The Future in Design

Country Report:
THE DANISH DESIGN INDUSTRY

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EXECUTIVE SUMMARY

- Danish design activities are both carried out by in-house designers employed in manufacturing and service firms and by specialized Design firms, i.e. the Design *Industry*. The current mapping focuses on the latter firms — employing, loosely estimated, half of the Danish designers, and defined statistically as Architectural Design (NACE 742040), Interior Design (NACE 748710) and Industrial Design (NACE 748720).
- The number of firms has grown significantly, from 5,458 in 2000 to 6,232 in 2003. Entrepreneurship is high, with a start-up rate relative to the number of incumbent firms at 10,8 percent in 2000, compared to the national average of 4,8 percent.
- Employment has grown from 8,405 in 1997 to 10,369 in 2001.
- The use of design by Danish industry has grown from 27% of all firms in 1997 to 36% of all firms in 2003.
- However, turnover has increased from 362.4 million EUR in 1992 to a 2001 turnover of 591.4 millions EUR. Similarly, exports have increased from 51.5 millions EUR in 1992 to 75.1 millions EUR in 2001.
- Most firms are very small and many one-man firms abound, and even if most firms claim to lack size and commercial competence, horizontal networking is very rare.
- The most important activity areas are Graphical Design (32% of the Danish design firms state this as their primary activity); Industrial Design (26%); Fashion and Textile Design (13%); Interior Design (11%); and Furniture Design (9%).
- Denmark was one of the first European countries to formulate a targeted policy for the Design industry. Some of this policy has since been abolished, but the industry still enjoys policy attention. A range of mapping initiatives and whitepapers have been produced, along with the establishment and/or restructure of incumbent organizations providing knowledge, industry services and export promotion, notably the Danish Design Centre and the Centre for Research in Design. A range of high-profile branding event and conferences, such as INDEX: and the World Congress of Designers, are also sponsored by the public.
- The course offer at Denmark's high-level design schools is also undergoing changes towards providing more generic design skills, and a range of courses at other educational institutions (such as universities) now offer courses where craft skills are combined with commercial skills. While many industrialists endorse this development as necessary, others criticize it, maintaining that craft skills rather than generic design or commercial skills should continue to be the basis of the industry's future competitiveness.

INTRODUCTION

As it is in other countries, the design industry in Denmark is very small (around 1% of Danish industry), and, as with many service industries, with modest export rates. However, its economic impacts are not reserved to its own turnover employment, as it supplies manufacturing, ICT and tourism industries, adding significantly to their product values and competitiveness.

The case of the Danish design industry is particularly interesting, for several reasons. It exemplifies how a small advanced country early, through high education levels of designers and close collaboration between them and some manufacturing firms, may build an strong early-mover design industry, supporting high export rates of a range of selected design products. But it also exemplifies how, if no *strategic*, long-sighted, efforts at industrial restructuring and public purchase and skill provision are undertaken, this advantage may decline over time in an economy with only modest local demand for design products and little tradition for using design inputs to manufacturing for other than a few select products. Today, after years of declining performance, the Danish design industry is at a crossroads, with significant organic restructuring of the industry and a range of public policy initiatives underway. The next few years will demonstrate if it is possible through such efforts to rebuild a small Denmark's strength within the design industry.

A central issue in restructuring both industry and public policy is how public provided skills correspond to current development of the design industry's different activity areas. In particular, how, in which combinations, and through which educational institutions the public should provide *craft* skills (technical skills related to aesthetics and form within a range of specialty areas) vs. *generic design* skills (research-based skills relating to method, coordination and use of design, spanning all design areas) or *commercial* skills (managerial, marketing-related skills), is under current debate.

DEFINITIONS AND DATA SOURCES

A survey (Erhvervs- og Boligstyrelsen 2003a) showed that the *use* of design (i.e. both done by in-house designers and purchased from suppliers in the Design Industry) is rapidly growing in Danish industry: The number of Danish firms using design has grown from 27% in 1997 to 36% in 2003 (Erhvervs- og Boligstyrelsen, 2003b).

We shall concentrate on design *as an industry*, i.e. excluding in-house design activities internal to firms with other core products than design. Dedicated design firms (i.e., firms supplying B2B design services) encompass Architectural Design (NACE 742040), Interior Design (NACE 748710) and Industrial Design (NACE 748720). Many of these firms also undertake e.g. Fashion and Textile Design or Furniture Design, which are not separated out in statistics. It should be noted it has not been possible to statistically capture some of the firms providing e.g. Web Design and Graphical Design, as these B2B services are often offered by firms in e.g. the advertising industry.

Statistical data is from Statistics Denmark, except where otherwise noted (see also list of references). Primary sources also encompass 10 qualitative in-depth interviews with industrialists and key informants in the Danish Design industry.

INDUSTRY PERFORMANCE

It is clear that Denmark's traditional role as the strongest Nordic design country has been eroded over the last decades. While international prizes and attention now go to Finland or Sweden as often as Denmark, the design industry in Denmark experiences stagnating turnover and exports. While Architecture sees a slow increase, Interior and Industrial design turnover and exports have been decreasing.

Turnover

Tables 1.1a through 1.1b indicate turnover. Turnover for Interior and Industrial Design in Denmark is small, but increasing. In the period 1992-1995, it increased with more than 100 percentage point. This was followed by a more moderate increase in 1995-1997, again followed by another growth period until 2001 to four times the 1992 level for design, and doubles the 1992 level for Architecture. For Architecture, this means that the turnover growth (index 205.1) is larger than the Danish industry average (index 160.3).

Table 1.1a: Turnover selected years in design industries compared to turnover in general in Denmark (MIO EURO) (Excl. VAT)

	Design Turnover*	Total Danish turnover	Design as percent of total Danish turnover	Design turnover growth indexed (1999=100)	Danish economy's turnover growth indexed (1999=100)
1992	57.5	198,155.7	0.03%	100.0	100.0
1995	115.2	223,137.9	0.05%	200.3	112.6
1997	155.2	247,534.6	0.06%	269.9	124.9
1999	214.7	260,921.7	0.08%	376.7	131.7
2001	265.6	317,680.1	0.08%	461.9	160.3

Source: Statistics Denmark
*Design is here total for indoor interior and industrial design. Design is based on VAT statistics.
Total Danish numbers is from the company statistics in 1992 to 1999, replaced by the general company statistics after 1999.[1]
A full stop indicates a decimal point.
Note: Currency rate of 01.07.2004 of DKK 1=0.13460 euro

[1] The general company statistics in 1999 replaced the former company statistics. The difference is in which firms, industries and sectors are included. The former company statistic contain all VAT registered companies in the private sector irrespective of activity, while the general company statistics include only the actual active companies. Active companies are those which have at least a 0.5 turnover registered. This means in principle that only ca. 1 percentage of the VAT turnover is included, while about half the registered companies are not included. General company statistics, however, embrace all sectors and industries (Statistics Denmark).

Table 1.1b: Turnover selected years in design industries compared to turnover in general in Denmark (MIO EURO) (Excl. VAT)

	Architecture turnover	Total Danish turnover	Architecture as percent of total Danish turnover	Architecture turnover growth indexed (1999=100)	Danish economy's turnover growth indexed (1999=100)
1992	304.9	198,155.7	0.15%	100.0	100.0
1995	410.9	223,137.9	0.18%	134.8	112.6
1997	478.8	247,534.6	0.19%	157.0	124.9
1999	503.4	260,921.7	0.19%	165.1	131.7
2001	625.8	317,680.1	0.20%	205.2	160.3

Source: Statistics Denmark
Source is VAT statistics.
In 1992 to 1999 the source is company statistics, after 1999 it is general company statistics. See footnote 1.
A full stop indicates a decimal point.
Note: Currency rate of 01.07.2004 of DKK 1=0.13460 euro

EXPORTS

Even with turnover increasing in the period 1999-2001, the exports of Interior and Industrial Design decreased — while exports for the total Danish economy increased. For Architecture however, exports increased during the same period. Table 1.2a and 1.2b demonstrate this.

Table 1.2a: Export 1999 to 2001 on design (MIO EURO)

	Design exports*	Total Danish exports	Design as percent of total Danish exports	Design exports growth indexed (1999=100)	Danish economy's export growth indexed (1999=100)
1999	36.0	47,126.5	0.07%	100.0	100.0
2000	35.0	54,644.2	0.06%	97.2	116.0
2001	48.9	56,844.4	0.09%	135.8	121.0

Source: Statistic Denmark
*Design is here total for indoor interior and industrial design
Currency rate of 31.12.01 of DKK 1= EURO 0.13391, 2000 of DKK 1= 0.13404, and 1999 of DKK 1= 0.13445 euro
A full stop indicates a decimal point.

Table 1.2b: Export 1999 to 2001 on architecture (MIO EURO)

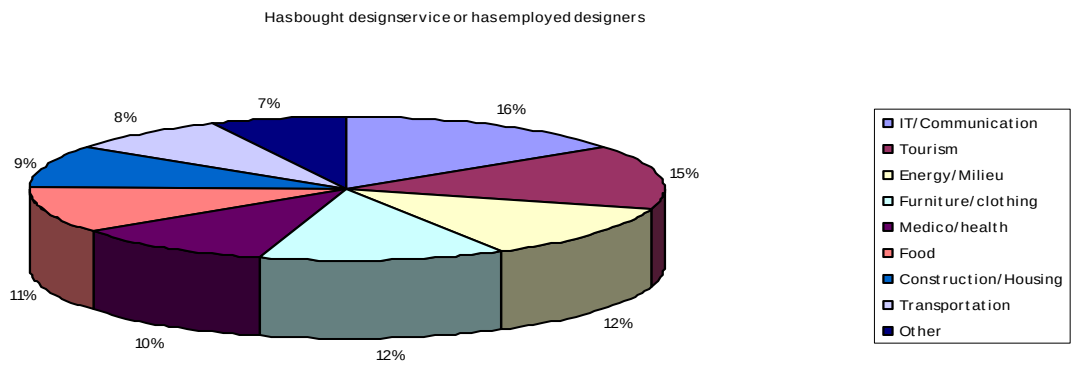
	Architecture exports	Total Danish exports	Architecture as percent of total Danish exports	Architecture exports growth indexed (1999=100)	Danish economy's export growth indexed (1999=100)
1999	15.5	47,126.5	0.03%	100.0	100.0
2000	25.6	54,644.2	0.05%	165.2	116.0
2001	26.2	56,844.4	0.05%	169.0	121.0

Source: Statistic Denmark
Currency rate of 31.12.01 of DKK 1= EURO 0.13391, 2000 of DKK 1= 0.13404, and 1999 of DKK 1= 0.13445 euro
A full stop indicates a decimal point.

Domestic demand

The use of design (i.e., either in-house design activities or the purchase of specialized design services) by Danish firms is spread across many sectors. IT/communication and tourism industries have a particularly large use of design (Erhvervs- og Boligstyrelsen, 2003b). Figure 1.1 shows the split of demand use across different sectors.[2]

Figure 1.1: Business profile of buyers of design



Source: Erhvervs- og Boligstyrelsen, 2003b

INDUSTRY STRUCTURE

While performance in terms of turnover and exports still lags behind the rest of the economy, the Danish design industry is undergoing rapid development with organic changes in its industry structure.

Number of firms

Table 1.3a and b demonstrate a noteable increase in the number of companies providing Interior and Industrial Design in Denmark, while a decrease in the number of Architectural

[2] This figure also includes internal employment of designers.

companies in the period. Compared to the total number of firms in Denmark, the design industry also experienced growth measured in number of firms.

The large increase in the number of firms indicates a high level of entrepreneurship. The start-up rate relative to the number of incumbent firms was at 10.8 percent in 2000, especially marked by the design industry, compared to 4.8 percent for the Danish industry in general (The Ministry of Culture and the Ministry of Trade and Industry, 2000).

Table 1.3a: Number of firms selected years in design companies compared to number of firms in general in Denmark

	Design firms*	Total Danish firms	Design as percent of total Danish firms	Growth of design firms indexed (1999=100)	Growth of Total Danish firms indexed (1999=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

Source: Statistics Denmark
Source is VAT statistics.
*Design is here total for indoor interior and industrial design
In 1992 to 1999 the source is company statistics, after 1999 it is general company statistics. See footnote 1.
A full stop indicates a decimal point.

Table 1.3b: Number of firms selected years in architectural firms compared to number of firms in general in Denmark

	Architecture firms	Total Danish firms	Architecture as percent of total Danish firms	Growth of architecture firms indexed (1999=100)	Growth of Total Danish firms indexed (1999=100)
1992	3,360	342,431	0.98%	100.0	100.0
1995	3,043	328,634	0.93%	90.6	96.0
1997	2,959	325,854	0.91%	88.1	95.2
1999	2,995	326,820	0.92%	89.1	95.4
2001	2,811	284,166	0.99%	83.7	83.0

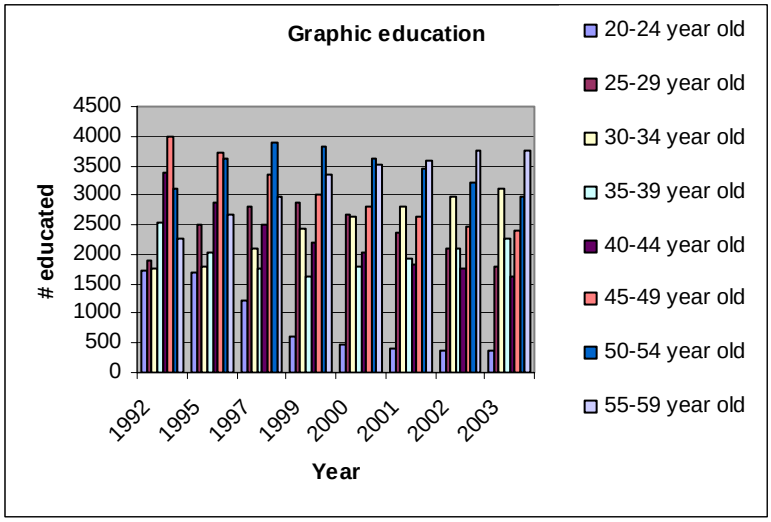
Source: Statistics Denmark
Source is VAT statistics.
In 1992 to 1999 the source is company statistics, after 1999 it is general company statistics. See footnote 1.
A full stop indicates a decimal point.

EDUCATION, EMPLOYMENT AND WAGE LEVELS

Figure 1.2a to 1.2d indicate the development of educated designers. It should be stressed that the four categories of educations include also a few non-design educated people,

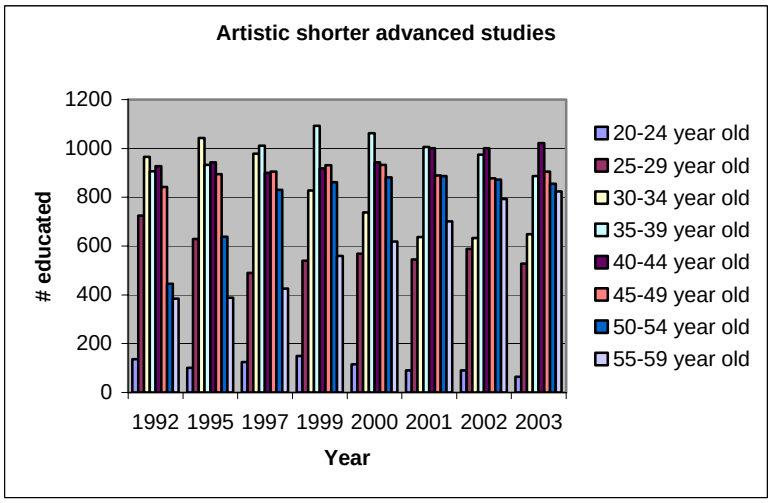
although the majority of educated designers will be incorporated in these figures[3]. Figure 1.2a to 1.2d illustrate that designers especially has a graphic or shorter advanced education. Figure 1.2a to 1.2d illustrate also that especially the younger people possess a medium-long design education.

Figure 1.2a: Education in the Danish Design industries



Source: Statistics Denmark, the highest finalized education

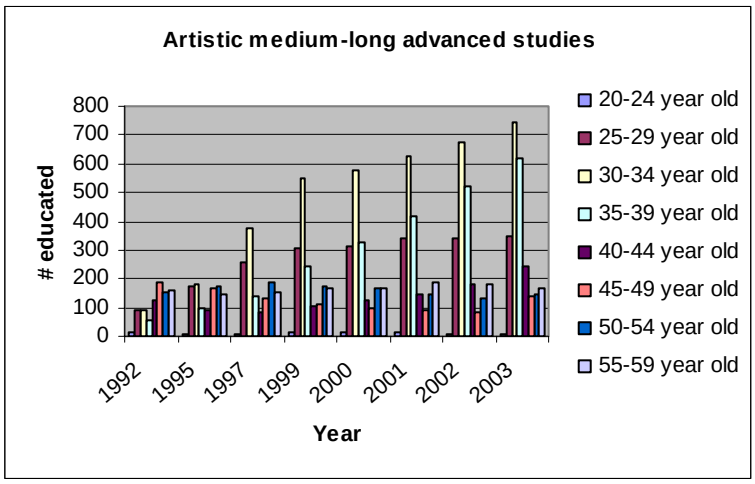
Figure 1.2b: Education in the Danish Design industries



Source: Statistics Denmark, the highest finalized education

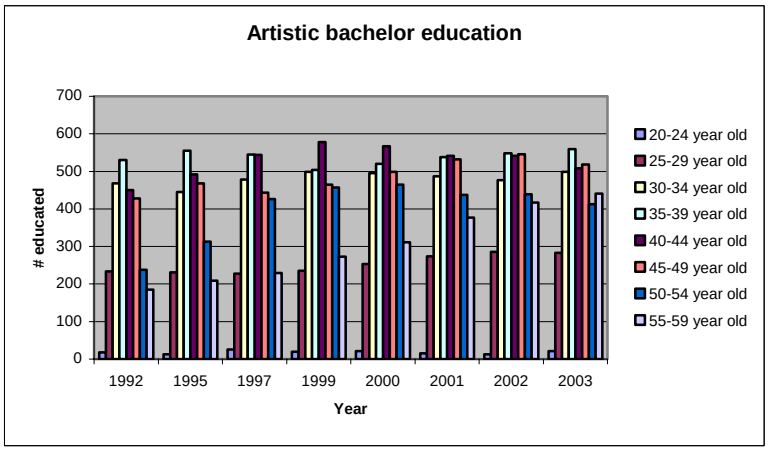
[3] The exact definition of the educations contained in the four different categories is available from Statistics Denmark. All handicraft/artistic design educations from the Danish Design schools are contained, however, also some dance- and music related educations are contained as are some photographic skills.

Figure 1.2c: Education in the Danish Design industries



Source: Statistics Denmark, the highest finalized education

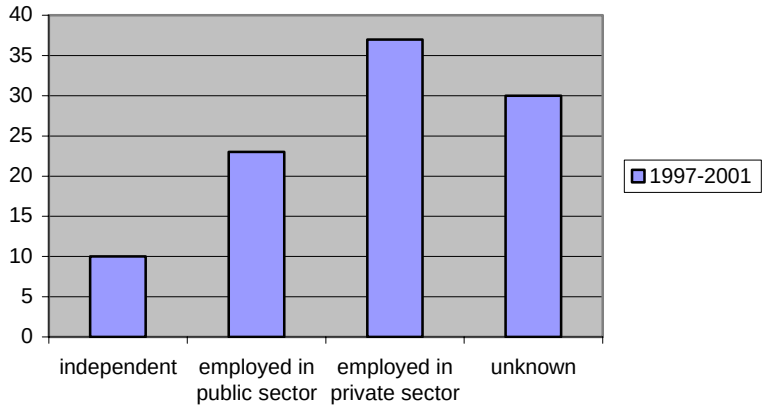
Figure 1.2d: Education in the Danish Design industries



Source: Statistics Denmark, the highest finalized education

As mentioned earlier, many people educated as designers are employed outside the Design Industry. Particularly design-intensive manufacturing or service firms (such as consumer goods manufacturers or advertising and communication firms) choose to employ in-house designers, often in combination with purchasing design services from Design firms. Danish design-intensive firms outside the Design Industry include, for example, Novo Nordisk, DSB, Bang & Olufsen, and a range of fashion houses. There are no available figures of the exact split between educated designers working in the Design Industry vs. in-house designers in other industries. However, figures from the largest Danish educational institution for designers, Designskolen Kolding (see below) show that of the 222 students that graduated 1997-2001, 23% are working in the public sector alone. A very conservative estimate is that a third of those employed in private firms are employed outside the Design Industry, meaning that more than 50% of graduates work outside the Design Industry. See figure 1.3.

Figure 1.3: Employment Type of designers (the Danish Design school in Kolding 1997-2001)



Source: Statistics Denmark, a special run for the Design School in Kolding. N=222 students graduated from 1997 to 2001

Table 1.4 shows the total number of employees, while Table 1.5 illustrates the distribution of employees split on different firm sizes.[4] As is clear from Table 1.4, Interior and Industrial Design plus Architecture experience an increase in the number of fulltime employees in the period 1993-2001. The growth is particularly noteworthy for Industrial Design.

Table 1.4 Employment in the Danish Design industries

	1993	1995	1997	1999	2001
Architect	5,387.0	6,073.0	6,598.0	6,778.0	7,523.0
Indoor Inte	179.0	257.0	255.0	302.0	325.0
Ind-Design	854.0	1,193.0	1,552.0	2,074.0	2,521.0

Source: Statistics Denmark, Company Statistics
Note: Number of jobs end November

A full stop indicates a decimal point.

Table 1.6 gives a vague indication of the wage level in the design industry. Numbers are only available for 2001 and 2002. The table includes gross profit and turnover per employee only for comparisons. It is clear for all three industries constituting the design industry, the average wage level for the employees has increased 2001-2002 (but should, of course, be viewed in relation to the general increase of Danish wage levels during the same period).

[4] A slight deviation in the number of employees is clear from Table 1.4 compared to 1.5 which is caused by the different statistical registers used in Statistic Denmark.

Table 1.5 Number of Firms and Employees Selected Years in the Danish Design industries

		1997	1999	2000	1997	1999	2000
	Firm Size	Firms	Firms	Firms	Employees	Employees	Employees
Architect	size 0	2,467	2,125	2,126	2,467	2,125	2,126
	size 1-4	416	506	555	760	934	932
	size 5-9	107	137	108	721	919	718
	size 10-19	60	55	64	784	707	808
	size 20-49	19	33	29	569	941	886
	size 50-99	10	7	7	704	456	527
	size 100-199	3	4	4	326	470	526
	size200-499	0	0	0	0	0	0
	size 500+	0	0	0	0	0	0
Indoor int	size 0	160	174	191	160	174	191
	size 1-4	19	23	28	34	41	38
	size 5-9	3	4	4	18	26	24
	size 10-19	3	4	4	45	58	60
	size 20-49	1	1	1	26	21	21
	size 50-99	0	0	0	0	0	0
	size 100-199	0	0	0	0	0	0
	size200-499	0	0	0	0	0	0
	size 500+	0	0	0	0	0	0
Ind-Design	size 0	1,570	1,866	2,114	1,570	1,866	2,114
	size 1-4	139	215	264	222	359	397
	size 5-9	23	34	30	144	227	200
	size 10-19	7	14	13	91	186	163
	size 20-49	4	4	5	120	116	159
	size 50-99	0	0	0	0	0	0
	size 100-199	0	0	0	0	0	0
	size200-499	0	0	0	0	0	0
	size 500+	0	0	0	0	0	0

Source: Statistics Denmark

Note: Number of jobs end November, Number of firms are CVR
Zero indicates that the observation is missing, or that Statistics Denmark has left out the observations for reasons of discretion or too high uncertainty with the observation.

A full stop indicates a decimal point.

Table 1.6 Salary per employee, incl. gross profit, and turnover per employee in Design and architectural production (in EURO).

		2001	2002
Architecture	Turnover per employed (EURO 1,000), average	100.57	109.50
	Salary per employee (EURO 1,000), average	51.28	53.87
Indoor Inter	Turnover per employed (EURO 1,000), average	206.63	240.55
	Salary per employee (EURO 1,000), average	44.19	47.81
Industrial Design	Turnover per employed (EURO 1,000), average	110.34	119.47
	Salary per employee (EURO 1,000), average	44.19	47.27

Source: Statistic Denmark, Financial account statistic (only numbers available for 2001 and 2002)[5]
Currency rate of 31.12 each year: 2002 of DKK 1= 0.13468 and 2001 of DKK 1= EURO 0.13391
A full stop indicates a decimal point.

[5] The financial account statistics is based on standardized reporting from companies to the Ministry of Taxation; The Central Customs and Tax Administration, and on information based on questionnaires answered by the companies. The statistics has been accumulated over time. An existing system from 1986 was replaced by a new statistic in 1994 where the construction sector was contained. In 1995 the industry sector was added, in 1998 wholesale businesses followed and in 1999 other private urban trade companies were included too. As in the general company statistics, since 1999 only the actual active companies are included implying a reduction in the number of firms and workplaces, and to some extent a reduction in the number of employees. The financial accounts, however, are largely unaffected. Finally, from 2000 the calculation method has been changed for companies with 1 fulltime employed.

Firm sizes

Table 1.5 shows employment split up on different firm sizes. The first columns in Table 1.5 show also how the number of firms is distributed on different firm sizes. For Interior and Industrial Design companies, no firm employs 50 or more employees, and the majority of firms have no employees but the owner him/herself. The abundance of one-man companies should of course be viewed in relation to the high level of entrepreneurship in the industry.

GEOGRAPHY AND CLUSTERING

It can be seen from Tables 1.7 and Figure 1.4 that the design industry is clustered in Copenhagen, and to a lesser extent, Aarhus. Especially Copenhagen, Copenhagen county, but also Aarhus and Frederiksborg counties and North Jutland count a bulk of companies. This tendency is clear for Interior and Industrial Design plus Architecture, although Figure 1.4 also illustrates that Interior Design companies seem to be slightly less clustered than Industrial Design and Architect companies.

The clustering of the industry has first and foremost to do with "urban economies" in the guise of labor markets and educational institutions (with Copenhagen and Aarhus as Denmark's primary "Creative" cities), rather than with "agglomeration economies" stemming from inter-firm networking. With customers using design firms regardless of their location, vertical relations to customers (value chains) cannot account for the clustering of firms (Ervhvervs- og Boligstyrelsen 2003). As discussed below, horizontal relations among design firms are generally so rare in Danish industry that this cannot account for the clustering of firms either.

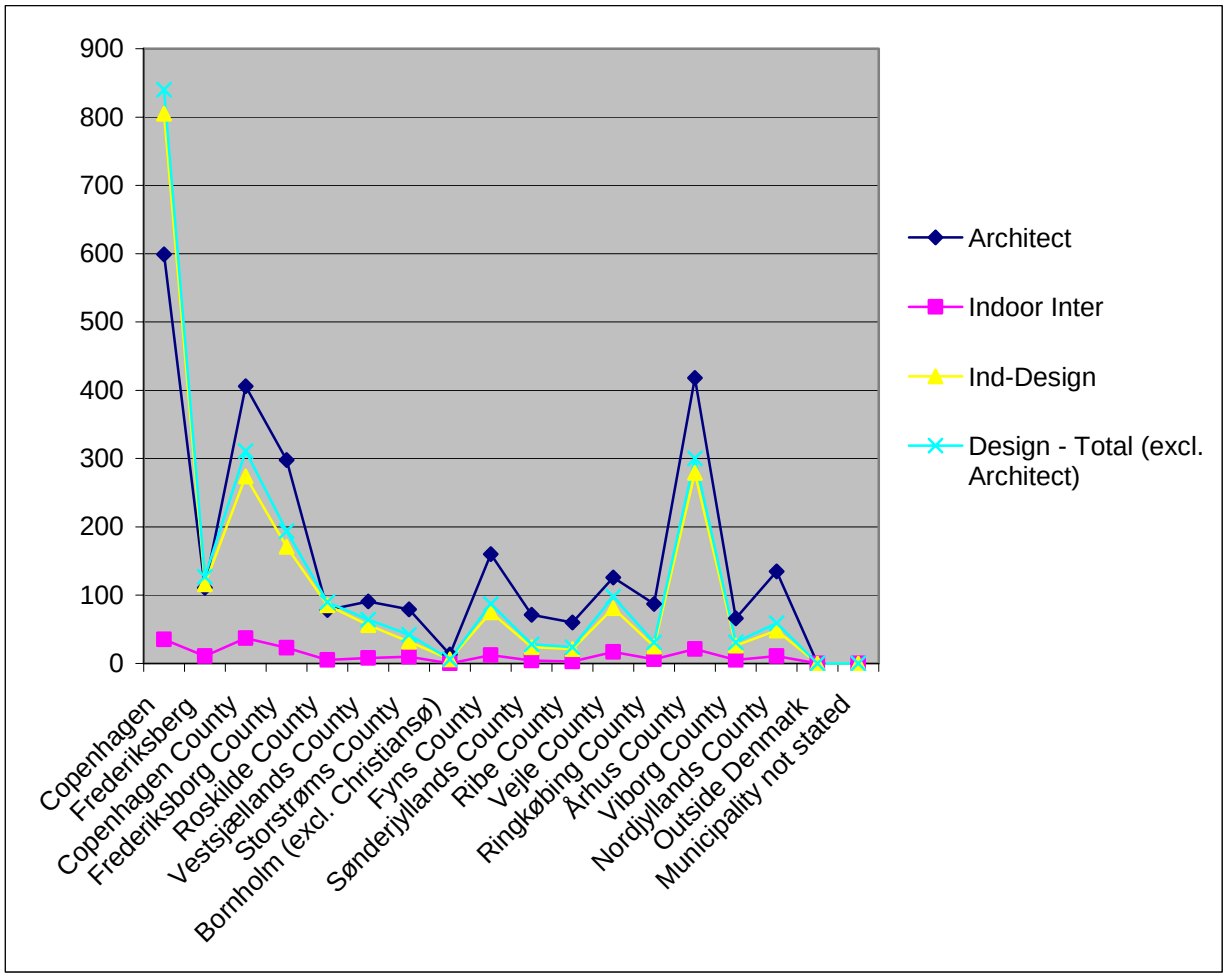
Table 1.7: Geographical location in Denmark of Danish Design companies (excl. architectural production)

		1992	1993	1994	1995	1996	1997	1998	1999
Total design	Copenhagen	77	265	333	407	467	612	705	840
(excl. Architecture	Frederiksberg	10	37	44	57	73	96	98	127
	Copenhagen County	34	141	157	192	214	253	276	311
	Frederiksborg County	25	98	98	112	135	143	166	194
	Roskilde County	9	23	33	35	42	53	69	90
	Vestsjællands County	7	20	31	37	38	45	59	64
	Storstrøms County	4	17	22	20	25	32	41	42
	Bornholm (excl. Christiansø)	0	1	1	1	2	5	8	6
	Fyns County	9	41	46	55	58	74	82	87
	Sønderjyllands County	5	13	16	18	23	32	30	28
	Ribe County	0	10	10	15	18	22	22	24
	Vejle County	8	38	43	47	54	73	96	98
	Ringkøbing County	3	17	21	25	26	29	26	31
	Århus County	21	88	106	132	160	227	278	300
	Viborg County	5	19	18	21	24	25	29	31
	Nordjyllands County	9	33	44	48	49	46	50	59
	Outside Denmark	0	0	0	0	0	0	0	0
	Not stated Municipality	0	0	0	0	0	0	0	0

Source: Statistic Denmark, VAT statistics

Note: The numbers are registered SE-entities end the different years.

Figure 1.4: Geographical location in Denmark of Danish Design companies incl. architectural production (in 1999)



Source: Statistic Denmark, VAT statistics
Note: The numbers are registered SE-entities end the different years.

ACTIVITY AREAS

The activities in the Danish design industry encompass Graphical Design; Industrial Design; Fashion and Textile Design; Interior Design; Furniture Design; Web Design; Technical Design; Design Planning and Management; and Experience Design. The bulk of the activities fall within five main areas: Graphical Design (according to Erhvervs- og Boligstyrelsen (2003b) 32% of the Danish design firms state this as their primary activity); Industrial Design (26%); Fashion and Textile Design (13%); Interior Design (11%); and Furniture Design (9%).

Firms in all activity areas are generally characterized by very small firm sizes, low professionalization and few commercial skills, a lack of horizontal network and strategic alliances, and modest export rates. However, there are significant differences in how firms in different activity areas operate — in terms of how narrowly specialized and networking they are, and hence, which skills they use.

Notably, Fashion and Textile Design, Furniture Design, and, to a lesser extent Graphical Design stand out as very focused upon craft skills. However, they are very different in terms of economic success and growth:

- *Fashion and Textile Design* (13% of firms state this as primary activity area) is the most dynamic and growing activity area in the industry. However, this activity area is also characterized by a strong specialization and only vertical (customer) network and a complete lack of networking with other design firms. This is further enhanced by the very specialized craft skills these firms use. So far, firms in this segment have thrived on these craft skills, but with growing export, many firms now grow and experience a critical need for commercial skills. With the growing success on export markets, these firms may potentially lack supply of labor with both design skills and commercial skills in the near future.
- *Graphic Design* (with 32% of firms the largest area: 65% of design customers purchase graphic design (Erhvervs- og Boligstyrelsen 2003b)). With a strong focus upon craft skills but also lower export orientation, slower growth rates, and larger firm sizes (due to some maturity), the need for upgrading commercial skills in firms in this activity area is less critical. However, new technological developments in ICT place great demand for upgrading of craft and generic design skills.
- *Furniture Design* (7%) is an old classic Danish design area in relative decline. The decline may be ascribed to a growing conservatism of furniture designers, but also to weak competencies in networking. Vertical relationships with customers are not systematically managed, and strategic horizontal networking with other design firms are virtually absent — first and foremost due to extremely small firm sizes (many are constituted by one architect alone) and a consequent total absence of commercial skills. As a result, this activity area has negative growth and neglectable exports.

Firms specializing in Industrial Design and Interior Design typically incorporate both craft and commercial skills, but are also characterized by different development paths:

- *Industrial Design* (with 25% the second largest area in the industry) is art and commerce combined, with strong vertical networking and both craft skills (technological developments in this area are not as rapid as in Graphical Design) and commercial skills, resulting in reasonable exports and growth. However, compared to industrial designers in e.g. Italy or the UK, these Danish firms are traditional in their focus upon designing only customers' products, rather than involvement in more stages of production. As a result of this product orientation, some firms in this area also mention that they lack capital, as they wish to venture into production of a designed product themselves (Erhvervs- og Boligstyrelsen 2003b).
- *Interior Design* (12%) is stagnating. This area suffers to an extent from the opposite skill problem from the other areas: Even if less oriented towards exports, the main product of most Interior Design firms is a package of combined products and design services from other firms, and consequently, Interior Design firms have always been relatively commercially oriented. However, ICT tools are now gaining ground within this activity area, necessitating an acute input of more specialized craft and generic design skills.

A noteworthy consequence of the last years' structural change within the Danish design industry is that the distribution of activities is also changing. While Denmark seem to be losing the traditional Danish design strongholds on export markets, such as Furniture Design, recent growth of firm numbers and employment takes place within newer design activities with modest export rates. However, Fashion and Textile Design stands out as a special positive case.

Firm sizes seem to continue to be small across activity areas (of course, partly as a result of high start-up rates), and firms in all areas lack strategic horizontal collaboration (Erhvervs- og Boligstyrelsen, 2003b). However, the change of specialization into activity areas has an impact upon the future need for institutional infrastructure and public support. Most notably, whereas all firms depend upon public provision of skills and, as they are challenged by new technologies, need to ensure access to state-of-the-art artistic skills, the growth in the number

of firms and export orientation in Fashion and Textile Design plus Industrial Design increase the need for publicly provided commercial skills. We shall discuss this further in the following section.

INSTITUTIONAL INFRASTRUCTURE

Policy initiatives

A recent survey has shown that those Danish firms that use (both in-house and purchased) design most have larger export and more growth: Design-using firms on average export 34% of their turnover, whereas other firms export 18%, and in the period 1998-2003, design-using firms on average grew 22% more than other firms (Erhvervs- og Boligstyrelsen 2003a). However, at the same time, international observers point to the fact that while Danish design has been valuable and visible throughout the last 50 years its international visibility is rapidly eroding.

These two observations have spurred Danish policy attention, targeted the Design industry as a strategic industry and brought about a range of initiatives. In 1997, the government allocated 13 millions EUR to increasing the use of design by Danish firms, in the guise of increased support to the activities of the Danish Design Center (see below), and a highly praised "Icebreaker" policy of co-funding up to 8,500 EUR of Danish firms' new design investments. Denmark was hence, quite extraordinarily, one of the first European countries to apply targeted policies for the Design industry. The 2001 change of government has since removed many of these initiatives, including the "Icebreaker" policy. However, publicly funded branding and education activities still arise, and the government has also been relatively successful in mustering private partners for some of them. New design institutions are created and incumbent ones are changed, and both one-off and recurring prizes and events are planned, in an attempt of promoting and branding the Danish design industry. We shall deal with branding activities first, before discussing educational institutions and other organizations.

Public initiatives to internationally brand the Danish design industry through prizes and events mostly benefit firms within highly exporting activity areas, but may, of course boost exports for the industry in general. Notable such activities encompass:

- *The INDEX: conferences*. Staring with INDEX: 2005, INDEX: is to become a very high-profile and recurring series of events, spanning several months each time in Copenhagen, encompassing exhibitions, fairs, international seminars, and an international conference with prizes. Boasting a distinguished international advisory board and employing international top designers and planners, INDEX: 2005, in September-November 2005 has the theme "Design to Improve Life". It uses designers to spur public debate, through making them visualize four future scenarios thought out by a panel of planners, sets up a think tank with both designers and other creatives in order to suggest solutions to future community problems, and finally hands out five 100,000 EUR prizes to projects that improve life quality within selected areas of human life. The bulk of funding comes from the Ministry of Economic Affairs and Industry and the City of Copenhagen (together providing approx. 1,6 millions EUR), but a range of well-known private funds and design-using companies sponsor the event in 2005 (given their limited size, no design firms sponsor).
- *Other conferences*. Danish Design Center and private organizations related to design (see below) concurrently organize a range of minor conferences, and policymakers are trying to make them attract for some of the major international events to Denmark. Notably, in 2005, the World Congress of Designers entitled "ERA: The Changing Role and Challenges of Design" is to be held in Copenhagen, with public support.

These events attract much attention and spur little controversy. However, while these new events are being planned, a "quiet revolution" is underway within the institutional set-up of the industry, in the workings of public and semi-public organizations, and first and foremost educational institutions. We shall discuss most important of these institutions and policy initiatives below.

Organizations

With increased public attention, more and more public and semi-public organizations are beginning to deal with the challenges of the Danish design industry. For example, industry mappings and whitepapers are being published by the Ministry of Culture, the Ministry of Economic Affairs and Industry, the National Agency for Enterprise and Construction (which works with industrial policies under the Ministry of Economic Affairs and Industry), plus the newly established Centre for Research Design (see below). These publications have provoked the public debate on the design industry to a all-time high level, to the general benefit for the entire design industry.

The new attention to the industry can also be traced in the workings of incumbent organization of importance for the Danish design industry, as well as the establishment of new organizations with public support. The most important such organizations are:

- *Danish Design Center (DDC)*, established in 1978. DDC has the purpose to increase the use of design in Danish industry in general, and to promote the Danish design industry at home and abroad. New government policies put DDC centre stage for promoting the design industry, seeking to promote DDC to a national Knowledge Center (and hence with a special policy status). Consequently, DDC is now an independent institution governed by the Ministry of Economic Affairs and Industry, with an annual budget around 4,5 million EUR, hereof approx. 0,7 millions EUR publicly funded (as a result of a change of government policies, a severe cut from 2,5 millions EUR in 2003). DDC arranges shows and fairs in Denmark and abroad in order to promote and brand Danish design. Its high-profile and large budgeted fairs and shows around the World attract international attention. On a lesser scale, DCC also runs a profitable shop and showground in Copenhagen city. The Centre provides a range of direct support services for the design industry (on the behalf of the National Agency for Enterprise and Construction), informs on new government support programs for firms and educational initiatives, and stimulates collaboration between design firms and users, though newsletters, web tools, fairs, and networking activities. It should be noted that some counseling activities plus the Centre's involvement in the Icebreaker initiative have been closed down as a result of the budget cuts. DDC also awards the annual high-profile Danish Design Award to an outstanding design solution within any areas of design.
- *Centre for Research in Design*. Just opened in September 2004, this centre is a collaboration between the biggest design educational institutions under the Danish ministry of Culture (Denmark's Design School, Designskolen Kolding, the School of Architecture, and Aarhus School of Architechture — see below for a description). Located in the School of Architecture in Copenhagen, the center's purpose is to boost scientific research in design to the benefit for teaching on all the participating institutions, though coordinating ongoing research at the institutions but also undertake new research. The Centre also aims at increasing the collaboration between the educational institutions and industry. With a current modest scientific staff of 3 (aiming at 5-10 employees in total), the Centre is publicly funded through the School of Architecture, with an annual budget of approx. 2,7 millions EUR.
- *Danish Centre of Architecture (DAC)* is an information and development center, aiming mainly at coordinating between architects and other Danish industry, to the benefit of both Danish design industry and city planning. It is a private fund established by the construction industry and the private Council for Industry, part-funded by the state but with significant private sponsoring.

- *Association of Danish Designers.* Established in 1995 as a private association, the association now boats more than 1000 independent members. The association represents Danish designers in the national debate and in international networks, runs newsletters, creates contacts between designers and design-users (e.g. in the Design Management Forum), and provides web services.
- *Other associations.* Few fashion and textile designers are members of Association of Danish Designers, as some (but not all) are members of *Danish Textil and Beklædning* instead. Many architects are members of *Associated Danish Architects* or *Danske Arkitekters Landsforbund* (both mostly providing information services). A range of more narrow industry associations (e.g. *Association of Interior Designers*, associated to Danish Designers above) as well as small institutions sponsoring design and craft projects (such as *Danish Crafts*) also exist.

EDUCATION

One of the most interesting recent developments in the Danish design industry 'infrastructure' is a change in the way Danish designers are educated. Whereas some critics argue that this change currently benefits only those design firms demanding more generic design skills or commercial skills, others claim that in the near future, this means the entire Danish design industry.

A design industry is driven by the ability of design firms to achieve in-house high-level competences while also coordinating with customers - a classic challenge for most service industries. Rather than being ascribed to a *general* efficient such coordination in the Danish design industry, the early success of the industry usually seen as based upon how a range of *particular* successful collaborations between industrial firms and design firms. Contrary to in some other countries, the core of the Danish design industry continues to be a high level of in-house competences of design firms with strong craft elements, supported by high-level publicly provided education of designers. Even if in-house competence creation and self-taught skills are important in the Danish design industry, design skills provided by public education are still central - for all the activity areas of the industry. Today, 83% of Danish design firms (excluding architects) employ people with a public design training in the provision of their core product, design (compared to 10% using engineers)(EBST, 2003).

Each year 250-300 new designers are educated in Denmark. The quality of design skills provided by Danish design educational institutions is generally perceived as very high, and still have very strong craft elements. Danish design educations are traditionally mostly divided into specialized craft areas, have relatively little user (industry) involvement, and provide students with few generic design skills and no commercial skills. This has served to support particular activity areas and firm types in the industry, where firms often solve given specialist tasks rather than being involved in its customers' planning or strategic activities (as is to a higher degree the case in e.g. the Italian or UK design industry. In these countries, education is often more project-oriented, done in collaboration with customers, and aims at providing students with both craft skills and general communication and managerial skills).

With rapid technological developments, there is a great need for upgrading this input of craft skills to industry. Furthermore, with more international competition, greater focus upon exports and new markets, many firms now have a great need for upgrading the commercial skills of their designers. And last, but not least, if design firms are to supply industry with more complex and value-adding design services, future designers need to possess generic skills of design method, use, and coordination. Thus, future design education has to undertake a double or even triple role: raising craft skills plus providing more generic design skills - and possibly also allowing students to be trained in commercial skills. This challenge is currently being addressed by educational institutions. Below, we shall give a list of the most important Danish educational institutions related to the design industry.

Institutions with a current strong focus upon craft design skills include:

- *Denmark's Design School*. Under the Ministry of Culture. With a budget of 66 million DDK, staff of 122 (95 teachers) and 465 students taking 5-year Master courses within 9 specialty craft areas (Furniture and Interior Design; Fashion; Textiles; Ceramics; Glassware; Industrial Design; Graphical Design; Production Design; and Digital Design) this is Denmark's leading educational institution for the design industry. Located in Copenhagen. Whereas the School has hitherto focused on proving very specialized, high-level, craft skills, it is currently undergoing a politically induced change, with greater emphasis upon research-based generic design skills, resulting in budget and personnel changes. This change is met with heavy protests form critics who claim that this undermines the craft-based competencies of the school.
- *Designskolen Kolding*, Kolding. Also under the ministry of Culture and with 500 students taking 5-yeah Master courses in 6 different specialties (Graphical Design; Interactive Media; Textiles; Fashion; Industrial Design; and Ceramics) this is Denmark's second big educational institutions related to design, located in Kolding, Jutland.
- *The Royal Academy, School of Architecture*. Located in Copenhagen and more than 250 years old, this is the truly classic educational institution, offering 5-year Master courses in Architechture, in 11 different areas (Town and Landscape; Town and Building; Process and Method; Urban- and Building culture; Space and Habitation; Space and Form; Building and Realization; Experiment and Technology; Technology and Resources; Conurbation and Industrialization; and Design and Industrial Form). With 1,300 Master students, the school also undertakes research and currently employs 17 PhD students.
- *Aarhus School of Architecture*. Located in Aarhus and with 200 students, a smaller school of architecture than the Royal Academy in Copenhagen. The School offers a specialty of Industrial Design.
- *The Glass and Ceramic School on Bornholm* is a very specialized, fully publicly funded 3-year course for glassworks and ceramics, with possibilities of proceeding to a Master study at Denmark's Design School. The school has approx. 20 students.
- Furthermore, technical schools throughout the country offer 1-year specialized design courses, and there are a range of private minor schools and folk high schools providing short courses in design.

The following institutions combine shorter courses, where craft skills are often combined with more generic and sometimes also commercial skills.

- *Grafisk Højskole*, Copenhagen. The school has 150 students and offers BA-courses in graphical design plus in-training courses, aimed at graphical design firms and other firms using graphical designers.
- *Hojer College*, South Jutland. As part of government policies of centralizing educational offers in order to achieve scale economies, Industrial Design and Textile Design have been abandoned by the school, and it now offers a BA of Graphic Communication, with a more generic and communicative aspect than other national graphical design courses, and is offered partly in English. The number of students is less than 50.

Universities are now also offering longer and shorter courses combining design skills with management-oriented skills:

- The Civil Engineer course in Architecture and Design, *Aalborg University*, with notable management and marketing elements.
- The Civil Engineer course in Design and Innovation, *Denmark's Technical University*.
- The Civil Engineer course in Integrated Design, *University of Odense*.
- The Master Course in Interactive Design, *University of South Denmark*.

- Master courses are underway at both *Roskilde University Center* and *Copenhagen Business School*. In both these courses, management skills are centre stage.

Most of the new educational initiatives and institutional changes are in their infancy, or not yet started, and few evaluations currently exist. Whereas the establishment of *new* courses that combine design and managerial skills are hailed by most industrialists, the ongoing change of the education at Denmark's Design School and the policy push for other of the specialized educational institutions to also provide more generic, research-based skills is very controversial, spurring a heated debate among policymakers, teachers, and industrialists. Firms with different managerial styles and activity areas clash over what they perceive as most vital skills to be provided from e.g. Denmark's Design School or the Schools of Architecture. Some firms with very specialized competences (typically craft-focused, less export oriented, and relatively horizontally isolated firms within fashion, architecture, and furniture design) maintain that craft skills are so much more important than generic and managerial skills, and that simply integrating the latter skills into educational programs would undermine the future competitiveness of the Danish design industry. Other firms claim that their need for designers with both craft skills, generic design skills, and managerial skills (Italian or UK style) is now critical. Currently, the debate is so heated that few listen to those agents (e.g. the president of Denmark's Design School) who claim that the current changes are accommodating both sides of the debate.

In conclusion, it can be seen that the Danish design industry is undergoing a process of change. Its industrial and firm structures are rapidly changing and the infrastructure that supports the industry is attempting to adapt to serve the industry's changing needs. Despite this period of uncertainty and change it may be said that the design industry is growing in strength and prominence. Its importance both as an employer in its own right and as a vital strategic input into all Danish firms means that it is an industry worth supporting with carefully attuned policy initiatives.

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