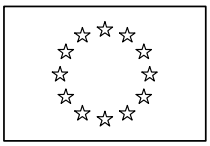

COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 7.4.2009
SEC(2009)501 final

COMMISSION STAFF WORKING DOCUMENT

Design as a driver of user-centred innovation

EXECUTIVE SUMMARY

The Commission Staff Working Document on 'Design as a driver of user-centred innovation' analyses the contribution of design to innovation and competitiveness. The results are compelling: companies that invest in design tend to be more innovative, more profitable and grow faster than those who do not. At a macro-economic level, there is a strong positive correlation between the use of design and national competitiveness.

Although often associated with aesthetics and the 'looks' of products only, the application of design is in reality much broader. User needs, aspirations and abilities are the starting point and focus of design activities. With a potential to integrate for example environmental, safety and accessibility considerations — in addition to economic — into products, services and systems, design is an area which deserves public attention.

Design as a driver and enabler of innovation complements more traditional innovation activities such as research. In the current economic climate, where resources for innovation are scarce, design and other non-technological innovation drivers, such as organisational development, employee-involvement and branding, become particularly relevant. They often are less capital intensive and have shorter pay-back periods than for example technological research, but still have the potential to drive competitiveness.

Potential barriers exist to better use of design for innovation in Europe. Design as a tool for innovation has developed rapidly in recent years, resulting notably in concepts such as strategic design, design management and design thinking. Innovation policy and support, as well as education systems, have not yet caught up with these developments. Companies that lack experience of design — particularly SMEs, low-tech companies and companies not located in big cities where design businesses tend to concentrate — often do not know where to turn for professional help in the area of design. Design businesses are generally very small, a factor affecting their marketing and influencing powers.

Although many European 'innovation leaders' such as Finland, Denmark and the UK are tapping into the potential of design as a tool for sustainable innovation, other Member States pay little political attention to design.

The document concludes that design has the potential to become an integral part of European innovation policy, a building block of a policy model that encourages innovation driven by societal and user needs, and that builds on existing European strengths such as our heritage, creativity and diversity to make Europe more innovative.

Based on this document, the European Commission has launched an online public consultation. Depending on the results of the consultation, future joint European action could include non-binding cooperation, sharing of experiences and good practice, and the setting of common targets and benchmarking. The development of tools and support mechanisms for design-driven, user-centred innovation, networking and research, and collaboration in education and training are areas of action that could help remove some of the barriers to better use of design in Europe.

COMMISSION STAFF WORKING DOCUMENT

Design as a driver of user-centred innovation

TABLE OF CONTENTS

1. ECONOMIC AND POLITICAL CONTEXT

Summary

- The European Commission is currently assessing the EU innovation strategy, with a view to launching a new European innovation plan by 2010, as requested by the European Council of December 2008. There is general political agreement that all forms of innovation need to be supported and that the progressive shift in emphasis of the broad-based innovation strategy from exclusive reliance on 'technology push' to more demand- and user-driven innovation must continue.

- To grow and prosper, European companies must adapt to globalisation, increasing competition and diverse consumer demand. Innovation is a key driver of competitiveness and economic growth, and part of the solution to environmental and social challenges. The recent financial crisis and economic downturn accentuate the importance of innovation, but leave fewer resources for companies to spend on innovation activities.

- Economic and societal developments, and the recognition that innovation is complex and increasingly open by nature, call for new, holistic approaches to innovation, and the development of complementary innovation models and policy measures. It is particularly pressing to promote innovation in SMEs in low-tech sectors and regions dominated by low-tech industry, and in private and public services.

- 2009 is the European Year of Creativity and Innovation. The purpose of this document is to provide an analysis of the importance and potential of design as a driver of innovation, and of the rationale for making design an integral part of European innovation policy. At the same time it provides a basis for the public consultation to be held in 2009. The document takes a broad view, with a particular emphasis on design as an innovation activity.

There is political agreement in Europe that to ensure competitiveness, prosperity and well-being, all forms of innovation need to be supported,[1] and that the progressive shift in emphasis of European innovation policy from exclusive reliance on 'technology push' to more demand- and user-driven innovation must continue.

The Commission highlighted in the Communications on the *broad-based innovation strategy for Europe* of September 2006[2] and *An innovation-friendly, modern Europe* of October 2006 the importance of non-technological innovation: 'While technological innovation is important, there is at least as much scope for non-technological innovation, for example through changes in business models, better design and process organisation.'[3] The Small

1 Council Conclusions 'A Fresh Impetus for Competitiveness and Innovation of the European Economy' of 29 May 2008.

2 Commission Communication 'Putting knowledge into practice: A broad-based innovation strategy for the EU' of 13 September 2006 COM(2006)502.

3 Commission Communication 'An innovation-friendly, modern Europe' of 12 October 2006 COM(2006)589.

Business Act for Europe of June 2008 also highlighted the importance of promoting all forms of innovation across Europe.[4]

The Competitiveness Council echoes this message in its Conclusions of December 2006[5] and of May 2008. In the latter, the Council 'acknowledges the importance of encouraging all forms of innovation — technological as well as non-technological — in particular those that bring innovation closer to market needs and respond better to user needs'.[6]

Innovation is one of the cornerstones of the Lisbon Strategy for Growth and Jobs, and should remain so, as European companies will have to continue to innovate to adapt to globalisation, increasing competition and diverse consumer demand. Moreover, innovation is increasingly seen as part of the answer to broad societal challenges such as climate change, social inequalities and the ageing population in the EU. In this context, the European Council has called for a European plan for innovation.[7] This plan will be based on an assessment of the current European broad-based innovation strategy, and reflect recent developments in the field of innovation policy.

Technological research has often been singled out as a driver of innovation, and hence been given a significant role in innovation policy. Analysis of data from the Innobarometer 2007 survey shows however that more than 50% of innovative firms innovate without performing R&D. Compared to firms that do perform R&D, these 'non-R&D innovators' are generally smaller, active in low-tech sectors, and located in countries with relatively poor innovation capabilities. Nevertheless, they are growing at the same rate as their R&D performing counterparts.[8] They engage in other creative activities to bring innovative products and services to the market. R&D is important but not sufficient to deliver competitive products and services.

While the complex, systemic and increasingly open nature of innovation is generally recognised by business, academics and policy makers alike, this realisation is not always fully translated into policy analysis and development, and support measures. Developments in our understanding of the nature of innovation — together with pressing societal challenges — call for new, holistic approaches to innovation, the identification of complementary innovation drivers, and the development of new innovation models and policy measures that put user needs at the centre. It is particularly important to find new ways to promote innovation in SMEs in low-tech sectors and regions dominated by low-tech industry — where an in-house R&D department may seem too big an investment — as well as in private and public services.

The current financial crisis and economic slowdown have made the need to find complementary innovation drivers and models even more acute. As external funding becomes more difficult to obtain for companies, it is important that innovation does not come to a halt. R&D should be encouraged, as should innovation activities that are close to the market and have low capital requirements. Existing knowledge must be used in new ways to bring about innovation, incremental or radical, and products and services that are better adapted to user

---

4 Commission Communication 'Think Small First — A Small Business Act for Europe' of 25 June 2008, COM(2008)394.

5 Council Conclusions on a broad-based innovation strategy of 4 December 2006.

6 Council Conclusions 'A Fresh Impetus for Competitiveness and Innovation of the European Economy' of 29 May 2008.

7 European Council Conclusions of 11 and 12 December 2008.

8 Arundel et al 2008.

needs and sustainability requirements. Addressing innovation drivers that are close to the market and the user may help the conversion of research results into wealth-generating innovations, and thus increase the efficiency of R&D and innovation spending.

Beyond recognised drivers of innovation in other policy domains, such as education and entrepreneurship, some countries in the EU and beyond have started looking at drivers of innovation not previously looked at in a policy context. Notably, some of Europe's leading[9] innovation nations such as Finland, Denmark and the UK have included *user-driven* or *user-centred* innovation as cornerstones of their national innovation strategies.[10] It is seen as a way of providing innovative products, services and systems that correspond better to user needs and hence are more competitive.

Denmark's innovation policy 2007-2010, for example, distinguishes between research-driven, employee-driven, market-driven, price-driven and user-driven innovation,[11] and has made strengthening the latter a national priority. Data from the UK shows that the private sector spends relatively little on traditional R&D compared to other innovation leaders. The service and creative sectors are however important, and attention has therefore been paid to drivers of 'hidden innovation' in for example creativity and user involvement.[12]

User needs, aspirations and abilities are the starting point and focus of design activities. Designers increasingly involve users in the process of co-creation. User-centred innovation is therefore often driven by design activities and design thinking, and involves tools and methodologies developed and used by designers. The same countries that explore the potential of user-driven or user-centred innovation are leading nations as regards the development of national design policies, and recognise the importance of the creative industries. The potential of design to weave in environmental, social and safety considerations into products (cf. eco-design, 'design for all') is also receiving increased attention.

The *working hypothesis* of this document is that design is a driver and tool for user-centred and sustainable innovation and differentiation, complementary to technological R&D, and that increased use of design could increase European competitiveness. The *objective* of the document is to provide an analysis on the importance and potential of design as a tool for innovation, on the rationale for making design an integral part of European innovation policy, and to provide a basis for a public consultation to take place in 2009, the European Year of Creativity and Innovation. The results of the public consultation will feed into the new European innovation plan.

The document aims to give tentative answers to the following questions:

- What is design and how is it related to innovation?
- What is the economic and innovation potential of design?
- What are Member States and other countries doing to encourage the use of design?

---

9 According to the European Innovation Scoreboard 2008.

10 Proposal for Finnish Ministry of Employment and Economy 2008, Danish Agency for Science Technology and Innovation 2007 and UK Department for Innovation, Universities and Skills (DIUS) 2008.

11 Danish Agency for Science Technology and Innovation 2007.

12 See e.g. UK Department for Innovation, Universities and Skills (DIUS) 2008 and NESTA research on hidden innovation www.nesta.org.uk/hidden-innovation.

- What has the Commission done so far in the area of design?
- What are the barriers for better use of design in Europe?

The potential of design lies partly in its broad nature, allowing a wide range of considerations to be taken into account in the development of products, services and systems, and in its bridging capacity, connecting technology with the user, engineering with the commercial, and transforming creativity into innovation. In line with most sources on the topic, the *scope* of this document is therefore broad, thus reducing the risk that any important aspect of design is overlooked. Nevertheless, particular attention is paid to the relationship between design and innovation, and to design as an innovation activity rather than as a sector, although — as the two are closely interlinked — sector considerations cannot be left out. Although the protection of design as an intellectual property is a highly relevant area which deserves particular attention, it is not the main focus of this document.

The questions of scope for possible EU level action in support of design and the definition of design in the context of innovation policy are left for the public consultation (see questions in the final chapter).

The document is written on the basis of a literature review, the work of an *ad hoc* Commission inter-service group and informal consultations with stakeholders. In particular, it is based on a workshop with experts on design and design policy held on 26-27 June 2008 in Marseille,[13] and on a study prepared for that occasion.[14]

[13] INNO-GRIPS Innovation Policy Workshop on 'design as a tool for innovation' organised on behalf of the Commission on 26-27 June 2008 in Marseille, see Thenint 2008 (workshop report).

[14] Bitard & Basset 2008, INNO-GRIPS Mini-study on design as a tool for innovation.

2. THE MEANING OF DESIGN

Summary

- Design has no commonly agreed definition and the word is given different meanings in different contexts. Very often, design is associated with the aesthetic aspect of objects only, whereas in reality, its application is much broader. A review of definitions by design professionals and policy makers highlights the broad nature of design and its potential to integrate aesthetic and functional as well as for example environmental, safety, cost and intangible considerations into products, services and systems.

- There are few indicators of design in official statistics. Design as an activity is partly included in the R&D definition of the Frascati Manual, partly as research, partly as development. The Oslo Manual treats design as marketing innovation, or as part of other forms of innovation. Some design activities are not covered by either Manual and hence not measured as innovation activities at all, potentially even when they contribute to innovation. Not all designs and design activities are related to innovation.

2.1. Definitions of design

Design is a multifaceted and broad concept with no commonly agreed definition. There is agreement that design can be both a verb and a noun — an activity (to design) and the results of this activity (a design) — but the understanding of what the activity of design actually entails varies. This lack of definition and common understanding results in a lack of statistical data across countries on design and on its economic importance as an activity as well as a sector. The exception is the area of design protection, where statistics on designs registered as intellectual property rights exist (cf. section 6.1 below).

Some relevant and illustrative definitions of design come from countries that have a design policy in place, such as Finland, the UK, Denmark and New Zealand.

The Finnish design policy of 2000, *Design 2005!*, defines design in the following way:[15]

'Design means planning which takes aesthetic and ethical considerations, usability and marketing into account and which is targeted at businesses in industry, trade and services and at public sector organisations. The object of design may be a product, a service, communications, the living environment, and a corporate or organisational identity.'

The UK Department of Trade and Industry (DTI) said the following about design:[16]

'Design is a structured creative process. Design is readily associated with industrial product design for manufactured products — specifically the 'look' of a product. However, the application of design is much broader, for example designing for function; for aesthetic appeal; for ease of manufacture; for sustainability; and designing for reliability or quality and business processes themselves. Service design affects how customers will experience the delivery of a service, such as a bank or a fast food restaurant. Elements of design, particularly graphic design, will form part of product, service and company branding and advertising strategy.'

---

15 Finnish Government 2000.

16 UK Department of Industry and Trade (DTI) 2005.

The government of New Zealand defines design as follows:[17]

'Design is an integrated process. It is a methodology (or a way of thinking) which guides the synthesis of creativity, technology, scientific and commercial disciplines to produce unique (and superior) products, services, and communications.'

Among regions with a design policy, the Flemish Ministry of Economy defines design as:

'a holistic dealing with matters, that besides the (re-) styling of products, extends to the application of innovative and alternative materials, ergonomics, engineering, ecology and ethics, psychology, culture and last but not least management'.[18]

Among international organisations, ICSID (The International Council of Societies of Industrial Design) defines design in the following manner:

'Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanisation of technologies and the crucial factor of cultural and economic exchange.'[19]

Some governments prefer talking about the potential of good design. The Danish government's 2007 white paper on design, *DesignDenmark*, says the following:

'Good design is an increasingly important means for businesses to hold their own in international competition. Design has the power to make products and services more attractive to customers and users, so they are able to sell at a higher price by being differentiated from the competition by virtue of new properties, values and characteristics.'[20]

Another example highlighting the potential of good design is the definition of the UK Design Council, the country's strategic body for design:

Good design is sustainable design.

It results in objects, systems or services that work aesthetically, functionally and commercially, improving people's lives and making the smallest possible impact on the planet.

It is a process…

Good design is a verb, not just a noun. It is a sequence of steps that defines problems, discovers solutions and makes them real.

…joining creativity and innovation…

Creativity generates ideas and innovation exploits them. Good design connects the two. It links ideas to markets, shaping them to become practical and attractive propositions for customers or users.

…and delivering value.

Good design is a quantifiable benefit, not a cost. Its value can be measured economically, socially and environmentally.

Source: The Good Design Plan (UK), 2007

From the definitions and meanings referred to above, a number of conclusions can be drawn about the nature of design:

---

17 New Zealand Design Taskforce 2003 in Kolmodin and Pelli 2005.
18 ESOMAR in Nauwelaerts 2008.
19 ICSID website 14.11.2008.
20 DesignDenmark 2007.

Design is a process, an activity, and not only the results of that activity.

As highlighted by several of the definitions above, design is an activity that follows a certain methodology and a number of steps — such as research, conceptualising, modelling, testing and re-design — and not only the results of that activity. It may involve thinking from a number of disciplines, as highlighted by the Flemish definition. As such, it is considered as the bridge between for example creativity and innovation, technology and the user, scientific and commercial disciplines.

Design allows a broad range of considerations to be taken into account.

Design is a holistic approach which allows a range of considerations beyond aesthetics to be taken into account, including functionality, ergonomics, usability, accessibility, product safety, sustainability, cost and intangibles such as brand and culture. The aim of design could be competitiveness and differentiation on international markets — as in the Danish definition — or it could be sustainability and quality of life, as highlighted in the definition of the UK Design Council. User considerations are at the core of design activities, and balanced against other considerations such as cost and environmental impact.

Design is about products, services, systems, environments and communication.

Many designers work in manufacturing firms, dealing with products and packaging, but design can also be applied to services — private and public — as well as to systems, as in the case of urban planning, and even to experiences. A service designer may for example look at how a patient experiences being taken to emergency or a bank customer visiting their bank. Urban designers look, for example, at how elderly or disabled people experience a visit to the town centre from an accessibility point of view. Business model design is an activity linked to organisational innovation.

Graphic design is central to the visual communication of organisations, particularly in the creation and reinforcement of identities and brands, whether at level of the organisation itself (cf. corporate identity) or at the level of its products, services or environments. Interface design creates the visual language, the 'look and feel', of computer interfaces, whether for a website, software or a mobile device.

In short, design as an activity can and often does take place in any organisation.[21]

2.2. The link between design, R&D and innovation according to the Frascati and Oslo Manuals

The two main manuals on innovation measurement are the Frascati[22] and Oslo Manuals[23], which are OECD publications on how to measure R&D and innovation respectively for statistical purposes. Both deal with the question of design.

The *Frascati Manual* defines research and experimental development (R&D) as:

---

21 For a definition of design as a noun and as the result of design activities, see the definition used in the Community Design Regulation of 2002, cited in section 6.1 below. Note however that this definition of design, used in the context of intellectual property rights protection, is limited to the design of objects, and to their appearance.

22 OECD 2002.

23 OECD 2005.

'creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.'

The Frascati Manual includes some industrial design activities in this definition of R&D. Specifically, the Manual states that prototyping and industrial design required during R&D should be included in R&D for statistical purposes. Design for production processes and the less technical design activities are however not considered as R&D; see table below.[24] Forms other than industrial design, such as service design, are also not included.

Item	Treatment	Remarks
Prototypes	Include in R&D	As long as the primary objective is to make further improvements.
Pilot plant	Include in R&D	As long as primary purpose is R&D.
Industrial design and drawing	Divide	Include design required during R&D. Exclude design for production process.
Industrial engineering and tooling up	Divide	Include 'feedback' R&D and tooling up industrial engineering associated with development of new products and processes.
Trial production	Divide	Include if production implies full-scale testing and subsequent further design and engineering. Exclude all other associated activities.
After sales service and trouble shooting	Exclude	Except 'feedback' R&D'.
Patent and licence work	Exclude	All administrative and legal work connected with patents and licences (except patent work directly connected with R&D projects).
Routine tests	Exclude	Even if undertaken by R&D staff.
Data collection	Exclude	Except when an integral part of R&D.
Public inspection control, enforcement of standards, regulations	Exclude	

Figure 1: Some cases at the borderline between R&D and other industrial activities (Source OECD 2002)

From a designer's point of view, design includes some research (for example to identify user needs, preferences and behaviours). This means that there are overlaps between the concepts of R&D and design, but that there is no common view as to which is the overarching concept of which the other is part.

The *Oslo Manual* goes into detail on design as part of innovation:[25]

'Design is an integral part of the development and implementation of product innovations. However, design changes that do not involve a significant change in a product's functional characteristics or intended uses are not product innovations. However, they can be marketing innovations […]. Routine upgrades or regular seasonal changes are also not product innovations.'

[24] Frascati Manual 2002 p. 41-44 and Tether 2006 (b).
[25] Oslo Manual 2005, p. 48-49.

In line with the Frascati Manual, it considers some elements of industrial design as R&D. Other design activities are considered as marketing innovations, or — if the degree of novelty is insufficient — not as innovation at all:[26]

'A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.'

'Marketing innovations include significant changes in product design that are part of a new marketing concept. Product design changes here refer to changes in product form and appearance that do not alter the product's functional or user characteristics.'

'Seasonal, regular and other routine changes in marketing instruments are generally not marketing innovations. For such changes to be marketing innovations, they must involve marketing methods not previously used by the firm.'

Design is also considered as 'other preparations for product and process design', much in the same way as R&D more generally:[27]

'Design can include a wide range of activities aimed at planning and designing procedures, technical specifications and other user and functional characteristics for new products and processes. Among them are initial preparations for the planning of new products or processes, and work on their design and implementation, including adjustments and further changes. Also included is industrial design, as defined in the Frascati Manual, which involves the planning of technical specifications for new products and processes.'

Design is thus considered a driver, input, or tool for innovation rather than the innovation itself, except in the case where the design itself (the result of the design activity) is a marketing innovation:

'The term product design, as used in the definition of marketing innovations, refers to the form and appearance of products and not their technical specifications or other user or functional characteristics. However, design activities may be understood by enterprises in more general terms, as an integral part of the development and implementation of product or process innovations. The categorisation of design activities will thus depend on the type of innovation they are related to.'[28]

For a summary of the relationship between design and innovation in the Frascati and Oslo Manuals, see table below.

Summary of relationship between design and innovation; Frascati and Oslo Manuals classification	
Nature of design	***Type of innovation/innovation activity***
Industrial design required during R&D, and early prototypes	R&D (as per Frascati and Oslo Manuals)
Other design activities for the development and implementation of product innovations, i.e. where the functional or user characteristics are significantly improved (including work on form and appearance), and of process innovations	Other preparations for product or process innovations (as per Oslo Manual)
Product or packaging design (end-result) that involves significant changes in product form and appearance that do not alter the product's functional or user characteristics	Marketing innovation (as per Oslo Manual)

[26] Oslo Manual 2005, p. 49-51.
[27] Oslo Manual 2005, p. 94.
[28] Oslo Manual p. 96.

3. THE POTENTIAL OF DESIGN FOR INNOVATION

Summary

- Design is an important part of the innovation process. Research shows that design-driven companies are more innovative than others. Although finding a universally agreed definition of design is not the purpose of this document, it does aim to clarify the links between design and innovation so that ultimately an operational definition of design can be agreed and embedded in a European innovation policy context.

- Design is increasingly considered a strategic tool for user-centred innovation. As such, it is a holistic and multidisciplinary problem-solving approach that takes user needs, aspirations and abilities as its starting point and focus. The potential of design to make products, services and systems correspond better to environmental and social needs has also received increasing attention in recent years.

- Design as an innovation activity is complementary to R&D in that it transforms research into commercially viable products and services, and brings innovation closer to user needs. It is argued that although discrepancies currently exist between companies of different sectors and sizes, design has the potential to be more widely used, particularly in SMEs, low-tech companies and the service sector.

3.1. The link between design, innovation and competitiveness

It is commonly recognised that design as a corporate activity is part of the innovation process, as part of new product development.[29] The graph below shows the result of a question on the meaning of design in the UK Design Council's National Survey of Firms 2004.

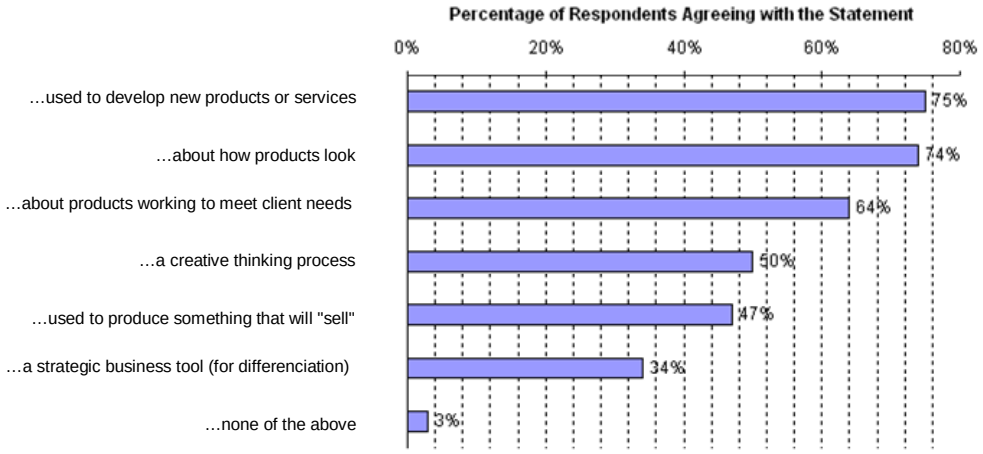

Figure 2: What is Design? (Source: The Design Council's National Survey of Firms 2004 in Tether 2005)

A number of recent studies show that design-driven companies are more innovative than others. Examples of this research are the following:

---

[29] See e.g. Freeman 1982 *The economics of industrial innovation*, Roy and Bruce 1984 and OECD 1992 *Technology and the economy: the key relationships*, cited in Mutlu and Er 2003.

- A recent survey of Swedish companies showed that innovative companies are more likely than non-innovative companies to regard design as a strategy. It showed that companies that work with design strategically or as a process (i.e. high on the 'design maturity ladder', cf. below) are five times as likely to develop new products as compared to companies that do not work consciously with design.[30]

- A survey of Irish companies showed that 75% of SMEs that use design engage in what the survey categorises as the most radical type of innovation — developing new products and services for new customers. This compares with 48% of companies that do not use design.[31]

- The 2007 Innobarometer survey of innovative companies across the EU found that over a quarter (27%) considered that design staff had been a major source of ideas for their innovative activities, slightly ahead of research staff (25%). This figure was above 40% in some countries (Belgium, Greece, Ireland, Finland), and in high- and medium-tech sectors.[32]

- A preliminary analysis of data from the European IMP³rove project on innovation management shows that companies with high design awareness more often meet innovation project targets in terms of quality, time and budget than those with low design awareness.[33]

One perspective on the relationship between design, innovation and competitiveness is to consider that design acts as bridge between science, technology and the user by putting the user in the centre. The role of design is to strengthen the communication between the different parts of the innovation process — for example between R&D and production, R&D and marketing, to turn ideas and technological inventions into products and services, and make innovative products commercially acceptable, user-friendly and appealing. In this sense, design is a tool for innovation in new or emerging markets where user-friendly and appealing design is a must to create or enter the market.

Design is also a tool for innovation in mature markets where technological developments bring only marginal improvements to the end-user, and in low tech markets. Good design can increase sales revenues and profit margins by differentiating products and services, making them more attractive to customers. This is linked to its potential not only to give a mature product a 'new look', but also to weave in — together with marketing — considerations of an intangible nature related to user needs, aspirations, image and culture. Design thus contributes to creating unique competitive advantages that help the move away from pure price competition, not least through the creation and strengthening of identities and brands at corporate or product level.

---

30 Swedish Industrial Design Foundation (SVID) 2008. The following definition of design was used: 'Design is a professional and creative way of working where both functional and aesthetic requirements are essential to the outcome. Design needs stem from product development or market communication. In conjunction with product development we for example refer to design as industrial design, service design and design management. In reference to market communication the examples could be graphic design, interior design and exhibitions.'.

31 Irish Centre for Design Innovation 2007.

32 European Commission 2008 (Innobarometer 2007).

33 Presentation by Eva Diedrichs 11.01.2009 at the APCI conference on design and innovation, Paris.

Additionally, design has the potential to lower costs, such as production, assembly, packaging, storing, transportation and disposal costs, and — as such — strengthens profitability and competitiveness. A user-centred design approach applied early in the concept development process may also have a cost saving potential, preventing further investments in a product or service that would later fail in the market due to a lack of compatibility with user needs, tastes or abilities.

The extent to which design improves the competitiveness and innovation performance of a company depends on the company's use of design. In this context, the Danish 'maturity ladder' is often used to illustrate the level of use of design in companies, see image below.

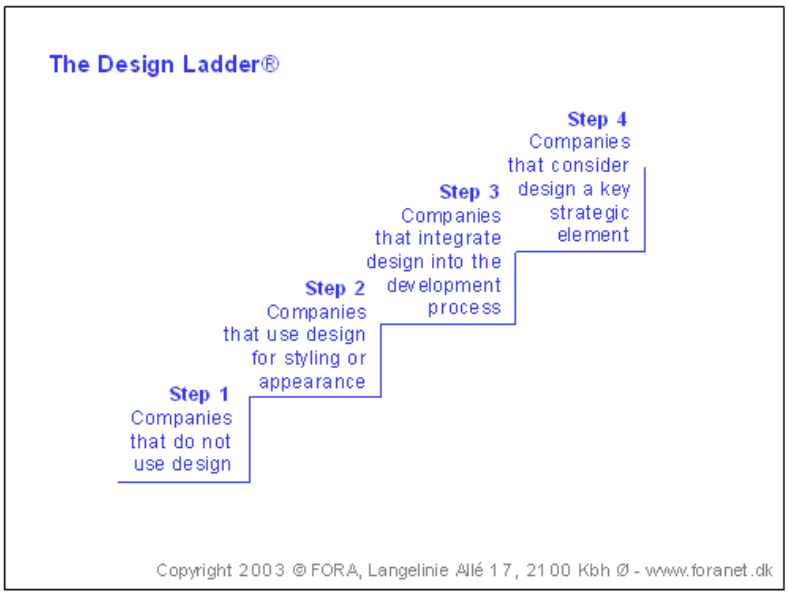

Figure 3: The Design Ladder (Source: J. Rostedt in Thenint 2008)

Another interpretation of the relationship between design, innovation and competitiveness is to see design as linking creativity (defined as the generation of new ideas) to innovation (defined as the successful exploitation of new ideas), as it 'shapes ideas to become practical and attractive propositions for users or customers'; see box below.[34]

'Creativity' is the generation of new ideas — either new ways of looking at existing problems, or of seeing new opportunities, perhaps by exploiting emerging technologies or changes in markets.

'Innovation' is the successful exploitation of new ideas. It is the process that carries them through to new products, new services, new ways of running the business or even new ways of doing business.

'Design' is what links creativity and innovation. It shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end.

Source: The Cox Review of Creativity in Business, 2005

The model below shows one possible mapping of this relationship. Creativity and design play a role as an input to innovation, but it can also have a direct effect on productivity and business performance, through process design, branding and marketing.[35]

---

34 Cox 2005.

35 Swann and Birke (2005) in UK Department for Industry and Trade (DTI) 2005.

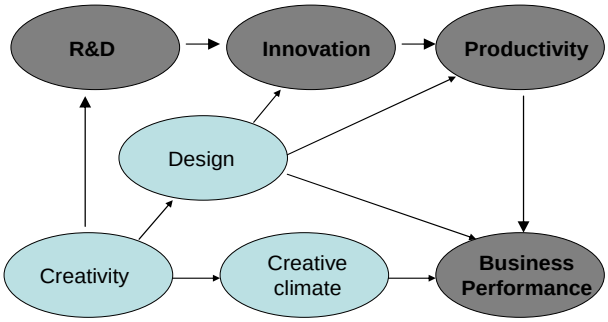

Figure 4: Linking creativity and design to business performance (Source: Swann and Birke 2005 in DTI 2005)[36]

Advocates of design-driven innovation suggest that it is a form of innovation that builds on Europe's existing strengths, its heritage, diversity, authenticity and creative potential to adapt to global markets, and therefore represents a competitive advantage from a European point of view. It is also considered as a competitive advantage with potential for the future. A recent survey of UK manufacturing firms showed that 55% of firms see design and development as one of their most important sources of competitive advantage in five years' time. This is three times as many as the number of firms that consider research as important; see graph below.[37]

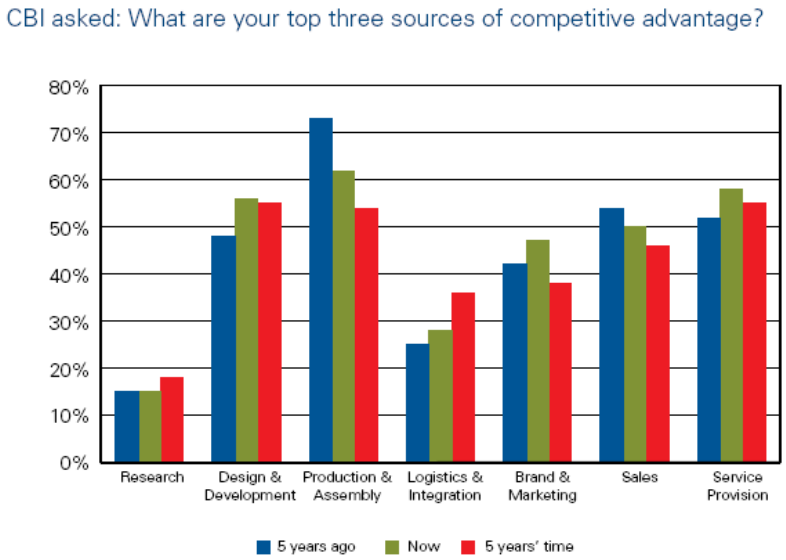

Figure 5: Top three sources of competitive advantage to UK manufacturing firms (Source: BERR 2008b)

36 UK Department of Trade and Industry (DTI) 2005.

37 Confederation of British Industry (CBI) 2007, *Understanding modern manufacturing*, in Department for Business Enterprise and Regulatory Reform (BERR) 2008b.

3.2. Developments in the concept of design and design competences towards strategic, user-centred problem solving

There has been a shift in understanding during the last 10-15 years towards a more *strategic view* of design in business, and towards design as an essential activity for *user-centred innovation* in business, academia and (although to a lesser extent) in policy making.[38]

This has resulted in a number of schools of thought about the contribution of design, and new terminology including labels such as 'strategic design', 'design management', 'concept design' and 'design thinking'. The schools of thought may all have their own particularities, but they also have a number of points in common, namely:[39]

- Focus on user-centred problem solving: Design is seen as a way of identifying and solving user problems by for example studying users and/or by involving them through visualisation and participatory design techniques such as co-creation. User-centred design innovation stresses human needs, aspirations and abilities, and strives for holistic and visionary solutions.

- Design as a multidisciplinary and cross-functional innovation activity: The designer facilitates cross-disciplinary innovation processes and interactions by bringing together individuals from different corporate functions within a company, such as management, engineering and marketing, but may also bring in expertise from disciplines such as psychology, sociology, anthropology and arts.

- Design as a holistic and strategic activity: Design considerations — i.e. putting the user at the centre — permeate the innovation process, from product development, customer service and management up to the highest levels of hierarchy. Rather than 'design as styling' added on towards the end of the product development process, the user is the focus in earlier (more strategic) phases.[40] Design is a core element of company strategy and helps visualise possible scenarios to support strategic decision making.

As design activity puts the user at the centre, design-driven innovation is different from the traditional linear, science or technology-driven model of innovation. The linear model of innovation can be graphically represented as a well-defined set of stages, starting with research and resulting in innovation:[41]

Basic research → Applied research → Development → Production → Diffusion

Figure 6 The linear model of innovation

---

38 OECD 1992 in Mutlu and Er 2003. According to the Nordic Innovation Centre 2008b, the origins of user-, people- or human-centred design goes back to the 1960s and the so-called design methods movement. This movement stressed user-centred issues and behaviours, the use of behavioural, environmental, and social science studies as a starting point for design processes, and the need for designers to work in cross-disciplinary teams to systematically define and solve problems in different contexts.

39 Thenint (Marseille workshop report) 2008.

40 Nordic Innovation Centre 2008.

41 Kline and Rosenberg 1986; Godin 2005.

'Good' design is by nature user-centred. Design-driven innovation can be graphically represented as a system that places the user at the centre but is open to societal influences. Design acts a bridge between the product development process and user requirements, and between the product development process and societal requirements.[42]

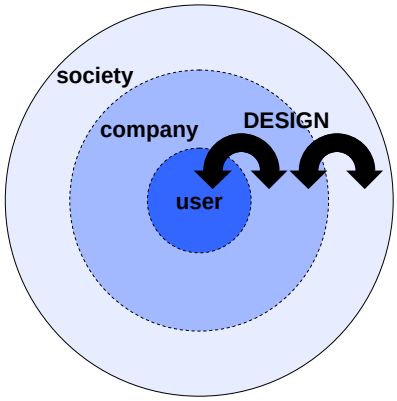

Figure 7: The user-centred model of design innovation

As the concept of design has developed, the role of the designer has evolved too. Design as a strategic, cross-functional and multidisciplinary innovation activity implies a broader role for the designer, linking other functions and ensuring that the customer is always in focus. It requires a new and broader set of skills in the designer, including better understanding of business-related matters. It also requires that the designer sees him/herself as part of a collective effort towards user-centred innovation, rather than an independent form giver.[43] The development of co-creation and user-driven innovation means that more and more people are involved in design activities, and that the role of the designer is diffused.

A study on the role of design in *open innovation* highlights the role of design capacity as a core capability for open innovation practices. According to this study, open innovators need more developed design capabilities, as 'design provides the translation of understanding and expectation between organisations engaged in open innovation.'[44]

Recent developments in ICT, such as computer aided design and rapid prototyping technology, are also changing the skills requirements of designers. Computer-aided design is a prerequisite for computer-aided manufacturing, an area of technology which is promising great efficiency gains in the coming years. The growing significance of service and experience design, and design as a tool for innovation in services, are among the more recent developments — all areas which call for research and an updated skills base among designers.[45]

---

42 User-centred innovation is sometimes used synonymously with *user-driven* innovation. When the latter is defined in a broad sense, i.e. as innovation based on an understanding of true user needs and a systematic involvement of users (cf. Nordic Innovation Centre 2008b), then design is often user-driven. However, user-driven innovation in a more narrow sense, i.e. when the user is actively involved and drives the innovation process (such as in open source development), goes beyond user-centred design in terms of user involvement.

43 Departure 2008.

44 Acha 2006.

45 See e.g. Design for Service, SEEdesign 2008.

3.3. Socially responsible and environmentally sustainable design

An increasingly relevant development is design as a tool for sustainable innovation, i.e. innovation that takes social, environmental and economic considerations into account. In the 1960s, designers began actively to consider design's wider implications for society. Several approaches emerged, including 'green design', 'responsible design', 'ethical consuming', 'eco-design' and 'feminist design'. Accessibility and inclusiveness also received a great deal of design interest.[46]

3.3.1. Socially responsible design

Design helps companies better meet the needs of consumers and users, as it allows for increased usability and user-friendliness. User-friendly and safe products and services benefit all users, but particularly the atypical, underprivileged, vulnerable or minority users, such as disabled and elderly individuals, children and individuals from cultural or linguistic minorities.

As regards product safety, design is crucial since it determines, at an early stage of development, critical safety aspects such as product functions, materials used, warning texts, age grading (especially for toys), and mechanical, electrical and chemical characteristics. In Europe, product safety legislation is linked to European standards.

The movement towards socially responsible design has resulted in a number of schools of thought, including 'accessible design', 'inclusive design', 'universal design'[47] and 'design for all' ('design for human diversity, social inclusion and equality')[48] – see box below. These schools have their distinctive features, but have in common the emphasis on the social aspect of design and – often – on the removal of barriers of access to products, services and infrastructures for persons with disabilities. The ageing of the population has put these issues high on the political agenda.[49]

Companies with products and services that take the diversity of consumers into account are not only socially responsible but also estimated to have a market potential that is between 15 and 25 percent greater than other companies.[50]

Design for all

For persons with disabilities, the design of a building, a vehicle or a communication device will determine whether the persons has access or is able to use the product or service at all. Design plays a key role for some individuals' ability to enjoy basic human rights like housing, employment or education. The 'design for all' movement came as a reaction of people with physical disabilities to issues related with the lack of access to buildings and constructions in general.

---

46 Cooper 2005.

47 Universal design is the 'design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design' according to the UN Convention on the Rights of Persons with Disabilities of 2006.

48 EIDD Stockholm Declaration 2004.

49 The European Community and all Member States have signed the UN Convention on the Rights of Persons with Disabilities of 2006. The Convention puts clear obligations on States to support and promote 'universal design'.

50 Design for All Sweden 2006.

'Design for all' is understood in a broad sense as the design of products and services that are accessible to as broad a range of users as possible. The achieve this, three principal strategies exist:

- Design of products and services which are demonstrably suitable for most potential users without modifications;

- Design of products and services which are easily adaptable to different users (e.g. by incorporating adaptable or customisable user interfaces);

- Design of products which have standardised interfaces, capable of being seamlessly connected by assistive devices.

Although design is often used by companies for differentiating products to charge a higher price, it can also be used to create products and services that are cheaper to produce, transport and use, and better adapted to the needs of for example developing countries. The term 'design for all' takes on a new meaning in this context, namely that of affordable design.

Socially responsible design has developed side by side with Corporate Social Responsibility (CSR)[51]. According to the European Commission, CSR is 'a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis'.[52] The Commission sees CSR as a business contribution to the Lisbon strategy for growth and jobs and to sustainable development.

3.3.2. Environmentally sustainable design

Designers make decisions on the use of resources, modes of consumption and the lifecycles of products and services. Environmentally sustainable design (also referred to as 'green design' or 'eco-design') aims to ensure that products, services and systems are produced and provided in a way that reduces the use of non-renewable resources and minimises environmental impact. It is increasingly important within the fields of architecture, urban design and planning, engineering and design in general.

Some common principles of environmentally sustainable design are as follows:

- Low-impact materials: designing for use of non-toxic, sustainably-produced or recycled materials which require little or no natural resources (such as energy and water) to transport and process, and whose use does not threaten bio-diversity;

- Resource efficiency: designing manufacturing processes, services and products which consume as little natural resources as possible;

- Quality and durability: creating longer-lasting and better-functioning products that last longer, or age in a manner that does not reduce the value of the product, reducing the impact of producing replacements;

- Reuse, recycling and renewability: designing products that can be reused, recycled or composted after initial use.

---

51 Cooper 2005.

52 European Commission Communication 'Implementing the partnership for growth and jobs: Making Europe a pole of excellence on corporate social responsibility' of 22 March 2006.

3.4. The potential of design as a complement to technological R&D

It has been argued that despite a growing awareness in recent years, design remains an underestimated part of innovation, partly due to the lack of a common definition, to its broad nature and imprecise boundaries, and to the overlap with other innovation activities, particularly for statistical purposes.[53] Compared to R&D, science and technology — other important and recognised drivers of innovation — general understanding of the role and nature of design is much less developed.[54]

With its potential to make products and services user-friendly and appealing, design 'closes the innovation loop' from initial research to commercially viable innovations and, as such, has the potential to increase efficiency of overall R&D and innovation spending. Design also has the potential to complement existing innovation and R&D policy and to broaden the audience of European innovation policy to mature markets, sectors and regions characterised by non-technological activities and SMEs for which investment in technological research may not be feasible or suitable.

The European Innovation Scoreboard shows that innovation policy is more successful when it takes a broad approach. As an example, European innovation leaders have an even performance on most key innovation indicators.[55] Design can further broaden European innovation policy, taking it closer to the market and user needs.

The Community Innovation Survey (CIS) is a survey coordinated by the European Commission and carried out by Member States. In most cases the CIS does not distinguish design from other R&D or marketing activities. However, the UK CIS is particularly interesting from a design perspective, as it treats design separately from other R&D activities, notably by asking companies for design expenditure for 'all design functions, including industrial, product, process and service design and specifications for production and delivery'. An analysis of the third UK CIS and innovation spend between 1998 and 2000 shows that design expenditure has a positive association with product innovation, labour productivity and total factor productivity growth, resulting in a marginal rate of return of about 17%. It also shows that:[56]

- around 9% of firms reported some spending on design, 15% in manufacturing, 4% in services;
- design spending represented about 10% of all reported spending on innovative activities, compared to 16% on R&D (excluding design);
- design spending was higher in larger firms and in firms that tend to spend on other innovative inputs;
- larger and more globally oriented firms (exporters and firms in international markets) spend higher fractions of innovative spend on design;

---

53 Tether 2005.
54 Acha 2008.
55 European Innovation Scoreboard 2008.
56 Haskel et al. 2005.

- receiving government support raised design expenditure by 3% of mean expenditure.

This suggests a) that there are discrepancies in the use of design according to size, sector, international and innovation orientation, and b) that there is a potential to raise design expenditure through government support.

The discrepancies in the use of design between companies of different sectors and sizes are confirmed by other sources.[57] Statistics show for example that manufacturing firms generally spend more on design than service firms (although in this context it should be noted that some design activities may be 'silent', particularly in the service sector, i.e. not show in the statistics as they are not labelled as design). Several surveys also confirm that design is used more by large companies than by smaller ones. This is reflected for example in the data on intellectual property protection; see box below.

Design registration by firm size

A comparison of data on industrial design registrations by company size shows that in the EU-27, only 11.2% of innovative companies with 10-49 employees introduced at least one industrial design registration in the period 2002-2004, whereas 19.9% of companies with 50-249 employees and 29.3% of companies with more than 250 employees did this.

Source: 4th Community Innovation Survey[58]

An analysis of the UK Innovation Survey 2005 (CIS4) shows that relatively few innovating firms engage in design activities without research and development (not taking 'hidden' or 'silent' design into account). Firms that spend on combinations of R&D, design and other innovation-related activities tend to spend more on each activity than firms that spend on only one or two innovation-related activities. Also notable is that firms that invest in combinations of R&D, marketing and design are more likely to innovate than firms that invest in only one of these activities. This means that investments in design are usually complementary to other investments, such as investments in other forms of R&D and marketing.[59]

It has been argued that design is — or has the potential to be — much more widely used than R&D, which tends to be highly concentrated in large firms in some high technology sectors (such as pharmaceuticals and electronics).[60] In the UK, for example, approximately 50 companies account for two-thirds of total R&D expenditure, and the concentration of the 'research' element within this is likely to be still greater. Design is more distributed across sectors and by firm size, and hence a more accessible tool for innovation for certain companies.[61]

The wide scope of design activities is apparent in the industries that make use of design. Design expenditure is high in industries that also have high R&D, such as aerospace and the automobile industry. However, design is also prevalent in manufacturing and service

---

57 See e.g. Tether 2005, Tether 2006 (a and b), Polish Ministry of Economy 2007, French Ministry of Economy, Finance and Industry 2002.

58 Data on design registration by firm size is unavailable or confidential for Latvia, Slovenia, Austria, Sweden and UK, which are therefore not included in the figures for EU-27.

59 Tether 2006b.

60 Tether 2005.

61 Tether 2005.

industries that have relatively low R&D spending, such as furniture and clothing. For these industries and others, such as tourism and retailing, design may be an important way to innovate and allow differentiation in the marketplace.[62] See Figure 8 below.

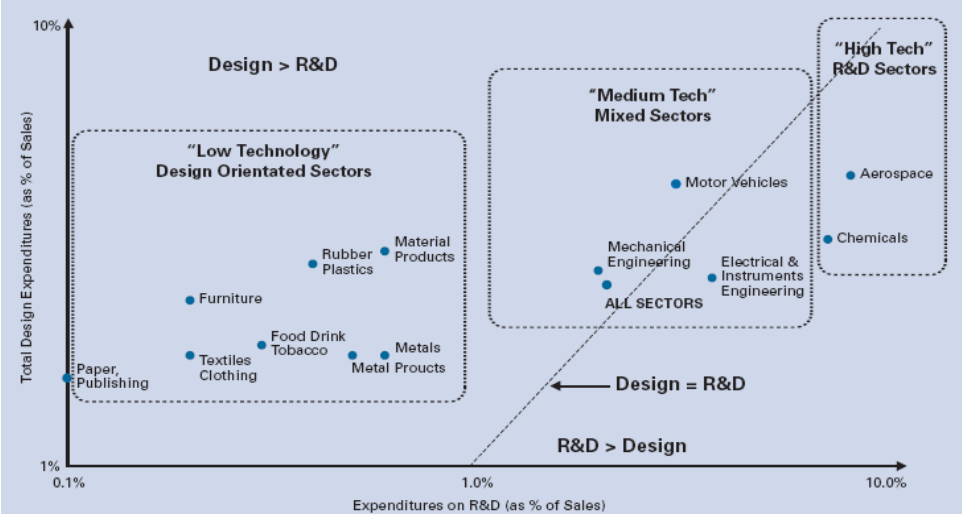

Figure 8: Investment in R&D & Design in UK Manufacturing (Source Tether 2005)

It has also been argued that design has the potential to be much more widely used in SMEs.[63] A report by OECD on SMEs and innovation also considers design as separate to R&D, in line with the UK CIS. According to this report, innovation in SMEs is not primarily based on investments in R&D but on other innovation activities, notably design. Design is referred to as a means for incremental and non-technological innovation that helps companies respond better to customer needs. As design represents only a small part of the R&D cycle and does not necessarily require scientific knowledge or sophisticated technological engineering, it is particularly relevant for SMEs. The report suggests that many of the particular strengths of SMEs, such as in-depth customer knowledge, are essential for design innovation.[64]

As an innovation activity that is close to the user and in general not technology-driven, it is assumed to be less capital intensive and to have a shorter pay-back period than certain other innovation activities. A survey of French SMEs showed that more than 80% of the responding SMEs that spent on design in 2000 had a design budget of less than €50 000. The pay-back period on this investment was less than 2 years for more than 60% of the projects, i.e. very short.[65] This finding is confirmed by research from the UK Design Council showing that on average, it takes 20 months for design projects to pay back the investment.[66] The relatively low capital requirements of design make it particularly interesting in the current financial climate, where companies may be short of money to invest in innovation.

62 DTI 2005.
63 Tether in SEEdesign bulletin issue 1, 2005.
64 OECD 2000.
65 French Ministry of Economy, Finance and Industry 2002.
66 UK Design Council 2007b.

4. EVIDENCE OF THE ECONOMIC VALUE OF DESIGN

Summary

- A number of studies have been conducted on the economic importance and value of design, some of them concentrating on the micro-economic effects of design, i.e. on company performance, others on the macro-economic effects.

- The design sector is considered part of the creative or experience industries. It is dominated by micro-enterprises and self-employed. Member States define the design sector differently and therefore little data on the sector currently exist that are comparable across countries. The economic weight of the cultural and creative industries is however increasingly recognised, representing 2.6% of EU GDP in 2003 with a turnover of €650 billion, and growing faster that the rest of the economy.

- The findings of micro-economic research on design are conclusive: the use of design has a positive impact on the performance of a company, measured in terms of for example profitability, share price, employment or exports.

- Existing macro-oriented analysis of the relationship between national competitiveness and design use also shows a strong positive correlation, as do research into the relationship between competitiveness and the existence of national design policies and programmes. Further research is needed to investigate causality in the macro-economic field.

A number of studies have been conducted on the economic importance of design, concentrating either on its micro-economic effects, i.e. on the performance of companies that use design, or on the macro-economic effects. Studies on the economic importance of the design sector specifically are rare, due to a lack of comparable data. The design sector is however frequently treated as an important part of the creative industries.

4.1. Design as a sector

Depending on focus, a designer will be described as for example a graphic designer, web designer, product designer, packaging designer, industrial designer, interior designer or fashion designer. Many designers work in specialised design companies (as opposed to in-house designers). The design sector is considered part of the creative industries,[67] or the *experience* industries. In recent years, there has been growing awareness of the economic importance of these industries, as an important sector in itself, but also as one with important spill-over effects on other parts of society.[68]

A number of influential reports on the creative industries and the experience economy have been published in recent years[69] and generally claim that the economic importance of these

---

67 The UK Department for Culture, Media and Sports defines the creative industries as the following sectors: advertising, architecture, the art and antiques market, crafts, design, designer fashion, film, interactive leisure software, music, the performing arts, publishing, software and computer services, television and radio. See UK Government (Creative Britain — New talents for the new economy) 2008.

68 Cf. e.g. NESTA 2008 and the theories of Richard Florida about the importance of the creative class.

69 See e.g. Danish Government (Denmark in the Culture and Experience Economy) 2005, KEA 2006, Nordic Innovation Centre 2007, UK Government (Creative Britain) 2008, NESTA 2008.

industries is underestimated.[70] According to the 2006 KEA report on 'The Economy of Culture in Europe', commissioned by the European Commission, the cultural and creative sectors in Europe generated a turnover of approximately €650 billion, contributed to 2.6% of EU GDP in 2003 and grew 12.3% more that the general economy from 1999 to 2003. They employed approximately 4.7 million people, equivalent to 2.5% of the active employed population in EU-25.[71] In the UK and Denmark, for example, the creative industries are estimated to contribute as much as 5% of GDP.[72]

For the design sector specifically, the lack of a commonly agreed definition and of available data make comparisons between countries difficult. Tentative estimates put the number of designers in Europe at 410 000. These create a total turnover of €36 billion, which represents slightly more than 5% of the knowledge-intensive service sector in the EU.[73]

An overwhelming majority of specialised design firms and consultancies consist of self-employed and firms with just a few employees. In France, for example, 40% of consultancies employ one or two people and only 15% have 10 or more employees. In the UK, where design consultancies are on average relatively larger than in other countries, it is estimated that 73% of design consultancies employ 20 or fewer staff. [74]

A notable exception to this rule are the design consulting firms that are driving the trend towards more strategic, multidisciplinary forms of design (as outlined in section 3.2 above), or emerging as a result thereof. Although in-house design departments may also make strategic use of design, these emerging design concepts seem to be dominated by independent consulting firms.

According to a Danish study, design consulting firms of this new kind are generally located in the United States and Europe, or — if located in Asia — are branches of US or European companies. Around 120 'concept design' companies were identified, most of them concentrated in design hubs. Key concentrations were reported on the US East and West coasts, in London and Copenhagen. Some firms were also identified in the Netherlands and Germany. Concept design companies typically have around 70-80 employees and therefore — although small — are larger than the average design consultancy. This may be linked to the multidisciplinary approach which requires more people to be involved in the design process. According to the study, three main factors influencing the location of such companies are demand, proximity to universities and design schools, and an open networking culture.[75]

Another Danish study examines the structure of the design industry in general in six EU countries: Austria, Denmark, Finland, Germany Sweden and UK.[76] The research shows that Sweden is the country of the six that has the highest number of design businesses, but that they are very small in size (cf. below). In terms of number of design companies, the sector was growing in all six countries. The UK design sector was growing fastest, by 73% from 2003 to 2004.

---

70 See e.g. KEA 2006 and NESTA 2008.

71 KEA 2006.

72 BEDA 2002.

73 BEDA 2006 *European Design Report* in Bager-Sjögren et al 2007.

74 KEA 2006.

75 FORA 2007.

76 Danish Enterprise and Construction Authority 2007. Netherlands, Greece, Lithuania and Spain reported that they did not have a design sector that could be statistically isolated.

The UK was also the country with the biggest design sector in terms of employees, almost 20 000 in 2004, to be compared for example with Germany's 8 400, Sweden's 3 000 and Finland's 1 500 employees. The average number of employees per business in the UK was 3.2 in 2004 (excluding the owner). The trend is towards even smaller businesses. In Sweden, for example, the average number of employees is below one, as the owner of the business is not included. Also the average turnover by business is going down. In terms of total turnover, only the UK and Denmark design sectors demonstrated growth, among the six countries studied. The UK design sector grew by almost 50% from 2003 to 2004.

It should be noted that many designers are not employed in the design sector, but work as in-house designers in companies in other sectors. It is sometimes estimated that there are more 'creative specialists' working outside the creative industries than within them.[77] It is also important to note that all products and services are 'designed' whether or not this is done by a professional designer. Much 'silent' design therefore takes place outside of a formal design function.[78]

4.2. Micro-economic analyses of design

A number of studies show the positive impact of design on corporate performance, measured in terms of profitability, share price, employment or exports. Many of them are based on surveys of companies' perception of design, others on statistical analysis.

Survey-based research on what companies perceive as being the benefits of design generally shows that one of design's greatest contributions is to strengthening the brand. 53% of Swedish companies consider that design has a major positive impact on brands.[79] 70% of Spanish companies consider that design has a major or considerable impact on company image.[80]

Companies also consider design to have a direct impact on a number of 'hard' performance indicators, such as sales, cost and profitability:

- 32% of Swedish companies consider that design has a major impact on *sales*;[81] more than 40% of Spanish companies and British companies, and 66% of Norwegian companies, consider that design has a major or considerable impact on sales. Design was also considered to have a major or considerable impact on new market entry by 65% of Norwegian companies, 56% of Spanish companies, and 46% of British companies.[82] A survey of Polish companies shows that approximately one third of Polish companies

---

77 See e.g. NESTA 2008. It suggests that it is wiser for policy makers to think about the 'creative economy' rather than the 'creative industries'.

78 UK Department of Industry and Trade (DTI) 2005.

79 Swedish Industrial Design Foundation (SVID) 2008b. The following definition of design was used: 'Design means a professional and creative way of working where both functional and aesthetic requirements are essential. Design needs stem from product development or market communication. With product development we mean for example industrial design, service design and design management. With market communication we mean for example graphic design, interior design and exhibitions.'.

80 DDI (Sociedad estatal para el desarrollo del diseño y la innovación) 2005. This report offers no definition of design, nor were the responding companies offered one in the survey. According to the report, this approach — of not offering a definition of design — is also used in the UK.

81 SVID 2008b.

82 DDI 2005.

perceive that design has had a positive impact in the last 12 months on sales, market share, new market development and competitiveness.[83]

- Generally, companies consider design to make a more modest contribution to *cost reduction*. 9% of Swedish companies consider that design has 'a major impact' in terms of reducing costs. 50% of Spanish companies consider that design has a major or considerable impact on productivity.

- As regards *profitability*, 60% of Swedish companies agreed totally or partially with the statement that there is a clear positive correlation between design and profitability.[84] 81% of Spanish companies consider that design has an impact on profits, compared to 75% of Norwegian companies and 42% of UK companies. More than 50% of Spanish companies considered this impact to be major or considerable. [85] The Polish survey shows that around one third of Polish companies consider that design has had a positive impact on profits in the last 12 months.[86]

A number of statistical studies exist, i.e. studies which are based on analysis of company performance rather than on self-assessment. They highlight for example the positive correlation between the use of design by a company and its performance on the stock exchange (The Design Index), its profitability, solvency and liquidity (Flemish Survey) and growth revenues, employment and exports (Danish survey) — see box below. Studies from other parts of the world show similar results.[87]

UNITED KINGDOM — The Design Index

In 1998 Fitch, a UK-based design consultancy, compiled a hypothetical 'design-led' portfolio of its publicly listed US companies and compared the performance of that fund over a five-year time period with the market index. The hypothetical fund increased 41% while over the same period the market index gained 14%.

In 1999, the UK Design Council applied this approach to a set of 6 hypothetical funds comprising British design-embracing firms. The six funds performed between 5% and 28% better than the market index between 1995 and 1999. An aggregate fund of all 95 companies involved performed 10% better than the FTSE index.[88]

BELGIUM — Flanders Community 2003

A survey carried out on behalf of the Belgian Ministry of Economy in 2003 analysed business performance and changes in business performance (1999-2001) on a sample of 400 Flemish businesses belonging to 9 sectors. The study concluded that a strong interest in design improves company profitability, solvency and liquidity.[89]

---

83 Polish Ministry of Economy 2007. The report refers to the definition of ICSID (see section 2.1 above), but does not mention if this is the definition used in the survey.

84 SVID 2008.

85 DDI (Sociedad estatal para el desarrollo del diseño y la innovación), 2005.

86 Polish Ministry of Economy 2007.

87 See e.g. Hertenstein et al. 2001 in New Zealand Institute of Economic Research 2003.

88 KEA 2006.

89 Design Flanders 2003.

DENMARK — Study for the National Agency for Enterprise and Housing, 2003

A survey carried out by the Danish Design Centre for the National Agency for Enterprise and Housing in 2003 on over 1 000 private Danish companies with at least 10 employees each found that:

Danish companies that purchased designs over the previous five years had registered 22% above average growth in gross revenues.

Companies with an increase in design activity achieved an additional 40% of gross revenue increase compared to companies where design activity was either constant or had decreased.

Companies that employed design professionals and purchased design externally had exported 34% of their turnover on average compared to 18% by companies that had adopted a different design purchasing approach or none at all.

There was a positive correlation between design and employment, since job creation was higher in companies that had employed design compared to companies with no design activity.

Gross revenue performance was better and the number of exports greater the higher companies ranked on the 'design ladder'.[90]

UK Design Council Value of Design Factfinder, 2007

The UK Design Council carried out a national survey of 1 500 UK firms in 2005, and another 'added value research' survey of 500 UK firms in 2006. The online 'Value of Design Factfinder' presents the results:

- Every £100 a design-alert business spends on design increases turnover by £225.

- Shares in design-led businesses outperform key stock market indices by 200%

- Businesses where design is integral to operations are twice as likely to have developed new products and services. In the past three years, four-fifths of them have, compared to a UK average of 40%.

- On average, design-alert businesses increase their market share by 6.3% through using design.

- Turnover growth is more likely for businesses that increase their investment in design. Conversely, those that decreased investment cut their chances of growth.

- Rapidly growing businesses are twice as likely as the UK average to have increased investment in design. Over two thirds have done so recently.[91]

4.3. Macro-economic analyses of design

The most commonly cited case for the relationship between the use of design in a country and its overall competitiveness is the one made by the New Zealand Institute of Economic Research (NZIER) in a study from 2003.[92] The NZIER made a selection of indicators or *indexes* from the World Economic Forum's (WEF) Global Competitiveness Report 2001-2002 to create a composite 'design index': capacity for innovation, production process sophistication, extent of marketing, extent of branding and uniqueness of product designs. The

[90] Danish National Agency for Enterprise and Housing 2003 in Bitard & Basset 2008.
[91] UK Design Council 2007b.
[92] NZIER 2003.

ranking of countries according to the design index was then compared to the growth competitiveness ranking of the WEF — see table below.

Country	Current competitiveness ranking	Design ranking
Finland	1	1
United States	2	2
The Netherlands	3	7
Germany	4	3
Switzerland	5	6
Sweden	6	8
United Kingdom	7	10
Denmark	8	9
Australia	9	21
Singapore	10	22
Canada	11	15
France	12	4
Austria	13	12
Belgium	14	16
Japan	15	5
Iceland	16	14
Israel	16	14
Hong Kong SAR	18	24
Norway	19	18
New Zealand	20	20

Figure 9: Ranking of countries on the basis of their competitiveness and use of design (Source: World Economic Forum 2002 in NZIER 2003)

As a one-off exercise, this comparison provided evidence of the correlation between the use of design in a country and its overall competitiveness. Designium, the New Centre of Innovation in Design in Helsinki, updated the analysis performed by the NZIER in 2006 and 2008, but since the original ranking, the indicators used by the WEF have changed. Notably, two indicators related to design — extent of branding and uniqueness of product designs — have been dropped, hence limiting the relevance of the design index. The indexes used to compose the new design index seem to have less to do with design specifically.[93]

In conclusion, although there is a very strong correlation between the use of design in a country and its overall competitiveness, research does not say anything about causality. It is reasonable to assume that if the impact of design on individual company performance is positive — as the evidence presented above clearly suggests — then the aggregated impact of companies' use of design in a country should be positive on a macro-economic level as well.

However, if a company's performance is influenced by a number of factors, this is even truer for the macro-economic performance of a nation. Although important, it is unlikely that design can be singled out as an explanatory factor for competitiveness, and its effects isolated from other important factors such as institutions, framework conditions, business practices and culture.

[93] The seven indexes used by the Designium Global Design Watch 2008 to create a Design Competitiveness Ranking are the following: capacity for innovation, production process sophistication, extent of marketing, company spending on R&D, nature of competitive advantage, value chain presence and degree of customer orientation.

5. NATIONAL POLICIES AND SCHEMES IN SUPPORT OF DESIGN

Summary

- With a background in awareness-raising among local consumers and industry, and international promotion of a country's image, recent design policies tend to be more ambitious and focused, emphasising design as a strategic tool for economic progress, innovation, improved competitiveness and job creation. National initiatives frequently also promote design with broader societal benefits, stressing inclusiveness, accessibility and welfare. A noteworthy recent development is the increased attention paid by policy makers in several Asian countries, notably India and China.

- Some countries have developed explicit design policies at a national level (for example Finland, Denmark, South Korea), others mostly regional and local (for example France, Italy, Germany). Some design schemes are mainly government-funded (for example Scandinavian countries, South Korea), others co-funded by industry (for example USA, Italy, UK, Germany). Some programmes are mainly driven by government (for example South Korea), others by private actors (for example the USA).

- There are great discrepancies between Member States in the level and sophistication of design policies and support across EU countries and regions. New EU Member States generally display low levels of design support. Similar discrepancies exist in design performance, as shown by international design rankings.

- Existing schemes appear to have generated good results in terms of increased awareness and use of design, and also to show the importance of adapting design policies and support to local needs.

This chapter does not aim to give a detailed description of the various countries' design policies and schemes, but rather at providing a thematic, cross-country analysis. A number of more detailed reports on design policies country by country exist, notably a recent TrendChart report on national and regional policies for design, creativity and user-driven innovation, based on a survey across 39 countries and available on the TrendChart website.[94]

5.1. History of design policies and schemes

For many years a number of countries have invested in design to promote their image internationally, raise awareness among local consumers of the value of design and product quality, and to increase interest from local industry in the benefits of design for business performance. [95]

---

94 Cunningham 2008, TrendChart report on 'National and regional policies for design, creativity and user-driven innovation', see http://www.proinno-europe.eu/admin/uploaded_documents/Creativity_and_design_Thematic_Report_July_2008_final.pdf. Other reports with descriptions of design policies in different countries include Bitard & Basset 2008 (including annex), Designium 2003, 2006 and 2008, French Ministry of Economy, Industry and Employment (study by Algoe) 2007, Bager-Sjögren et al 2007, Kolmodin & Pelli 2005, and Bruce & Daly 2005.

95 Raulik et al 2008.

The oldest programmes date from the end of the 19th century, when design programmes with roots in the crafts sector were implemented in Scandinavia (Sweden, 1845 and Finland, 1875). The USA followed in 1913. Since then, schemes have spread to practically all developed countries and some developing countries, and have evolved in scope, complexity and ambition.[96]

During the period 1940-1960, a number of countries saw the establishment of professional organisations for industrial design: Australia, UK, Canada, France, Germany and Italy. These associations aimed at promoting the use of design in mass production and as an asset for trade and export.[97] The UK Council of Industrial Design was created in 1944, the German Design Council in 1953. The Polish Institute of Industrial Design was also created in the 1950s.

In the 1960s and 70s awareness-raising targeted at the general public grew in importance, stressing design as part of national identity, as did educational initiatives. Design organisations were created, such as the Norwegian Design Council in 1963. Others adopted new names with the rise of environmentalism and socially responsible design, distancing themselves from a purely industrial perspective: the British Council of Industrial Design became the UK Design Council. In some industrialised Asian countries, such as South Korea and Japan, awareness about the potential of design was growing.[98]

In the 1980s and 1990s, support for design dwindled. The USA had seen a rise in public support in the early 70s but then saw it drop again, a trend which was only broken in the late 90s under President Clinton's administration. Many design organisations reconsidered their missions and started offering more business support and consulting services. In the UK, public campaigns were suspended in the 1990s, giving way to regionalised support services to business, and education measures.[99]

The 1990s also saw further development of Asian design support. South Korea got a dedicated national design policy in 1993, Denmark being second in 1997. The Finns reacted to a serious economic downturn in the 90s by increased spending on R&D, reinforcing the national system for innovation and later making design an integral part of this system.[100] The Spanish Public Corporation for the Development of Design and Innovation (DDI) was created in 1991. The Brazilian Design Programme was created in 1995.

The 21st century has seen an increased interest in design as a tool for innovation and competitiveness, but one that combines economic growth with sustainability and social responsibility — life improvement. The creative industries and their significance in the knowledge and experience economy have received increasing policy attention — not least the design sector — for example in the UK and Denmark. The last few years have also seen the birth of strategic design, a trend which has gained particular popularity in the USA (see 5.6 below).

Today, practically all developed countries have some national initiatives in support of design, although with varying levels of maturity. France and Italy, countries with a tradition of regional design support and promotion, are starting to pay increasing attention to design at a

---

96 Bitard & Basset 2008.
97 Bitard & Basset 2008.
98 Bitard & Basset 2008.
99 Cunningham 2008.
100 Korvenmaa 2005.

national level. The Italian Design Council was created in 2007.[101] The French Ministry of Economy, Industry and Employment published a report in 2007 with 22 recommendations on how to strengthen the use of design in France.

Recently, several new EU Member States (for example Estonia, Latvia and Lithuania) have started developing national strategies in support of design. The Estonian Design Innovation Centre was set up in 2004.[102] Malta launched its Design Malta Action Committee in 2007, a collaboration between the Ministry of Finance, Economy and Investment and institutions for higher education in the domains of technology, arts and science.

'Asian tigers', notably South Korea and Singapore, have promoted design heavily for a number of years as a way to increase product value and competitiveness. South Korea is currently implementing its fourth five-year plan for industrial design promotion; Singapore set up a Design Council in 2003. A more recent and important development is the development of national design policies by the Asian giants China and India. The latter had its first national design policy agreed by the government in 2007,[103] and China is currently developing its first national design policy, expected by mid-2009.[104]

There is also a debate about the usefulness of a national design policy in the USA. Representatives from professional design organisations and federal government met in Washington D.C. at a 'U.S. National Design Policy Summit' in November 2008 to develop a blueprint for such a national design policy.[105]

5.2. Different levels and structures of design policies

Awareness-raising and design promotion to a broad audience (design awards, conferences, publications, exhibitions, etc.) is the most basic level of design support and generally the first initiative that a government or region engages in to support design. The next level is design support targeted at companies (generally SMEs), offering — for example — consulting or advisory services, matchmaking between designers and SMEs, training or grants.

The most advanced level of design policy is a dedicated design policy or strategy, with objectives, targets and actions agreed at ministerial level. Such a plan has only been agreed and implemented at a national level in a few countries, notably Finland, Denmark, and South Korea.

Recent research investigates the association between economic competitiveness and the existence of these three levels of design initiatives — promotion, support and national design policies. It shows that more advanced economies have been exploiting design as an asset for their economic advantage and for the international promotion of their image. In contrast, developing countries — with very few exceptions — have disregarded design as a tool for economic and social development[106] — see box below.

---

101 Cunningham 2008.

102 Designium 2006.

103 http://www.designinindia.net/design-now/design-policy/index.html.

104 Kolmodin & Pelli 2005.

105 This US National Design Policy Initiative has developed ten design policy proposals for the new Obama administration, see http://www.designpolicy.org/.

106 Raulik et al 2008.

The Global Competitiveness Report by the World Economic Forum presents a Competitiveness Ranking of countries every second year. It uses a combination of indicators (for example total GDP, population, GDP per capita, inflation, government debt, imports, utility patents, etc.) to calculate the general index. The 2006/07 edition lists the 125 most competitive economies in the world and classifies them into stages of development according to GDP per capita:

- Stage 1 (GDP p.c. <US$2 000): Factor-driven stage

- Transition from 1 to 2 (GDP p.c. US$2 000-US$3 000)

- Stage 2 (GDP p.c. US$3 000-US$9 000): Efficiency-driven stage

- Transition from 2 to 3 (GDP p.c. US$9 000-US$17 000)

- Stage 3 (GDP p.c. >US$17 000): Innovation-driven stage

Recent research (Raulik et al. 2008) compares the results of a survey showing where support, promotion and policies are practised with the World Economic Forum's list of countries in each stage of development. The evidence clearly demonstrates that countries higher up in the stages of development also tend to be the countries where design policies and programmes are in place:

- Design promotion programmes are present in 77% of the more sophisticated economies (Stage 3) compared to 4% of countries with less developed economies (Stage 1).

- 48% of countries in Stage 3 of development have design support programmes in place compared to only 2% of countries in Stage 1.

- Design policies are present in 16% of countries in Stage 3 compared to 2% in Stage 1.

- Countries on the transitional Stage 2 to 3 perform particularly well in comparison to other stages: 56% of countries run design promotion programmes, 44% of them run design support schemes and 22% have policies for design. It shows their willingness to increase their performance and consequent investment in initiatives that can be relevant to achieving this objective.

Source: Raulik et al. 2008

Similarly, the 2008 European Innovation Progress Report compares the results of a recent survey of support to design and creativity in 39 countries (the 2008 TrendChart survey mentioned above) with country groups based on innovation performance according to the European Innovation Scoreboard 2008. It shows that innovation 'leaders' and 'followers' have been paying more attention to design promotion, support and policy than 'moderate innovators' and 'catching-up countries'.[107]

5.3. Governance and funding of design promotion

Whereas certain countries — such as Scandinavia and South Korea — mainly have policies covering the whole country, with political responsibility at ministerial level, others mainly promote design at a regional or local level, such as Italy and France. In Italy, where design is considered an important trait of Italian creativity and culture, design policy is often regional, such as in the Lombardia/Milan region. Neighbouring Turin, an important centre for the car industry, was chosen as the world design capital of 2008. The *Ile-de-France* region created a

[107] European Commission 2009 (2008 European Innovation Progress Report).

design centre in the heart of Paris in late 2008,[108] adding to existing regional design centres such as that of the Rhône-Alpes region.

Design promotion in the Netherlands is also decentralised, concentrated around towns, although Premsela, The Dutch Design Foundation, published a national design plan in 2008.[109] Eindhoven benefits not only from the presence of the Design Academy Eindhoven but also from that of design-driven companies. Networking with other Dutch or European cities is frequent.[110]

The role of the government in design promotion varies greatly between countries, with South Korea and the USA representing two extremes on a spectrum. In South Korea, five-year plans have been written at ministerial level and agreed with the government. All funding comes from the government. In most European countries, a mixed model prevails: design promotion is driven by the regional or national government, but in collaboration with industry. Funding is also generally mixed, although design promotion in Scandinavian countries tends to get relatively more government funding than in central and southern European countries.[111]

In the USA, the government is not involved in design support and promotion (except for very specific matters, such as accessibility).[112] Instead, it is driven by private, non-profit organisations and representatives from the private sector, notably the US Design Management Institute (DMI), the Corporate Design Foundation and the Industrial Designers' Society of America. The DMI, for example, is funded by sponsors, donations and membership fees and is also very active outside the USA. In Japan, there has been a trend towards more private involvement and funding of design initiatives, as opposed to government involvement.[113]

As design — like other parts of the creative industry/experience sector — concerns a number of ministries, it is unusual to see design in the hands of one ministry only. On the contrary, responsibility is almost always split between two, three or more ministries, such as those responsible for industry and enterprise, for culture and (if separate) for education issues. Responsibilities have however shifted over the years. Traditionally, the ministries in charge of culture were dominant, whereas in many countries today the industrial perspective prevails.

5.4. Implementation of design policies and schemes

At national level, design activities are often driven by a national design council, design centre or institute. For example, the UK and Norwegian Design Councils play an important role in implementing national design strategies. Also the German Design Council is important. The Danish Design Centre is important for implementing Denmark's design policy, as is the Portuguese Design Centre in Portugal. In 2002, it was estimated that 34 design centres existed in Europe.[114] These councils and centres generally have a broad role, aiming at promoting design by disseminating information about the economic value of design to companies and the public.

---

108 Le Lieu du Design – Paris Ile-de-France.
109 Premsela 2008 'Designworld'.
110 Cunningham 2008.
111 Designium 2003.
112 Bitard & Basset 2008.
113 French Ministry of Economy, Industry and Employment 2007.
114 Thomson 2002 in Designium 2003b.

In Spain, it is the DDI under the Ministry of Science and Innovation that is responsible for defining and applying innovation and design policies. Its tasks include the following: promotion of innovation and design in the business sector; technical assistance in evaluating innovation projects; internationalisation of Spanish design; collaboration with public and private bodies; and knowledge generation and communication. Premsela, the Dutch Design Foundation, is the most influential Dutch player in the area of design.

5.5. Objectives and orientations of design policies and schemes

Most countries seem to recognise the broad nature of design and hence its wide spectrum of benefits, from economic to cultural, social and environmental. Recent design policies, however, tend to be more ambitious and focused than previously, and to emphasise design as a strategic tool for economic progress, improved competitiveness and job creation. Linked to competitiveness, most countries see sustainable design as a key objective.

Although national initiatives frequently promote design with broader societal benefits, stressing sustainability, accessibility, welfare and/or national identity,[115] specific targets tend to address general or economic objectives, such as:

- Increased use of design by companies, particularly SMEs, and growth of the design sector (use dimension);
- Increased exports of design and design sector, and attractiveness to international investment (international dimension);
- Improved design education and research.

Targets regarding the use of design seem to be common to all countries that have explicit design policies. The Finnish design policy of 2000, for example, explicitly set the target that by 2005, 50% of Finnish companies should take design into account in their strategic planning. By 2010, 50% of Finnish companies should use professional design services as part of their business operations.[116] The Danish design policy of 1997 stated that at least 80% of Danish businesses should understand that design has an effect on competitiveness and that at least 50% should use external design consultants within five years, compared with 62% and 30% respectively in 1997. The Danish government also included actions to increase the use of design by public authorities.[117] In South Korea, the target has been set that design should represent 3% of GDP by 2010.

Several countries aim to raise exports, or to become a design hub or cluster of international importance. The governments of South Korea, Singapore and India have expressed their ambition to become design hubs in East, Southeast and South Asia respectively. Denmark and the UK also stress the international aspect of the design industry, aiming to strengthen their positions as design clusters internationally. Denmark aims to give impetus to development and growth in the design industry by attracting 'international design clients, the design departments of international companies, talented designers, students and researchers as well as international conferences.'[118]

---

115 Sotamaa 2004.
116 Finnish Government 2005.
117 Danish Ministry of Business Affairs 1997.
118 Danish Government 2007 'DesignDenmark'.

Initiatives in support of design education and research exist in all countries with design support. Some countries have focused on quantitative targets, such as increasing the number of design graduates. Others have identified quality of design education as a key target. In some countries, the average unemployment rate of design graduates is higher than for other professions. Nevertheless, several countries such as Denmark and Finland have identified a lack of designers with the right skills set, for example strategic and management skills, and a multidisciplinary approach. This has lead to a number of interesting projects in the area of education.

The new Finnish Aalto University — also known as the Innovation University — is a particularly interesting project. It is a merger between the Helsinki University of Technology, the Helsinki School of Economics and the University of Art and Design Helsinki, and will open in 2010.

The UK Design Council presented a plan for 'high-level skills for higher value' in 2007, aiming at promoting and improving design education in schools, strengthening partnerships between education and industry, and establishing a collaborative, national strategy for design skills development. Nevertheless, the country recently abandoned plans to establish a 'Dyson School of Design Innovation', a project promoted by the James Dyson Foundation and the UK Department of Innovation, Universities and Skills.

The trend towards cross-disciplinarity in design education is also visible in other parts of the world. In Singapore, for example, a new publicly funded university will open its doors in 2011 with design and architecture as one of its three core disciplines, the others being engineering, business and IT.[119]

The objectives and orientations of design initiatives in different countries very much depend on the traditions and strengths of a particular country, as it influences the understanding of design. In some countries, for example, design is mainly considered as part of the creative industries. Others have a strong focus on the creative industries but nevertheless view design as an important activity and sector in its own right, such as Denmark and the UK. France and Italy pay particular attention to fashion design, whereas Germany, with its strong tradition in engineering and manufacturing, seems to pay particular attention to industrial design and channels support to design as part of R&D.[120]

Socially and environmentally sustainable design seems to play a more important role in countries with a long tradition of design promotion, i.e. Europe and the USA. China, for example, still has a strong focus on industrial design, but — together with other Asian countries — is starting to see sustainable design as an increasingly important factor. Japan, with its greying population, has paid particular attention to universal design.[121]

Examples of initiatives in the environmentally sustainable design area include the Eco-design Centre in Wales, which has been established to build capacity and capabilities in industry, public sector organisations and higher education. In Norway, the Government's Action Plan for Increased Accessibility for people with disabilities contains measures to implement

---

119 Speech by Radm Lui Tuck Yew, Senior Minister of State for Education, Information, Communications and the Arts in Singapore, 11 September 2008 at the 11th Venice Biennale.

120 Cunningham 2008.

121 Ikeda 2004.

universal design within all sectors. Universal design is in this context considered a strategy to promote equality, participation and democracy in society.

UK design policy pays particular attention to public service design, in areas such as health provision, crime prevention and government. A focus on service design is likely to be linked to the dominance of the service sector in certain economies, not least in the UK.

5.6. Innovation and design policy

Whereas design associations, consultancies and academics have long made the link between design and innovation, this is not always the case for policy makers. Although innovation is increasingly mentioned in the context of design, the opposite is less common. In other words, few countries mention design in their innovation strategies.

The European countries that make the most explicit connection between design and innovation policy include the UK, Denmark and Norway:

- The latest UK White Paper on innovation policy, Innovation Nation, dated March 2008, considers design as a key driver of user-led innovation, frequently refers to design projects as innovation projects, and mentions the Design Council as a key player in the innovation field.

- The latest Danish innovation plan, 'InnovationDenmark 2007-2010', clearly stresses user-driven innovation as complementary to research-driven and other forms of innovation, and mentions design repeatedly. A major programme for user-driven innovation (2007-2010) includes design partners (such as designers, design schools, centres, and agencies) in more than 25% of its projects so far.[122]

- The Norwegian White Paper on innovation policy of December 2008, 'An innovative and sustainable Norway', puts great emphasis on design and introduces a new 'Design-driven Innovation Programme', aiming at stimulating the use of design from the idea phase to market introduction. [123]

In Finland and Spain, the connection between design and innovation is made at the level of implementation. Finnish Designium, the New Centre for Innovation in Design, provides consultation services in matters relating to the identification, analysis and management of innovations. Both design and innovation are included in the mission of DDI, the Spanish Agency for the Development of Design and Innovation.

In the USA, where no explicit design strategy exists at federal level, design and innovation are very often — and increasingly — seen as two sides of the same coin. This is illustrated by the importance given to design management, strategic design and design thinking in design schools. Not only is there awareness that design excellence requires business thinking, but design is also promoted as a discipline that managers in general and executives in particular need a better understanding of.

---

122 Steinar Valade-Amland 12.01.2009, presentation at the APCI conference on design and innovation, Paris; see also http://www.ebst.dk/brugerdreveninnovation.dk/about.

123 Norwegian Ministry of Trade and Commerce 2008.

Design management as a discipline aims to raise business professionals' awareness of how to integrate and manage design, and to integrate business issues, methods and understanding in design thinking. The American Design Management Institute (DMI) is an important promoter of design management, also promoting design among non-design executives. In Europe, design management has been encouraged by the Design Management Europe (DME) Award (c.f. section 6.10 below).

5.7. Evaluation of national design policies

In recent years, there has been increasing pressure on design programmes to show meaningful results not only in raising interest for design but also in making a significant contribution to national economic development. [124]

Although relatively few design programmes seem to have been formally evaluated, existing evaluations seem to indicate success. For a summary of evaluation results, see box below.

It should be noted that these evaluations are generally published by organisations that indirectly depend on positive results for their funding, and therefore should be interpreted with some caution.

Summary of available evaluation results: South Korea, Denmark, Finland, Sweden

►*South Korea*

South Korea got its second 5-year design plan in 1997. The share of SMEs with design personnel increased from 50.1% in 1997 to 66.5% in 2002, as a result of this plan. Consequently, Korea set as an objective for its 3rd plan to increase the number of SMEs with a design-dedicated department from 39.6% (2002) to 60% in 2007. Evaluation of this third plan is not yet available. The number of people who graduated from design-related universities and colleges increased from 28 583 in 1998 to 36 397 in 2002, which means up 27% over the 2nd national five-year plan.

►*Denmark*

The first Danish design policy was published in 1997. The latest (a White Paper) dates from 2007.

In Denmark, the number of design businesses and the industry's total turnover has quadrupled since the mid-1990s. The number of design firms has increased from 1 880 in 2000 to 4 816 in 2005; the number of design firms employing more than 50 employees has increased from 0 to 10. The turnover in the design industry was €740 million in 2005, which is four times as much as in 1995. Among the consultancy trades, only consulting engineers have experienced the same growth. Export by the design industry totalled €110 million (DKK 800 million) in 2005, which is six times as much as in 1995 and means a quarter of Danish design industry turnover today derives from exports. This is about twice the growth experienced by other consultancy trades in Denmark.[125]

►*Finland*

All companies that participated in Finland's Design 2005! Programme from 2000 estimated that the project had an impact on their competitiveness, and that benefits resulted from the change in their products and production process. 80% of the respondent companies consider that their operating procedures improved thanks to the projects they took part in.

[124] Raulik et al 2008.
[125] Danish Enterprise and Construction Authority 2007.

►*Sweden*

In Sweden, the total increase in sales related to the participation of companies in the national programme 'Design as a force for development' is estimated at €30 million (SEK 300 million). The programme is also assumed to have directly created 150 jobs. Among the 10 national projects developed under Design as a force for development, three have been particularly successful. For example, 'Design for the vehicle industry suppliers' generated a turnover increase in that sector that accounted for more than 50% of the total increase generated by the whole programme.

One of the 10 national projects developed under the national programme directly concerned students. The number of students with a degree in design has more than doubled in 5 years.

Source (except Denmark): Bitard and Basset 2008

The EU-supported SEEdesign project for the collection and dissemination of good practice in design support programmes concluded that support to design needs to be customised and developed in response to identified local needs. While therefore no 'best practice' may exist, the project developed a number of recommendations for government and policy makers on the basis of research and experience from past and ongoing design initiatives. These recommendations are presented in the box below.

(1) Provide clear direction and objectives for design programmes to ensure that they are in line with local and national agendas so they participate with and contribute to economic development and other policies (e.g. innovation, social development);

(2) Coordinate the various stakeholders in education, industry and government involved in design activities so they work towards common objectives;

(3) Consider comprehensive policies that balance support for the use of design by SMEs and the promotion of design to a wider audience;

(4) Integrate design into innovation policies as the element that will transform innovative ideas into competitive products for the market;

(5) Stimulate design education on various levels, from primary school to postgraduate courses, and ensure that education is focused on the demands and needs of the local economy;

(6) Act as a role model for the use of design through actions (e.g. establish design standards for public procurement);

(7) Exploit, integrate and stimulate creative thinking in government departments and social programmes;

(8) Recognise and reward the use of design by industry, service and public sectors though award, certification and incentive schemes;

(9) Encourage objective evaluation of the impact of design in a range of linked policy areas, such as economic development, culture and innovation;

(10) Ensure consistency of funding for design programmes, so that they operate effectively, and financial incentives for the small-business sector in order to encourage the use of design.

Source: SEEdesign 2007

5.8. International design rankings

As demonstrated by Chapter 5, there are great differences between countries in terms of the political attention paid to design. There are also great differences in how countries actually perform in terms of design. This is visible in a number of international design rankings, such as the frequently cited design competitiveness index, see section 4.3 above.

These international rankings all show a predominance of industrial countries, in particular of the big traditional industry nations USA, Germany and Japan. The appearance of South Korea in recent years, a country that has invested heavily in design, is notable as it may not be the last Asian country to appear. Asian countries, like European ones, are striving to move away from price competition towards higher added value, quality and brand based competition. As noted in section 5.1 above, India recently published its first national design policy, and China plans to do so in 2009.

Generally, the top ten of these rankings are dominated by European countries. Europe (as a whole) therefore has a strong position in design. New Member States, however, do not feature in the rankings.

For an overview of international design rankings, see Annex 1 of this document.

6. RECENT AND ONGOING COMMISSION INITIATIVES IN THE AREA OF DESIGN

Summary

- Design is not a new topic for the Commission. A number of initiatives in different policy areas have been launched by the Commission in recent years that directly or indirectly address the topic.

- These initiatives include the Community design (protection of design as an intellectual property right); action against counterfeiting and piracy; procedures related to 'design contests' in the domain of public procurement; the Community Framework for State Aid for R&D and Innovation that allows for support to design as an innovation activity under certain conditions; the Eco-design Directive for energy-using products; the European Agenda for Culture dealing more generally with the cultural and creative sectors; the addition of a new NACE code for design and other efforts to improve the availability of statistical data and analysis on design; activities to support 'design for all'; the promotion of user-driven innovation through Living Labs; and a number of recent European projects to promote research, learning and networking in the area.

- Design-driven innovation is however not an explicit part of the current European innovation strategy, the broad-based innovation strategy of 2006.

The following chapter will report on a number of recent and ongoing Commission initiatives that are relevant to design, notably in the areas of design protection, public procurement, fight against piracy and counterfeiting, state aid, eco-design, cultural policy, statistics and surveys, 'design for all', user-driven innovation (Living Labs), networking and design-related research.[126]

6.1. Design protection

In Europe, design can be protected as a registered industrial property right at a national level by filing a design at a national office under individual national laws, or at Community level by virtue of the Community design. It allows a company to protect its creation and prevent other parties using the design without consent, and therefore encourages investment in new product development.

The main European Community legislation of relevance for the protection of designs is *Directive 98/71/EC on the legal protection of designs,*[127] which aligns the laws of the Member States relating to designs, and *Regulation (EC) No 6/2002 on Community designs.*[128]

The Community Design Regulation created rights for both unregistered and registered Community designs. The unregistered Community design (valid for 3 years) enables the owner to prevent third parties copying the design. The registered Community design (valid for up to 25 years) affords wider protection, allowing the owner to exercise his rights against any

---

126 This chapter is the result of an inter-service group within the European Commission, as different Directorates-General have contributed different sections.

127 Directive 98/71/EC of the EP and of the Council of 13 October 1998 on the legal protection of designs.

128 Council Regulation (EC) No 6/2002 of 12 December 2001 on Community designs in the Official Journal of the European Union L 3, 5.1.2002.

third party arriving at an infringing design not only through copying but also through an independent work of creation. An infringing design is one sufficiently close to the owner's design not to produce a different overall impression on the informed user.

The system of the Community design is operated by the Office for Harmonisation in the Internal Market (OHIM) in Alicante, Spain,[129] and provides uniform protection across all Member States with one single registration.

The EU recently acceded to the Geneva Act of the Hague Agreement. This system, administered by the World Intellectual Property Organisation (WIPO) for the international registration of industrial designs, offers a route to industrial design protection in multiple countries. Since January 2008, companies in EU Member states can have a design protected in other countries party to the Hague Agreement by filing one single application.[130]

In the period between 2003, when the Community design was launched, and 2007, around 280 000 Community designs were registered.[131] The fees paid to OHIM are laid down in the Community Design Fee Regulation and include for example registration, publication and renewal fees.[132] The initial cost of registering and publishing an application with a single design is currently €350. This is low in comparison to design protection in the USA, for example, particularly when only the initial fees are taken into account. Design protection in Europe is also relatively affordable when adding renewal fees into the calculation. Some Asian countries such as Japan, South Korea and China have very low initial fees, but higher renewal fees and thus higher total protection costs for a product with a longer life cycle.[133]

An application for a Community design can be filed electronically. Since the introduction of the fast-track registration procedure in September 2008, 30% of the Community designs are registered and published within 10 days. Applications not qualifying for fast-track registration are processed in accordance with the quality standard of OHIM, which requires that 80% of all Community designs are registered and published within 6 weeks.

The Community design system is relatively new. Early indicators on functioning of the system such as the take-up of Community designs show that it is working well. There is therefore no need to evaluate the system in the near future.

Meanwhile, the Commission is continuing to work for the harmonisation of national legislation for design protection of spare parts in the aftermarket.[134] The Commission has

---

129 The Office for Harmonisation in the Internal Market (OHIM) is the official European Union agency responsible for registering trade marks and designs.

130 This allows European businesses to protect their design rights globally faster and cheaper than before, as there is no longer a need to provide translations of documents, to renew national registrations at different points in time, nor to pay national fees and fees to agents in multiple countries.

131 The total number of industrial design registrations (direct national plus Hague system) for the same period (2003-2007) of the USA and Japan were 90 000 and 155 000 respectively (source: WIPO Statistics Database, November 2008), but these figures are not directly comparable as the nature and scope of design protection is different from one country to another.

132 For a detailed table of fees, see http://oami.europa.eu/ows/rw/resource/documents/RCD/feesPayment/list_fees_en.pdf.

133 For a comparison by the UK Patent Office (in sterling), see the following comparison http://www.ipo.gov.uk/policy-issues-gowers-designsfees.pdf.

134 Proposal for a Directive of the European Parliament and the Council amending Directive 98/71/EC on the legal protection of designs; COM (2004) 582 final.

proposed liberalising the aftermarket, to increase competition and improve the operation of the Single Market, but no agreement with all Member States has so far been reached.

Design protection and its scope are outlined in the box below.

The object of design protection

A 'design' in this context is defined as the 'appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation'. By 'product' is meant 'any industrial or handicraft item, including inter alia parts intended to be assembled into a complex product, packaging, get-up, graphic symbols and typographic typefaces, but excluding computer programs'. Designs may be protected at a Community level if they are 'new', i.e. if no identical design has been made available to the public, and have 'individual character', i.e. if the overall impression it produces on the informed user is different from the overall impression produced by other designs which have been made available to the public. Designs are not protected insofar as their appearance is wholly determined by their technical function, or by the need to interconnect with other products to perform a technical function.

Source: The Community Design Regulation of 2002

Some firms do not protect their designs or, if they do so, use a combination of formal and informal measures, such as secrecy.[135] A factor that may limit the use of design protection is the extremely short product cycles in consumer markets where the aesthetic design of a product is a main differentiator, such as in fashion, and the small changes to a product needed for a new design to appear. In markets with short product cycles, designers may therefore rely more on the 3-year term of protection for unregistered Community designs.

It should be noted in this context that design in a broad sense, as outlined in Chapter 2 and including not only physical products but also for example services, methods and concepts, can sometimes also be protected by other intellectual property rights such as patents, copyrights and trademarks.

6.2. Fight against piracy and counterfeiting

In recent years, governments have become increasingly aware of counterfeiting and piracy and the risks they can pose for businesses, economies and consumers. The design sector is no exception to experiencing the harmful effects of counterfeiting and piracy. The unauthorised copying of models, concepts and original plans causes considerable damage, particularly to SMEs. Counterfeit designs for toys, clothing, jewellery, furniture, textiles, interiors and giftware are not new and infringements are regularly reported. However, it is difficult to truly measure the magnitude of the problem in a specific area, as many designers opt to use a combination of intellectual property rights and other forms of protection.

The Commission is addressing this issue by helping to improve information gathering and intelligence networks linking public and private sector bodies. Work is also taking place to improve cooperation between Member States and to enhance best practice and cross-border cooperation. The Commission monitors the effective application of Directive 2004/48/EC[136]

[135] Tether in SEEdesign (Bulletin Issue 3) 2006.

[136] Official Journal L 195 of 2.6.2004.

on the enforcement of intellectual property rights (the so-called Enforcement Directive). In the customs area, the Commission has a number of instruments at its disposal to fight against counterfeiting and piracy, notably Council Regulation (EC) No 1383/2003[137] concerning customs action against goods suspected of infringing intellectual property rights. It should be noted that the counterfeiting of designs is not a criminal offense in many Member States, a fact which hinders enforcement.

6.3. Public procurement

The EU regulatory framework for public procurement reflects the importance and the peculiarities of design, taking into account its usefulness to meet certain demands and needs of 'contracting authorities' as defined in EU public procurement law, i.e. Member States, regional or local authorities or other bodies governed by public law. Directives 2004/17/EC and 2004/18/EC are relevant in this context.

Directive 2004/18/EC provides for a special procedure related to what are defined as 'design contests'[138]. These contests enable the contracting authorities to acquire, mainly in the fields of town and country planning, architecture, engineering and data processing, a plan or design selected by a jury in a competition, with or without the award of prizes. A similar procedure applies for design contests organised by entities operating in the sectors of water, energy, transport and postal services, which fall under the scope of Directive 2004/17/EC[139]. Design contests make up less than one percent of all notices per country published in 2007 in EU Member States.[140]

Both Directives specifically calls for the use of 'design for all' and accessibility requirements whenever possible in the technical specifications of public bids. This will contribute to removing barriers to the participation of people with disabilities and facilitate their inclusion in society. To facilitate this process, the Commission has issued two standardisation mandates to CEN, CENELEC and ETSI[141] in support of European accessibility requirements for public procurement of products and services in the ICT domain and for public procurement in the built environment respectively.[142] Both mandates clearly indicate the importance to follow a 'design for all' approach when developing the standards. These forthcoming European standards have the potential to make the market for accessible solutions more attractive to industry.

---

137 Official Journal L 196 of 2.8.2003.

138 Directive 2004/18/EC of the European Parliament and the Council on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, in Official Journal 2004 L 134 p. 114.

139 Directive 2004/17/EC of the European Parliament and the Council coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors, in Official Journal 2004 L 134.

140 Two thirds of them are published in France. The breakdown is as follows: AT 51; BE 10; BG 1; CZ 42; DE 158; DK 17; EE 3; ES 58; FI 3; FR 1 222; GB 18; GR 20; HU 14; IE 8; IT 63; total: 1 835.

141 CEN – Comité européen de normalisation, CENELEC – Comité Européen de Normalisation Electrotechnique, ETSI – European Telecommunication Standardisation Institute.

142 Mandates 376 and 420.

6.4. State aid

The Community Framework for State Aid for R&D and Innovation (referred to below as the 'R&D&I Framework') entered into force on 1 January 2007.[143] Under the R&D&I Framework, design is not a separate category of research or innovation, but, depending on its characteristics, it could be included under experimental development, industrial research or innovation activities. The R&D&I Framework specifically mentions design only in two cases:

1) Aid for R&D projects characterised as 'experimental development', i.e. 'the acquiring, combining, shaping and using of existing scientific, technological, business and other relevant knowledge and skills for the purpose of producing plans and arrangements or *designs* for new, altered or improved products, processes or services'. The aid intensity — i.e. the aid amount expressed as a percentage of the project's eligible cost — should not exceed 25% in the case of experimental development for large enterprises, 35% for medium-sized enterprises and 45% for small enterprises[144].

2) Aid for the loan of highly qualified personnel, which is defined as researchers, engineers, *designers* and marketing managers, with a degree and at least 5 years of relevant professional experience. In this case all personnel costs up to 50% for a maximum period of 3 years are eligible for aid.

Even if not specifically mentioned in the definition, design could also fall under the category of 'industrial research', defined as 'the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services.' In this case the aid intensity allowed is 50%.

When design can be classified as R&D activity, new companies could also benefit from aid to young innovative enterprises.[145] Innovation support services to design activities, such as office space, data banks, technical libraries, market research, use of laboratory, quality labelling, testing and certification are also eligible for state aid. Finally, if design is the outcome of an R&D activity that has resulted in intellectual property rights, state aid could also be granted to SMEs to finance the industrial property rights costs.

6.5. Eco-design

Directive 2005/32/EC is about eco-design of energy-using products such as electrical and electronic devices and heating equipment. It aims to provide consistent EU-wide rules for eco-design and prevent disparities between national regulations becoming obstacles to intra-EU trade. It does not introduce directly binding requirements for specific products, but does define conditions and criteria for setting requirements as to environmentally relevant product characteristics. Requirements can be introduced through implementing measures for energy-using products meeting criteria such as significant environmental impact, high volume of trade in the internal market and/or clear potential for improvement.

---

143 Official Journal C 323 of 30.12.2006.

144 In case of cooperation with research institutes or other companies or diffusion of results for industrial research, a bonus of 15% can be added, under the conditions set in point 5.1.3 of the R&D&I framework.

145 Point 5.4 of the R&D&I framework.

In the 'Action plan on the Sustainable Consumption and Production and Sustainable Industrial Policy'[146] of July 2008, the Commission proposed recasting the Directive to enlarge its scope to all energy-related products, still with the exception of means of transport because they are already subject to separate policies and legislation to reduce environmental impacts. Energy-related products are those products that have an impact on energy consumption during use. This includes energy-using products and other products such as window frames, whose insulation properties influence the energy required for heating and cooling buildings, and water-using devices, whose water consumption influences the energy required for heating. The recast Directive is currently in the co-decision procedure by the Parliament and Council.

The Action Plan also provides for a more dynamic and forward-looking implementation to underpin continuous improvement of products. In particular, advanced benchmarks of environmental performance (voluntary for industry) will be identified to provide businesses with an early indication of high-performing products available on the market and of possible future minimum requirements. Periodic reviews will take place to ensure that minimum requirements and advanced benchmarks keep up with technological change. The Commission is currently proceeding with the implementation of the existing Directive. Implementing measures are already in force for standby and off-mode losses. For tertiary-sector lighting products, external power supplies, simple set-top boxes, and domestic lighting products (including incandescent bulbs) the measures are currently before Parliament and Council for scrutiny. Preparatory work is being undertaken for another 22 product groups. In October 2008, the Commission adopted a new Working Plan for 2009-2011 with an indicative list of energy-using product groups which will be considered priorities for future implementing measures.

6.6. Cultural policy

The Commission treated design as part of the cultural and creative sector in the European agenda for culture of May 2007.[147] Indeed, design is a key example of how cultural resources are used in an indirect way — as inputs — to contribute to innovation in non-cultural activities.

The European agenda for culture is founded on three sets of objectives: promoting cultural diversity and intercultural dialogue; promoting culture as a catalyst for creativity in the framework of the Lisbon Agenda for growth and jobs; and promoting culture as a key component in the European Union's international relations. Particularly interesting in the context of design is the second set of objectives.

As illustrated in the KEA study on the economy of culture in Europe, carried out for the European Commission in 2006, the cultural sector is a dynamic trigger of economic activity and job creation throughout the EU.[148] Cultural activities help promote an inclusive society, and contribute to preventing and reducing poverty and social exclusion. Moreover, as was recognised in the Conclusions of the 2007 Spring European Council, creative entrepreneurs and a vibrant cultural industry are a unique source of innovation. However, the growth and creative potential of the cultural industry in Europe is not yet being fully exploited.

---

146 COM(2008)397.

147 COM(2007)242 final.

148 KEA 2006. The cultural and creative sector outperforms the rest of the economy in terms of growth and job creation.

In its Resolution of November 2007 on the European agenda for culture, the Council expressed its support for the Agenda and decided on an 'open method of coordination' between Member States in this area. The Council invited the Commission to 'maximise the potential of cultural and creative industries, in particular that of SMEs' and 'pursue its work in the field of cultural statistics in terms of definitions and methodologies with a view to achieving comparability of statistical data to support evidence-based policy-making and actions'.[149]

In this context, experts from Member States, designated by the ministries of culture, have met regularly since April 2008, debating issues such as the better integration of culture and economic policies, reinforced synergies between the ministries of culture, economic affairs and education, the use of new technologies, the synergies between the cultural sector and other sectors within creative hubs, the development of new talents and the funding of businesses in the sector, not least SMEs. On the initiative of the Commission, the sector has in parallel organised itself into a platform for cultural and creative industries.

The issues of skills, training and lifelong learning are also discussed in this context as it is crucial to develop the talents needed by companies in a competitive, global market, and to raise awareness of the need to improve the links between education providers and businesses.

On this basis, the European Commission is drafting a Green Paper on cultural and creative industries, due in early 2010.

6.7. Statistical data and innovation surveys

The lack of official statistics for design as a sector and activity has been highlighted in previous chapters (see section 4.1). However, with the increasing interest in the creative industries in general, and in design in particular, this situation is expected to improve in the coming years, notably with recent revisions of the European industry standard classification system for economic activities, NACE, and the International standard classification of occupations, ISCO. As previously noted, statistics on the registration of industrial designs exist (cf. section 6.1).

The NACE system has previously not treated design activities separately. The second revision of NACE (Regulation (EC) No 1893/2006), however, will include a special code for 'Specialised design activities', 74.10.[150] The switch to NACE Rev.2 is generally mandatory for all EU Member States for the statistics referring to year 2008 onwards, and so statistics on key economic variables such as turnover, production value, value added and persons employed by the sector are expected by 2010.

The updated ISCO classification, ISCO-08, will be used in population censuses in 2010 and all EU social surveys from 2011 onwards. It includes codes for product and garment designers (2153), graphic and multimedia designers (2166) and interior designers and decorators (3432). It is expected to give some key data on design occupation, although — as with NACE — the transmission of all data may not be compulsory at this detailed level.

---

149 Official Journal 2007/C 287/01 of 29.11.2007.

150 Group 74.1 Specialised design activities, Class 74.10 Specialised design activities. This class includes: fashion design related to textiles, wearing apparel, shoes, jewellery, furniture; industrial design; activities of graphic designers; activities of interior decorators. This class excludes: design and programming of web pages; architectural design; engineering design.

As indicated above, efforts are ongoing at a European level to improve cultural statistics, as a contribution to the European agenda for culture. This is in line with efforts at international level, as illustrated by UNESCO's proposal for a new framework for cultural statistics, including design as part of 'visual arts, craft and design'. As part of the European Innovation Scoreboard project, a tentative creativity and design scoreboard was created, using existing data and indicators.[151]

Design has regularly been treated in innovation surveys. The 2007 Innobarometer survey of innovative companies across the EU asked, for example, about design staff as a source of innovation. Work is ongoing to further investigate aspects of design in future Innobarometers.

The Community Innovation Survey (CIS), on the other hand, has so far not separated design as a category of innovation activities in the harmonised survey questionnaire. Attempts were made for CIS 2008, with the formulation of different questions and testing in companies. None of the suggested definitions survived the testing, but the work will be continued for the CIS 2010.

The European INNO Policy TrendChart project produced a thematic report on 'National and regional support for design, creativity and user-driven innovation' in July 2008 on the basis of an ad hoc survey in 39 countries. The results of this survey were subsequently presented in the 2008 European Innovation Progress Report (c.f. section 5.2 above). The project does not however involve a systematic collection of data in the field of design, with the exception of design awards.

6.8. Design for all

The European Year of Persons with Disabilities 2003 was the starting point of the current European Disability Action Plan. It contains a set of actions to be implemented before the end of 2010. Activities that support 'design for all' (cf. section 3.3) are part of the plan. A number of initiatives that link 'design for all' with innovation were contained in the Disability Action Plan.

In 2003, a group of experts under the auspices of the European Commission produced a report called '2010: A Europe accessible for all'. This report stressed the benefits stemming from applying 'design for all' principles to achieve accessibility, not only to people with disabilities but also to the general public (children, elderly persons, pregnant women, passengers with heavy luggage, etc.). Although the document concentrates on the built environment, it also recognises the importance of accessible ICT technologies and services.

Also in 2003, the Commission launched a European award for innovation in 'design for all' and 'assistive technology' to encourage the design of products and systems that meet the needs of people with disabilities.

Further activities of the European Disability Action Plan include the creation of a network of centres of excellence in Design for all (EDeAN), the development of an European 'design for all' curriculum, the development of standards that consider the needs of person with disabilities from a 'design for all' perspective, and the investment of research and development activities in this area for the built environment as well as in the ICT domain, cf. section 6.10 below.

---

[151] See European Innovation Scoreboard 2008.

Equal access to goods and services for persons with disabilities is also an objective of the antidiscrimination policy and is addressed in the recent proposal for a Council Directive on implementing the principle of equal treatment between persons irrespective of inter alia disability.[152]

6.9. User-driven innovation through Living Labs

Living Labs are open innovation environments in real-life settings, in which user-driven innovation is integrated within the co-creation process of new services, products and societal infrastructures. In recent years, Living Labs have become an instrument for involving the user at all stages of the research, development and innovation process.

Since the launch in 2006, the European Network of Living Labs (ENoLL) has grown to 129 Living Labs (November 2008). Growing political interest in the subject demonstrates the importance of the Living Labs concept as a mechanism to strengthen European innovation performance.[153]

Living Labs are environments for supporting the whole innovation cycle. They combine a user-centric methodology with an open and participative approach, covering the inception, development and deployment phases in a cyclic, parallel and continuous way. They have already influenced developments in a number of fields, especially ICT network and service infrastructures, and they have shown considerable potential as cross domain innovation environments in areas such as ICT for health, well-being, inclusion, energy, and governance.

The Living Lab concept is tightly linked to the second pillar 'Strengthening innovation and investment in ICT research' of i2010, the EU policy framework for the information society and media. The promotion and support of user-driven open innovation methodologies is a horizontal activity cutting across the priorities of the ICT Research Cooperation Programme of the Seventh Framework Programme as well as the ICT Policy Support Programme of the Competitiveness and Innovation Programme (CIP).

A Living Lab is a user-driven open innovation ecosystem based on a business – citizens – government partnership which enables users to take an active part in the research, development and innovation process:

- bringing the users early into the creative process in order to better discover new and emerging behaviours and user patterns;
- bridging the innovation gap between technology development and the uptake of new products and services involving all relevant players in the value network via partnerships between business, citizens, and government;
- allowing for early assessment of the socio-economic implications of new technological solutions by demonstrating the validity of innovative services and business models.

6.10. European research and networking projects

In view of growing competitive pressures on global markets, the Commission has developed a research strategy for the design and development of consumer-centred and personalised

152 COM (2008) 426.

153 For more information about Living Labs, see: http://ec.europa.eu/information_society/activities/livinglabs.

products in manufacturing. It aims at the development of tools that enable the design of products everywhere — with the customer as co-designer — and the manufacture of these products anywhere in the world.

In line with this research strategy, a call for proposals in the area of nanosciences, nanotechnologies, materials and new production technologies[154] recently resulted in a number of projects on 'innovative customer-driven product-service design in a global environment', with applications related to different manufacturing sectors, such as micro-nano technology production industry, footwear, textile/clothing, and tooling industry.[155]

A large number of projects for research related to design and networking have been supported by the European Commission, so a complete list will not be given here. Some of the more recent and noteworthy initiatives, however, are the following:

- In 2002, the Directorate-General for Research funded a project called 'Design for Future Needs'. It aimed to help EU decision-makers respond to emerging issues and trends from environmental pressures to technological change, using corporate design foresight initiatives as methodological case studies for EU policy makers.

- SEEdesign was a three-year interregional cooperation project, part-financed by the INTERREG IIIC Programme and ending in December 2007. Its objective was to collect and disseminate information on good practice in the area of design support programmes.[156] A new project, SEE, has been set up with the support of INTERREG IVC, focusing on policy and innovation in relation to design.

- DEEDS (Design Education & Sustainability) is a project supported by the Directorate-General for Education and Culture, the programme for Lifelong learning. It aims to integrate sustainability into design education and the design industry in the EU.[157]

- EDTI, the European Design Training Incubator, is another project supported by the programme for Lifelong learning. It aims at establishing a common European platform where organisations involved in design can audit existing training, identify training needs, and share and coordinate training development.

- Inclusive Design Curriculum Network (IDCnet) (2002-2005) was a thematic network financed by the European Commission. Its activities continue under the umbrella of the European Design for All e-Accessibility Network (EDeAN) where the Directorate-General for Information Society has an advisory role. EDeAN's main objective is to provide input for a European Curriculum in Design for All, a forum for Design for All issues and idea sharing through joint activities.

- The RESPONSE project of the Directorate-General for Enterprise and Industry, a three-year project (2003-2007) on Corporate Social Responsibility (CSR) and SMEs, identified design as a lever for mainstreaming CSR.[158]

---

154 Official Journal C316 of 22 December 2006.

155 Four projects are related to the topic of 'global design' (ref. NMP-2007-3.3-1), notably CORONA on micro- and nanotechnologies, DOROTHY on customer-driven shoes, ECO-TEX-DESIGN on Textile/Clothing and TIPSS on tooling. All projects started in the second half of 2008.

156 www.seedesign.org.

157 www.deedsproject.org.

- ADMIRE is a project supported by the Commission under PRO INNO Europe that aims at raising awareness in the field of design management. Its 'flagship' deliverable is the Design Management Europe (DME) Award. Other deliverables include a benchmarking survey on the status of design management in Europe, a design management self assessment tool, and an online library of case studies demonstrating how design and design management can make companies more successful.[159] ADMIRE cooperates with IMP³rove, a Europe INNOVA project, to integrate design management into the larger framework of innovation management.

6.11. Cohesion policy: support and open opportunities

Reducing the innovation deficit in European regions is a key task for European Cohesion policy. Cohesion policy concentrates its financial support via the Structural Funds on the poorer regions, usually characterised by lower levels of innovation performance. For the period 2007-2013, €86 billion are available, notably €2 billion for interregional cooperation projects. SEEdesign, mentioned above, is an example of such a project.

The management of the Structural Funds is decentralised. This means that the allocation of funds to projects is not handled by the Commission, but by Member States. Initiatives for developing measures to support SMEs in the area of design are under way in regions in several Member States.

In 2006, the Commission adopted a new initiative for the 2007-2013 programming period, called 'Regions for Economic Change'. This initiative introduces new ways to dynamise regional and urban networks, and to have innovative ideas tested and implemented. In these networks of regions, the Commission has the opportunity to work closely with the regions and to facilitate the exchange of good practices on all aspects of innovation, including design.

158 See MacGregor et al. 2007.
159 See http://database.designmanagementeurope.com/.

7. BARRIERS TO BETTER USE OF DESIGN AS A TOOL FOR INNOVATION IN EUROPE

Summary

- A number of potential barriers exist to better use of design for innovation in Europe. Some of them are linked to the broad nature of design, which may make it difficult to grasp, while others are related to recent developments in the concept of design, meaning that its role in the context of innovation and competitiveness is only just emerging.

- Barriers exist among companies as potential design-users or buyers, particularly in SMEs, as they often have little experience of design, do not know what to expect from design, nor how to find professional help or integrate design into their innovation processes. The designers often lack business knowledge and other skills necessary to be better integrated into the business and innovation community.

- The average size of design companies weakens their influencing power in governments, a situation which is further weakened by the fact that design generally depends on several ministries. While some European countries are among the world leaders in design, others — notably new Member States — do not consider design in the context of innovation and competitiveness. In a majority of Member States, design and innovation policy are poorly integrated. This is also reflected at the level of innovation support mechanisms where support for design-driven innovation has potentially a greater role to play.

- Weaknesses also exist in the design education system, where management and business aspects are often insufficiently integrated into design education, and design aspects into business education, engineering and architecture. There may also be a need to train professionally active designers to take better account of recent developments in design-driven innovation. Design research is still a comparatively small discipline, often insufficiently integrated with the more established discipline of innovation research.

When asked about the relationship between design and innovative products, most people intuitively say that this relationship is strong, and that the value of well-designed products is greater than that of products with an ordinary 'look and feel'. Previous chapters, notably section 3.1 on the link between design, innovation and competitiveness, and 4.2 on micro-economic analyses of design, show that this relationship is not only intuitive, but confirmed by a great number of studies into the economic impact of design: the use of design generally improves a company's innovation performance and increases its profits.

Nevertheless, many companies do not use design in a conscious, systematic or strategic manner. As indicated in section 3.4, SMEs, and companies in low-tech sectors, for example, tend to spend relatively less on design than their larger high-tech counterparts, although design seems specifically suited to SMEs, being an innovation activity with relatively low capital requirements and short pay-back periods.

Similarly, as Chapter 5 on national policies and initiatives in support of design demonstrates, only few Member States are seriously and systematically addressing design as a driver of innovation and competitiveness. The potential of design to improve the environmental aspects of products and services, to increase the usability and accessibility of products and services for disabled and elderly persons, and also to improve product safety, also makes it an area of public interest.

Why then does design — and specifically *design-driven innovation* — not attract more attention and followers than it does?

Part of the answer to this question is that although design is nothing new, its role in the context of innovation, competitiveness, and social and environmental sustainability is linked to recent societal developments (such as global competition, increasingly sophisticated consumer demand, and greater environmental and social awareness) and therefore is only just emerging.

It takes time for attitudes and institutions — political, educational, etc. — to adapt to what is new, in particular when the new element is difficult to define and grasp. The benefits of design are not yet sufficiently known to companies or policy makers, the design sector does not yet have a clear innovation profile, and many educational institutions have not yet adapted their curricula to the changing nature of design. As the contours of design have not yet stabilised, the area of design-driven innovation is still dominated by a group of fast movers, of early adopters, that are willing to act despite the lack of a universally agreed definition and official statistics.

If design as a driver of innovation delivers what it promises, companies and policy makers may give design a more prominent role in the future. In the meantime, a number of barriers, including market and systems failures, are potentially hampering the use of design for innovation in Europe. Lifting some of these barriers at a national or European level, or counterbalancing their effect, could be the purpose of a European policy in support of design-driven innovation — provided such measures do not distort competition or create new barriers, — and could give Europe an advantage and head start in an area which is likely to become increasingly important in the global competition landscape.

Based on the analysis of this document, barriers to better use of design as an enabler for innovation, or potential weaknesses, have been identified in the following areas:[160]

- Barriers to the use of design in companies, mainly in SMEs;
- Barriers in the political and institutional framework for design;
- Barriers to growth of design businesses;
- Barriers in education, training and research.

7.1. Barriers to the use of design in companies

Research suggests a combination of reasons why companies, in particular SMEs, are not more active in design:[161]

- Limited ambition or appetite for risk;
- Lack of resources and multiple pressures on the business;

---

160 Thenint (Marseille workshop) 2008, Danish Enterprise and Construction Authority 2007, Nordic Innovation Centre 2006.

161 Cox 2005, Irish Centre for Design Innovation 2007, Polish Ministry of Economy 2007.

- Lack of belief or confidence in the value of the outcome;
- Lack of awareness and experience;
- Lack of knowledge of how and where to turn for specialised help;
- Inadequate support mechanisms.

These factors range from attitudes that are difficult to influence, to conditions that are partly external to the company and may be targeted with public action. It shows that some SMEs are not aware of the potential of design, but even if they were potentially interested, they would not know where to find support.

The Internet and specialised press constitute key sources to many companies, but provide information that cannot be easily verified.[162] Larger design consultancies are concentrated in big cities, and therefore not easily accessible to all potential clients.[163] The very small design companies often lack resources to market their activities to a wider circle. This means that many companies, in particular SMEs and companies not situated in big cities, do not know how to access quality design advice.

Some companies consider or believe that design projects are too expensive, while at the same time declaring relatively low design expenditure, and lack of awareness of what a design project actually costs or how to evaluate it. Companies, particularly SMEs, often lack the resources, expertise and methods to evaluate the risk and the rate of return on design investment.[164]

In addition, even when they do find a designer, companies often lack the experience and knowledge to introduce design into their innovation processes, and to exploit fully the potential of design. Research shows that the most successful design projects are those where the designer is the most integrated, and has the most contacts with the rest of the company.[165]

In economic terms, design services are 'experience goods', i.e. a product or service whose characteristics (such as price or quality) are difficult to observe in advance, but these characteristics can be ascertained only on consumption, in contrast to a 'search good'. This is particularly the case when design services are bought from a designer for the first time. With experience goods the perceived quality tends to vary widely, encouraging information asymmetries and therefore market failures.[166]

7.2. Barriers in the political and institutional framework for design

As demonstrated in Chapter 2 on definitions, design is a broad, multi-faceted concept with unclear boundaries. The broad nature of design is an advantage in many instances, but it does not aid communication with policy makers. As there is no clear understanding of what the design field encompasses, whether it is part of arts and culture, or of business and innovation, design tends to 'fall between two stools', for example by depending on several ministries.

---

162 Polish Ministry of Economy 2007.
163 FORA 2007, Irish Centre for Design Innovation 2007.
164 Polish Ministry of Economy 2007.
165 See e.g. French Ministry of Economy, Finance and Industry 2002.
166 Tether in SEEdesign Bulletin Issue 3, 2006.

Some Member States are among the world leaders in design, as demonstrated in section 5.7 above on international design rankings. Others, however, seem not to be tapping into design's potential for competitiveness purposes at all, notably some of the new Member States.[167] Hence, the level of support for design varies greatly between different Member States and regions, as demonstrated in Chapter 5 above. Whereas companies in some regions benefit for example from the presence of strong design centres and programmes to facilitate and support the use of design, other regions offer no support at all.

Section 5.6 show that some Member States have made the link between design and innovation, and actively promote design as a driver of innovation. In many Member States, however, designers have not positioned themselves firmly in an innovation context. Being a reflection of national innovation policies, innovation support mechanisms are not targeted at design, and little support for design-driven and user-centred innovation is given. Innovation agencies, regional offices and innovation intermediaries, for example, often lack design expertise. Similarly, investors — whether public or private — often do not know how to evaluate design projects and design-driven start-ups.

7.3. Barriers to growth of design businesses

As discussed in section 4.1 above, the design sector is dominated by very small companies. Being small has its advantages, but it also means that design companies often lack resources to grow and reach new markets, and to engage in training. Many designers therefore lack experience, skills and knowledge of recent developments in for example strategic design, design management and design-driven innovation. This naturally hampers their integration into the innovation community and their contribution to innovation.

There may also be an issue of professional culture, if the designer sees him/herself as an independent form giver, and as part of the artistic rather than the business and innovation community. This potentially complicates communication and collaboration between designers and the business and innovation community of which designers are not always an established part.

The fragmented sector also means that designers often lack resources to organise themselves as a profession. This results in low levels of networking, coordination failures and weakens the influencing, marketing and lobbying powers of designers.[168]

7.4. Barriers in education, training and research

The lack of designers with the right skills, as mentioned in section 7.2, is another area where the state could have a potential role to play. The role of design education cannot be overestimated as a driver of design excellence and competitive advantage. This is a common conclusion of all governments with a formal design policy, as indicated in section 5.5. In many cases, however, the number of design students is not the problem; in some countries, design graduates demonstrate higher levels of unemployment than those of other professions.[169] While for example the Nordic countries are experiencing a boom in small

---

167 European Commission 2009 (European Innovation Progress Report).

168 Nordic Innovation Centre 2006.

169 Danish Enterprise and Construction Authority 2007.

design firms started by recent design graduates, there is also a high failure rate among these firms and little replenishment of the population of successful design firms.[170]

The challenge is the lack of designers with the right skills and experience in view of recent developments in the area of design, such as strategic user-centred design, eco-design, 'design for all', design management and computer-aided design. Design consultants who lack for example basic business and management skills may have difficulties convincing industrial clients. In-house designers without these skills may not be capable of building bridges between the technical and commercial departments. Similarly, designers without entrepreneurial skills may find it difficult to start and grow their own business. These issues need to be tackled through education that better integrates design with management, basic business and entrepreneurship. Likewise, they may be addressed by continuing professional development and training throughout designers' careers.

As the demand for designers is expected to increase, it is important not to allow the quality of education to go down. Certain Asian countries are for example shortening the length of the design education to be able to cope with demand.[171] It has been noted that design research is an underdeveloped area and that more high-level R&D in design is necessary to develop design as a competitive advantage and innovation driver on a national or regional level.[172]

To make design a strategic advantage, it is also important that not only the designers in a company understand the potential of design. This has been noted by the American Design Management Institute, which promotes design thinking among non-design executives, providing training and research. It has been suggested that design should be an integral part of business school training, and also in engineering and architecture, in the same way as management should be an integral part of design education.

170 Nordic Innovation Centre 2006.
171 Pasternack 2008.
172 Nordic Innovation Centre 2006.

8. CONCLUSIONS

Summary

- Design has the potential to become an integral part of European innovation policy, a building block of a policy model that encourages innovation driven by societal and user needs, and builds on existing European strengths such as our heritage, creativity and diversity to make Europe more competitive.

- Joint European action could include non-binding cooperation, sharing of experiences and good practice, and the setting of common targets and benchmarking. The development of tools and support mechanisms for design-driven, user-centred innovation, networking and research, and collaboration in education and training are areas of action that could help remove some of the barriers to better use of design as a tool for innovation.

- The exact scope and content of possible European action in the area of design are not outlined in this document, but left as open questions. Readers of this document are invited to participate in an online public consultation.

8.1. Recapitulating design as a driver of user-centred innovation

The analysis of this document has shown that there is a clear potential to improve innovation performance and competitiveness at company and national level through the use of design. This potential has become increasingly evident in recent years, due to the changing nature of innovation and developments in the concept of design on the one hand, and to increasingly sophisticated consumer demand and global competition on the other.

The analysis shows that some European companies and countries are world leaders in design, both in terms of design performance and in terms of political awareness and action. There are however great discrepancies between different types of companies, and between Member States. Some issues related to design are already addressed at EU level, such as those linked to design protection, but an explicit integration of design into European innovation policy is still lacking. The purpose of this document, and of the related public consultation, is to better understand the need and possible scope for EU support of design as part of innovation policy.

Barriers to better use of design in Europe can be found in companies, at political and institutional level, in education, training and research, and in the design sector itself. An important common denominator of these barriers is the lack of understanding about the nature of design and its potential. This is partly due to the novelty of concepts such as strategic design and design-driven innovation, but also to the lack of a common definition and the ensuing lack of statistical data on design.

In the context of innovation policy, it may be necessary to demarcate the concept of design, to arrive at an operational definition for policy development. The following suggestion could be a starting point, to be further discussed and developed:

Design for user-centred innovation is the activity of conceiving and developing a plan for a new or significantly improved product, service or system that ensures the best interface with user needs, aspirations and abilities, and that allows for aspects of economic, social and environmental sustainability to be taken into account.

There may be a case for giving design as an innovation activity a more distinct and independent role in innovation statistics, either in a future revision of the Oslo Manual, or by the creation of a new manual on design, treated separately or grouped with related innovation activities.

8.2. A European vision for design and a case for cooperation

The following vision was developed in a European innovation policy workshop with experts on design and design policy in Marseille June 2008: 'To build on our existing strengths and our heritage to make Europe a reference for design excellence, whether for research, education and skills — attracting and retaining the best talents, for high-end design and excellence, and for breadth and depth of design usage in private and public organisations.'

Achieving such a vision would require substantial effort and investment, from a range of players. While the responsibility for innovation and competitiveness mainly lies with national governments, some challenges are common to all EU countries, such as the need to remain competitive in global competition; to constantly improve innovation capacity (especially the skills base of the workforce) and innovation performance to remain competitive; to encourage all forms of innovation and growth, particularly in SMEs; and, simultaneously, the necessity for economic, social and environmental sustainability.

Some possible European objectives in relation to design, such as ensuring Europe's position as a world leader in design and the image of European design, cannot be achieved by individual countries acting alone. Other possible objectives, such as achieving excellence in design education and user-centred innovation, would be easier to achieve if countries learn from each other and develop common tools, which can then be adapted to meet the specific needs of each region and country. European excellence in design research may benefit from coordination, networking and a pooling of resources. There is scope for learning through European R&D and innovation projects in areas such as strategic design, eco-design and 'design for all'.

A model of European innovation policy that acknowledges the significant role of design in the innovation process would allow EU companies to build on a clear comparative advantage linked to European heritage, diversity and creativity. It would also motivate and enable companies to engage in innovation that is driven by user needs and that takes wider social and environmental considerations into account. It would thus contribute to fulfilling EU ambitions to become a more competitive and sustainable economy.

EU policy in support of design would therefore not aim at creating a single model of European design support. Member States and the European Commission have in recent years strengthened their political co-operation at a European level in the context of the Lisbon strategy for growth and jobs, with focus on soft, non-binding cooperation, sharing of experiences and benchmarking, and on strengthening of national policies. A similar approach could be taken in the area of design policy, if it became an integrated part of European innovation policy and of Europe's next strategy for growth and jobs.

To conclude, it should be noted that the efforts that will have the most effect on the use of design as a tool for innovation and competitiveness are not those of the European Commission. These efforts will have to come from policy makers at national, regional and local level in Member States, from design associations, design councils and design centres,

from educational institutions, from design buyers — consumers as well as institutional buyers — and, not least, from companies.

Readers of this document are invited to participate in a public consultation. To access the online questionnaire, visit 'public consultations' on the website of the Directorate-General for Enterprise and Industry of the European Commission:

http://ec.europa.eu/enterprise/index_en.htm

Alternatively, access the questionnaire on *Your voice in Europe*:

http://ec.europa.eu/yourvoice/

The public consultation will be open until 26 June 2009.

ANNEX 1: International design rankings

Design Competitiveness Index

The most commonly cited international design ranking is the 'design competitiveness index' based on data from the World Economic Forum's Global Competitiveness Report (see also section 4.3). This design index was used first by the New Zealand Institute of Economic Research in a study from 2003,[173] and then updated twice by the Finnish Designium Global Design Watch[174]:

Design Competitiveness Ranking 2007	Design Competitiveness Ranking 2005	Design Ranking 2002
1. Germany 6.1	1. Japan 6.2	1. Finland 6.3
2. Switzerland 6.1	2. United States 6.2	2. United States 6.2
3. Japan 6.0	3. Germany 6.1	3. Germany 6.1
4. Sweden 5.9	4. Switzerland 5.9	4. France 6.1
5. Denmark 5.9	5. Denmark 5.8	5. Japan 6.1
6. Austria 5.7	6. France 5.7	6. Switzerland 6.0
7. Finland 5.7	7. Finland 5.7	7. Netherlands 6.0
8. United States 5.7	8. Sweden 5.7	8. Sweden 6.0
9. Korea, Rep. 5.7	9. Belgium 5.6	9. Denmark 5.8
10. France 5.6	10. Austria 5.6	10. United Kingdom 5.8

Design Competitiveness Rankings 2002, 2005 and 2007 (Source Designium Global Design Watch 2008)

This ranking shows that Germany, USA and Japan have had high positions all years, but that the USA fell in the 2007 ranking. Finland has weakened its position, as has France, whereas Switzerland has shot up. Sweden and Denmark are among the top ten all three years. Top countries USA and Japan, and South Korea that enters in ninth position in 2007, are the only non-European countries.

---

173 NZIER 2003. The 2002 Design Index is a composite index of the following indicators: capacity for innovation, production process sophistication, extent of marketing, extent of branding and uniqueness of product designs.

174 Designium 2006 and 2008. The seven indexes used for the 2007 and 2005 Design Competitiveness Rankings were the following: capacity for innovation, production process sophistication, extent of marketing, company spending on R&D, nature of competitive advantage, value chain presence and degree of customer orientation. For a critique of the ranking, see section 4.3.

A recent Korean design competitiveness ranking put Italy, France and USA at the top of the list. The Korean methodology was based on the above-mentioned ranking but used a greater number of indicators, such as public support for design and the views of consumers.[175]

Ranking based on opinion of professional organisations

The Danish Enterprise and Construction Authority (DEACA) published a report in 2007 on the position of the Danish design sector.[176] In addition to the commonly used design competitiveness ranking presented above, it uses a number of alternative international design rankings. Among other research, DEACA conducted an international web survey among 170 design organisations worldwide belonging to the three international design organisations ICSID, IFI and ICOGRADA (for industrial designers, interior designers and graphic designers respectively). The respondents were asked to nominate three nations they considered as leading in design.

Seven nations from the design competitiveness ranking above are also in this ranking based on professional opinion; see table below. Compared to the design competitiveness ranking, UK, Italy and the Netherlands are new among the top ten.

1. UK
2. Italy
3. USA
4. Netherlands
5. Denmark
6. Germany
7. Japan
8. Finland
9. Sweden
10. France

Ranking based on opinion of international design organisations: Top 10 (source: Danish Enterprise and Construction Authority 2007)

The international design organisations were also asked about the strength of different design disciplines in different countries. UK was considered as particularly strong in communication design, USA (California) in digital and multimedia design, Germany in product and industrial design, and Italy in interior and exhibition design, product and industrial design, and fashion and textile design.

Design awards ranking

DEACA also performed research on the winning countries in major international competitions for design awards such as IDEA (USA), Good Design (USA), RedDot (Germany, IF (Germany) and Design for Asia (Hong Kong) 2001-2005. Even after neutralising the effects of advantages for nations where the awards come from, Germany, USA and Japan top the list,

175 Korean Institute of Design Promotion 2008.

176 Danish Enterprise and Construction Authority 2007.

as they do in the 2005 design competitiveness ranking. The UK, Finland, France and Sweden are not in the top ten of this international award ranking, but Austria and Belgium are:

1. Germany
2. USA
3. Japan
4. Switzerland
5. Netherlands
6. Italy
7. South Korea
8. Denmark
9. Austria
10. Belgium

International design awards ranking: Top 10 (source: Danish Enterprise and Construction Authority 2007)

Ranking based on multinationals' location of design departments

A fourth international comparison made by DEACA is based on where in the world multinational firms put their design departments. The research looked at the world's 400 biggest and 100 most innovative multinationals. The results correlate with concentrations of industrial and commercial activity:

1. USA
2. Japan
3. Germany
4. UK
5. China, France
7. Italy, Singapore, Spain
10. India, South Korea, Sweden

Distribution of design departments: Top 10 (source: DEACA 2007)

The same research shows that the location of design clusters follows the same logic. Germany for example has a strong automobile design cluster, Japan an electronics design cluster.

Ranking based on design registrations

Another way of ranking countries is to use design registrations as a proxy for design performance. A comparison of Community design registrations per million inhabitants (2006 figures) puts Denmark at the top, followed by Switzerland, Austria and Germany:

1. Denmark
2. Switzerland
3. Austria
4. Germany
5. Italy
6. Sweden
7. Netherlands
8. Belgium
9. Spain
10. France

Community industrial designs per million population: Top 10 (source: European Innovation Scoreboard 2007)

Ranking based on educational excellence

A design ranking can also be made on the basis of educational excellence. The magazine Business Week did a 'D-school ranking' in 2007. An international panel of design and brand consultants, academics from both business and design schools, and innovative companies were asked to recommend interdisciplinary design and business programs 'with curricula they respect and graduates they prefer to hire'. Interviews were then conducted with professors, students, and alumni from the recommended colleges, looking for design programs that incorporate business strategy and business programs that teach design as a tool for strategic advantage.[177]

A selection of 60 schools was made, without giving each school a specific ranking. Of these 60, 29 are located in the USA. 16 other countries are represented.[178] The second country is the UK with four schools, then Germany and China with three schools each, France, Canada, Japan, Korea, India and Italy with two schools each. Sweden, Denmark, Finland and Norway all have one school each in the ranking. Overall, Europe is the location of 15 of the 60 best design schools in the world according to this ranking.

177 Business Week, 5 October 2007 in Bitard & Basset 2008.

178 See Bitard & Basset 2008 for a selection.

Bibliography

Acha, V., 'Open by Design: The Role of Design in Open Innovation', Tanaka Business School Imperial College London, London, 2008.

Arundel, A., Bordoy, C., Kanerva, M., 'Neglected innovators: How do innovative firms that do not perform R&D innovate?', INNO-Metrics Thematic Paper, MERIT, 2008.

Bager-Sjögren, L., Hovlin, K., Pelli, A., 'Politik för design', Institutet för Tillväxtpolitiska Studier, Östersund, 2007.

BEDA Communication Series, 'The value of design for the European Economy stimulating wealth creation: the European creative industries and the role of design within them', 2002.

Bitard, P., Basset, J., 'Mini Study 05 — Design as a tool for Innovation', INNO GRIPS, PRO INNO Europe, 2008.

Bruce M., Daly L., 'International evidence on design — Near Final Report for the DTI', Manchester Business School, 2005.

Community Framework for State Aid for Research and Development and Innovation, Official Journal of the European Union (2006/C 323/01), 2006.

Cooper, R., 'Ethics and Altruism: What Constitutes Socially Responsible Design?', *Design Management Review*, University of Salford, 2005.

Council conclusions 'A Fresh Impetus for Competitiveness and Innovation of the European Economy' of 29 May 2008.

Council Conclusions on a broad-based innovation strategy of 4 December 2006.

Cox, G., 'Cox Review of Creativity in Business: building on the UK's strengths', HM Treasury, 2005.

Cunningham, P., 'National and regional policies for design, creativity and user-driven innovation', TrendChart, PRO INNO Europe, 2008.

Danish Agency for Science Technology and Innovation, 'Innovation Denmark 2007-2010. The Danish Council for Technology and Innovation's Action Plan for more Innovation and Effective Knowledge Dissemination', 2007.

Danish Enterprise and Construction Authority (Danish Ministry of Economic and Business Affairs), 'Et billede af dansk design — udfordringer og perspektiver', 2007.

Danish Government, 'Design Denmark', 2007.

Danish Government, 'Denmark in the Culture and Experience Economy', 2003.

Danish Ministry of Business Affairs, 'Designredegørelse', 1997.

DDI (Sociedad estatal para el desarrollo del diseño y la innovación), 'Estudio del impacto economico del diseño en España', 2005.

Departure, ‘Everything is design. Everything!’ Creative Vienna Look/Book 2008.

Design Flanders, ‘The economical impact of design on companies in Flanders’, 2003.

Design for All, ‘Liberate diversity’, Sweden 2006.

Designium (Sorvali, K., Nieminen, E.), ‘Global Design Watch 2008’, University of Art and Design, Helsinki, 2008.

Designium (Sorvali, K., Nieminen, E., Hytonen, J.), ‘Global Design Watch 2006’, University of Art and Design, Helsinki, 2006.

Designium (Hytonen, J.), ‘Quality and Content of International Design Education’, University of Art and Design, Helsinki, 2003 (a).

Designium (Hytonen, J.), ‘Design Policy and Promotion Programmes in Selected Countries and Regions’, University of Art and Design, Helsinki, 2003 (b).

Directive 98/71/EC of the European Parliament and the Council of 13 October 1998 on the legal protection of designs.

Directive 2004/18/EC of the European Parliament and the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, in the Official Journal of the European Union 2004 L 134.

Directive 2004/17/EC of the European Parliament and the Council coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors, in the Official Journal of the European Union 2004 L 134.

European Commission, ‘European Innovation Progress Report 2008’, PRO INNO Europe INNO POLICY TrendChart, 2009.

European Commission, ‘European Innovation Scoreboard 2008 — Comparative analysis of innovation performance’, PRO INNO Europe INNO METRICS, 2009.

European Commission Communication ‘Think Small First — A Small Business Act for Europe’ of 25 June 2008, COM(2008)394.

European Commission, ‘Innobarometer 2007 — Analytical report’, Flash Eurobarometer, 2008.

European Commission Communication on a European agenda for culture in a globalising world of 10 May 2007, COM(2007)242.

European Commission Communication ‘Situation of disabled people in the European Union: the European Action Plan 2008- 2009’, COM(2007) 738 final and SEC(2007)1548.

European Commission Communication ‘Implementing the partnership for growth and jobs: Making Europe a pole of excellence on corporate social responsibility’ of 22 March 2006, COM(2006)136.

European Commission Communication ‘An innovation-friendly, modern Europe’ of 12 October 2006, COM(2006)589.

European Commission Communication 'Putting knowledge into practice: A broad-based innovation strategy for the EU' of 13 September 2006, COM(2006)502.

European Commission Communication 'Situation of disabled people in the enlarged European Union: the European Action Plan 2006-2007', COM(2005) 604 final.

European Commission Communication 'Equal opportunities for people with disabilities: A European Action Plan', COM(2003) 650 final.

European Commission, '2010: A Europe accessible for all', Report from the Group of Experts set up by the European Commission, 2003.

Finnish Government, 'Design 2005!, Decision-in-principle on the design policy of Finland 15.06.2000', 2000.

Finnish Ministry of Employment and Economy, 'Proposal for Finland's National Innovation Strategy', 2008.

FORA (Rosted, J., Lau, T., Hogenhaveu, C., Johansen, P.), 'Concept Design. How to solve complex challenges of our time', 2007.

French Ministry of Economy, Industry and Employment, 'Etude internationale sur les politiques favorisant l'usage du design par les entreprises', Study by Algoe, Paris, 2007.

French Ministry of Economy, Finance and Industry, 'Les politiques du design en PMI', 2002.

Godin, B., 'The Linear Model of Innovation: The Historical Construction of an Analytical Framework', 2005.

Haskel, J. et al, 'Design and Company Performance: Evidence from the Community Innovation Survey', Report to DTI, 2005.

Ikeda, K., 'Trends towards universal design in Japan', Fujitsu Scientific and Technical Journal 41, 2005.

Irish Centre for Design Innovation, 'The design difference. A survey of design and innovation amongst Ireland's SMEs', 2007.

KEA European Affairs, 'The Economy of Culture in Europe', A study prepared for the European Commission, 2006.

Kline, J., Rosenberg, N., 'An Overview of Innovation', in Landau, R., Rosenberg, N., *The Positive Sum Strategies: Harnessing Technology for Economic Growth*, Washington DC, 1986.

Kolmodin, A., Pelli, A., 'Design för innovation och tillväxt', Institutet för Tillväxtpolitiska Studier, Östersund, 2005.

Korean Institute of Design Promotion, 'National Design Competitiveness Report', 2008.

Korvenmaa, P., 'Finland, Design and National Policies of Innovation', *Art, Communication and D Forum*, Osaka University, Osaka, 2005.

Livesey, F., Moultrie, J., 'Do trademarks and design registrations provide a better perspective on national innovation activity?', *DIME Working Papers on IPR,* University of Cambridge, 2008.

MacGregor et al., 'Social innovation: using design to generate business value through corporate social responsibility', 2007.

Mutlu, B., Er, A.H., 'Design Innovation: Historical and Theoretical Perspectives on Product Innovation by Design', 2003.

NESTA, 'Beyond the creative industries: making policy for the creative economy', Policy briefing, 2008.

Nordic Innovation Centre, 'Nordic Design for a Global Market', 2008 (a).

Nordic Innovation Centre, 'User-Driven Innovation. Context and cases in the Nordic Region', 2008 (b).

Nordic Innovation Centre (Fleming, T.), 'A Creative Economy Green Paper for the Nordic Region', 2007.

Nordic Innovation Centre (Power, D., Jansson, J., Lorenzen, M.), 'Nordic design for a global market. Policies for developing the design industry in the Nordic Region', 2006.

Norwegian Design Council, 'Det norske naeringslivets holdinger til design', 2006.

Norwegian Ministry of Trade and Commerce, 'Et nyskapende of bærekraftig Norge', 2008.

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

OECD, 'Encourager les PME à innover dans une économie mondiale', 2000.

OECD, 'Frascati Manual. Proposed Standard Practice for Surveys on Research and Experimental Development', 2002.

OECD, 'Oslo Manual. Guidelines for collecting and interpreting innovation data', 2005.

Pasternack, A., 'For Chinese Design Students, an Olympian Task', The New York Sun, of 21 August 2008.

Polish Ministry of Economy, 'An Analysis of the Application of Industrial Design in Polish Companies', Warsaw, 2007.

Premsela, 'Designworld. Premsela policy plan 2009-2012', 2008.

Raulik, G., Cawood, G., Larsen, P., 'National Design Strategies and Country Competitive Economic Advantage', *The Design Journal,* 11.2, Cardiff, 2008.

Regulation (EC) No 1893/2006 establishing the statistical classification of economic activities NACE Revision 2.

Regulation (EC) No 6/2002 of 12 December 2001 on Community designs.

SEEdesign Bulletin Issue 1, 2005.

SEEdesign Bulletin Issue 3, 2006.

SEEdesign Bulletin Issue 6, 2007.

SEEdesign, 'Design for Service', 2008.

Sotamaa, Y., 'New Strategies of Design Challenge Education and Research', *Saint-Petersbourg Cumulus Working Paper*, University of Art and Design, Helsinki, 2004.

Swedish Industrial Design Foundation (SVID), 'Design för bättre affärer', 2008 (a).

Swedish Industrial Design Foundation (SVID) 'Svenska företag om design 2008', 2008 (b).

Tether, B., 'Think piece on the Role of Design in Business Performance', University of Manchester, 2005.

Tether, B., 'Design in Innovation: Coming out from the Shadows of R&D?', presentation on DTI event to launch the results of the UK Innovation Survey 2005, 2006 (a).

Tether, B., 'Design in Innovation: Coming out from the Shadow of R&D. An Analysis of the UK Innovation Survey of 2005', Department of Trade and Industry (DTI), London, 2006 (b).

Thenint, H., 'Design as a tool for innovation', Report from INNO-GRIPS workshop in Marseille, June 2008.

UK Department for Business, Enterprise & Regulatory Reform (BERR), 'Five Dynamics of Change in Global Manufacturing', Economics Paper No 2, 2008 (a).

UK Department for Business, Enterprise & Regulatory Reform (BERR) 'Manufacturing: New Challenges, New Opportunities', 2008 (b).

UK Department for Innovation, Universities and Skills (DIUS) 'Innovation Nation', 2008.

UK Department of Trade and Industry (DTI) 'Creativity, Design and Business Performance', Economics Paper No 15, 2005.

UK Design Council 'The Good Design Plan', 2008.

UK Design Council 'High-level skills for higher value', 2007 (a).

UK Design Council, 'The Value of Design. Factfinder report', 2007 (b).

UK Design Council, 'The Practical Power of Design, Corporate Plan 2004-07', 2003.

UK Government 'Creative Britain. New Talents for the New Economy', 2008.

Verganti, R., 'Innovating Through Design', *Harvard Business Review*, Harvard Business School Publishing Corporation, 2006.