

The University of Manchester  
Manchester  
Business School



## **International evidence on design** ***Near Final Report for the DTI***

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**Centre for Business Research**  
Manchester Business School  
The University of Manchester  
Booth Street West  
Manchester M15 6PB

### **Contact Details**

Professor Margaret Bruce  
[Margaret.bruce@mbs.ac.uk](mailto:Margaret.bruce@mbs.ac.uk)

Dr Lucy Daly  
[Lucy.Daly@mbs.ac.uk](mailto:Lucy.Daly@mbs.ac.uk)

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## **Executive summary and conclusions**

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Design professions include expertise in industrial and product design, graphics, packaging and corporate identity, exhibitions and interiors. This report excludes fashion, textiles, software and engineering.

International comparative studies of the design professions are problematic, as there is no consensus as to the nature of design professions and how to account for their contribution. Hence, few studies exist which undertake such comparisons.

### **The design sector**

There is substantial evidence that the independent design profession contributes directly to economic wealth and the creation of employment and indirectly through the economic benefits it provides to business. These indirect benefits were not investigated as part of the study, but other evidence exists to support this (Walsh et al 1992). In the UK, the design profession contributes to exports, but only to established European and American markets.

The UK design sector is well established, with 12,450 design consultancies, 47,400 self-employed and freelance designers, 77,100 in-house designers in other businesses, and a turnover of £11.6 billion in 2004-2005 (Design Council, 2005). The sector tends to focus on branding and graphics; packaging; exhibitions and events; and multimedia, with fewer agencies in engineering and product design.

By comparison, the independent design profession in France is relatively new, with 53% of organisations operating for fewer than 10 years. The sector is dominated by a small number of large agencies. Automotive, aerospace and engineering companies tend to use in-house designers whereas luxury companies tend to use international agencies for brand development and corporate communications.

The Swedish design sector has an estimated total of 11,199 companies, with many operating as sole-traders. The sector has seen considerable growth, with a rise of 272% in the number of firms between 1993 and 2002.

The Danish Design sector is buoyant, with 2,860 firms in 2001. Turnover increased between 1992 and 2002, both in actual terms and as a percentage of overall turnover. Fashion and textile design is the fastest growing whilst graphic design is the largest sector in the design industry.

Design is recognised as a growth industry in Germany, with approximately 300 start-up businesses annually since 1996.

There was limited data available on the design sector in the US. There is, however, a growing recognition of the importance of both communication and product design for global competitive advantage, across all business sectors.

The design sector in China is highly fragmented, and design activities fall under the remit of a number of ministerial agencies. China has a strong architectural expertise, with 11,000 architectural design organisations generating an estimated revenue of £6.2 billion.

**Employment**

It was not possible to obtain actual employment figures for many countries. The UK sector employed 185,000 people in 2003-2004 (Design Council, 2005), accounting for 0.3% of the population. By comparison, the Danish sector employed 10,369 people in 2001, almost 0.2% of the population, and the French design sector employs 4,500 people in 350 companies (0.007% of the population). Whilst figures for overall employment in the Chinese design sector were not available, the city of Shenzhen alone has some 20,000 professional designers from sectors including graphic and industrial design.

**The economic impact of design**

NESTA (2005) indicates that the UK creative industries contribute 8.9% to GDP, compared with circa 3% from manufacturing. During 2002, total creative industries exports contributed £11.5 billion to the balance of trade (Department For Culture, Media And Sports, 2004), and £11.6 billion in 2003 (Department for Culture, Media and Sports, 2005). The top destination of export of UK design services is the US, although fee income generated from Europe has seen an increase of 2%. By comparison, in France design, though not comparable with creative industries contributes less than 0.2% to GDP (between £1.49 million and £2 million). However, despite the increase in turnover of the Danish design sector between 1992 and 2001, exports decreased during 1999 and 2000.

**Design agencies/councils**

Investment in Design agencies/councils differs considerably from country to country, as shown in figure 39.

Figure 39: Budget development between 1992 and 2003 (Schneider, 2005)

Agency	1992 budget €	1992 budget £*	2003 budget €	2003 budget £*
Industrie Forum Design Hanover (Germany)	Under 1,000,000	Under 700,000	2,000,000+	1,420,000+
Danish Design Centre	2,000,000	1,400,000	5,000,000	3,550,000
Design Council (UK)	10,000,000	7,000,000	10,000,000+	7,100,000+
APCI (France)	Under 1,000,000	Under 700,000	1,000,000	710,000

Funding is often uncertain and tends to have both public and private sources. The ‘uncertainty’ is due to the annual budget setting for government supported agencies and is subject to the vagaries of policy regarding design and private funds (Schneider, 2005). In the UK, government funds are available to support the

activities, for example of the Design Council, but annual budgets are subject to an agreed business plan.

Design agencies that support and promote the design profession tend to be non-for-profit organisations. Many promote design and are funded on a subscription basis and so provide services to their subscribers, such as salary surveys, trade journals, events, seminars and training. Committed individuals seek funds from private and public sources to run these. In the UK, the government has supported the Design Council since 1944. In China design agencies provide business support for design.

### **Education**

Overall, the design profession is a graduate dominated profession. Perhaps the exception is France, which has a distinctive system of education for its elite cadre of engineers and managers through the Grande Ecoles. The pattern of educational growth of design disciplines is likely to match the country's industrial needs, for example industrial design in China and graphics in the UK. China's higher educational institutes are open to international exchanges and students are encouraged to study overseas. This outward focus is not quite so evident for UK design graduates. For the UK, the comparative advantage for design resides in its heritage of design education and the development of this to encompass new disciplines and offer a post-graduate education; the English language; the world-class design city of London with an infrastructure to support this; the established Design Council; the cluster of international and robust companies in design; the use of design by stronger parts of the economy, that is retail and service companies; and, the ability of design companies to export.

The UK educates a significant number of graduates in design per annum, with Design Studies accounting for 2.53% of students graduating, and students graduating with a degree in creative arts and design accounting for 6.2% of all graduates (Higher Education Statistics Agency, 2005). The French design education system is not directly comparable with other countries, consisting of 3 approaches. Students are awarded a diploma following 3 years of study, or a masters after five. During the past 10 years, Swedish design education has seen considerable growth with programmes established in universities throughout Sweden. Design education in Denmark is highly regarded, with 83% of design companies employing personnel with a formal public design education, and between 250 and 300 new designers are educated each year. In Germany design education is the responsibility of the 'Laendar', and generally takes place at technical universities. Again, a design education is well regarded in the US and is taught at a higher education level. In China it is estimated in the last 20 years there have been in excess of 30,000 design graduates, with many graduating during the last 5-7 years.

### **Challenges**

The Design Council and/or other agencies providing support to business need to be able to attract inward investment to support the indigenous design profession; systematic monitoring of the design profession needs to be conducted, so that changes can be identified and understood. As well as London, emerging major cities

of design need to be supported to develop an appropriate infrastructure to encourage this; and, the business community through the business schools could be encouraged to engage in design management and the creative industries.

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## Introduction

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The organisation and structure of the independent design profession in different countries is the focus of this report. The countries covered are: UK, France, Germany, Sweden, Denmark, USA and China. Design professions principally refer to industrial/product design, graphics, corporate identity, packaging and interiors. Software and fashion design are excluded. One of the challenges of carrying out international comparisons is the diverse nature and scope of design professionals included in the statistics and reports available, which hinders the making of direct comparisons between countries. SIC codes covering the design professions vary from country to country, so it is impossible to base accurate comparisons on these. As a newly developing country, China has the most detailed classifications for design professions and so will be able to monitor changes to their structure, investment and the role of design in business perhaps more accurately than others.

By considering the provision of education of design professionals, it is possible to assess the changing nature of the design professions, in terms of discipline and growth. More recently, Sweden and Denmark have increased their investment in product design, which particularly feeds into the development of the telecommunications sector. In the UK, graphics, corporate identity and packaging dominate the educational provision for design. This is to be expected as design is a service provided to industry, and the dominant sectors of the economy for a particular country would be expected to require specific design skills, so, for example, UK retail and service companies utilise the services of design specialists of graphics, corporate identity and packaging.

Design decisions and design management activities contribute to the overall outcome of the design activity, but typically are not accounted for in statistics and studies of the design professions and their role in business. From previous research (Walsh et al 1992), it is clear that significant design decisions are made by non-designers as part of their role, for example Technical Directors, Marketing managers and so on. Elsewhere, this contribution has been cited as 'silent design' (Gorb and Dumas, 1987). This contribution has not been covered in this report.

In addition, design companies require the services of other creatives, such as photographers, illustrators, animators, film-makers, model-makers, software designers and programmers, trend forecasters, copy-writers, etc. These may be employed in-house by the larger agencies, but often tend to be sole-traders, free-lancers, or small companies. However, these services, together with design professionals are being considered as constituting the 'creative industries' (NESTA (National Endowment for Science, Technology and the Arts) 2005). Indeed, a 'creative cluster' would contain design professionals, together with a supportive infrastructure, such as can be identified in major capitals, including London and New

York and in large provincial cities, like Chicago and Manchester. However, the wider nature of 'creative industries' has not been included in this report.

The report presents a design profile for each country, including information on the value of the sector, employment, education and sector support where available.

As noted above, International comparisons are difficult and the data are generally not directly comparable.

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## Design Profiles for each Country

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### UK

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#### The Design Sector

In the 1980s, the design profession experienced substantial growth with the emergence of a dominant retailing sector and the mergers and de-mutualisation of major financial institutions. This investment in design was especially in interiors, corporate identity, packaging and graphics. Graphics/corporate identity/packaging companies dominate the profession and these companies serve retail and service companies in the UK, as well as exporting their services. This part of the design profession is closely associated with a strong advertising industry with international groups, such as WPP, Lowe Howard Spink, Wolf Olins and Inter-Publics.

Nowadays, the creative industries are increasingly recognised as a major sector in the economy. NESTA, (2004) estimates its contribution to be 7.9% of GDP in the UK, with 1% of this figure accounted for by the design industry, compared with 3.4% for the automotive industry. It should be noted that NESTA's definition of creative industries is wider than the definitions used for design

The total income for the UK design industry in 2003 was £3.2 billion (British Design Innovation, 2004\*). The turnover of the commercial design industry in the UK fell between 2003 and 2004, by 26%, from £5.3 billion to £3.9 billion (British Design Innovation, 2004\*) (figure 1), although appears to have grown more recently, with the turnover of UK design businesses reaching £11.6 billion in 2004-2005, and 43% of businesses reporting an increase in turnover (Design Council, 2005).

Figure 1: Turnover (British Design Innovation, 2004\*)

Company size by turnover (£)	Turnover, £ million			
	2002-2003	2003-2004	% change	% of turnover
Up to 50k	17	7	-60	0.2
50-100k	59	19	-68	0.5
100-250k	115	139	21	3.6
250-500k	262	388	48	9.9
500-1million	324	527	63	13.5
1 million +	4,502	2,823	-37	72.3
<b>Total</b>	<b>5,279</b>	<b>3,902</b>	<b>-26</b>	

However, there has been some growth in the sector, mainly amongst companies with a turnover of between £500,000 and £1 million, with a growth of 260 companies between 2002/2003 and 2003/2004, indicating that a number of mergers and

company buy-outs have occurred. Overall the number of companies in the sector has fallen from 4,500 in 2002/2003 to 4,000 in 2003/2004 (see figure 2), and in the past year 10% of companies either failed or reduced to sole trader status (British Design Innovation, 2004<sup>1</sup>) (figure 2). This indicates the intensification of competition in the sector and the development of 'barriers to entry' for start-up's who may not be able to offer the range of integrated services provided by a larger company.

Figure 2: Number of companies in turnover bracket (adapted from British Design Innovation, 2004<sup>1</sup>)

Company turnover	Number of companies 2002-2003	Percentage of design companies	Number of companies 2003-2004	Percentage of design companies	Percentage of registered companies	% change
Up to 50k	694	15	272	7	0.014	-61
50-100k	787	17	252	6	0,013	-68
100-250k	656	15	796	20	0.041	21
250-500k	698	16	1,034	26	0.053	48
500-1million	432	10	702	18	0.036	63
1 million+	1,232	28	945	24	0.049	-23
<b>Total</b>	<b>4,500</b>		<b>4,000</b>		<b>0.207</b>	<b>-26</b>

Fee income fell by 13% between 2003 and 2004, from £3.6 billion in 2002/2003 to £3.1 billion in 2003/2004 (figure 3). Companies employing fewer than 5 people tend to charge lower fees, resulting in a smaller proportion of overall fee income (figure 4) (British Design Innovation, 2004<sup>1</sup>).

Figure 3: Fee Income £million (British Design Innovation, 2004<sup>1</sup>)

Company size by income (£)	Fee income £ million		
	2002-2003	2003-2004	% change
Up to 50K	27	5	-81
50k – 100k	61	15	-75
100k – 250k	127	111	-13
250k – 500k	182	310	70
500k – 1 million	416	421	1
1 million+	2,759	2,258	-18
<b>Total</b>	<b>3,572</b>	<b>3,122</b>	<b>-13</b>

Figure 4: Percentage of design companies in fee bracket (adapted from British Design Innovation, 2004<sup>1</sup>)

Company income (£)	Number of companies 2002-2003	Percentage of design companies 2002-2003	Number of companies 2003-2004	Percentage of design companies 2003-2004	% change
Up to 50K	1,094	24	355	9	-68
50k – 100k	809	18	856	21	6
100k – 250k	724	16	264	7	-64
250k – 500k	485	11	1,048	26	116
500k – 1 million	554	12	663	17	20
1 million+	834	18	814	20	-2
	<b>4,500</b>		<b>4,000</b>		

The number of agencies in each discipline can be identified. The largest proportion of independent agencies are in branding and graphics; packaging; exhibitions and events; and multimedia (figure 5). Fewer agencies are in the fields of engineering design and product design.

Figure 5: Agencies by design discipline (British Design Innovation, 2004<sup>1</sup>)

Discipline	% of agencies undertaking the discipline	number
Branding and graphics	65	2611
Packaging	55	2207
Exhibitions and events	48	1901
Multimedia/new media	59	2357
Architecture/landscape	20	817
Design management	23	918
Interior design	23	900
Product/industrial design	23	923
Designer/maker	10	404
Tv, film and video	19	774
Engineering design	10	413

Design and manufacture	9	366
Fashion and textile design	5	218

## Employment

Company growth has tended to occur amongst companies employing more than 50 people (figure 6), which have seen a 34% growth in employees, and a rise in the number of agencies of 43% (British Design Innovation, 2004<sup>1</sup>). Overall there has been a 3% rise in the number of employees in the sector (figure 7).

Figure 6: Percentage of agencies against employment (British Design Innovation, 2004<sup>1</sup>)

Number of employees in company	Number of agencies, 2002-2003	Percentage of agencies 2002-2003	Number of agencies, 2003-2004	Percentage of agencies 2003-2004	% change
0-5	2,417	54	2,232	58	-4
6-10	742	16	465	12	-37
11-20	538	12	353	9	-34
21-50	396	9	279	7	-30
50+	407	9	580	14	43
<b>Total</b>	<b>4,500</b>		<b>4,000</b>		<b>-11</b>

Figure 7: Number of employees (British Design Innovation, 2004<sup>1</sup>)

Size of company (employees)	Number of people employed in sector		% of total population		% change
	2002-2003	% of total population*	2003-2004	% of total population	
0-5	7,210	0.012	6,970	0.012	-3
6-10	5,940	0.010	3,717	0.006	-37
11-20	8,580	0.014	5,651	0.009	-34
21-50	14,360	0.024	10,037	0.017	-30
50+	32,210	0.054	43,261	0.072	34
<b>Total</b>	<b>68,000</b>	<b>0.114</b>	<b>70,000</b>	<b>0.117</b>	<b>3</b>

\* National Statistics Population in 2004

The majority of agencies in the sector are small, with 70% employing less than 10 people, and 58% employing fewer than 5 people (figure 6) (British Design Innovation, 2004<sup>1</sup>).

## The Economic impact of design

The creative industries sector experienced an annual growth of 6%, on average between 1997 and 2002, compared to an average annual growth of 3% for the overall economy (NESTA, 2005). With in excess of 120,000 companies, and employing 1.9 million people, the sector contributes significantly to the UK economy. NESTA 2005 indicates that the creative industries contribute 8.9% to GDP, compared with circa 3% from manufacturing. NESTA's definition of creative industries is wider than the definitions used for design and if design is taken solely then this would be lower, at approximately 1% of GDP (figure 8) (Department for Culture, Media and Sports, 2004) (note page 7).

Figure 8: Contribution of design to gross value added (adapted from Department For Culture, Media And Sports, 2004, and 2005)

	Gross value added (£ million)	% of GDP
2000	6,500	1%
2001	6,700	1%
2002	5,900	0.9%
2003	5,300	0.7%

Overall, a third of businesses invest in design, with 33% of companies indicating that they spend money on design. However, the manufacturing sector investment is considerably higher, with 52% of companies spending money on design (Design Council, 2004<sup>1</sup>).

Design can have a positive impact on the performance of the company if managed well. 63 companies identified as using design effectively consistently outperformed the FTSE100 index between 1994 and 2003, by 200% (Design Council, 2004).

## Exports

During 2002, total creative industries exports contributed £11.5 billion to the balance of trade (figure 9), growing by approximately 11% annually between 1997 and 2002 (Department For Culture, Media And Sports, 2004). This figure rose again to £11.6 billion in 2003, accounting for 4.1% of all goods and services exported (Department for Culture, Media and Sports, 2005). Of this, the UK generates one fifth of its annual income from the export of design services, equating to US\$1 billion in 2003 (British Design Innovation, 2004).

51% of export sales by the Queens Award for International Trade winners can be directly linked to design investment (Design Council, 2004\*).

Figure 9: Exports of design (adapted from Department For Culture, Media And Sports, 2005)

Year	£ million
2000	1,000
2001	1,000
2002	1,200
2003	630

Overseas income from commercial design has remained relatively steady between 2002/2003 and 2003/2004, with a 13% fall (compared to a 26% fall in overall turnover). The top destination of export of design services is the US, although fee income generated from Europe has seen an increase of 2%. UK companies are not exporting to Asia, despite the potential demand in these countries. However, fewer agencies are generating a substantial income in excess of 25% of their overall income from overseas clients (figure 10) (British Design Innovation, 2004).

Figure 10: Overseas fee income (British Design Innovation, 2004)

% of fees earned	Income £million		% change
	2002-2003	2003-2004	
0-10%	93	78	-16
11-25%	110	101	-8
26-50%	158	177	12
51-75%	157	130	-17
76-100%	110	63	-43
<b>Total</b>	<b>628</b>	<b>548</b>	<b>-13</b>

Figure 11: Percentage of fees income split by range (British Design Innovation, 2004)

% of fees earned	% of overseas income split by range	
	2002-2003	2003-2004
0-10%	15	68
11-25%	18	15
26-50%	25	8
51-75%	25	4
76-100%	18	2

## Design Agencies/Councils

The UK has a strong national led programme for the promotion of design both domestically and internationally. Government programmes have enhanced the role of British design in international markets. Both government and industry fund design bodies (Designium, 2003).

The principal bodies representing the profession in the UK are:

Design Council [www.designcouncil.org.uk](http://www.designcouncil.org.uk)  
 British Design Innovation [www.bdi.co.uk](http://www.bdi.co.uk)  
 Design Business Association [www.dba.org.uk](http://www.dba.org.uk)  
 British Design and Art Direction [www.dandad.org](http://www.dandad.org)  
 Design Wales [www.designwales.org](http://www.designwales.org)  
 Design Nation [www.designnation.co.uk](http://www.designnation.co.uk)  
 Chartered Society of Designers [www.csd.org.uk](http://www.csd.org.uk)  
 NESTA (lottery funded) [www.nesta.org.uk](http://www.nesta.org.uk)

The Royal Society of Arts (RSA) was created to foster the integration of art and design in business and culture and it still aspires to do so. [www.rsa.org.uk](http://www.rsa.org.uk)

## Education

The UK educates a significant number of graduates in design per annum, with a significant proportion of designers educated to degree level (figure 12). Design Studies accounting for 40.5% of all creative arts and design students, 2.53% of students graduating, and 0.095% of the overall total UK population (figures 13, 14

and 15). Design is a well-established profession and one in which a degree in design is a pre-requisite and designers are typically highly qualified (Design Council, 2003).

Figure 12: How skilled are designers (adapted from Design Council, 2003)

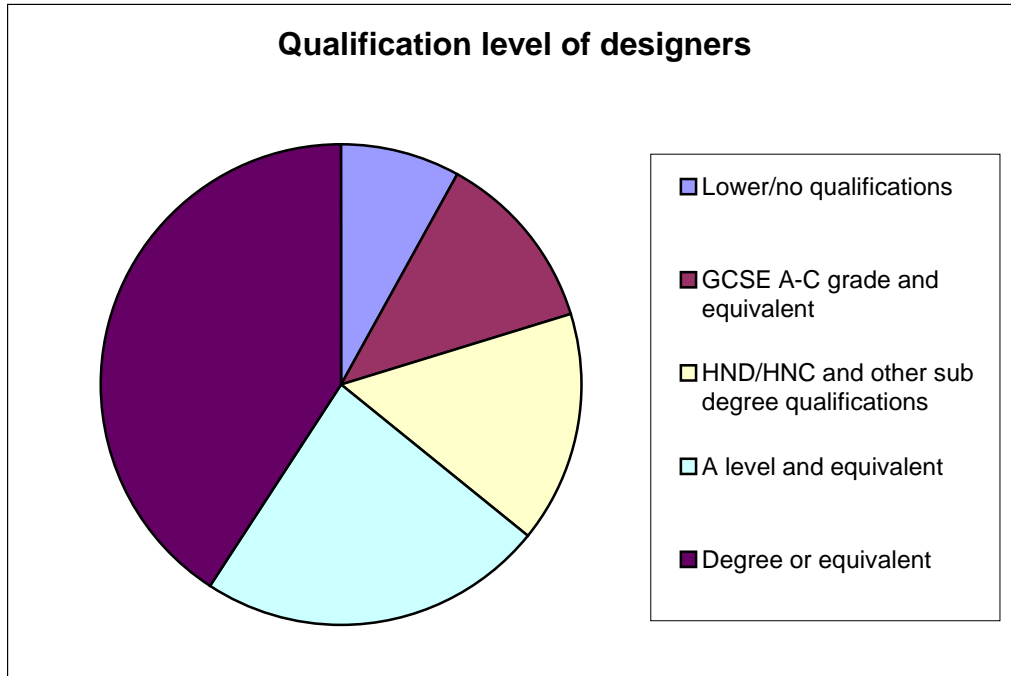


Figure 13: All HE students by level of study, domicile and gender 2003/04 (Higher Education Statistics Agency Limited 2005)

	Total HE creative arts and design students	FT UG	FT PG	PT UG	PT PG	Total UK	UK Female	UK Male	Other EU Total	Other EU female	Other EU Male	Non-EU total	Non-EU female	Non-EU male
	140195	109955	8715	15045	6480	124820	75220	49600	6155	3870	2285	9215	6170	3045
Percentage of students	6.23	9.63	3.95	2.59	2.14	6.41	6.60	6.14	6.87	8.79	5.02	4.38	6.28	2.71
Percentage of population	0.23	0.184	0.014	0.025	0.011	0.209	0.126	0.083	0.010	0.006	0.004	0.015	0.01	0.005

Figure 14: HE qualifications obtained in the UK by mode of study, and domicile, 2003/04 (Higher Education Statistics Agency Limited 2005)

	Total HE creative arts and design Qualifications	Total first degrees	First	Upper second class	Lower second class	Third class	Un-classified	Total higher degree	Doctorate	Other higher degrees	Total other PG	PGCE	Other PG quals	Total other UG	Foundation	HND/DipHE	Other UG quals
Creative arts and design students	38930	28345	3160	13585	9045	1790	765	4410	245	4165	1395	0	1395	4775	640	2115	2020
Percentage of all students	6.5	9.7	10.47	10.62	9.99	8.61	3.36	3.98	1.61	4.36	1.95	0	3.16	3.68	20.38	8.84	2.14
Percentage of population	0.64	0.047	0.005	0.022	0.015	0.003	0.001	0.007	0.0004	0.007	0.002	0	0.002	0.008	0.001	0.004	0.003

Figure 15: Breakdown of students by area of discipline 2003/04 (Higher Education Statistics Agency Limited, 2005)

Discipline	Number of students	Percentage of creative arts and design students	Percentage of all students	Percentage of total population*
Total creative arts and design students	140195			
Broadly-based programmes within creative arts and design	225	0.16	0.01	0.0004
Fine art	19235	13.72	0.86	0.032
Design studies	56785	40.5	2.53	0.095
Music	19850	14.16	0.88	0.033
Drama	17970	12.81	0.80	0.03
Dance	2115	1.51	0.09	0.004
Cinematics & photography	12035	8.58	0.54	0.02
Crafts	1335	0.95	0.06	0.002
Imaginative writing	3985	2.84	0.18	0.007
Others in creative arts & design	6650	4.74	0.3	0.011

\* OECD figure for population in 2002

## France

### The Design Sector

The independent design profession is relatively new in France, and has a turnover of between €2.2 billion/£1.49 billion and €3 billion/£2 billion (British Embassy 2005). 53% of organisations have been operating for fewer than 10 years, whilst design management is not currently fully recognised as a discipline (Bruce, Kratz and Glennon, 2005). Automotive, aerospace and engineering companies tend to use in-house designers whereas luxury companies tend to use international agencies for brand development and corporate communication. The design profession is broken-down by sector with the highest number of agencies involved in product design and engineering (figures 16) and the greatest percentage of sector turnover from packaging (figure 17).

Figure 16: Activity in the Design Sector in France (adapted from APCI, 2002) (Agence pour la promotion de la creation industrielle)

Discipline	Percentage of agencies involved in the discipline*
Product design and engineering	60
Corporate identity	55
Interior design	39
Communication	37
Packaging	35
Research	31

\*Agencies may select more than 1 discipline

Figure 17: Design turnover by sector (APCI, 2002)

Discipline	Percentage of overall design turnover in the French Design Sector
Packaging	35
Integrated design	18
Product	12
Communication	9
Environment	7
Others	2
Non-specified	17

The average rate of design usage by business in France is 36% (figure 18). However, this figure is affected by company size, with smaller organisations less likely to invest in design than their larger counterparts. Overall, the use of agencies and external designers is 36%. It is likely that in-house designers are employed in the major companies, such as automotive, aerospace, etc.

Figure 18: Investment in design by company size (Bruce, Kratz and Glennon, 2005)

Company size (number of employees)	Design investors	Non-design investors
1-49 employees	29%	71%
50-100 employees	30%	70%
100+ employees	44%	56%
<b>All companies</b>	<b>36%</b>	<b>64%</b>

## Employment

The design sector in France employs 20,000 to 25,000 people in approximately 4,500 - 4,750 agencies, with between 45 and 50% of these being sole traders (British Embassy 2005).

## The Economic Impact of Design

The design industry in France is dominated by a number of large agencies working for global and larger French companies and micro companies who work on smaller projects and for local clients (Bruce, Kratz and Glennon, 2005).

## Design Agencies/Councils

The government does not invest systematically in design bodies or agencies to promote design and so there is not a central resource to monitor the design profession in France. The independent and 'not-for-profit' agencies are supported by subscription, grants, sponsorship and paid events.

APCI (Agence pour la promotion de la creation industrielle) [www.apci.asso.fr](http://www.apci.asso.fr)  
CDRA (Centre de Design Rhone Alps) [www.cdra.asso.fr](http://www.cdra.asso.fr)

## Education

It seems that the French design education system is not directly comparable with other countries, consisting of 3 approaches. Private schools offer design, along with a handful of prestigious schools under the remit of the Ministry of Culture - where designers are able to obtain the equivalent of a masters degree, and art schools, which fall under the remit of the ministry of education and students are awarded a diploma following 3 years of study, or a masters after five. Agency managers tend to have a broad educational background (figure 19).

Figure 19: Educational background of Design Agency Managers in France (APCI, 2002)

Education	% of French agency managers
Design	41%
Art school	20%
Others	10%
Architecture school	9%
Business school	6%
Engineering school	3%
No response	11%

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## Sweden

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### The Design Sector

There are 340 industrial design agencies in Sweden (Swedish Industrial Design Foundation (SVID), 2005). However, when such companies as graphic, interior and furniture design are included, then the design profession is considerably larger, with an estimated total of 11,199 companies (Nordic Innovation Centre<sup>1</sup> 2004).

The design sector has seen considerable growth, with a rise of 272% in the number of firms between 1993 and 2002. Graphic design has seen substantial growth, with a 410% rise in the number of firms during the same period (and many of these are sole-traders).

78% of design firms tend to be located around Stockholm, Goteborg or Malmo, with in excess of 50% of firms in the Stockholm region (Nordic Innovation Centre<sup>1</sup> 2004).

According to a recent study of Swedish companies by SVID, demand for design is growing with 72% of the 1000 companies participating in the study indicating an increase in demand (figure 20) (SVID, 2004).

Figure 20: Has the demand for design grown (SVID, 2004)

Demand	% of companies
Yes, externally from customers	43%
Yes, internally from management	29%
No	28%

Investment in design is widespread. 75% of companies invest in design, with some companies developing in-house design competencies, and others sourcing externally (figure 21). Expenditure on design has increased, with 51% of companies noting an increase in design costs in recent years, and only 7% of companies indicating a fall in design costs. In particular, furniture, hotel and restaurant and retail sectors believe strongly that design investment is a competitive factor.

Figure 21: How does your company buy design (SVID, 2004)

Investment	% of companies
Source design externally only	1%
Source design internally only	24%
Source design internally and externally	50%
Do not use design	25%

Investment in design is affected by company size, with large companies more likely to invest in design than smaller companies (figure 22).

Figure 22: Design in relation to size (SVID, 2004)

Number of employees	Buy design
20-49	71%
50-99	81%
100-199	79%
200+	88%

## Employment

The majority of design firms are either sole traders or small companies, although generally architecture firms tend to be larger (figure 23) (Nordic Innovation Centre 2004).

Figure 23: Size of firms, 2002, by number of employees (Nordic Innovation Centre\* 2004)

Sector	0 emp	1-4 emp	5-9 emp	10-19 emp	20-49 emp	50-99 emp	100-199 emp	200-499 emp	500+ emp	Total	% of total registered companies*
Architecture	1828	665	140	76	24	4	1	2	0	2740	0.315
Graphic design	4896	600	87	31	13	2	1	1	0	5631	0.647
Other design activities	2427	325	45	19	12	0	0	0	0	2828	0.325
<b>Total</b>	<b>9151</b>	<b>1617</b>	<b>272</b>	<b>126</b>	<b>49</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>11,199</b>	
<b>% of total registered companies*</b>	<b>1.05</b>	<b>0.19</b>	<b>0.03</b>	<b>0.014</b>	<b>0.006</b>	<b>0.0007</b>	<b>0.0002</b>	<b>0.0003</b>	<b>0</b>	<b>1.287</b>	

\*2004 registered companies, Statistics Sweden

## Design Agencies/Councils

Sweden has a government funded national design policy in place to develop and define national objectives and implementation (Designium, 2003). Government grants are available to support these activities and the SVID is an established organisation that monitors and promotes industrial design.

Swedish Industrial Design Foundation (SVID) [www.svid.se](http://www.svid.se)

Svenskform [www.svenskform.se](http://www.svenskform.se)

Swedish Industrial Designers [www.sid.se](http://www.sid.se)

## Education

During the past 10 years, Swedish design education has seen considerable growth with programmes becoming established at universities throughout Sweden. In 1995 there were 2 Swedish Design Schools and six programmes, compared to 72 programmes in 2005. Most technical departments now offer a design engineering programme, and there are 5 masters programmes in interaction design (SVID, 2005) (figure 24).

Figure 24: Swedish Design education provision (SVID 2005)

Design discipline	Number of programmes	Number of students graduating annually (approximate)	Percentage all graduating students (2003/2004 academic year)*	Percentage of overall population
Engineering design	10	180 UG, 165, PG	0.4 UG 1.21 PG	0.002 UG 0.002 PG
Graphics	3 BA, 2 MA	30	0.06	0.0003
Interior design	1 BA, 2 MA	20	0.05	0.0002
Product design	3 BA	45	0.12	0.0005
Industrial design	4 BA, 3 MA	100	0.19	0.001
<b>Total</b>		<b>540</b>	<b>1.03</b>	<b>0.006</b>

\* These figures are taken from the National Agency for Higher Education Annual Report, 2005. Total graduating students for the year 2003-2004 were 52,300, with 38,700 of these undergraduate degrees and 13,600 post graduate degrees

Design professionals tend to have undertaken a formal education prior to entering the profession (figure 25) (Nordic Innovation Centre\* 2004).

Figure 25: Employees in design by educational level, 2002 (Nordic Innovation Centre\* 2004)

	Men	Women	Total	Percentage share of total
Elementary school	187	81	268	1
Nine-year compulsory school	876	464	1340	4
Grammar school/high school, 2 year	2309	1822	4131	12
Grammar school/high school, 3 year	3491	3052	6543	19
Post-gymnasium (post 16) (inc university) shorter than 2 years	4489	4818	9307	28
Post-gymnasium (post 16) (inc university) longer than 3 years	5383	6464	11847	35
Post-graduate studies	124	72	196	1
No information	96	40	136	0
<b>Total</b>	<b>16955</b>	<b>16813</b>	<b>33769</b>	<b>100</b>

During the 2002/2003 academic year there were some 7072 design students in third level education, with architecture, design and information design seeing the greatest rise in student numbers – a total rise of 330% in the three disciplines combined (Nordic Innovation Centre\* 2004).

The number of post-graduate and doctoral students is low, as Swedish design education focuses heavily on training professional designers, rather than developing research (Nordic Innovation Centre<sup>1</sup> 2004). However, the Swedish government has made steps to address this imbalance, increasing funding for design research to €2.8 million/£1.9 million annually (Nordic Innovation Centre\* 2004).

## Denmark

### The Design Sector

The turnover of the Danish Design profession has increased between 1992 and 2002, both in actual terms and as a percentage of overall turnover in Denmark (figure 26) (Nordic Innovation Centre, 2004<sup>1</sup>).

Figure 26: Turnover selected years in design industries compared to turnover, in general, in Denmark (adapted from Nordic Innovation Centre, 2004)

	Design turnover € million*	Design turnover £ million	Total Danish turnover € million	Total Danish Turnover £ million	Design as a percentage of total Danish turnover € million	Design turnover growth indexed (1992=100)	Danish economy's turnover growth indexed (1992=100)
1992	57.5	40.25	198,155.7	138,708.9	0.03	100.0	100.0
1995	115.2	94.5	223,137.9	182,973.1	0.05	200.3	112.6
1997	155.2	107.1	247,534.6	170,798.9	0.06	269.9	124.9
1999	214.7	137.4	260,921.7	111,326.6	0.08	376.7	131.7
2001	265.6	156.7	317,680.1	187,431.3	0.08	461.9	160.3

\*Design refers to indoor interior and industrial design. Design is based on VAT statistics

The Danish design sector is undergoing rapid development in structure, with considerable increases in the number of firms (figure 27) (Nordic Innovation Centre, 2004). Generally, design firms tend to be small (Nordic Innovation Centre, 2004).

Figure 27: The number of design firms compared to the number of firms overall (adapted from Nordic Innovation Centre, 2004)

	Design firms*	Total Danish firms	Design as a percentage of total Danish firms	Growth of design firms indexed (1992=100)	Growth of total Danish firms (1992=100)
1992	237	342,431	0.07	100.0	100.0
1995	1,357	328,634	0.41	572.6	96.0
1997	1,946	325,854	0.60	821.1	95.2
1999	2,598	326,820	0.79	1,096.2	95.4
2001	2,860	284,166	1.01	1,206.8	83.0

\*Design refers to indoor interior and industrial design.

<sup>1</sup> The Nordic Innovation Centre is financed by the Nordic countries through the Nordic Council and the Nordic Council of Ministers. The Centre has conducted a study of the design sector in the five Scandinavian nations; Sweden, Denmark, Finland, Iceland and Norway.

Figure 28: Activities in Danish Design (Nordic Innovation Centre, 2004)

Discipline	Percentage of firms
Graphical design	32
Industrial design	26
Fashion and textile design	13
Interior design	11
Furniture design	9
Web design	
Technical design	
Design planning and management	
Experience design	

Fashion and textile design is the fastest growing design discipline. However, graphic design is the largest sector in the design industry, accounting for 32% of firms, and 65% of sales of companies purchasing design expertise. Industrial design is the second largest sector in the Danish design industry (figure 28). Graphic, industrial, fashion and textile, interior, and furniture design account for 91% of the sector. The remaining 9% comes from web design, technical design, design planning and management, and experience design. A breakdown for these was not available.

In 1997, €13 million /£8.97 million was invested to encourage the use of design by firms. This was done by increasing support for the Danish Design Centre and co-funding up to €8,500 for firms to make new investments in design (Nordic Innovation Centre, 2004).

Danish companies spend DKK 5 billion/£447 million annually procuring design externally, and a further DKK 2 billion/ £179 million annually investing internally in design (National Agency for Enterprise and Housing 2003).

The use of design is widespread amongst Danish companies throughout many sectors, with IT/communication and design being large users (figure 29) (Nordic Innovation Centre, 2004).

Figure 29: Business profile of buyers of design (adapted from Nordic Innovation Centre, 2004)

Sector	% of demand for design
IT/communications	16
Tourism	15
Energy/milieu	12
Furniture/clothing	12
Food	11
Medical/health	10
Construction/housing	9
Transportation	8
Other	7

In a study of 1,456 companies, 4 classifications of design purchaser were defined (figure 30)

Figure 30: Company design purchase in relation to size (adapted from National Agency for Enterprise and Housing, 2003)

Design purchase profile		10-19 employees	20-49 employees	50-99 employees	100+ employees	Total
Do not purchase	%	54.9	49.8	47.2	40.2	51.1
Purchase externally	%	37.8	39.5	38.5	37.8	38.5
Purchase internally	%	3.9	3.1	6.2	5.5	4.1
Purchase internally and externally	%	3.3	7.5	8.1	16.5	6.4
<b>Total</b>	<b>%</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Over half of the companies involved did not invest in design either internally or externally. Of the companies investing in design, a significant proportion of them sourced design externally rather than investing internally (National Agency for Enterprise and Housing, 2003).

The study showed that up to 90% of companies do not employ a professional designer in-house, and that 10% of companies employ between 1 and 25 professional designers, with the majority of these companies employing between 1 and 3 designers. However, often employees with no professional design training work on design projects, with the number of non-professional designers equal to the number of design professionals (National Agency for Enterprise and Housing, 2003).

Only 6% of companies, purchase design services from overseas companies (National Agency for Enterprise and Housing, 2003).

## Employment

The number of people employed in the sector has increased by 61.5% (figure 31) (Nordic Innovation Centre, 2004), with the figure rising from 6,420 in 1993, to 10,369 in 2001.

Figure 31: Employment in the Danish Design industries (Nordic Innovation Centre, 2004)

Sector	1993	1995	1997	1999	2001	% of 2001 population
Architecture	5,387	6,073	6,598	6,778	7,523	0.140
Interiors	179	257	255	302	325	0.006
Industrial design	854	1,193	1,552	2,074	2,521	0.047
<b>Total</b>	<b>6,420</b>	<b>7,523</b>	<b>8,405</b>	<b>9,154</b>	<b>10,369</b>	<b>0.193</b>

## The Economic Impact of Design

Companies investing in design have registered a growth in gross revenue of 22% in the past five years. In addition, companies that were regular

purchasers of design and have increased their investment in design have achieved a further increase in gross revenue of 40%. Companies outsourcing design typically achieved twice the gross revenue growth rates of companies that do not use design, whilst companies employing an in-house design professional achieved higher growth rates. However, the highest growth rates were achieved by companies sourcing design both internally and externally. Also, job creation is higher in companies that use design, than for those that do not use design (National Agency for Enterprise and Housing, 2003).

## Exports

Despite the increase in turnover of the Danish design sector between 1992 and 2001, exports decreased during 1999 and 2000, despite rises in overall export figures (figure 32) (Nordic Innovation Centre, 2004).

Figure 32: Design Exports 1999 to 2001 (adapted from Nordic Innovation Centre, 2004)

	Design exports € million *	Design exports (£ million)**	Total Danish exports € million	Total Danish exports (£ million)**	Design as a percentage of total Danish exports	Design exports growth indexed (1999=100)	Danish economy's export growth indexed (1999=100)
1999	36.0	23	47,126.5	30,160.96	0.07	100.0	100.0
2000	35.0	21.7	54,644.2	33,879.4	0.06	97.2	116.0
2001	48.9	28.9	56,844.4	33,538.2	0.09	135.8	121.0

\*Design refers to indoor interior and industrial design.

Companies employing a design professional export on average 34% of their turnover, compared to 18% for companies that do not invest in design, either internally or externally (National Agency for Enterprise and Housing, 2003, Nordic Innovation Centre, 2004).

## Design Agencies/Councils

Denmark has a government funded national design policy in place with the objective to define and develop national objectives and implementation for design (Designium, 2003).

Danish Design Centre [www.ddc.dk](http://www.ddc.dk)

Association of Danish Designers [www.danishdesigners.dk](http://www.danishdesigners.dk)

## Education

Design education in Denmark is highly regarded, with 83% of design companies employing personnel with a formal public design education (Nordic Innovation Centre, 2004).

Between 250 and 300 new designers are educated each year in Denmark, with education focusing on quality and with a strong craft element. Education tends to be divided by craft, with little industry involvement, resulting in

students with few generic design skills and limited commercial knowledge (Nordic Innovation Centre, 2004) (figure 33).

Figure 33: Design education (adapted from Nordic Innovation Centre, 2004)

Institution	Budget	Staff numbers	Student numbers	Percentage of total students*	Percentage of population*	Course level	Subjects
Denmark's Design School	66 million DDK	122 (95 teachers)	465	0.8**	0.002	5-year masters	Furniture and interior Fashion Textiles Ceramics Glassware Industrial design Graphic design Production design Digital design
Designskolen Kolding			500	0.86**	0.002	5-year masters	Graphic design Interactive media Textiles Fashion Industrial Design Ceramics
The Royal Academy, School of Architecture			1,300 Masters 17 PhD	2.22**	0.005 Masters	5-year masters	Architecture
Aarhus School of Architecture			200	0.34**	0.0007	5-year masters	Architecture Industrial design
The Glass and Ceramic School on Bornholm			20	0.04***	0.0001	3-year course	Glassworks and ceramics
Grafisk Højskole			150	0.29***	0.0009	BA	Graphic design
Højer College			Less than 50	0.1***	0.0003	BA	Graphic communication

\*Taken from Statistics Denmark (2005).

\*\* The Danish Education system offers a 5-year degree consisting of the three-year bachelor and a further 2-year candidatus degree, and a 3-year bachelor degree. These figures are taken from the total number of students registered for 'Long-cycle education'. Long-cycle higher education programs (LVU) consist of 3- year bachelor programs and 2-year *candidatus* programs or 5-years unbroken programs leading to the *candidatus* degree. These are only offered at universities (Centre for Higher Education Policy Studies, 2003).

\*\*\* These figures are taken from the total number of students registered for a bachelor degree.

Traditionally, design in Denmark was taught in schools of design and architecture. However, during the last decade, technical schools and colleges of art and design offer design as a degree subject (Danish Designers Association, 2005). Design is also being offered by Universities as a combined degree, for example:

- Denmark's Technical University: Civil Engineering course in Design and Innovation
- University of Odense: Civil Engineering Course in Integrated Design
- University of South Denmark: Masters course in Interactive Design (Nordic Innovation Centre, 2004)

Many trained designers do not work for design firms, but instead are employed in the manufacturing, advertising and communication sectors. The largest design education institution, Designskolen Kolding, estimate that up to 50% of graduates are employed outside the design sector, with 23% working in the public sector (figure 34) (Nordic Innovation Centre, 2004).

Figure 34: Employment of design graduates 1997-2001 (adapted from Nordic Innovation Centre, 2004)

Sector	Percentage of students
Employed in the private sector	37
Employed in the public sector	23
Independent	10
Unknown	30

## Germany

### The Design Sector

Design is a growth industry in Germany, with approximately 300 start-up businesses annually since 1996. A study by Nordrhein Westfalen (2003) showed that companies perceive that design influences brand awareness (91.8% of companies surveyed), innovation (90.4%) and quality (64.4%). An indication of the strength of the major design companies in Germany is demonstrated in figure 35 below.

Figure 35: Key organisations in the German graphic design and corporate communications sector (Adapted from British Design Innovation, 2000, Figures are from 1999)

Company	Number of employees	Fee income (DM) (million)	Fee income (£)* (million)	Turnover (DM) (million)	Turnover (£)*(million)	Difference between fee income and turnover (DM) (million)	Difference between fee income and turnover (£)* (million)
Meta	250 + 30 freelancers	24.2	7.9	40	13.08	15.8	5.18
Claus Koch	70	12.32	4.02	22	7.19	9.68	3.17
Peter Meire und Meire	60	11	3.6	16.9	5.53	5.9	1.93
KMS Team	40	6	1.96	12.5	4.09	6.5	2.13
Incorporate Communication + design	30	5.8	1.9	6.5	2.13	0.7	0.23
Keysselitz	20	5	1.6	6.8	2.22	1.8	0.62
Kuhn, Kammann and Kuhn	30	4.75	1.55	9.5	3.11	4.75	1.56
K/PLEX	35	4.52	1.48	4.52	1.48	0	0

\*Calculated from the 1<sup>st</sup> December 1999 exchange rate, UK Trade Info, HM Revenue and Customs

A recent study in Nordrhein Westfalen (2003) (NRW) on the use of design by business showed that companies invest in design in order to gain a competitive advantage through differentiation (figure 36). The businesses involved in the study were mainly engineering and metal manufacturers.

Figure 36: The use of design by business (adapted from Nordrhein Westfalen, 2003)

Attitude to design	% of companies
Design is of no interest to us	16.3
We are at the beginning but would like to use design more to differentiate ourselves	24.6
We are using design systematically to differentiate ourselves from the competition	59.1

## Design Agencies/Councils

There are 16 Design Centres in Germany, one in each Laender. The Design Council is located in Frankfurt, and is funded by the Ministry of Economics (British Design Innovation, 2000). Germany has an emphasis on institution-led promotion of design, with the focus on national design issues. Design promotion is funded by the government and the private sector (Designium, 2003). The German Design Council was founded in 1953, approximately a decade after the UK Design Council was founded.

German Design Council [www.german-design-council.de](http://www.german-design-council.de)

Design Centre Stuttgart [www.design-centre.de](http://www.design-centre.de)

DIN (Design-initiative Nord (Kiel) [www.design-initiative.de](http://www.design-initiative.de)

SZNRW (Design Zentroro Nord Rein-Westfalen) [www.red-dot.de](http://www.red-dot.de)

IF Design (Industrie Forum Design) [www.ifdesign.de](http://www.ifdesign.de)

IDZ Internationales Design Zentrum Berlin [www.idz.de](http://www.idz.de)

Designzentrum Hessen, Darnstadt [www.designzentrum-hessen.de](http://www.designzentrum-hessen.de)

Designzentrum Mecklenburg-Vorpommern [www.design-mv.de](http://www.design-mv.de)

Design Zentrum München (Bayern Design gGmbH) [www.d-z-m.de](http://www.d-z-m.de)

Designforum Nürnberg (Bayern Design gGmbH) [www.designforum-nbg.de](http://www.designforum-nbg.de)

Design Zentrum Bremen [www.designzentrumbremen.de](http://www.designzentrumbremen.de)

DesignLabor Bremerhaven [www.designlabor.com](http://www.designlabor.com)

Designzentrum Thüringen, Weimar [www.d-z-t.de](http://www.d-z-t.de)

Hamburg und Design [www.hamburgunddesign.de](http://www.hamburgunddesign.de)

## Education

Design education is the responsibility of the 'Laendar', and generally takes place at technical universities, the former fachhochschulen, such as Kunsthochschulen, Cologne (KISD), Offenbach, and in a number of the traditional universities, including Berlin (Universitat der Kunste) and Duisburg-Essen.

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## US

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### The Design Sector

There is a growing recognition of the importance of both communication and product design for global competitive advantage, across all business sectors. A study by the Design Management Institute of its members showed that 25% of companies believe that design is equal to engineering, manufacturing and marketing, with a further 34% indicating that design is appreciated but not recognized or promoted. 35% of companies fell between these two categories, and as few as 4% of companies indicated that the importance of design was only recognised within the design department (DMI, 2000). However, the implementation of a design policy is much less common - only 56% of companies in the study had a design policy (figure 37).

Figure 37: Design Policy at company level (adapted from DMI, 2000)

Policy level	Percentage of companies
No design policy	44
Project level	11
Corporate level	36
Business unit	9

### Employment

Design companies have seen a reduction in the fees that they are able to charge compared to the early 1990's (American Institute of Graphic Arts (AIGA), 2005), indicating some erosion of fee level in the profession.

The design sector in the US has the highest average salary for design managers at \$186,407/£124,893, which is up to 28% higher than other industries employing design managers (DMI, 2000).

### Design Agencies/Councils

The US design promotion sector is supported by both government and private funding, and is led by professional design institutions. It is funded by design businesses, individual and corporate donors, and government sources (Designium, 2003). The main organisation is the Design Management Institute, which is a 'not-for-profit' organisation and has been established for about 20 years. It has international advisors from academia and industry to direct its programme of activities and collaborates with researchers to produce Design Management cases, published by Harvard Business School to ensure that design management is on the curriculum of leading business schools globally.

The Design Management Institute (independent organisation, funded by subscriptions, events, publications and grants) [www.dmi.org](http://www.dmi.org)

Corporate Design Foundation (independent, no information available) [www.cdf.org](http://www.cdf.org)

## **Education**

Design managers tend to have a variety of educational backgrounds, having studied either a Bachelor of arts degree, Bachelor of Science degree or a Bachelor of Fine arts degree (DMI, 2000).

A design education is well regarded in the US and is taught at a higher education level. Design managers with a masters degree have an average income some 2% higher than those with a Bachelors degree (DMI, 2000).

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## China

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### The Design Sector

In China the design sector is extensively categorised, with a number of classifications:

- engineering investigation and design;
- plan design,
- architecture design (architecture),
- environmental and landscape design,
- interior design,
- product design,
- graphic design;
- fashion design;
- other design (entertainment, multimedia, packing and organizational image design, etc.)

The design sector in China is highly fragmented, and design activities fall under the remit of a number of ministerial agencies (British Design Innovation, 2004):

- No specific ministry
  - Fashion design
  - Brand identity
  - Graphic design
- Ministry of construction
  - Interior design
  - Architecture
- National development Reform Commission, Ministry of Science and Technology, Ministry of Commerce, and Ministry of Culture
  - Environmental design
  - Industrial design

There are conflicting reports on the design sector in China, with the Hong Kong Development Council (2005) calculating in excess of 12,000 engineering investigation and design organisations in China, employing over 800,000 people, and UK Trade and Investment (2004), estimating that there may be no more than 10,000 industrial designers in China.

There are a number of classifications of design organisations (Hong Kong Trade Development Council, 2005):

- State owned enterprises
  - Long-term practices resulting in experience. A focus on quality and functionality. The government appoints management personnel.
- Cooperative design companies

- Such companies often co-operate with known overseas design agencies, or are formed through the merger of a number of small and medium sized agencies
- Small and medium sized agencies
  - Often such companies work with higher education institutions.

Chinese firms are developing capabilities to move from operating as component suppliers and OEMs (original equipment manufacturer with little investment in R&D) into ODMs (original design manufacturer – adding value to the product through the use of design and innovation) through improved knowledge, experience and growth opportunities. Much of this knowledge is derived through relationships as OEMs, which triggers technology transfer, and the ability to reduce time taken in production processes and material costs has been an important benefit to many Chinese companies. As ODMs Chinese manufacturers are able to perform in-house design work, or outsource it locally to Hong Kong or Taiwan. Development to ODM capability requires investment in skills in engineering, creative thinking and problem solving, which is addressed by the skills developed by Chinese students undertaking overseas study.

## **Employment**

Within China individual cities are developing their own design capabilities and interest in design. Examples are Shanghai and Shenzhen, Shenzhen aims to develop as a design capital (British Design Innovation 2004).

Shenzhen has 20,000 professional designers from sectors including graphic and industrial design, and a total population of 4.6 million. In Shanghai there are some 10,000 design organizations employing approximately 100,000 people, and a total population of 16 million (Hong Kong Trade Development Council, 2005).

Many industrial designers are employed as in-house designers in manufacturing organisations, with growing importance placed on in-house capabilities as the manufacturing sector becomes more focussed on design. However, there are also a number of independent design studios, often established by graduates, some of whom are returning from overseas study (British Design Innovation, 2004).

## **The Economic Impact of Design**

China has a strong architectural expertise, with 11,000 architectural design organisations generating an estimated revenue of US\$11.28 billion/£6.2 billion. It is thought that 85% of these organisations are state owned (British Design Innovation, 2004).

## Design Agencies/Councils

A mixture of privately funded design organisations exist that support and promote services to the profession, together with state funded organisations with the mission to promote design internationally and to provide support to companies wishing to find a local design agency.

China Industrial Design Association

- 3000 individual members
- Institutional members
  - Companies
  - Institutes
  - Design studios
  - Universities

Beijing Industrial design centre

Beijing Industrial Design and Promotion Organisation

- 200-300 individual members
- 84 group members
  - Companies
  - Colleges
  - Design studios
  - Universities

Shanghai Industrial Design and Promotion Organisation

Guangzhou Industrial Design and Promotion Organisation

Shenzhen Industrial design Association

## Education

In 2003 there were 2110 higher education institutions (1552 regular institutions of higher education and 558 adult institutions of higher education, vocational education not included), educating in excess of 20 million students (Ministry of Education of the P.R. China, 2003). Of these figures approximately 4 million are accounted for by new student enrolments (Zhou Ji, minister of Education, the press conference sponsored by the State Council Information Office on 27/01/05).

China has almost 200 universities and training institutes that specialise in Industrial Design, and in the last 20 years it is estimated that these have seen in excess of 30,000 graduates, with the majority of these graduating during the last 5-7 years (British Design Innovation, 2004).

There are 31 independent art higher educational institutions in China, and in excess of a further 720 higher educational institutions have art schools or offer art as a discipline. New student enrolment figures in art related subjects accounted for 5% of the total number of student enrolments (<http://edu.beelink.com.cn>).

The number of new students enrolling on art and design courses rose by in excess of 10,000 students between 2003 and 2004. The number of total

students (new and returning students) rose by over 30,000 between 2003 and 2004, indicating a year on year growth in the number of new enrolments (figure 38). The growth in the number of art and design graduates between 2003 and 2004 indicates the growth of the subject in the China education system in recent years.

Figure 38: Design students in China

	New student enrolment		Student enrolment		Graduates	
	2004	2003	2004	2003	2004	2003
Art and design	54,491	43,840	165,609	127,904	20,031	12,580
Percentage of total students*	1.36	1.1	0.8	0.64	0.72**	
Percentage of population	0.004	0.003	0.013	0.0098	0.002	0.0009

\*Taken from Zhou Ji, minister of Education, the press conference sponsored by the State Council Information Office on 27/01/05. Figures are approximate

\*\*Taken from Chinadaily.com, 2004

Art and design are listed as one of the 10 disciplines both with the lowest employment rates and the highest self-employed rate with regards to graduate employment. However, the employment rate of engineering investigation and design graduates is the one of the 10 highest. Employment rates have fluctuated dramatically during the recent two years, with approximately 90% of art and design graduates gaining employment in 2002, falling to 70% in 2003/2004 (<http://www.china-school.net>). This compares favourably with overall graduate employment, which was expected to fall to 65% in 2004, from 70% in previous years (Chinadaily.com, 2004). However, it should be noted that the percentage of graduates gaining employment has fallen, the actual numbers of graduates is likely to have risen.

China has a rapidly expanding architecture profession, which is reflected in the educational investment in this area. Quinghua University School of Architecture is a well-established school, with strong links with Harvard and MIT, and schools in Paris (British Design Innovation, 2004).

Packaging engineering was first introduced as an educational discipline in 1992, and established as an undergraduate programme in 1999. There are currently 32 higher education institutions offering undergraduate programmes in the subject. The undergraduate degree provides training in engineering design, printing technology, materials and modern packing theory. It prepares graduates for working in R&D in packaging engineering, packaging process, packaging material and packaging CAD and aesthetic design ([www.cndgn.com](http://www.cndgn.com)).

Chinese students are widely encouraged to study abroad to prepare them for the global economy, and by the year 2000 Chinese students attended university in some 100 countries worldwide. The realisation of the difficulties of launching innovation from within China has also played a role, and overseas study is seen as an opportunity not to be missed. Many firms lack skills in technology, marketing and logistics, and so address these skills gaps

by recruiting staff who have worked for foreign multinationals, returning students and expatriates (Shenkar, 2005).

It is estimated that several hundred Chinese design students leave China every year to study abroad after finishing their studies in China, and forming an elite of designers. Often these designers become design directors of major manufacturers upon their return, and industrial design organisations actively recruit such people to participate in their activities (British Design Innovation, 2004). This openness of the educational system enables Chinese designers to acquire 'know-how' and gain an insight into the tacit nature of design in non-Asian countries. Leap-frogging ahead of Western economies is facilitated through education.

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## Section 7: Conclusions

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Design professions include expertise in industrial and product design, graphics, packaging and corporate identity, exhibitions and interiors. This report excludes fashion, textiles, software and engineering.

International comparative studies of the design professions are problematic, as there is no consensus as to the nature of design professions and how to account for their contribution. Hence, few studies exist which undertake such comparisons.

### **The design sector**

There is substantial evidence that the independent design profession contributes directly to economic wealth and the creation of employment and indirectly through the economic benefits it provides to business. These indirect benefits were not investigated as part of the study, but other evidence exists to support this (Walsh et al 1992). In the UK, the design profession contributes to exports, but only to established European and American markets.

The UK design sector is well established, with 12,450 design consultancies, 47,400 self-employed and freelance designers, 77,100 in-house designers in other businesses, and a turnover of £11.6 billion in 2004-2005 (Design Council, 2005). The sector tends to focus on branding and graphics; packaging; exhibitions and events; and multimedia, with fewer agencies in engineering and product design.

By comparison, the independent design profession in France is relatively new, with 53% of organisations operating for fewer than 10 years. The sector is dominated by a small number of large agencies. Automotive, aerospace and engineering companies tend to use in-house designers whereas luxury companies tend to use international agencies for brand development and corporate communications.

The Swedish design sector has an estimated total of 11,199 companies, with many operating as sole-traders. The sector has seen considerable growth, with a rise of 272% in the number of firms between 1993 and 2002.

The Danish Design sector is buoyant, with 2,860 firms in 2001. Turnover increased between 1992 and 2002, both in actual terms and as a percentage of overall turnover. Fashion and textile design is the fastest growing whilst graphic design is the largest sector in the design industry.

Design is recognised as a growth industry in Germany, with approximately 300 start-up businesses annually since 1996.

There was limited data available on the design sector in the US. There is, however, a growing recognition of the importance of both communication and product design for global competitive advantage, across all business sectors.

The design sector in China is highly fragmented, and design activities fall under the remit of a number of ministerial agencies. China has a strong architectural expertise, with 11,000 architectural design organisations generating an estimated revenue of £6.2 billion.

### Employment

It was not possible to obtain actual employment figures for many countries. The UK sector employed 185,000 people in 2003-2004 (Design Council, 2005), accounting for 0.3% of the population. By comparison, the Danish sector employed 10,369 people in 2001, almost 0.2% of the population, and the French design sector employs 4,500 people in 350 companies (0.007% of the population). Whilst figures for overall employment in the Chinese design sector were not available, the city of Shenzhen alone has some 20,000 professional designers from sectors including graphic and industrial design.

### The economic impact of design

NESTA (2005) indicates that the UK creative industries contribute 8.9% to GDP, compared with circa 3% from manufacturing. During 2002, total creative industries exports contributed £11.5 billion to the balance of trade (Department For Culture, Media And Sports, 2004), and £11.6 billion in 2003 (Department for Culture, Media and Sports, 2005). The top destination of export of UK design services is the US, although fee income generated from Europe has seen an increase of 2%. By comparison, in France design, though not comparable with creative industries contributes less than 0.2% to GDP (between £1.49 million and £2 million). However, despite the increase in turnover of the Danish design sector between 1992 and 2001, exports decreased during 1999 and 2000.

### Design agencies/councils

Investment in Design agencies/councils differs considerably from country to country, as shown in figure 39.

Figure 39: Budget development between 1992 and 2003 (Schneider, 2005)

Agency	1992 budget €	1992 budget £*	2003 budget €	2003 budget £*
Industrie Forum Design Hanover (Germany)	Under 1,000,000	Under 700,000	2,000,000+	1,420,000+
Danish Design Centre	2,000,000	1,400,000	5,000,000	3,550,000
Design Council (UK)	10,000,000	7,000,000	10,000,000+	7,100,000+
APCI (France)	Under 1,000,000	Under 700,000	1,000,000	710,000

Funding is often uncertain and tends to have both public and private sources. The 'uncertainty' is due to the annual budget setting for government supported agencies and is subject to the vagaries of policy regarding design and private funds (Schneider, 2005). In the UK, government funds are available to support

the activities, for example of the Design Council, but annual budgets are subject to an agreed business plan.

Design agencies that support and promote the design profession tend to be non-for-profit organisations. Many promote design and are funded on a subscription basis and so provide services to their subscribers, such as salary surveys, trade journals, events, seminars and training. Committed individuals seek funds from private and public sources to run these. In the UK, the government has supported the Design Council since 1944. In China design agencies provide business support for design.

### **Education**

Overall, the design profession is a graduate dominated profession. Perhaps the exception is France, which has a distinctive system of education for its elite cadre of engineers and managers through the Grande Ecoles. The pattern of educational growth of design disciplines is likely to match the country's industrial needs, for example industrial design in China and graphics in the UK. China's higher educational institutes are open to international exchanges and students are encouraged to study overseas. This outward focus is not quite so evident for UK design graduates. For the UK, the comparative advantage for design resides in its heritage of design education and the development of this to encompass new disciplines and offer a post-graduate education; the English language; the world-class design city of London with an infrastructure to support this; the established Design Council; the cluster of international and robust companies in design; the use of design by stronger parts of the economy, that is retail and service companies; and, the ability of design companies to export.

The UK educates a significant number of graduates in design per annum, with Design Studies accounting for 2.53% of students graduating, and students graduating with a degree in creative arts and design accounting for 6.2% of all graduates (Higher Education Statistics Agency, 2005). The French design education system is not directly comparable with other countries, consisting of 3 approaches. Students are awarded a diploma following 3 years of study, or a masters after five. During the past 10 years, Swedish design education has seen considerable growth with programmes established in universities throughout Sweden. Design education in Denmark is highly regarded, with 83% of design companies employing personnel with a formal public design education, and between 250 and 300 new designers are educated each year. In Germany design education is the responsibility of the 'Laendar', and generally takes place at technical universities. Again, a design education is well regarded in the US and is taught at a higher education level. In China it is estimated in the last 20 years there have been in excess of 30,000 design graduates, with many graduating during the last 5-7 years.

### **Challenges**

The Design Council and/or other agencies providing support to business need to be able to attract inward investment to support the indigenous design profession; systematic monitoring of the design profession needs to be conducted, so that changes can be identified and understood. As well as

London, emerging major cities of design need to be supported to develop an appropriate infrastructure to encourage this; and, the business community through the business schools could be encouraged to engage in design management and the creative industries.

## References

AIGA, (2005) Survey of Design Salaries 2005

APCI (2002) L'offre de design en France, November

British Design Innovation (2004) Changing China – The Creative Industry Perspective: A Market Analysis of Chinas Digital and Design Industries: Design, Claydon Gescher Associates, June [www.uktradeinvest.gov.uk](http://www.uktradeinvest.gov.uk)

British Design Innovation (2004)<sup>1</sup> British Design Industry Valuation Survey 2003 to 2004, <http://www.britishdesign.co.uk/survey2004.pdf>, 07/07/2005

British Design Innovation (2000) Design Opportunities - Germany, <http://www.britishdesign.co.uk/der/Design%20Opportunities%20%20Germany.pdf>

British Embassy (2005) Doing Business With France  
<http://www.britishembassy.gov.uk/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&c=Page&cid=1082830935010>

Bruce, M; Kratz, C and Glennon, S (2005) Marketing and Design: A Symbiotic Relationship – UK and French Comparisons, presentation at EURAM, Munich, 4<sup>th</sup>-7<sup>th</sup> May 2005

Centre for Higher Education Policy Studies (2003) Higher Education in Denmark Country Report,  
<http://www.utwente.nl/cheps/documenten/denmark.pdf>

Chinadaily.com (2004) Job hunt an uphill battle for female graduates, 04.04.2004  
[http://www.chinadaily.com.cn/english/doc/2004-04/04/content\\_320442.htm](http://www.chinadaily.com.cn/english/doc/2004-04/04/content_320442.htm)

Danish Designers Association (2005) <http://www.danishdesigners.dk>

Department for culture, media and sports (2004) Creative Industries Economic Estimates Statistical Bulletin (August 2004), [www.culture.gov.uk](http://www.culture.gov.uk)

Department for culture, media and sports (2005) Creative Industries Economic Estimates Statistical Bulletin (October 2005),  
<http://www.culture.gov.uk/NR/rdonlyres/6A2E1E84-A646-44C4-A87F-18463531AFC5/0/CreativeIndustriesEconomicEstimatesFINAL.doc>

Design Council (2004)\* Design in Britain 2004-2005

Design Council (2004) The Impact of Design on Stock Market Performance, An analysis of UK Quoted Companies, 1994-2003, February 2004

Design Council (2003) Facts and Figures on Design in Britain, 2002-2003

Designium (2003) Design Policy and Promotion Programmes in Selected Countries and Regions, October 2003,  
<http://www.uiah.fi/binary.asp?path=1866;1919;4330;7529;7530;7534;8083&fileId=FileAttachment&version=4>

DMI (2000) 1999/2000 North American Professional Profile and Salary Survey, Design Management Institute,  
<http://www.dmi.org/dmi/html/publications/download.jsp?fileName=SURVEY00.pdf>

Formosa and Kroeter (2002) Towards design literacy in American management: a strategy for MBA programmes, Design Management Journal, Summer, 2002

Gorb P Dumas A (1987) Silent Design, Design Studies, Vol 8, No 3, pp 150-156

Higher Education Statistics Agency Limited (2005)  
<http://www.hesa.ac.uk/holisdocs/pubinfo/student/subject0304.csv>

Hong Kong Trade Development Council (2004) Design Industry in Yangtze River Delta, <http://gbcode.tdctrade.com/gb/design.tdctrade.com/suc-c118.htm>

Ministry of Education of the P.R. China (2003), Gazette of education development statistics

National Agency for Enterprise and Housing (2003) The Economic Effects of Design, September,  
[http://www.ddc.dk/images/ddc/ddc\\_videnarrangement/oko\\_rapport/TheEcoEffectsofDesiq05.01.doc](http://www.ddc.dk/images/ddc/ddc_videnarrangement/oko_rapport/TheEcoEffectsofDesiq05.01.doc)

National Agency for Higher Education (2005) Swedish Universities and University Colleges Short Version of Annual Report, 2005

Nesta (2005) Creating value, How the UK can invest in new creative businesses, Nesta Research Report

Nordic Innovation Centre (2004) Country Report: The Danish Design Industry  
[http://www.step.no/design/Design\\_Denmark.pdf](http://www.step.no/design/Design_Denmark.pdf)

Nordic Innovation Centre\* (2004) Country Report: The Swedish Design Industry <http://www.nordicdesign.org/>

Nordrhein Westfalen (2003) Design als strategischer Wettbewerbsfaktor, 2003; Trend Study undertaken by BBE Unternehmensberatung, Köln, Germany <http://www.markt-studie.de/index.php?menuid=20&presseid=20>

Schneider J. P. (2005) Design promotion in Europe: quantitative data and macroeconomic indicators, paper presented at Les Enjeux de la promotion de

design en Europe: economie, innovation, politique nationale, 10<sup>th</sup> and 11<sup>th</sup> January 2005,

Shenkar (2005) The Chinese Century, Wharton School Publishing, Pearson Education Inc, US

Statistics Denmark (2005) [www.statbank.de](http://www.statbank.de)

SVID (2005) Information provided in response to queries specific to this report.

SVID (2004) 10 Points Attitudes, profitability and design maturity in Swedish Companies, [http://www.svid.se/archive/filer/Rapporter/folder\\_10points.pdf](http://www.svid.se/archive/filer/Rapporter/folder_10points.pdf)

Tether, B (2004) In the business of creativity: an investigation in design innovation and design consultancies in the 'networked economy' work in progress

UK Trade and Investment<sup>1</sup> (2004) Creative Industries Opportunities in the UK, September 2004

Walsh V; Roy R; Bruce M; and Potter S (1992), Winning by Design: Technology, Product Design and International Competitiveness, Blackwell Publishers

Zhou Ji, (2005) Minister of Education, the press conference sponsored by the State Council Information Office on 27/01/05)  
[http://www.fane.cn/article\\_view.asp?id=1442](http://www.fane.cn/article_view.asp?id=1442)

<http://edu.beelink.com.cn>  
<http://www.designcn.org/edu>  
<http://www.china-school.net>  
[www.cndgn.com](http://www.cndgn.com)  
[www.designcouncil.org.uk](http://www.designcouncil.org.uk)  
[www.dmi.org](http://www.dmi.org)  
[www.uktradeinvest.gov.uk](http://www.uktradeinvest.gov.uk)  
[www.bdi.org.uk](http://www.bdi.org.uk)  
[www.svid.se](http://www.svid.se)  
[www.uktradeinfo.com](http://www.uktradeinfo.com)  
[www.uktradeinvest.gov.uk](http://www.uktradeinvest.gov.uk)  
[www.weforum.org](http://www.weforum.org)

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## Annex

### Industry classification codes

#### UK

Figure 6: UK SIC Codes

Code	Description
181	Manufacture of leather clothing
182	Manufacture of other wearing apparel and accessories
74201	Architectural activities
74204	Engineering consultative and design activities
74205	Engineering design activities for industrial processes and production
74402	Planning creation and placement of advertising activities
74820	Packaging activities
74872	Speciality design activities

#### US

Figure 7: NIACS Codes

Code	Description
5414	Specialised design services
54141	Interior design services
54142	Industrial design services
54143	Graphic design services
54149	Other specialized design services

#### China

Figure 8: China Industry classification codes

Industry code	Industry name	Notes
7440	Advertising	<ul style="list-style-type: none"> <li>Advertisement design and production</li> </ul>
7499	Unclassified commercial service	<ul style="list-style-type: none"> <li>Model agencies and professional model performances (e.g. fashion show, advertisements, and etc.)</li> <li>Personal image design service</li> </ul>
7672	Engineering investigation and design	<p>Geological investigation and engineering design before construction, including engineering survey, which cannot be separated from engineering investigation and design.</p> <p>Included:</p> <ul style="list-style-type: none"> <li>water conservancy and hydropower</li> </ul>

		<ul style="list-style-type: none"> <li>• engineering investigation and design</li> <li>• harbour engineering investigation and design</li> <li>• railway engineering investigation and design</li> <li>• Road, tunnel, bridge engineering investigation and design</li> <li>• mineral engineering investigation and design</li> <li>• thermal power plant engineering investigation and design</li> <li>• industrial production and process flows engineering investigation and design</li> <li>• oilfield and offshore oil engineering investigation and design</li> <li>• conduit and line engineering investigation and design</li> <li>• building construction engineering investigation and design</li> <li>• interior design</li> <li>• residential district planning design</li> <li>• landscape design</li> <li>• other engineering investigation and design</li> </ul>
7690	Other professional technical service	<p>This class includes design activities using computer and relative software</p> <p>Included:</p> <ul style="list-style-type: none"> <li>• product design</li> <li>• model design (plan models, sample rooms and etc.)</li> <li>• exhibition layout design</li> <li>• fashion and textile design</li> <li>• packing design</li> <li>• crafts and graphic design</li> <li>• computing animated cartoon design</li> <li>• other not clarified design and professional technical activities</li> </ul> <p>Not included:</p> <ul style="list-style-type: none"> <li>• software design, which is included in 62 (software industry);</li> <li>• any design activities integrated into manufacturing, which is included into C (manufacturing industry)</li> <li>• any design activities integrated into model shows or model agencies, which is</li> </ul>

		<p>included in 7499 (not clarified commercial service)</p> <ul style="list-style-type: none"> <li>• photograph or picture design and processing activities, which is included in 8280 (photographing service);</li> <li>• Personal image design, which is included in 7499 (unclassified commercial service)</li> <li>• Hairdressing and beauty design, which is included in 8240 (haircut, beauty and health care service).</li> </ul>
9010	Literary and artistic creation and performance	<p>Literary and artistic creation and perform arts (e.g. drama, traditional opera, singing and dancing, music, dance, folk arts, acrobatics, circus, puppetry, shadow-play, and etc.)</p> <p>Included:</p> <ul style="list-style-type: none"> <li>• creation of literature (including movie, teleplay script), music, songs, dance, traditional operas, folk arts, and etc.</li> <li>- art creation of graphic (painting, statuary), crafts, calligraphy, seal carving, and etc.</li> <li>• directors' and actors' performance and creation activities</li> <li>• stage management, stage design, costumes, props, lighting, sounds and etc.</li> <li>• creation of folk art</li> <li>• other artistic creation, performance and assistant activities.</li> </ul> <p>Not included:</p> <ul style="list-style-type: none"> <li>• model performance of fashion, photographing, adverting, arts, etc., which is included in 7400 (unclassified commercial service)</li> <li>• artistic creation of advertisement, which is included in 7440 (advertising industry)</li> <li>• artistic creation of photographing, which is included into 8280 (photographing service)</li> <li>• commercial graphic design, which is included in 7690 (other professional technical service)</li> </ul>

Packaging design

This area was classified as a new profession by the Ministry of Labour and Social Security in June 2004. This sub-sector of the design sector includes technology and equipment design, materials and R&D ([www.cndgn.com](http://www.cndgn.com)).

### Architecture design

China has been recognized as the biggest architectural market in the world. There were more than 11,000 design enterprises with an industrial turnover of more than \$93billion in 2002.

### Interior design

With the rapid development of real estate, the demand for interior designers is substantial and more than 550,000 professionals exist in this field. There are also more than 160 educational organizations, providing interior design courses.

### Graphic design

Shanghai is the centre of modern design industry in China and in Asia, as a whole. Currently, there are more than 20 thousand graphic designers in the city. In a recent career fair in Shanghai, graphic designers are the fourth most demanding.

The views expressed in this report are those of the authors and should not be treated as Government policy.