan Ministry of Economy Trade and Industry Statistics, (2003), Survey on selected service industries: designing, accessed from <http://www.meti.go.jp/english/statistics/tyo/tokusabizi/index.html> on 30/09/08

Note: design businesses include firms involved in designing, drawing of the production of industrial or commercial products. This includes graphic design, industrial design, interior design, multimedia design, package design, display design, textile and fashion design, Jewellery design, Craft and others. Architecture is not included
- 7 KIDP Strategy Team, (2005), Report on the National Design Policy in Korea 2004, Accessed on 30/09/08 from http://grips.proinno-europe.eu/knowledge_base/dl/297/

MacLeod D, Muller L, Covo D, Levey R, (2007), Design as an instrument of public policy in Singapore and South Korea, Canadian Design Research Network, Asia Pacific Foundation of Canada

Note: The number of design firms has more than doubled in the past five years, with the focus on industrial, product and graphic design. However, the figures quoted only represent 'design agencies' and it is not clear which design disciplines are included.

- 8 Solum N H, Hubat M, (2004), Country report: the Norwegian Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, December 2004, accessed from www.norskdesign.no/getfile.php/Filer/Artikler/Design_Norway.pdf on 29/09/08

Note: firms include those involved in interior architecture and decoration, and 'design' which includes industrial design, but is not subdivided in any detail into further categories. Architecture is not included.

- 9 Ministry of Trade and Industry Singapore, Creative Industries Working Group, (2002), Creative Industries Development Strategy, Chapter 3: Design Singapore Initiative, Subcommittee on service industries, Economic Review Committee, 25 September, 2002; accessed from <http://app.mti.gov.sg/default.asp?id=507> on 29 September 2008

Note: these figure include firms in the design services sector encompassing architecture, industrial design, interior design, graphic design, fashion design, and IT/Web design

- 10 Power D, (2004), The Future in Design: the competitiveness and industrial dynamics of the Nordic design industry: final report, ISBN 91-506-1793-1, The Future in Design Research Team, Norden: Nordic Innovation Centre, page 12

Note: these figures include firms involved in graphic design and 'other design activities', where the type of design is not specified. Architecture firms are not included.

- 11 Design Council, (2005), Design Industry Research 2005: final report for the Design Council and the Design Business Association, page 6

Note: these figures include 'design consultancies' and not freelance or in-house designers. These firms are involved in communications design, product/industrial design, interior/exhibition design, fashion/textile design, digital/multimedia design and other/service design. Architecture is not included.

- 12 US Census Bureau National Statistics, <http://www.census.gov/econ/census02/data/industry/E5414.HTM> accessed on 30/09/08, data for NAICS codes 5414 – specialized design services

Note: firms included are involved in interior design, industrial design, graphic design and other specialised design services (including clothing, fashion, jewellery, shoe and textile design). Architecture is not included, and falls under NAICS 5413

Turnover of the design services sector

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent	Source
Canada	Total turnover (CAN \$ Bn)				2.02	2.23	2.33	2.54		2.54	1
	as a percentage of GDP (x10-3)				1.85	1.98	2.01	2.13		2.13	
Denmark	Total turnover (DKK bn)						3.50	3.94		3.94	2
	as a percentage of GDP (x10-3)						2.26	2.40		2.40	
Finland	Total turnover (Euro Bn)		0.44	0.50	0.57					0.57	3
	as a percentage of GDP (x10-3)		3.05	3.49	3.64					3.64	
Hong Kong	Total turnover (HK\$ Bn)	0.99	1.16							1.16	4
	as a percentage of GDP (x10-3)	0.77	0.91							0.91	
Iceland	Total turnover (Euro Bn)	0.021	0.026	0.025	0.025					0.025	5
	as a percentage of GDP (x10-3)	3.20	3.68	3.43	3.22					3.22	
Japan	Total turnover (Yen Bn)	162			140					140	6
	as a percentage of GDP (x10-3)	0.32			0.28					0.28	
Korea	Total turnover (US\$ Bn)				6.00					6	7
	as a percentage of GDP (x10-3)				6.59					6.59	
Norway	Total turnover (NOK Bn)			0.60	0.89					0.89	8
	as a percentage of GDP (x10-3)			10.7	12.9					12.9	
Singapore	Total turnover (Singapore \$ Bn)	0.68								0.68	9
	as a percentage of GDP (x10-3)	4.70								4.70	
Sweden	Total turnover (Euro Bn)				0.84					0.84	10
	as a percentage of GDP (x10-3)				3.52					3.52	
UK	Total turnover UK £ Bn	6.50	6.70	5.90	5.30	3.90	4.59	4.31	3.98	3.98	11
	as a percentage of GDP (x10-3)	6.84	6.74	5.65	4.74	3.29	3.72	3.31		3.31	
USA	Total turnover (US\$ Bn)			16.97						16.97	12
	as a percentage of GDP (x10-3)			1.62						1.62	

In most nations, the design services sector accounts for a small percentage of GDP; around 0.02% in Canada and 0.03% in the UK. However, the sector in Korea is especially strong at 0.06% GDP. The time-series data is also interesting, as turnover in the design sector has been steadily reducing in the UK.

Sources:

- 1 Statistics Canada, (2006), Service Bulletin: Specialized design services, Catalogue No. 63-251-X

Zeman K, (2001), An overview of the specialized design services industry, Statistics Canada, Service Indicators Catalogue No 63-016-XPB, ISBN 0-662-31234-1

Note: these figures include firms in the design services sector involved in Interior design, industrial design, graphic design and 'other specialized design services' (including Fashion, Jewellery and Footwear). Architecture is not included.
- 2 Data provided for this study by the Danish Design Council. Data also available from Statistics Denmark, <http://www.statistikbanken.dk/PRDST612>, accessed on 02/10/08

Design subjects include: Architecture, Product/Industrial design, clothing/fashion design, digital/multi-media design, graphical/communication design
- 3 Data provided for this study by the Finland Design Forum

Design subjects include: Architecture, Product/Industrial design, clothing/fashion design, digital/multi-media design, graphical/communication design
- 4 University of Hong Kong, (2003), Baseline study on Hong Kong's creative industries: for the Central Policy Unit, HK Special Administrative Region Government, Centre for Cultural Policy Research

Data for the design services sector is sourced from HK Census and Statistics Department

Note: Includes registered design firms, with no indication of specific design discipline.
- 5 Sigurdardottir M S, O'Keeffe N, Engilbertsson H, (2004), Country report: The Icelandic design industry, Prepared for the research project: The future in Design: the competitiveness and Industrial dynamics of the Nordic Design industry

Note: these figures include firms in the design services sector involved in design (textile, fashion, furniture and industrial) and engineering, but not Architecture or Graphic design.
- 6 Japan Ministry of Economy Trade and Industry Statistics, (2003), Survey on selected service industries: designing, accessed from <http://www.meti.go.jp/english/statistics/tyo/tokusabizi/result/pdf/2003-e/h15-gai-06.pdf> on 30/09/08

Note: design businesses include firms involved in designing, drawing of the production of industrial or commercial products. This includes graphic design, industrial design, interior design, multimedia design, package design, display design, textile and fashion design, jewellery design, craft and others. Architecture is not included.
- 7 UK TI, (2003), Report on the South Korean Design Services Sector, www.britishdesigninnovation.org/der/Korea%20Design%20Report%20-Final%20Version.pdf on 30/09/08

Note: figures include firms in graphic, product, packaging, environment, multimedia, crafts, textiles and others.

- 8 Solum N H, Hubak M, (2004), Country Report: the Norwegian design industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, Norden: Nordic Innovation Centre, December 2004

Note: the figures include businesses involved in 'design activity' and interior architecture and decoration. Architecture is not included. Design activity includes some (but not all) industrial design firms, but no further breakdown is provided for the subjects that are included.

- 9 Ministry of Information Communications and the Arts, (2003), Economic contributions of Singapore's creative industries, Economic Survey of Singapore First Quarter 2003, accessed from www.mica.gov.sg/MTI%20Creative%20Industries.pdf on 30/09/08

Note: figures include turnover of firms in industrial design, interior, graphics and fashion design. Architecture is not included.

- 10 Power D, Lindstrom J, Hallencreutz D, (2004), Country report: The Swedish Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic Design Industry, December 2004, accessed from www.step.no/design/Design_Sweden.pdf 29/09/08

Note: design subjects include: architectural activities, graphic design and other design activities.

- 11 British Design Innovation, (2007), The British design industry valuation survey 2006–2007, British Design innovation, UK

Note: values also from surveys from the same source in previous years. Design disciplines in this survey include branding/graphics, multimedia/new media, packaging, exhibitions, design/innovation management, product/industrial design, design strategy, interior design, broadcast/TV/media, architecture/landscape, fashion, service/experience, as well as a number of other smaller disciplines. Values result from a survey of BDI members, and are therefore do not necessarily capture the whole design services sector. However, results are comparable with the Design Council's Business of Design (2006). According to BDI, in 2005 turnover in the design services sector was £4.6 bn, whereas the Design Council estimate was £5.1 bn. The BDI values have been chosen as these are available over a longer time period.

- 12 US Census Bureau National Statistics, <http://www.census.gov/econ/census02/data/industry/E5414.HTM> accessed on 30/09/08, data for NAICS codes 5414 – specialized design services

Note: firms included are involved in interior design, industrial design, graphic design and other specialised design services (including clothing, fashion, jewellery, shoe and textile design). Architecture is not included, and falls under NAICS 5413

Employment in the design services sector

		2000	2001	2002	2003	2004	2005	2006	2007	Most recent	Source
Canada	Total employment	45,900	44,000	44,000						44,000	1
	per million population	1,496	1,418	1,402						1,402	
Denmark	Total employment		2,846							2,846	2
	per million population		531							531	
Finland	Total employment			865						865	3
	per million population			166						166	
Hong Kong	Total employment	5,062	5,547	5,659						5,659	4
	per million population	75	82	84						84	
Iceland	Total employment				90					90	5
	per million population				311					311	
Japan	Total employment	14,323			11,113					11,113	6
	per million population	113			87					87	
Korea	Total employment			8,383		8,384		112,000		8,384	7
	per million population			176		175		2,319		2,319	
Norway	Total employment			1,035	1,483					1,483	8
	per million population			228	325					325	
Singapore	Total employment	5,049								5,049	9
	per million population	1,254								1,254	
Sweden	Total employment	4,950	4,600	4,238						4,238	11
	per million population	558	517	475						475	
UK	Total employment	76,000	82,000	67,000	68,000	70,000	70,759	64,847	61,680	61,680	12
	per million population	1,291	1,387	1,129	1,142	1,170	1,175	1,071	1,014	1,014	
USA	Total employment			117,146					141,390	141,390	13
	per million population			407					469	469	

There are substantial differences between nations in employment in design per million population. Korea has the lowest employment, with Singapore being the leading nation. The UK performs well, but as with turnover in the design services sector, employment has been reducing in the UK over the past ten years.

Sources:

- 1 Values to 2001: Zeman K, (2001), An overview of the specialized design services industry, Statistics Canada, Service Indicators Catalogue No 63-016-XPB, ISBN 0-662-31234-1

Note: figures include employment in landscape architecture, interior design, industrial design, graphic design and 'other' design.

Values for 2002: Gertler M S, Vinodrai T, (2006), Better by design: capturing the role of design in innovation, Presented at Blue Sky II: what indicators for science technology and innovation policy in the 21st Century, OECD and Statistics Canada, Ottawa, 25-27 September, 2006

Note: figures include employment in the design services sector, but not architecture or designers within industry.
- 2 Power D, (2004), The Future in Design: the competitiveness and industrial dynamics of the Nordic design industry: final report, ISBN 91-506-1793-1, The Future in Design Research Team, Norden: Nordic Innovation Centre, page 12

Note: these figures include firms involved in graphic design and 'other design activities', where the type of design is not specified. Architecture firms are not included.
- 3 Salimaki M, Ainamo A, Salmenhaara K, (2004), Country report: The Finnish design industry, prepared for the research project: The future in design: the competitiveness and industrial dynamics of the Nordic design industry, Norden: Nordic Innovation Centre

Note: these figures include firms in the design services sector involved in graphic design and industrial design. Architecture is not included.
- 4 University of Hong Kong, (2003), Baseline study on Hong Kong's creative industries: for the Central Policy Unit, HK Special Administrative Region Government, Centre for Cultural Policy Research

Data for the design services sector is sourced from HK Census and Statistics Department

Note: Includes employment in registered design firms, with no indication of specific design sector. This value may be low, as the statistics do not include smaller firms or individual traders. The report suggests that this could be higher, up to 20,000, around four times the CSD estimate. However, this is an unverified estimate.
- 5 Sigurdardottir M S, O'Keeffe N, Engilbertsson H, (2004), Country report: The Icelandic design industry, Prepared for the research project: The future in design: the competitiveness and industrial dynamics of the Nordic design industry

Note: these figures include firms in the design services sector involved in design (textile, fashion, furniture and industrial) and engineering, but not architecture or graphic design.
- 6 Japan Ministry of Economy Trade and Industry Statistics, (2003), Survey on selected service industries: designing, accessed from <http://www.meti.go.jp/english/statistics/tyo/tokusabizi/result/pdf/2003-e/h15-gai-06.pdf> on 30/09/08

Note: design businesses include firms involved in designing, drawing of the production of industrial or commercial products. This includes graphic

design, industrial design, interior design, multimedia design, package design, display design, textile and fashion design, jewellery design, craft and others. Architecture is not included.

- 7 MacLeod D, Muller L, Covo D, Levey R, (2007), Design as an instrument of public policy in Singapore and South Korea, Canadian Design Research Network, Asia Pacific Foundation of Canada
- KIDP Strategy Team, (2005), Report on the National Design Policy in Korea 2004, Accessed on 30/09/08 from http://grips.proinno-europe.eu/knowledge_base/dl/297/
- Note: the 2006 value of 112,000 designers excludes architects, but includes in house as well as consulting designers. There are relatively few design consultancies in Korea, and the majority tend to work within firms. For this reason, the unusually high value for 2006 has been ignored in the analysis, and the value taken is for 2004.
- The 2004 value is based on an average of 6.9 employees per firm, with 1215 design firms. The number of firms includes 'design agencies' and it is not clear which design disciplines are included.
- 8 Solum N H, Hubat M, (2004), Country report: the Norwegian Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic design industry, December 2004, accessed from www.norskdesign.no/getfile.php/Filer/Artikler/Design_Norway.pdf on 29/09/08
- Note: Under the NACE classification of firms, some industrial design consultancies will self-classify under 'technical consultancy' and thus will not be included within these values. The values quoted include employees in firms engaged in interior architecture and 'design activity', where design activity is not expanded into other disciplines. Architecture is not included.
- 9 Ministry of Information Communications and the Arts, (2003), Economic contributions of Singapore's creative industries, Economic Survey of Singapore First Quarter 2003, accessed from www.mica.gov.sg/MTI%20Creative%20Industries.pdf on 30/09/08
- Note: figures include firms involved in industrial design, interior, graphics and fashion design.
- 10 Power D, (2004), The Future in Design: the competitiveness and industrial dynamics of the Nordic design industry: final report, ISBN 91-506-1793-1, The Future in Design research team, Norden: Nordic Innovation Centre, page 12
- Power D, Lindstrom J, Hallencreutz D, (2004), Country report: The Swedish Design Industry, prepared for the research project The future in design: the competitiveness and industrial dynamics of the Nordic design industry, December 2004, accessed from www.step.no/design/Design_Sweden.pdf 29/09/08
- Note: these figures include firms involved in graphic design and 'other design activities', where the type of design is not specified. Architecture firms are not included.
- 11 British Design Innovation, (2007), The British design industry valuation survey 2006–2007, British Design innovation, UK

Note: values also from surveys from the same source in previous years. Design disciplines in this survey include branding/graphics, multimedia/new media, packaging, exhibitions, design/innovation management, product/industrial design, design strategy, interior design, broadcast/TV/media, architecture/landscape, fashion, service/experience, as well as a number of other smaller disciplines. Values result from a survey of BDI members, and therefore do not necessarily capture the whole design services sector.

The UK value of 64,847 employees in 2006 from BDI compares with the Design Council's estimate of 118,700 employees in the design and fashion design sector of the 'creative industries' for the same year. This larger number includes employment in industry as well as within the design sector, and design sector employment only includes fashion design. Although the real value may fall in between the two, it is felt that the BDI value gives a more accurate comparison with values for other nations in this study.

- 12 US Census Bureau National Statistics, <http://www.census.gov/econ/census02/data/industry/E5414.HTM> accessed on 30/09/08, data for NAICS codes 5414 – specialized design services

The value for 2006 from the US Bureau of Labor Statistics, www.bls.gov/oes/current/naics4_541400.htm

Note: firms included are involved in interior design, industrial design, graphic design and other specialised design services (including clothing, fashion, jewellery, shoe and textile design). Architecture is not included, and falls under NAICS 5413

The Institute for Manufacturing (IfM)

The IfM provides a unique environment for the creation of new ideas and approaches for modern industrial practice. Part of the University of Cambridge's Department of Engineering, it brings together expertise in management, economics and technology to address the full spectrum of industrial issues.

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The Design Management Group, within the IfM, aims to understand the ways in which design can be effectively managed, and how integration of design and technology can improve success at a project, company and national level.

Centre for Industry and Government

The Centre for Industry and Government (CIG) within the IfM explores changing industrial structures, business models and modern industrial policies around the world to provide analysis and policy recommendations to governments and companies, in support of sustainable economic growth. Building on the depth of industrial experience and collaboration across the IfM, CIG seeks to improve understanding of the business-government relationship, and to support policy development and implementation.

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**International Design
Scoreboard:**

Initial indicators of
international design
capabilities.

James Moultrie
and Finbarr Livesey

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