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Design for Innovation and Growth

– a promising competitive concept in the future?

Anne Kolmodin and Aurora Pelli

itps SWEDISH INSTITUTE FOR GROWTH POLICY STUDIES

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Foreword

In connection with the 2005 Year of Design, the Institute for Growth Policy Studies (ITPS) has made this study, which is an introduction to design for growth and innovation

Design is increasingly emphasised as an important competitive advantage and thus a component for generating growth. The focus of the report is therefore to make a detailed study of the ways in which Sweden and other countries regard design as a growth factor, and to explain the relationship between design and growth. The study has been made by Anne Kolmodin and Aurora Pelli (project leader).

The survey of the ways in which design is treated as a growth policy factor in the USA has been made by Helena Jonsson Franchi and John Wallon at ITPS' office in Los Angeles. The corresponding survey of Italy has been performed by Daniele Mascanzoni of Ufficio Tecnico-Scientifico Svedese Srl. ITPS would also like to thank Jan Agri and Claes Frössén of the Swedish Industrial Design Foundation, who have contributed to this report by providing points of view and material.

Östersund, March 2005

Sture Öberg
Director General

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Summary

Design is increasingly considered a part of the innovation process, a bridge-builder between economics, technology and culture. It is often mentioned in the discussion of growth policies. It is for this reason, and in connection with the 2005 Year of Design, that ITPS has made this study. The report has the aim of providing an introduction to actors interested in design for innovation and growth. Also, by making this report, ITPS wishes to acquire knowledge of a field that many people believe will be of importance for national growth in the future. ITPS also wishes to create knowledge of ways in which new concepts and growth areas are treated in the policy.

There are strong driving forces in society that contributes to creating new consumption patterns that, in turn, exert an influence on, for example, the use of design. Globalisation contributes to structural transformation and change in conditions for production, for example in fields where low-income countries have competitive advantages. Information technology leads to the rapid dissemination of information in which renewal and uniqueness are the keys for competitiveness of enterprises and countries. Another driving force is the high degree of technical maturity. This has the effect that, in addition to the basic function of a good or service, consumers also have demands in respect of appearance, trade mark and experience. New sectors, which can create needs on the market and supply consumers with unique goods and services, are coming into being. In the report these are referred to as the experience industry or creative industry, in which design is a sub-sector. Since design of a good/service/process is a question of differentiation and constant renewal in order to meet market demand, many people draw parallels between innovation and design. Innovation is regarded as being essential for competitiveness and thus many people regard design as equally important. Another interpretation of this is that design gains legitimacy by being linked to ingrained phenomena and concepts.

The importance that design has today is demonstrated by the fact that many countries have produced strategies for design, that the numbers of users of the design concept are many and come from different spheres, and that design is regarded as important by both culture and industry. A number of reports have claimed that design is of importance for economic growth. However, studies of this type are associated with difficulties since it is always difficult to assess success on the basis of an isolated factor.

In order to grasp what design means, we have studied different ways of defining the concept and at the development processes in which design is used. It can be stated that the concept has different meanings, and describes different processes and end products depending on the context in which design is used. Since this report takes up design first and foremost from an innovation and production perspective, it is primarily definitions in this sphere that it feels most natural to refer to in the growth context.

We states that ways of creating policy for design vary. Most countries have chosen to divide the horizontal design field between ministries of culture and industry. In these cases the ministries of industry own the design perspective that is close to innovation and production. Some countries have also chosen to create an independent design policy while others allow the design policy to have its effect through other policy areas and ministries. It is difficult to describe the importance that the political strategy has for a country's design maturity and use. Many underlying factors, such as for example a country's historical heritage, has probably impact for a country's design maturity, acceptance of design, design status and design performance.

Sammanfattning

Design ses i ökad utsträckning som en del av innovationsprocessen, som en brobyggare mellan ekonomi, teknik och kultur. Allt oftare inkluderas designfrågor i olika tillväxtpolitiska diskussioner. Det är med anledning av detta samt i samband med Designåret 2005 som ITPS har genomfört denna studie. Rapporten syftar till att vara en introduktion till designfrågor för aktörer intresserade av innovation och tillväxt. ITPS vill även genom rapporten inhämta kunskap om ett område som många tror i framtiden kommer att ha betydelse för den nationella tillväxten. ITPS vill även skapa kunskap om hur nya begrepp och tillväxtområden hanteras i politiken.

Det finns starka drivkrafter i samhället som bidrar till att skapa nya konsumtionsmönster som i sin tur påverkar t ex designanvändandet. Globaliseringen bidrar till strukturomvandling och förändrade produktionsvillkor där bl a låglöneländerna har konkurrensfördelar. Informationsteknologin möjliggör en snabb informationsspridning där förnyelse och unicitet är nycklarna för företags och länders konkurrenskraft. En annan drivkraft är den höga teknikmognaden som gör att konsumenterna, utöver en varas/tjänst grundläggande funktion, efterfrågar utseenden, varumärken och upplevelser. Nya sektorer som både kan skapa behov på marknaden samt förse konsumenter med unika varor/tjänster ökar i betydelse. I rapporten nämns dessa som Upplevelseindustri/Kreativa näringar, där design utgör en sektor. Eftersom design av en vara/tjänst/process handlar om differentiering och ständigt förnyelse för marknadsefterfrågan, är det många som drar paralleller mellan innovation och design. Innovation ses som en viktig förutsättning för konkurrenskraft och således betraktas design som lika viktigt. Detta kan också tolkas som att design vinner legitimitet genom att sammankopplas med invanda företeelser och begrepp.

Att design idag har betydelse påvisas av att många länder har tagit fram strategier kring design, att antalet användare av designbegreppet är många och från skilda sfärer samt att design ses som viktigt av både kultur och industri. När det gäller den ekonomiska betydelsen av design är det däremot svårare att uttala sig med någon säkerhet. Flera rapporter pekar dock ut design som en tillväxt- och framgångsfaktor.

För att få ett grepp om vad design innebär har vi studerat olika sätt att definiera begreppet samt i vilka utvecklingsprocesser design används. Konstateras kan att designbegreppet har olika innebörd, beskriver olika processer och slutprodukter beroende på i vilket sammanhang design används. Eftersom denna rapport framför allt har berört design ur ett innovations- och produktionsnära perspektiv är det i första hand definitioner inom den sfären som känns naturligast att referera till i tillväxtsammanhang.

Vi konstaterar också att sättet att skapa politik för design varierar. Ett flertal länder har valt att dela det horisontella designområdet mellan kultur- och närings- eller industriministerierna. Näringsministerierna äger i dessa fall det industriella, innovations- och produktionsnära designperspektivet. Några länder har också valt att skapa en mer fristående designpolitik medan andra låter designpolitiken verka genom andra politikområden och ministerier.

Vilken betydelse den politiska strategin har för ett lands designmognad och design-användning är svårt att redogöra för. Däremot kan man konstatera att ett lands historiska arv förmodligen är en av de viktigare bakomliggande faktorerna för en nations designmognad, acceptans för design, designstatus och designprestationer.

1 Introduction

Design is not a new field, nor is it a new concept. The popularity of design has varied over time and has followed the business cycle. The new aspect today is that many countries and actors have started to speak about design in innovation terms, and that design is part of the discussion of growth policy. Structural adjustment, the high degree of technical maturity, the increasingly sophisticated consumer demand, and the ambitions of enterprises and regions for differentiation create a need for renewal in the form of new production methods and new solutions. Competition on the market still is decided at first hand by price and secondly by quality. But. if an enterprise is to become competitive, it is often necessary that its product/service has added value over and above its basic function. The common, well-tried and tested technology needs to be complemented with both functionality and an attractive form. It is here that design has a function as a creator of added value. Used correctly, design can function as a bridge between finance, technology and styling.

1.1 Background to the assignment

The Swedish government has observed that design is a source of renewal of development and production processes. In the government's policy statement of September 2004, design is given prominence as a key Swedish field:

> *Sweden has top positions to develop. These are education and research, IT and biotechnology, the vehicle industry, design, gender equality, consideration of the environment, and the products that are refined by the base industries…. Measures to promote exports will be strengthened. Economic ties with the USA, particular Swedish form and design, will be marketed abroad. The 2005 Year of Design will be implemented.*[1]

At a joint press conference organised by the Ministries of Industry, Education and Culture for the inauguration of the 2005 Year of Design, the Minister of Industry, Tomas Östros, said:

> *Design is an important matter for enterprises and we hope that, with this year, the extensive initiatives to enhance knowledge and understanding of the importance of design will strengthen Sweden's competitiveness internationally.*[2]

The Minister of Education, Leif Pagrotsky, announced that, in the forthcoming Government bill on research, there would be a proposal for the establishment of a research school with a focus in design.[3]

The aim of the 2005 Year of Design is to intensify knowledge of form and design from the perspectives of society and growth.[4]

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[1] *Government policy statement 2004-09-14*
[2] *Joint press conference 2005-01-28 on 2005 Year of design with the Minister of Education and Culture, Leif Pagrotsky, and the Minister of Industry, Tomas Östros*
[3] *Joint press conference 2005-01-28 on 2005 Year of design with the Minister of Education and Culture, Leif Pagrotsky, and the Minister of Industry, Tomas Östros*

In parallel with the national initiative, a number of marketing programmes will take place to give Swedish design a special profile abroad.[5]

Ongoing initiatives nationally and internationally together with the use of the concept of "design" in the development and growth context have had the effect of increasing interest in design among different actors. When a concept becomes popular, there is always a risk of carelessness in respect of definitions and content.

With this project ITPS would like to contribute to the 2005 Year of Design by giving a varied picture of ways in which the concept of design is used in the growth context. For ITPS it is partly a question of acquiring knowledge of a new field which has the potential to create growth, and partly a question of creating knowledge on ways in which new growth areas are treated in the policy.

Innovation and design are the two concepts on which the report is mostly based. An exhaustive description of the design concept is provided in chapter two. This is preceded by a discussion of why many people are of the opinion that design is a question of innovation. Where the design concept is concerned, it can initially be said that, regardless of whether design is a matter of styling, arts and crafts, or the industrial development of products, it is preceded by a deliberate action, i.e. an active decision to work with design in development and production processes.

1.2 Delimitations and disposition

This report is an introduction to design linked to growth. The aim of the report is to make a survey of ways in which the concept is used in different types of development and production processes and from an international policy perspective. With the driving forces of societys development as the point of departure, which are described in chapter 2, new consumption patterns are created which, in turn, means an increased focus towards design. It can be assumed that as the design concept grows in importance, the number of actors and sectors that use the concept will also grow. Definitions and the importance of the concept vary between the users. This is taken up in the next section, which has the aim of answering the question:

- In what fields is the concept used and for what processes? How is the concept of design used by different actors and in different sectors?

Chapter 3 contains a presentation of a number of selected studies that seek to find the relationship between growth and design. The basis used for the selection of studies is that the studies are often referred to in policy discussions and in the growth context.

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[4] In the Government's policy statement of 2002, it was announced that 2005 would be a Year of Design and be part of the design initiative supported by the Government between 2003-2005. The initiative is based on the programme "Design as a force for development" produced by Swedish Society of Crafts and Design and the Swedish Industrial Design Foundation (2002). The initiative is based on theme areas of which design as a factor for growth is one.

[5] In the autumn of 2004 arrangements were held in Hungary, Great Britain and Mexico. In the spring of 2005 the project "Beyond Blonde" will be implemented to give Swedish design a profile in the USA.

Some countries have treated design as an industry designpolicy instrument and have therefore, during the last decade, developed national strategies with the aim of enhancing the country's competitiveness. Other countries work with design integrated in other policy areas. Chapter 4 has the aim of providing a brief description of Swedish government initiatives in the design field. Chapter five has the aim of providing an overview of ways in which a sample of countries, with and without national policies, work with the implementation of design into policies. The following question is taken up in this chapter:

- How does the state work to promote the use of design as a method in enterprises and organisations?
- How is this being done in different countries?

2 Driving forces of new consumption patterns

2.1 Internationalisation creates competition

One of the direct effects of globalisation is greater competition. New competitive countries are emerging while countries in the Western world have had to adopt new positions in order not to lose market shares. International competition is spreading like wildfire to all areas and is driving productivity and innovations forward. One consequence of globalisation is that enterprises are bought, change owners, and change their legal or cultural domicile. Swedish multinational enterprises are transferring specialist activities abroad. Hitherto, this has mainly been a question of programming and IT services that have been moved to low-wage countries. However, the current trend is that highly specialised activities are increasingly being transferred to low-wage countries. In a global and long-term perspective, the internationalisation trend is positive, but for those countries, such as Sweden, whose competitiveness is in danger of being undermined both in respect of wages and knowledge, the trend is more serious. However, at the same time structural adjustment has the effect that new opportunities are born.

Internationalisation, combined with the increasingly rapid pace of technical development, has the effect that the flow of information has been increased. The increase in access to the Internet implies a rapid dissemination of trends, ideas, innovations, production methods and products. Therefore, being unique, owning a unique product, idea or production method is more demanding than it was 20 years ago. In addition, the time available for remaining unique has been considerably reduced since the world has "shrunk". Developments in information technology have the effect that information and knowledge of innovations and ideas can be simply copied, which is not only a problem. An innovation can generate many new enterprises, so-called followers.[6]

For an enterprise to survive, it is therefore a question of finding the unique aspect in the production and positioning of the product, of making it difficult to copy. This, in turn, will make the enterprise competitive and it will have a definite position on the international market.

2.2 Changes in consumption patterns create new sectors

Concurrently with internationalisation, consumer demand has become more sophisticated in respect of both goods and services. Consumers' needs have changed: the status value, trademark and appearance of goods have all acquired greater influence, in addition to function and quality. An expression of this is that the number of design offices in Sweden increased, particularly during the 1990s. Prior to this design was mainly concentrated to a few large enterprises. Thereafter, the design field became a strategic resource area that was more in demand.

[6] *Von Stam, B. "Innovation – What's Design Got to Do With It?" London Business School.*

This change is explained by the fact that the conception of the importance of design for the competitiveness industry was strengthened. This led to a greater degree of outsourcing of design work.[7]

Design is still used in the final styling process, of giving a product/service a specific appearance, but the design process has also, to a great extent, entered the production process at an increasingly early stage. Design work can be found in many enterprises, from the research and idea stage to the selection of material, manufacture, styling, and in communications with customers to permit adjustments to their needs. The design process can thus be seen as a tool to increase the efficiency of the development work on a product or service and, at the same time, design can strengthen a product's uniqueness and create added value. In the light of this, design is also seen as a competitive device that contributes to creating advantages on the international market.

At the same time as the traditional sectors will still be important in the future, new industries are coming into being that are of significance for further growth in Sweden. Old sectors, for example forestry, are finding new methods, for example design, to develop their products and organisations.[8]

> *Growth will be dependent on the interplay between the old and the new, within and between sectors and technologies.*[9]

During the latter part of the 1990s, the importance, in particular, of creative product development emerged. Creativity as a means to create value was described with the aid of a number of different concepts depending on the specific conditions in each country. In 1999, the Knowledge Foundation[10] developed the concept of the "experience economy" in which design was included as one of several sectors. The experience economy focuses on the way in which consumers experience a good or a service.[11] In both New Zealand and Great Britain, the producer perspective was chosen instead as the point of departure and the sector was called the "creative industry".[12] What distinguishes this from the Swedish definition is that the Knowledge Foundation also included the tourism sector in the concept. During the 1990s, the USA focused on a third variant called "the entertainment economy". Here the emphasis lies on a higher degree of commercialisation than the cultural sectors in other countries: one example is the strong film cluster in Los Angeles and California.[13] Today the concept of "creative industries" has also been adopted

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[7] Stockhom Scool of Economics (2002). Degree project by Forsén A. & Malmer S. "Designkontoren växer" (Design offices are growing)

[8] One example is Stora Enso which has located design development close to the packaging cluster in Karlstad.

[9] Ds 2004:36 "Innovativa Sverige. En strategi för tillväxt genom förnyelse". Stockholm. (Innovative Sweden. A strategy for growth through renewal)

[10] KK-stiftelsen

[11] Vinnova, Gustafsson, N. (2004) "Svensk forskning- rik på upplevelser?" VR 2004:07 Stockholm. (Swedish research – rich in experience?)

[12] Regionplane- och trafikkontoret, Storstadspolitik 3:2004 "Kreativa näringar i Stockholmsregionen". (Creative industries in the Stockholm region)

[13] Vinnova, Gustafsson, N. (2004) "Svensk forskning- rik på upplevelser?" VR 2004:07 Stockholm. (Swedish research – rich in experience?)

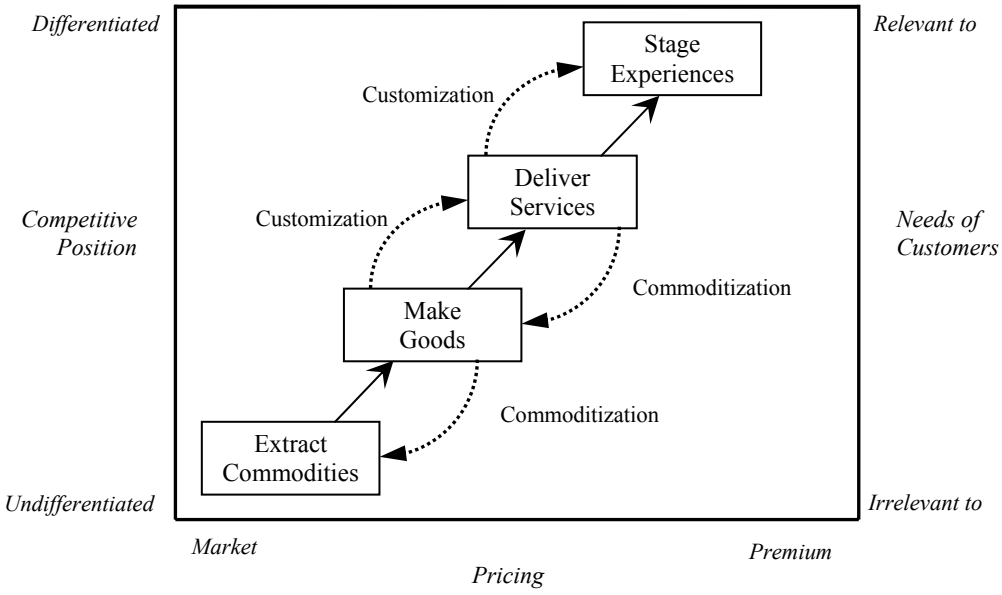
in the USA. In *Creative Assets and the Changing Economy*, Steven Jay Tepper argues that it would be better to focus analytical capacity and policies on trying to achieve a better understanding of ways in which creative work and institutions are in the process of being changed, and what can be done to promote a sounder, more robust, creative, and more multi-faceted cultural life. Instead, a great deal of energy is being expended today on estimating the influence and size of the creative economy. Tepper concludes in his report that it could be a good idea to think of the creative industries at local and regional levels where policy issues related to economic and labour force trends are clearer and where it can be easier to find synergies between different parts of the sector, for example between non-profit, commercial, small and large enterprises etc. One example is the attempt in New England (USA) to increase economic growth through a multi-stage programme, called Creative Economy, by supporting the experience economy. The programme includes, among other things, support for design initiatives in the federal states.[14]

Work with the creative industries is also taking place in a Nordic perspective. The Nordic Innovations Center[15] has started a number of projects to increase knowledge about the creative industry in the Nordic countries. One of the projects has the intention of stimulating more cooperation between traditional industries and the creative industries. The emphasis of the project lies in creating an understanding in the enterprises of the strategic and renewed importance of using design in production.[16]

A reference[17] that is often mentioned when the experience economy is discussed is ”The Experience Economy” by Joseph F. Pine and James H. Gilmore. They developed the figure below, which describes the development of economic value for goods and services that has been taking place over a long period of time. At the bottom of the value scale comes *commodities* /standardised goods), thereafter *goods* (customised/differentiated goods), followed by *services* and finally *experiences*.

[14] *The Creative Economy Initiative, the Role of the Arts and Culture in New England's Economic Competitiveness, The New England Council, June 2000.*
[15] *See www.nordicinnovation.net.*
[16] *The project is called ”Nordic-Baltic Innovation Platform for Creative Industries”*
[17] *Another reference is Florida, R & Tinagli, I.. (2004) ”Europé in the Creative Age”*

Figur 1 Economic Value Chain for goods, services and experiences



Source: The Experience Economy, Pine and Gilmore

The figure shows that two parallel processes are taking place over time, namely commoditisation (standardisation) and customisation. Goods and services that were once customised/differentiated often undergo a standardisation process when the enterprises want to reduce their manufacturing costs. In connection with this, the economic value also decreases or, to put it differently, the customers' willingness to pay diminishes. At the same time, all goods and services can be further customised which usually means a higher cost for the enterprises but it also has the effect that the customers' willingness to pay increases. In other words, by creating an experience for the customers, the economic value of a good or service can be increased, in the opinion of Pine and Gilmore.

2.3 Competitiveness through innovation

The knowledge-based economy has led to a situation in which innovations, knowledge and human resource development have become an important investment item for enterprises and countries. In the Swedish Business Development Agency's yearbook for 2005 we can read that 2003 represented a break in the trend since the manufacturing industry no longer contributed most to total growth. Among the fastest growing sectors was the service sector. This is also the case in respect of growth in employment, which is more than twice as large in the private service sector than in manufacturing (1995-2002). The trend in manufacturing industry shows that it has been subjected to a powerful pressure for transformation. Certain sectors have coped relatively well in global competition while others show negative trends. The

considerable importance of the development of services for economic growth is a challenge to the industrial policy.[18]

The Lisbon strategy of 2000 set the goal that the EU should be the most competitive and dynamic knowledge-based economy by the year 2010. The innovation policy is seen as an important instrument for the achievement of this goal. Moreover, at the meeting in Barcelona in 2002, it was decided that 3 per cent of each member state's GNP should be invested in research and development by the year 2010.[19] In Sweden the innovation strategy "Innovative Sweden" was presented in the spring of 2004. The innovation strategy was a joint product of the ministries of education and industry and lays down the focus of future work. The strategy is intended to function through government bills and other policy documents. The aim is "to establish an offensive strategy that indicates a number of fields where conditions for innovation can be improved". The focus is on issues in the policies for education, research and industry. The local and regional perspective is regarded as important to take into consideration since conditions vary in the regions in the country.

The innovation strategy defines innovation in the following way:

> *Innovation means that knowledge is transformed into new products that can be both goods and services or a combination of these. Innovations can also be new ways of designing, producing and marketing existing products. The concept is used both for the creative process and the result.*[20]

It is not only R&D investments with a focus on high-tech cutting edge skills that are important for industrial competitiveness. Low-tech sectors are also included. Enterprises in traditional sectors must be innovative in their everyday work, for example product design, organisation of production, logistics, marketing, sales, distribution and labour market relations.[21]

According to Bruce Tether, at Manchester Business School, R&D funds in England are mainly concentrated to enterprises in the high-tech sector. These enterprises receive 74 per cent of the funds. All the same, Tether and other studies demonstrate that today it is the service sector in which most development is taking place. Most design firms are regarded as part of the service sector, are small and medium-size, and are found in the low-tech sector (this includes for example furniture companies, textile and clothing companies). There is a risk that enterprises in the low-tech sector that employ many people may not receive any of the funds.[22]

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[18] *Swedish Business Development Agency (2005) "Årsbok 2005 Nya företag, Växande företag, Starka regioner". Stockholm. ("Yearbook for 2005 New enterprises, Expanding enterprises, Strong regions")*

[19] *The EU Commission's definition of innovation is that it consists of successfully creating, introducing and utilising renewal in economic and other social activities. The EU's innovation strategy can be found at http://europa.eu.int/scadplus/leg/sv/lvb/n26021.htm.*

[20] *Ds 2004:36 Innovativa Sverige. En strategi för tillväxt genom förnyelse. Stockholm. (Innovative Sweden. A strategy for growth through renewal)*

[21] *Maskell, P. (ed.)(2001) "Innovation and learning for competitiveness and regional growth- a policy challenge". Nordregio Report 2001:4, Stockholm.*

[22] *Forthcoming ITPS report by Rosenberg, M.*

According to Tether, EU's innovation policy misses a large sector with potential development possibilities.

2.3.1 Design as part of the innovation process

A researcher, Maryann Feldman, has also studied the innovation concept. She is of the opinion that innovations not only refer to new products and services but also include gradual improvements to existing services and products.[23] In Sweden's innovation strategy, design is mentioned as an important tool for renewal and product development in small and medium-size enterprises. Among other things, it is said that support for product development and design should be developed. It is a question of establishing effective and supportive structures for product development, renewal and design. In the Swedish innovation strategy, design is regarded as a component in the innovation process.

In economic theory, innovation is a process that contains a number of interactions between enterprises, customers and society in its entirety. Innovations arise either via "technology-push", i.e. technological development is behind the innovation, or via "demand-pull", which means that innovations are driven by needs that arise on the market. In order to describe the similarities between design and innovation, researchers at the NZ Institute of Economic Research have compared the design process with the innovation process and arrived at the conclusion that they coincide.[24] The table below describes the similarities.

Table 1 Design and innovation

Design definition element	**Innovation model element**
Research	Assessment of needs of society and the market place
Concept development	Part of idea generation
Concept validation	Part of idea validation
Design resolution	Development and design
Productionisation	Use of new technology, manufacturing
Communication	Marketing and sales

Source: NZ Institute of Economic Research (2003) "Building a case for added value through design. Report to Industry New Zeeland".

The first similarity refers to relations and interaction between customers, enterprises and suppliers. The enterprise receives an indication through signals on the market that a product/service does not function. A new adjustment to the market can be made through, for example, a change in the design or through a new product. Via the

[23] *ITPS (A2004:023) Feldman, M. "På den tillväxtpolitiska agendan", Stockholm ("On the growth policy agenda")*
[24] *NZ Institute of Economic Research (2003) "Building a case for added value through design. Report to Industry New Zeeland".*

supplier the enterprise receives information on materials, processes and management/control, which can lead to change in the design. The similarity between innovation and design can be described as both processes striving from the "existing" to the "preferred". By using design in the innovation process, the enterprise can find originality in the product/service and be in the forefront with the new product/service.[25]

This approach assumes that the production process is seen on the basis of a linear procedure. For the model to work, it is necessary that there is a well-identified goal, i.e. the producer must know what is to be invented or renewed and only then can a logical value chain and chain of thought be followed. The question is whether a production process follows a chain of this type. Perhaps it is rather the case that unforeseen events in the production process create the product and renewal. This would indicate that the above model is not applicable from a practical perspective.

Moreover, the renewal process involves taking a great risk. The enterprise cannot with certainty predict the course of events or the market for the product/service. A researcher, Bettina Von Stam, at the London Business School, states in the study, "Innovation - What's Design Got to Do With It?", that successful enterprises certainly consider that innovation is one of the most important factors for success, but that, in practice, few work actively with renewal. Enterprises' processes to improve efficiency and short-term financial priorities exclude taking risks that renewal nonetheless implies.[26] Since many people choose to equate design with innovation, design maturity and use in enterprises should be influenced by the same type of obstacles, in the opinion of Bettina Von Stam.

2.4 Innovation, styling and arts and crafts – the right to the design concept?

At an overall level there can be discussions on the similarity between innovation and design, that design is part of the process of renewal. A line of reasoning of this type requires good insight into ways in which the design concept is defined and design is used in development and production.

According to the dictionary published by the Swedish Academy, "design" is synonymous with *construction, pattern, project, drawing, draft, style, planning*. In other words, the concept represents everything from pens, sweaters, sofas and town planning to working methods. Design is used for the production process itself and the final styling of the product/service, which the definition of a Danish designer, Per Mollerup, tries to describe:

Design is a process and a result.[27]

It is also a question of separate design professions with different types and levels of education, and different types of methods. Some designers work close to industry

[25] *NZ Institute of Economic Research (2003) "Building a case for added value through design. Report to Industry New Zeeland".*
[26] *Von Stam, B. (2004) "Innovation - What's Design Got to Do With It?" London Business School.*
[27] *Per Mollerup's description of design in Govy. bill 1999:123 "Mötesplats för form och design". (Meeting place for form and design)*

and technology with commercialising goods. Other designers work in small enterprises as fashion designers, giving form to a specific product as their main occupation. However, the common denominator is that all work to create added value for products and services: added value defined as the difference between raw material and price. Emphasis is given to the importance of design as a bridge builder between technology and culture, between ideas and performance, between culture and business. The combination between creativity/function and user-friendliness has the effect that many countries consider that the next major growth sector will be found in the creative industries.[28]

In Swedish domestic policy, design has been defined in two government bills, one on "*Forms for the future – action plan for architecture, form and design*" and one on "*Meeting place for form and design*" In the latter bill an attempt is made to define and distinguish the closely related, overlapping concepts of design, styling and arts and crafts.

- Design can be regarded as a generic term for all three genres and is used in the bill to describe a *process and specific designation of the result if the design process, partly as an overall concept that also includes arts and craft and form.*
- *The styling process* differs from design since it is the form, material and function of the product that is in focus. Products are characterised by not having technically complex content and the form/appearance therefore has a prominent role. Furthermore it is a question of giving concrete objects a form.
- *Arts and crafts* is a designation for handmade objects that are characterised by artistic ambition and form.

The French Agency for the Promotion of Industrial Creation (APCI) describes design in the following way:

> *Design is a creative activity whose aim is to establish the multi-faced qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange.*[29]

This definition also extends the number of professions that include production, services, graphics, interior and architecture with the common aim of developing life quality.[30]

Swedish Industrial Design Foundation, SVID, defines design as a working process with elements of innovation, functionality and aesthetics. Design is

[28] *See, for example, the government of New Zealand's definition and political action plan for the Creative Industries http://www.nzte.govt.nz/section/11756.aspx.*
[29] *This definition is also used by The International Council of Societies of Industrial Design, ICSID. See http://www.icsid.org.*
[30] *http://www.apci.asso.fr/design.*

> *a working process to develop solutions in a deliberate and innovative way in which both functional and aesthetic requirements are include with the point of departure in the needs of the user. Design is used for the development of goods, services, processes, messages and environments.*[31]

On the basis of the above line of reasoning, the design concept can possibly be summarised in the following way: design is preceded by a deliberate action, i.e. an active decision to work with design in a development and production process. Furthermore, design work is characterised by a process, creativity and a final product, regardless of the way in which one works with design.

An increasing number of actors in the field are using the concept without really reflecting on the meaning of the term design. There is a risk that the real content of the concept is being undermined. Today it is possible to design everything and the concept is used both to describe the development of trade marks, for example communication design, and to describe phenomena and experiences, for example sound design and light design. To indicate the different areas of application of different types of design on the Swedish market, we have chosen to describe some of them.

2.4.1 Graphic design

Creative design of two-dimensional works, for example logotypes, patterns and illustrations.[32] Graphic design has increased in importance and now includes everything from typography, book design, newspaper layout, posters, packaging design, websites etc.

2.4.2 Industrial design

Industrial design is working with both giving a product a specific appearance and is also an expression of the whole and the context, combined with adapting the product to the user and the environment. SVID defines industrial design as

> *a working process to develop solutions in a creative way which includes both functional and aesthetic requirements with focus on the user.*[33]

In the Government bill, more explanations are given of industrial design and the conclusion is that industrial design is a deliberate and creative activity that combines technology and/or material with a social dimension to help, satisfy or influence people's behaviour. The aim of industrial design is to enhance the quality of the products, defined as a form of interaction between aesthetics, ergonomics, technology, ecology and economy.

2.4.3 Design of services

The design of services describes the work of designing a service concept, its structure, and particularly those parts perceived by a user. The goal is that the design of the service shall reflect the purpose, function and profile of the service, and that it

[31] *See SVID's website http://www.svid.se*
[32] *SVID's Design glossary http://www.svid.se*
[33] *SVID's Design glossary http://www.svid.se*

should be easy to use and attractive to users in the target group.[34] Service design is not merely used as a concept in the design world. In the IT sector, service design is a question of both technology and service. Here service design is a matter of creating competitive technology and services and is thus a competitive exporter of information technology.[35]

2.4.4 Destination design

Destination design is used to describe the design of products and services for visitors. The aim of destination design is to utilise *"the traditional values of the place in, for example, architecture and town planning and to bring these values together with innovative design and marketing communication."*[36] In other words it is a matter of creating an experience for the visitor who, in turn, will strengthen the competitiveness of destinations.

2.4.5 Municipal design[37]

In 2003 and 2004, the Swedish Business Development Agency and SVID implemented a project called Municipal Design in four Swedish municipalities[38] with the aim of integrating design in the municipalities' growth strategies. SVID will continue to run the project in 2005. The initiative focuses on local government and industry in order to contribute to strengthening identity, the design expertise of the enterprises, to increasing the power of attraction, to creating better conditions for creativity, and new thinking based on external and needs perspectives. The project uses the creative design process as a method, i.e. tries to find the unique aspects of each municipality in the project. Concrete action plans are produced to show how uniqueness through design will lead to growth.

2.4.6 Eco-design (green product design)[39]

Green product design, also referred to as environmental design, design for *eco-efficiency* or sustainable product design, includes taking proactive consideration at the earliest stages of product development with the aim of minimising negative effects on the environment through a product's life cycle. This is not a separate methodology but is integrated with the enterprise's existing product design in order to balance environmental parameters with traditional product attributes such as quality, cost and functionality. "Green" products can be manufactured with less material and can be designed to be more easily upgraded, dismantled, recycled and re-used than their conventional equivalents.

[34] *SVID's Design glossary http://www.svid.se*
[35] *See http://www.nita.uu.se*
[36] *For information on Destination design see http://svid.gatecompany.com/wlt/18D00A54-52FA-40E0-B52B-AE0D6D462AC7.wlt*
[37] *http://www.nutek.se/sb/d/406/a/1772 for more information.*
[38] *Orsa, Hällevik, Laxå and Hällefors, see http://www.nutek.se/sb/d/406/a/1772 for more information.*
[39] *ITPS Los Angeles Jonsson Franchi H and Wallon J (2005) "Design in the USA".*

Green design can result in many advantages for an enterprise, for example reducing costs and reducing production times. Green design can also act as a driving force for the innovation of products and processes in an enterprise.

2.4.7 Design management

This concept has the aim of describing the organisation and leadership in order to investigate and produce, in the most efficient way possible[40]:

- the expression of a product, type of behaviour or environments through design projects
- the impression of the user and others through design projects
- the impression – lasting results, traces, memory of design projects

It is thus a question of where in the organisation that knowledge of design can be found. Is it a service that is purchased or does the enterprise's organisation work with in-house design?

2.4.8 Strategic design

The strategic design has developed from design management. Information became a part of consumption as our society to a large extent started to be characterized by flexibility, speed, individualism and continuous change. As a consequence of this, consumption was no longer a passive act but rather an active action. Strategic design is about the creation of visibility and reliability through among other things so called "branding". It is all about communicating the companies' identity and give the consumer a feeling of belonging. Companies creates through this an opportunity to differentiate one self from others, through the identity of the product. One of the main characteristics of strategic design is that takes a holistic view of the whole organization, with all its aspects.[41]

[40] *SVID's Design glossary http://www.svid.se*
[41] Zetterlund, C.(2002) "Design i informationssamhället: om strategisk design, historia och praktik". Raster Förlag: Stockholm

3 Relationship between design and economic growth

At several universities and research institutes, intensive efforts are being made to develop old methods and to find new methods in order to capture and measure the effect of design and its importance for the financial performance of enterprises and for national economic growth. There is a programme of cooperation at the departments of business economics and management at Stockholm University and Växjö University on research into design management and design strategies.[42] At Uppsala University a survey is being made of design from a Nordic perspective.[43]

It is difficult to deduce financial performance from one single factor. For a long time, economic research has tried to find the answer to the question of what it is that leads to success. One difficulty is isolating a single factor that contributes to success. Studying the economic effects of design or any other single factor is complicated. All the factors and concepts mentioned above in this report, for example design, the experience industry, the creative industries etc are "soft" factors and it is difficult to put a monetary value on them. In this chapter we will briefly present some studies that take up the relationship between design and growth. We will not make any assessment at all of the relevance of the studies, which is explained by the quotation:

> *Experience-related sectors and their importance for economic growth are difficult to measure in statistical terms since there are no statistics that are broken down in such a way that it is actually possible to refer monetary values to, for example, the importance of "design" for a product/service. With a traditional view of growth, the potential number of produced and sold units in the future in a certain field (most often) constitutes the basis of assessments of their growth potential. When the focus is changed from a manufacturing perspective to a creativity or experience perspective, the possibilities of making the traditional assessment are changed. Focus ends up on that part of the product, often forgotten or taken for granted, that is related to the softer variables.*[44]

This small selection of reports is by no means comprehensive. Only a few selected studies are taken up which various policy documents, relatively often, refer to in respect of design and its importance for growth. Since ITPS has chosen not to evaluate the methods and results of the studies, the presentation given below is merely a brief account of each study.

[42] *Lisbet Svenngren-Holm, Stockholm University, and Ulla Johansson, Växjö University.*
[43] *Dominic Power, Department of Social and Economic Geography/Centre for Research on Innovation and Industrial dynamics (CIND), Uppsala University.*
[44] *Vinnova, Gustafsson, N. (2004) "Svensk forskning- rik på upplevelser?" VR 2004:07 Stockholm. (Swedish research – rich in experience?)*

Of the selected studies it can be said, in brief, that

- most of the studies investigate enterprises that use design in their development and production processes
- the studies refer to enterprises that have more than 10 employees, and
- they place design in relation to the enterprises financial performance during a number of years (between 5 and 10 years).

The studies results show that enterprises that use design have a better performance over time than enterprises that do not use design.

3.1 NZ Institute of Economic Research (INC)

One report that has acquired great importance for the discussion in several countries, and which forms the basis of standpoints on the importance of design, is the New Zealand study: "Building a case for added value through design".[45]

The study takes up two key concepts, design and added value. The study also presents the relationship between design and innovation and provides an overview of literature that takes up innovation and growth (see chapter 2 in this report). The study also takes up a number of studies that focus on the influence of design on the financial performance of enterprises. Finally, an investigation is made of the role played by design for improving countries' international competitiveness.

The report considers that design is a process that includes every step in product development, from the very outset to marketing. Furthermore, it is said that design can contribute to maximising added value partly by minimising input costs by efficient product systems, and partly by maximising income from sales by providing "tools" that satisfy customer demand.

The report points out that there are very few economic theories that take up the relationship between design and economic growth. However, there is a rich tradition of economic research that investigates the relationship between the broader concept of innovation and financial performance in the form of increased productivity and greater competitiveness. The study illustrates the relationships between design and innovation and examines economic theory from the perspective of the role that innovations play for economic growth, particularly from the perspective of productivity and competitiveness.

Furthermore, it is stated that design is an integral part of the innovation process and that innovation has a positive effect on both individual enterprises and the economic growth of nations (GNP). A presentation is also made of a number of empirical studies that take up the use of design from both a micro and macro perspective. The micro perspective takes up studies that seek to find the relationship between the use of design and the financial performance of enterprises. Where the macro perspective is concerned, it is pointed out that many countries have started to see the possibilities of supporting the design strategies of enterprises in order to

[45] *NZ Institute of Economic Research (INC.)"Building a case for added value through design" Report to Industry New Zeeland. February 2003. 2*

achieve national growth. During the last decade, a number of countries have developed policies with specific goals of promoting design process as an aid to increase their international competitiveness.

Where success with national design policies and the relationship between design and international competitiveness are concerned, reference is often made to *"The World Economic Forum's Global Competitiveness Report"*.[46] This report does the same. The survey has been made in 75 countries and is based on a number of factors that affect competitiveness. In broad terms, these factors cover regulations, the behaviour of enterprises, and are represented by a series of indices. The report combines these indices to form an overall index which measures the degree of competitiveness of the different countries.

"Global competitiveness ranking" includes the variables "extent of branding, capacity for innovation, uniqueness of product designs, production process sophistication and extent of marketing".

The Global Competitiveness Report has also surveyed the relationship between general competitiveness and ranking in the design field. The report states that there is a relationship, but that there are also exceptions. For example, France and Japan are ranked higher in design than in general competitiveness, while Singapore and Australia in general have a better competitiveness ranking than design ranking.

3.2 DDC, Danish Design Center

Another study that has had a considerable impact is the Danish study on the economic effects of design.[47] This study has developed a tool for measuring the design maturity of enterprises. Many studies made in different parts of Europe have used this method as the point of departure of their own surveys.

The purpose of the study is to analyse the economic effects of using design. The survey is the first of its type, a first step towards an attempt to substantiate the links between design and the profitability of enterprises. The study was performed by Copenhagen University and Advice Analyse I&A Research on an initiative of the Danish Design Center and on behalf of the Danish National Agency for Enterprise and Construction.

The survey is based on a combination of the financial data of enterprises[48] over a five-year period and telephone interviews. Approximately 1 000 telephone interviews were made with Danish enterprises with more than ten employees. The study has surveyed:

- Total investments in design.
- Trends in the gross outcome and organisation of Danish activities, and export trends.

[46] *World Economic Forum. Global Competitiveness Report 2002-2003. Oxford: Oxford University Press 2003*
[47] *Danish National Agency for Enterprise and Construction (2003) "Designens ækonomiska effekter". Copenhagen. (Economic effects of design)*
[48] *Bonnier's Newbiz Business Information System www.newbiz.dk*

- Differences in gross outcome, organisation and exports of the activities that work systematically with design and those that do not use design.

The enterprises were classified into production companies and service companies. The service companies have a relatively low degree of design maturity but are the enterprises that are developing most rapidly and are reaching the highest level on the design staircase (see appendix 1).

On the basis of the interviews, the design maturity of the enterprises is classified on the design staircase, which is then linked to the financial performance of the enterprises.

In the survey the definition of design is as follows:

> *When we speak about design we mean design strategy, development and form. Everything that takes place in production itself or implementation (of products, printed material, websites, etc).*

The result shows that there are strong positive links between the use of design and the financial performance of enterprises. The fact of the matter is that Danish enterprises employ few designers but there is positive correlation between the use of design and the number of employees. Two-thirds of the enterprises purchase design externally and six per cent of the enterprises purchase design from abroad. Moreover, the survey shows that Danish designers are working increasingly with enterprises in Asia.

3.3 British Design Council

A number of reports from Great Britain have also attracted attention, for example *"The Impact of Design on Stock Market Performance - An analysis of UK Quoted Companies 1994-2003"* made by the Design Council " (February 2004). The report has been produced by the British Design Council and presents the relationship between the use of design and the financial performance of British enterprises that have been nominated for, or have won design prizes or awards, during the period 1994-2003. The survey covers 166 design firms (quoted on the stock market), during economic booms and recessions. The point of departure of the study was to try to develop an objective method to identify firms that were active users of design and then to compare their performance as a group with generally selected firms. The result was that 63 of these firms were identified as active users of design and had 200 per cent better share price trends than the FTSE 100 index over the entire period.[49]

The Design Council in Great Britain has also produced "*Design in Britain 2003-04"* which tries to clarify the relationship between success and design. This national survey of enterprises is one of the largest surveys of enterprises in Great Britain and the most extensive survey of ascertaining whether enterprises in Great Britain use, and benefit from, design. Since the start of the survey in 2000, the method has remained unchanged. However, the size of the sample was increased prior to the study in 2004 in order to permit more exhaustive analyses of the

[49] *FTSE is an independent firm that produces index series on the share market. See www.ftse.com*

results. The survey is based on 1 500 telephone interviews with managing directors or design managers at enterprises. The interviews are conducted with enterprises of all sizes and in all sectors. The survey is made by an independent firm PACEC, Public and Corporate Economic Consultants.

No attempt is made to define "design" or "designers" since the main issue has been to show how the enterprises perceive this concept.

The study shows that, regardless of size or sector, the use of design and the financial performance of enterprises are intimately linked to each other. Almost half of the enterprises in which design was integrated have seen their turnover, profits and competitiveness increase. More than seven enterprises in ten say that design has enhanced the quality of their products or services.

3.4 Swedish Industrial Design Foundation, SVID

The survey *"Swedish enterprises on design – attitudes, profitability and design maturity"* was made by QNB Analysis & Communication AB on behalf of the Swedish Industrial Design Foundation (SVID), and the Association of Swedish Engineering Industries.

Approximately 1 000 randomly selected enterprises in Sweden were interviewed. These enterprises have at least 20 employees and design is not their main business, for example firms of architects. The main areas in the survey were:

- Attitudes: the enterprises gave their opinions on design.
- Design maturity: the design maturity of the enterprises was assessed on the basis of the interviews (see appendix).
- Financial performance: the enterprises' financial trends in recent years.

This survey used the Danish report *"Economic effects of design"* of 2003 as a model, with its "design staircase". However, the Danish model was revised and the questions were extended with the aim of identifying the enterprises' attitudes to design.

On the basis of the interviews and the annual reports of the enterprises[50], both the perceived relationship and the actual relationship between the use of design and the financial performance has been surveyed.

The results of the survey indicate that something has happened in the everyday life of the enterprises. Requirements in respect of design have increased in most cases. When the financial trends in the enterprises are studied on the basis of the design staircase, two tendencies emerge. Enterprises that show a high degree of design maturity: step four – design as innovation, have as a rule the most positive financial trends. Moreover, it can be noted that enterprises at step 1 - no design, are also doing well. Both these steps on the design staircase involve active and specific choices. Some 75 per cent of the enterprises approached in the survey invest in design, i.e. they either have employees that work with design or purchase design

[50] *Annual reports were obtained from Affärsdata*

externally. Approximately half of the enterprises interviewed stated that they do not export at all. This is regardless of whether they invest in design or not. When the proportion of exports increases, there is a relationship with purchase of design services.

According to this survey, whether or not the enterprises invest in design makes no different at all for financial performance. The factor that does appear to be important is the way in which design is used. The best financial trends are shown by enterprises that use design in a statistical way. In other words it is difficult to identify a single factor as a recipe for success, it depends on how it is handled.

3.5 Designium

In Finland two studies have been made by Designium.[51] In the first study, it is established that design has been part of the product development process in Finnish enterprises for several decades. However, the role of design has been to supply the product with a final polish in the final stages if the process. Design has been an important competitive factor even in sectors that have not used design before. Interest in design and its utility have increased as a result of the programme that is pursued by the National Technology Agency of Finland (Tekes)[52]: the ”Design 2005 technology program”. The goal of the government programme Design 2005 is to stimulate more design use and utility in Finnish enterprises.

The second study was an attempt to create an overview of the Finnish design industry and to collect comparable quantitative data on the design sector and the utility of design in industry. The survey included 560 enterprises which responded to questions via a web-based questionnaire. The results were based on responses from 165 enterprises from different sectors in the industrial sector (a response frequency if 29.5 per cent) and 30 Finnish design firms. Of the design firms, 40 per cent were one-man companies; an equally large proportion, i.e. 40 per cent, were firms with 2-4 employees. Only 6 firms had more employees and there is only one really large design enterprise in Finland. According to the study, the relatively small and narrow circle of customers in Finland has led to a situation in which most design agencies/bureaus offer a broad base of services to satisfy everyone. This has the effect that there is little specialisation. Of the enterprises that responded to the questionnaire, 52 per cent used design. In the report it is assumed that the enterprises that do not respond did not use design.

[51] *www.uiah.fi/designium ”From Design Services to Strategic Consulting – Improving Core Competence of Finnish Design Consultancies” (2004) and ”Survey of Industrial Design in Finland” (2002).*

[52] *Teknologiska utvecklingscentralen, Tekes, finances and activates challenging research and development projects of enterprises and research centres. Se www.tekes.fi.*

4 Design as a policy in Sweden

There are various reasons why the state supports and tries to exert an influence on the use of design. From a welfare perspective, it can be a matter of the state contributing to high levels of quality in the environment from a functional, technical, ecological, aesthetic and social perspective. From an industrial policy perspective, good design performance in the country can stimulate interest in Swedish products, strengthen competitiveness, and contribute to economic growth and development.

Sweden's design policy consists of measures in other policy areas, for example in the education and research policy, through the culture policy as well as through organisations and events (2005 Year of Design). Since design contains many different aspects: the cultural and artistic creative design aspect, the more production-oriented functional aspect, and the education and research aspect, matters relating to design are administered by three ministries, Culture, Industry and Education.

There are certainly both advantages and disadvantages in that there is no explicit division of responsibilities. One disadvantage can be that it makes the production of a sharp national policy in the field difficult, and that many selective measures are used. A comparison can be made with the growth policy, which also covers several policy areas. According to Jon Pierre, a researcher at Gothenburg University, political and administrative coordination is essential for the policy to have a long-term and clear line. It is also essential that there are clear divisions of responsibilities. One advantage of not having one ministry totally responsible may be that design can be applied in the best way in each policy area.[53]

This chapter has the aim of providing a picture of the ways in which Sweden has worked with design via the most common policy measures.

4.1 Policy measures

In the mid-1990s, architecture and design were given attention at the policy level. The Ministry of Culture has been the department responsible for most government bills, reports and public inquiries made in the design field. Even if design and its importance are mentioned, the architectural field has been more prominent prior to the decision to implement the 2005 Year of Design programme in which several ministries, including the Ministry of Industry, have active roles.

- **Government Official Report 1995:84 "The focus of the cultural policy"**

The report states that the measures taken in the fields of creative design and industrial design have been selective measures without a long-term perspective and specific objectives. The reason for this is stated as being that the ministries concerned and trade and industry have not understood the importance of the design field for development. Moreover, it is stated that disagreements between persons practising the profession and interest organisations have affected the result.

[53] *ITPS 2004 Tillväxtpolitisk utblick, nr 3, Pierre, J. "En samlad tillväxtpolitik?" (A coordinated growth policy?)*

- **Government bill 1996/97:3 "Culture policy"**

Issues relating to form and design are presented in the Ministry of Culture's bill. Among other things it contains proposals for more education programmes in design and the establishment of a national design council. The Culture Policy formed the basis of further bills in this field.

- **Government bill 1997/98:117 "Future forms – action programmes for architecture, styling and design"**

The proposals in the bill focused primarily on strengthening awareness of architecture, developing interaction between different education programmes, encouraging exhibitions, and encouraging greater use of design by enterprises. Together with the bill relating to cities in Sweden (in which, among other things, the 2001 Year of Architecture was announced), assignments were given to government agencies to work for good architecture, creative design and form. The bill also led to the initiation of two new public inquiries in the field of design and styling.

- **Government Official Report 1999:123 "Meeting place for form and design" (interim report)**
- **Government Official Report 2000:75 "State programmes for form and design" (final report)**

The Ministry of Culture at that time initiated the public inquiry. The interim report was the first survey and description of the styling and design field. The report proposed an institution (government agency), "meeting place", with the aim of promoting design and styling should be established through exhibitions and the development of knowledge. The final report contained an analysis of the styling and design fields and a review of state initiatives in the fields. The report also specified a number of challenges that were felt to be important. Some of the challenges were enhancing coordination of the fields, making design and styling visible, ensuring good education programmes, and stimulating more use of design by small-scale enterprises. A number of proposals were presented on the basis of the challenges.

4.2 Design in education and research

According to the Minister of Education, Leif Pagrotsky, the forthcoming research bill will contain proposals for the establishment of a research institute for design.[54] The last research bill contained decisions on research initiatives in a number of design fields. In material science and material technology it is pointed out that knowledge of materials is important from a competitive perspective. This is well in line with the innovation strategy that the Ministry of Industry and the Ministry of Education presented in the spring of 2004.

> *Creative cooperation between materials research and the form and design field can give industry good competitive advantages.*[55]

[54] *See page 11 in chapter 1.*
[55] *Govt. Bill 2000/01:3 "Research and renewal".*

Furthermore it is stated in the bill that design and styling are important for the shaping of products and services and that cooperation over sector borders should be developed in order to find new perspectives. The development of sustainable products and services requires special research programmes with a focus on design and ecology.

SVID states in the report "Swedish enterprises on design – attitudes, profitability and design maturity" that one cause of the increase in design maturity and interest in industrial design among Swedish enterprises is the number of education programmes in design in Sweden, which increased in the 1990s and this trend continued during the 2000s.[56] A large number of design programmes are offered today by Swedish universities. In a report produced by the National Agency for Higher Education it is stated that today the smaller universities are concentrating on new programmes with clear profiles in order to attract students. Several programmes related to the development of computer games, design and IT security have been started.[57] This is confirmed by a search on "design" which gives a hundred hits in the form of courses and programmes.[58] The focus of the educational programmes varies a great deal and therefore these design programmes make completely demands on students, teachers and organisations.[59] The survey and evaluation of education programmes on design in Sweden made by the National Agency for Higher Education in 1999 shows that even at that point in time there were a large number of programmes with varying elements of design. Most of the design programmes are so-called combination programmes.

In its report "Design Survey. Design for competitiveness", SVID has also tried to make a survey of education programmes in design in Sweden via the web address of the National Agency for Higher Education. A selection has been made of the programmes that were considered to be design programmes (i.e. where design coincides with the study's definition of design). The syllabus of the programmes has been examined in order to make a thorough assessment of the element of design. Thereafter an attempt has been made to weight the design content in the programmes. The following can be stated:[60]

[56] *Stockhom Scool of Economics (2002). Degree project by Forsén A. & Malmer S. "Designkontoren växer" (Design offices are growing)*
[57] *National Agency for Higher Education "Dataspel, design och studenter från Kina- räddningen för högskolans IT-utbildningar".(Computer games, design and students from China – salvation for university IT programmes)*
[58] *National Agency for Higher Education's website for information on universities www.studera.se*
[59] *Petterson, R. (2004) "Design och designvetenskap". (Design and design science) National Agency for Higher Education's quality conference, Jönköping*
[60] *SVID Projekt Designkartläggning. Design som konkurrensmedel. (Design Survey. Design for Competitiveness) Forthcoming report.*

- The design content varies considerably between the programmes. The traditional programmes contain the largest proportion of design. On the other hand, the element of design varies considerably among the engineering programmes.
- In the engineering programmes studied, design is a section in courses on product development.
- The report assumes that the number of graduate designers is considerable and that they will soon increase since students will soon start graduating from the "new" design programmes. There us a danger that the demand on the labour market for these engineers will not be sufficient.

The exact number of graduates each year from the design programmes and trends over the last ten years are very interesting questions but, due to constraints in respect of time, it was not possible for this study to examine these trends.

4.3 Actors and organisations that support design

There are a large number of networks, non-profit societies and organisations that work to increase the use of design. Details are given below of the actors that are financed by public funds.

4.3.1 Council for architecture, form and design

The inter-ministry council was established in 2004 with the main responsibility for being a driving force behind the work on architecture, form and design, with its point of departure in the goals laid down in the action programme Future Forms. It also has the task of strengthening interest in these areas and extending knowledge. The council's assignment also includes analysing the architectural and planning proficiency of municipalities and the role of town architects.

4.3.2 Swedish Society of Crafts and Design

The Swedish Society of Crafts and Design is a non-profit organisation commissioned by the Government to promote Swedish form and design by influencing public opinion. In the long term it is a matter of promoting awareness and development of styling and design of products and environments. The work is done primarily through seminars and exhibitions, in Sweden and internationally.[61]

4.3.3 Swedish Industrial Design Foundation (SVID)

SVID works to increase the use of design by enterprises and organisations and to increase awareness of the importance of design as a competitive device. SVID was formed by the Swedish Business Development Agency, the Swedish Academy of Engineering Sciences and the Swedish Society of Crafts and Design. SVID is mainly financed by an annual basic grant from the Ministry of Industry. Its activities are run throughout the country with regional offices and cooperation offices with different regional actors. Through contacts and advisory services, enterprises

[61] *http://www.svenskform.se*

are given practical guidance in the ways of making procurements of design integrating design in development work. SVID also runs national and regional projects in cooperation with various actors. With this as a base, SVID runs project activities with co-financing from trade and industry, regional organisations – for example country administrative boards and regional boards - and the EU. Today SVID works all over the country with regional offices. In addition to its activities for the promotion of design, SVID also makes surveys of the use of design and design maturity in Swedish enterprises. In 2004, in cooperation with the Foundation of Technology Transfer, it made a survey of the field: "Swedish enterprises on design – attitudes, profitability and design maturity".

In December 2002, SVID and the Swedish Society of Crafts and Design submitted to the Government the national programme "Design as a force for development of trade and industry and the public sector". The programme proposed that the Ministry of Industry should allocated SEK 60 million to SVID to run ten projects which would have a focus on industry during the period 2003-2005. The decision on the projects that should be run was taken in cooperation with the Ministry of Industry in 2002.

4.4 Initiatives to support design

4.4.1 2005 Year of Design

One of the ten projects started in 2003 was to make preparations for the 2005 Year of Design. The 2005 Year of Design was announced in the annual statement of government policy in 2002 and is a result of earlier initiatives such as the Year of Architecture and the Council for Architecture, Form and Design. Seven areas have been given priority. The Ministry of Culture has the formal responsibility for the Year while the Swedish Society of Crafts and Design is responsible for actual operations. The Swedish Society of Crafts and Design was given the task of creating a campaign office that was financed by funds from the Ministries of Culture and Industry given to SVID which channelled the funds to the Swedish Society of Crafts and Design. All in all, the 2005 Year of Design campaign will receive SEK 14.2 million from the government.

4.4.2 Design cheques

In 1989 the government introduced so-called design cheques (grants) with the aim of making it easy for enterprises that had not previously cooperated with design firms to start up cooperation of this type. The aim of the cheques was to give enterprises the knowledge that design creates growth. A further aim was that the government wanted to give prominence to design as an important competitive device. The predecessor of the Swedish Business Development Agency financed SVID. With the establishment of the Swedish Business Development Agency, the responsibility for the design cheques was transferred to SVID. In 1996 the ALMI group took over the responsibility for the design cheques. The design cheques were phased out in 2000. Between 1990 and 1999 a total amount of SEK 16 900 000 was provided in the form of grants.[62]

[62] *http://www.svid.se*

4.5 Design in other fields

4.5.1 Innovation strategy

In the Swedish innovation strategy "Innovative Sweden. A strategy for growth through renewal" (see chapter 2 in this report), design is mentioned in several areas as an important factor for Swedish industry.

4.5.2 Future for Swedish industry[63]

The group – Future for Swedish Industry – has produced proposals for the state and industry with the aim of strenghten Swedish industry to make it more competitive internationally. In the proposals it is stated that an innovation system that supports development of new products and production processes creates good conditions for enterprises.

> *Today, design is already such an important tool that it plays a decisive role in many different sectors and activities.*[64]

[63] *The group consists of representatives of trade unions, enterprises and the academic world. It has the aim of working for the renewal of Swedish industry*
[64] *Future for Swedish Industry (2005)*

5 Design as a policy in other countries

Awareness of design varies from country to country. In the Western world most countries have regarded form and design as something that creates value for production. Italy, for example, does not have a national design policy. This is left to market forces. In northern Italy in particular, the design maturity of enterprises and users is high and is regarded as a natural component in the production chain. In comparison with Italy, design maturity is low today in China. The explanation for this can be that China's general living standards and social structure are not yet sufficiently mature or have had the need to compete with the aid of design. However, China is in the process of developing competitive devices to strengthen the country's position on the international market. One such device is that China's import quotas to other countries were discontinued from January 1, 2005. This means that, in principle, China can export as much as it wishes. Another important factor is that, for the present, China can compete with low wages and mass production. China's government also regards design as a competitive advantage. Therefore, the China Academy of Fine Arts has been commissioned by the Ministry of Science and Technology, Ministry of Education and Ministry of Finance to draw up a proposal for a national design policy.

There are some general development tendencies in Asia that indicate that design and innovation are gaining ground. Several local and large multinational enterprises that have production activities in these countries have started to move design expertise close to production/the factories. Moreover, countries such as Taiwan are experiencing increasing competition from low income countries, for example mass-producing China, and are therefore investing in innovative product design. The initiatives taken by the Taiwanese government include providing support for the establishment of design centres close to the industries. The Ministry of Industry in Taiwan has worked with a strategy for the establishment by the multinational enterprises of R&D and innovation centres in Taiwan.

In Malaysia and Hong Kong, the governments are also working to retain the positive development curve in innovation and design. In Hong Kong, the government has directed support to the "Creative Industry". Moreover, Asian enterprises have started to abandon production on behalf of others in order to own the entire process. Social maturity and the increase in growth that is taking place in, for example China and India, have the effect that large markets are being opened up to both Asian and Western enterprises, which creates opportunities for the design industry. The fact that there is also a considerable increase in the number of educational programmes on design and in graduate designers in Asia creates further potential for these countries to increase their market shares.[65]

[65] *Design Management Journal Vol. 14, No 2. ""Designed" in Taiwan". Design Management Institute, http:// www.dmi.org*

Prior to his assignment to produce a design policy for Estonia[66], the Danish designer, Per Mollerup, made a review of design policies and/or design strategies in Denmark, Finland, Sweden[67], Norway, Ireland and Korea. Mollerup made a survey of the countries' definitions of design, design visions, qualitative and quantitative goals in the strategies, national instruments to promote the use of design (for example via the public sector, education ad research, use by industry etc). The study demonstrates the countries' different definitions of design. Sweden, for example, speaks about design from a perspective that is close to innovation, while Norway does not express design in terms of innovation. In the policy documents both qualitative and quantitative reasons are given as to why the country should invest in design. Mollerup has identified the most common fields that design is expected to lead to: life quality, welfare, job opportunities, competitiveness, national identity and creating an international trade mark/image. Design is not a goal in itself but should contribute to creating other added value. A short description is provided below of the design policies in some countries. The countries have been classified on the basis of whether or not they have a national policy of design.

5.1 Countries with a design policy

5.1.1 Finland

In the study made by the New Zealand Institute of Economic Research, Finland is ranked as the most design-friendly country. In the year 2000, Finland adopted its design policy, the "Design 2005!" which has the aim of integrating design with the national innovation system. The Finnish Ministries of Education and Industry have the joint responsibility for form and design. The Academy of Finland and the National Technology Agency (TEKES) were given the responsibility for the implementation and allocation of funds for the "Design 2005!".

- The Academy of Finland has started an industrial design programme which has the aim of linking together different subject areas. The programme has been evaluated by an international panel of experts.
- TEKES has started the Design Technology Programme (27 million Euro), which has a practical focus. The aim is to increase the use of design by industrial companies.

[66] *Mollerup, P. (2003) et al. final report"Establishing the basis for the elaboration of the Estonian design policy measures". DesignLab A/S.*
[67] *Mollerup has interpreted the joint proposal made by SVID and Swedish Form to the Ministry of Industry as Sweden's design policy.*

In the "Design 2005! Programme", design is defined in the following way[68]:

> *In this programme, design means planning which takes aesthetic and ethical considerations, serviceability and marketing into account and which is targeted at business, industry, trade and services, and at public sector organisations. The object of design may be a product, a service, communications, living standards and a corporate or organisational identity.*

It is stated in the programme that linking together design and the innovation system could lead to new approaches, new research and new projects in research and development. The main aim of the programme is to create a dynamic design system that would put Finland in the forefront where the use of design is concerned. This, in turn, will create competitive advantages. Important components in the design policy are therefore to create knowledge through research. The goal is that 50 per cent of Finland's enterprises shall use professional designer services, 30 per cent shall implement design skills at a strategic level in the enterprise, and ten Finnish design firms shall be active on the international market in 2005.[69]

The most important part of the Design 2005! Programme is projects for multi-disciplinary research and education in design, by cross-fertilising design management with business management.[70] A large number of enterprises are participating, together with several universities and colleges, in Design 2005! Programme. The programme has a strong regional character with, among other things, advisory services on design and development for small and medium-size enterprises. Design research, education and the theory of design are regarded as essential to make design part of the strategic planning activities in enterprises. Moreover, it is of central importance to strengthen collaboration between design and different sectors.

In Finland there are several universities that have an emphasis on art and design, while others have education programmes on design. There are also a large number of organisations working with design and innovation. One of the meeting places for design and innovation is Designium, the new Centre of Innovation in Design in Helsinki. Designium has been established in cooperation by four universities, but also includes cooperation with more universities, colleges, the public sector and private stakeholders. Designium's mission is to work with the national design policy and internationalisation of Finnish design, and to develop Finnish design to international levels of competitiveness.[71]

5.1.2 New Zealand

In 2003 the government adopted the design programme "Success by Design", in which design is defined as a bridge-builder between creativity, technology,

[68] *According to Mollerup, P. et al. (2003) "Establishing the basis for the elaboration of the Estonian design policy measures", Mollerup DesignLab A/S.*
[69] *Design 2005! The Government Decision-In-Principle on Finnish Design Policy, 15.06.2000.*
[70] *http://www.uiah.fi "A design policy in action: The implementation of the Finnish Design 2005!"*
[71] *Heikkinen, H. (2004)"Innovation Network of Art and Design Universities in Nordic and Baltic Countries. Designium Publications.*

research and commercialisation to produce unique goods, services and communications. In the strategy, design is defined as an integrated process[72]:

> *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.*

The Ministry for Industrial and Regional Development has identified Design and the Creative Industries as one of the most important sectors for national growth in the country in the future. In 2000, in its work on growth and innovation, the government gave priority to three areas of importance for future growth: 1) biotechnology; 2) ICT; and 3) creative industries. Four so-called task force groups were appointed to study how these sectors could be developed in the best possible way, what potential these sectors had, and what was needed for their development. Two strategy groups were appointed for creative industries, one for design and one for screen production. In May 2003, the task force group on design presented its strategy "Design for Success" which contained policy recommendations to the government. The proposal was adopted and the government granted approximately 6 million Euro for four years' work to integrate design into the innovation process. This was not a case of supporting existing design forms, but rather on making it possible to increase the use of design in production and services.

5.1.3 Denmark

In Denmark there are clear linkages between design and cultural experience. Design is also regarded as important for development and innovation. Design as a development area was given attention in 1997 by the government when a national design policy was produced. At the same time, the government approved a design centre in Copenhagen. In 2003 the Ministry of Economics and Business Affairs initiated a study on the economic effects of design.[73] In the study design is defined in the following way:

> *When we speak of design, we mean design strategy, development and form: everything which precedes production or implementation (of products, printed material, websites etc)*

The Ministry of Economics and Business Affairs and Ministry of Culture share the responsibility for design. The Ministry of Economics and Business Affairs is responsible for industrial design while the Ministry of Culture is responsible for arts and crafts and styling. The operational design work is the responsibility of the Danish Design Centre (DDC).

The aim of the design policy of 1997 was to increase the use of design among small enterprises and in the public sector. After the change of government in 2001, the focus of the design policy was also changed. After 2001, the DDC's budget was

[72] *Design Taskforce in cooperation with New Zealand's government and with the support of the Growth and Innovation Framework (GIF) (2003) "Design for Success".*
[73] *National Agency for Enterprise and Construction (2003) "Designs økonomiske effekter".*

reduced. The ambition was that the organisation should mainly be financed by private funds. In September 2003, the government published five strategic areas in the experience economy. The government presented different initiatives in the experience economy that would be taken to create growth and development. The DDC was once again financed by public funds.[74]

The report states that design underlines the government's decision to strengthen to conditions required to create innovation and growth in the sector between creativity and the traditional industry. In the report, the potential for Danish design is regarded as good while support to increase design maturity is seen as important.

> *For the Government this means generating smoothly functioning markets and favourable growth conditions for design users and clients, as well as providing easy access to knowledge and education. Equally, there is a need to rethink overall branding initiatives, both nationally and internationally.*[75]

The government's design efforts were in two areas:

1) New strategy for the Danish Design Center (DDC)

The government's earlier ambition to privatise DDC was changed. For the period 2004 to 2007, the Centre was granted DDK 12.5 million. DDC's new assignment is in three parts:

a) To develop, collect and inform on design at a high international level and function as a "sparring partner" between the design sector, industry and other sectors. DDC also has the mission of documenting the importance of design for the national economy.

b) To market Danish design nationally and internationally. The marketing assignment also includes increasing understanding that design is a question of development and innovation.

c) To improve and develop design skills and capacity among Danish design firms.

2) Support education and research in respect of design

a) Strengthened research into design

Among other things, a research centre for design, the Design Research Centre, is to be established with a budget of some DDK 20 million. The research centre is to coordinate and intensify research into design and constitute a foundation for developing the Danish design schools into research-based seats of learning.

[74] *Ministry of Economics and Business Affairs (September 2003) "Denmark in the Culture and Experience Economy - 5 new steps".*
[75] *Ministry of Economics and Business Affairs (September 2003) "Denmark in the Culture and Experience Economy - 5 new steps".*

b) Increased business orientation in education programmes in design

Exchanges and interaction between design schools and the industrial sectors shall be strengthened.

5.2 Countries without a coherated design policy

5.2.1 Great Britain

Great Britain is regarded as a prominent design country but, according to New Zealand's ranking, it is in tenth - and last - place from a design perspective. Despite the fact that England does not have a national design policy, design is regarded as important, which is also emphasised in other policy documents. In 1995 the British Government expressed the relationship between the use of design and the innovation process as creating added value and as a door opener to new markets[76]:

> *The effective use of design is fundamental to the creation of innovative products, processes and services. Good design can significantly add value to products, lead to growth in sales and enable both the exploitation of new markets and the consolidation of existing ones.*

The Department of Trade and Industry, DTI, and the Department for Culture, Media and Sport share the responsibility for the sectors in the Creative Industries. The responsibilities of the DTI include design while, for example, the responsibility for the film and music sectors lies with the Department for Culture, Media and Sport. The operational design work, i.e. the work of increasing the use of design by enterprises, and producing material and reports on design is the responsibility of the British Design Council77, financed by the DTI. Since 1999, a parliamentary committee has had the task of giving prominence to design as an innovation strategy.

The creative industry is regarded as an important future growth sector and is included in DTI's five-year programme "Creating wealth from knowledge". The programme explicitly emphasises design as an important factor for the industries of tomorrow. The report states that technology and science act as driving forces for innovation. However, it also states that most innovative solutions come into being through the constant improvements that are made to existing products and services. Design is seen as an integral factor in the innovation process and not merely for creating added value. Also in the strategy produced by DTI "Competing in the Global Economy - The Innovation Challenge", design is emphasised as a part of the innovation process:

[76] *UK Government (1995) "White Paper on Competitiveness".*

[77] *Assignment: to increase awareness of design in production processes. Makes an annual survey "Design in Britain" which takes up the use of design in 1 500 enterprises in Great Britain.*

The use of design helps identify problems and develop, test and evaluate solutions. The effective use of design can link emerging technologies to market opportunities and add value to goods and services.[78]

Great Britain has been a pioneer in the field of education and research in the design field. Some of the most distinguished education programmes in design are to be found there. There has been a process of cross-fertilisation between traditional subjects and design since the 1980s. Then, for example, the Business School of London integrated design into some programmes. In the general school curriculum, design and technology is a compulsory subject for children between five and sixteen years.

5.2.2 Italy[79]

Italy is known as a design country. In Italy, design is interpreted in its widest sense and includes the *entire* product development process, from the needs analysis and planning stage to manufacturing and communication with the customer. The designer coordinates and gives shape to ideas, makes priorities between functions, specifies volumes, selects materials and manufacturing methods, and creates a marketing strategy. In other words, the designer gives the products a personality. In order for design work to be included as a successful and stimulating instrument in industrial production, it should speak a language that is in harmony with our time. Therefore concepts such as ICT and sustainable development have become important ingredients in design work.

A designer's work is intimately related to the development of technology. This can be seen at many manufacturing enterprises where one important challenge is to reduce product development times. There are many successful examples of successful application of CAD systems for product design, even in the clothing and shoe sectors, i.e. mature, traditional sectors. Well thought-out design work has helped them to find an optimal mixture of quality in the product and efficiency in production, with low costs and high quality as a result.

Design is considered to be an extremely valuable instrument for shaping the business concept in the enterprise's products and this necessitates close cooperation between the designer and the enterprise's management/owner. It is therefore common in Italian enterprises that the designer's work is integrated into the enterprise's strategies and decisions. A focus on these qualitative factors reflects both the Italian view of design and the relationship between the enterprises and the designer.

Another, possibly even more interesting, aspect is the influence of design on the regional economy. Italian enterprises often collaborate with each other in networks based in the same geographical area and investments in design have proved to promote growth in the entire cluster where the enterprise works. In Italy today one

[78] *Department of Trade and Industry, DTI Economics Paper No. 7 (2003)"Competing in the Global Economy- The Innovation Challenge"*

[79] *The section on design in Italy is based on a paper by Daniele Mascanzoni. See appendix 2 for the entire report.*

speaks about *economia del design*, i.e. on the economic effects of design from the cluster-based perspective, which is becoming increasingly common.

In this respect it is important to point out that most investments in design in Italy end up in the upper steps in the design staircase (process/innovation) and it is innovative products that have become the Italian enterprises' foremost weapon in global competition. A product with a high degree of innovation also puts greater requirements on other parts of the production process. The enterprise's sub-contractors, often in the same region, are forced to be innovative in order to be able to supply the components and/or machine tools needed to manufacture an innovative product. Frequent contacts with design-intensive enterprises also lead to a greater understanding of the importance of continuous development of materials, components and production processes. The refinement of products and production that is the result of design work creates a positive domino effect for other enterprises in the cluster.

Studies of the Italian innovation system show that local sub-contractors participate in an instructive process of *learning by interacting* with the enterprise that provides the innovation. Therefore, design work also has a number of positive effects for skills development in the enterprises in the region, due to the process of transfer of knowledge and technology that follows. As pointed out by a researcher, Franco Malerba at the Bocconi School of Economics in Milan, Italian clusters can be regarded today as knowledge-intensive centres where design work and innovations are refined and disseminated to new actors which, in turn, contribute to further refinement and dissemination. This process is perhaps the most important explanation for the positive correlation between investments in design and regional growth in Italy.[80]

Since there is no national plan for the promotion of design, there are a number of private and institutional actors at the local level that stimulate the use of design. These organisations support design work by supplying targeted information on, for example, new materials or trends on foreign markets. It is a question of extremely concrete information which helps small enterprises with small financial resources to successfully manage their practical design work.

To sum up, in a network economy such as that in Italy, design is of great importance for the development of enterprises. Formal and informal networks constitute important channels for transferring information on innovative design to other enterprises, which contributes to enhancing their knowledge and competitiveness. Information on the positive effects of design circulates rapidly in the networks and stimulates a virtuous circle in which more enterprises make use of design.

[80] *Examples of this can be found in different sectors, from the engineering industry to the furniture and textile industries, in which Italian enterprises have become leaders due to the added value provided by design. In places such as Omegna, Carpi, Belluno, Civitanova etc design is the most dynamic driving force for local development.*

5.2.3 USA[81]

In the USA, as in many other countries, there is no recognized definition that describes design and what the concept includes. On the other hand, various enterprises, schools and institutions have created their own definitions and explanations and, in many cases, other words are also used to describe the field or parts of it. Some examples of other expressions are: *Creative Industry, Creative Arts, Arts and Culture, Innovation, Innovation Design, Product Development* etc.

In the policy debate, the question of design and its importance for economic growth has been obscure. There is no explicit national political strategy to promote the design sector. Nor are there any research findings, at least not to any great extent, in which the role of design in the economy has been determined. On the other hand, a certain amount of research has been pursued that focuses on the importance of the creative industries for economic growth.[82]

Despite the fact that research has focused on the creative industries, it is possible to find trends in the American economy which indicate that the importance of design has increased in recent years. In recent years, the design sector in the USA has undergone a process of change. Instead of merely designing products, today information, services and experiences are also designed. For example, in the case of mobile telephones, the telephones are designed in China but the graphics, packaging and advertisements (personality of the product) are created in the USA. This has had the effect that the American design sector has undergone a process of renewal and has become successful.[83]

On the other hand, if enterprises want to create high-cost products, it is essential that they become more innovative and here design enters the picture. The following quotations shows how closely related design and innovation are considered to be today.

> *When people talked about innovation in the 1990s – they were really talking about technology. When people talk about innovation today – they are referring to design.*[84]

> *Lately the design profession has changed its core activity from the drawing board to thinking, from styling to innovation, from the forming of things to visualising new business paradigms.*[85]

This has had the effect that industry is now attaching increasingly greater importance to design and this has had the result that designers have been given a higher rank in the enterprises. Examples of this are that Ford and Samsung have appointed CCOs – Chief Creative Officers who are part of highest management. Other enter-

[81] *The section on design in the USA is based on a paper by Helena Jonsson Franchi and John Wallon at ITPS Los Angeles office.*
[82] *For example* Creative Assets and the Changing Economy av *Steven Jay Tepper, which was brieflydescribed in chapter 2.*
[83] *Redesigning American Business, Bruce Nussbaum, Business Week, 29 November 2004*
[84] *Clark, Erica. Senior Vice President, Pasadena Art Design Center*
[85] *The Power of Design, Bruce Nussbaum, Business Week, May 17 2004*

prises have employed CDOs - Chief Design Officers. One factor that is common to both CCOs and CDOs is that they are not regarded as product designers but go under the generic term of *design innovators*.[86]

This is also the main reason why education programmes in design are undergoing a process of change. It is a fact that in recent years it has become more common for the management of enterprises to train at design schools or at design consultants with the aim of becoming more innovative. Moreover, the subject of design is now much more than creating and using artistic objects, processes and buildings.

There are a large number of education programmes in design at different levels in the USA. Some of the best known are presented below. All of them are at college or university level and have several focuses. In the more formal disciplines at academic level, a small but growing number of doctoral programmes in design have been started in the USA in the last ten years. The more extensive and recognized education programmes in design in the USA are to be found at the *Institute of Design, Illinois Institute of Technology* and *Art Center College of Design in Pasadena (California)*. These programmes focus on teaching innovation strategies, innovation of services, customer experience etc.

For many years, the Institute of Design has taught in design in respect of thinking and strategy, and offers both degrees in engineering and PhD programmes. Over the years, it has been common for enterprises in the USA to send their designers to the Institute to be trained in research methodology. In recent years, the trend is that persons who are not designers have also shown interest in learning more about the field which is so closely related to innovation. The Institute has recently introduced a new programme, Master of Design Methods (MDM), which is directed towards management, engineers and others who want to be leaders in the field of innovation. The MDM programme focuses on providing a background to design methods in user observation and research, production of prototypes of new services and products, creation of innovation systems, visualisation pf alternative futures and linking the work with innovations to organisational strategies. The programme has been produced in order to meet developments in the field which, according to the Institute, have gone from a focus on industrial design to innovation design

In California there is a very large number of design schools/universities. One of the better known is the Pasadena Art Design Center College, which, among other things, trains 50 per cent of the world's vehicle designers. Several of the universities that are part of the USA's largest university system, the University of California (UC) system, are focusing on building up a design programme of one type or another, which shows that design is considered to be an important field in the future. The main focus of the Art Center is to train designers that can contribute to real conditions, the changing needs of the markets and industry.

[86] *The Power of Design, Bruce Nussbaum, Business Week, May 17 2004*

'The Art Center's definition of design is, in brief, that the work of the designer is to solve problems and challenges in society. Furthermore, the goal is to train designers who will be the "alchemists" of the future and function as catalysts for change. The focus of the curriculum is on training *"designers for business and businesses for designers"*.

The Art Center has recently established a programme of cooperation with Caltech, a technical university in Los Angeles with many Nobel prize-winners and a world-wide reputation, and with JPL, Jet Propulsion Laboratory, which is associated with Caltech and known for its research and development work on space shuttles etc. The programme of cooperation has the aim of strengthening the ties between design and engineering. At Stanford in northern California, a new design university is currently being built. Apart from design, its programmes will include business administration and engineering in order to meet the new focus of the design field.

During the last few years, the importance of design has gradually started to attract the attention of decision-makers in the USA. As mentioned above, the USA does not have a national policy, nor are there policies at state level. Indirectly there are policies which can, for example, influence different parts of the culture sector, parts that can be difficult to relate to design.

6 Conclusions

6.1 Structural adjustment creates new opportunities and sectors

As we have mentioned above, design is not a new field and nor is it a new concept. The same applies to the other experience-based and creative industries. It is true that they have undergone a form of technical adaptation but the artistic expression has always existed. With the increasingly individualistic character of society, many regions and countries see new growth potential in the meeting that is created between creativity, technology and economics.

Technical maturity is generally high among individuals and enterprises in Europe. Supply and demand for basic technology and quality have had the effect that the process of refining goods and services – which creates added value - has been given greater scope. The preferences, needs and choices of consumers are often the governing factor. The growing incomes, leisure patterns and specialisation in working life of individuals also indicate that we are moving towards a society characterised by individualism. This necessitates adapting products and services to customers and it is within this framework that the discussion of a creative and experience-based economy belongs.

From a producer perspective, it is a question of differentiating the market in order to live up to the needs of experience on the part of the consumers and to take advantage of the added value of the product, and also to create needs. The enterprises have to work with flexible specialisation, which means that the production processes are individually adapted. The common, well-tried and tested technology needs to be reinforced and equipped with both functionality and an attractive form, which has the effect that new production methods and new solutions are needed.

Today, there are many people who maintain that design is a component in the innovation process since it works for improvements and renewal. By using design in the innovation process, design can, as one of several tools, function as a bridge between finance, technology and styling. With this line of reasoning, design offers a way of meeting the needs of customers in the production process and of gaining competitive advantages.

Several studies indicate that the services sector is becoming increasingly important for national growth and, as a result of the restructuring of society, there are several countries which, in different ways, try to benefit from the experience-based and creative industries, including design, in order to find new opportunities. It is here that the great challenges of the future are to be found. The traditional basic industries and manufacturing industries, together with Swedish raw materials, will still account for a large proportion of exports, but Sweden must also dare to see how the industries of yesterday can meet the labour force and ideas of tomorrow.

6.2 Design a "buzz word" with multifaceted meaning

On the basis of the definitions presented above, Mollerup's definition describes the complexity: *"Design is both a process and a result"*. Moreover, the number of areas of application for design is at least just as many as the definitions. Most countries have chosen a definition of the concept that is close to innovation and production. One interpretation of this is that design gains legitimacy by being linked together with concepts, definitions and areas of application that are already ingrained. All in all, it can be said that the concept has different content, describes different processes and end products in different spheres. Whether design has a value of its own or merely has the purpose of generating added value also depends on the aim of design and the type of production referred to. Since this report has taken up design particularly from a perspective that is close to innovation and production, it is in the first place definitions in that sphere that are most natural to refer to in the growth context.

The fact that the concept has so many definitions, everything from those close to art and form, to those close to production, is of course associated with both advantages and disadvantages. One obvious weakness with the concept is that it covers "everything and nothing". The concept easily becomes a "buzz word", used with the aim of attracting attention and interest without the design element being particularly specific. One example of this is in the education field. The number of university programmes that use "design" in the descriptions of the programmes has increased, which has also led to more students. The advantage is that more women apply for technical programmes that now have elements of design. It is important to examine the professions for which the students are trained, the quality of the programmes, perceptions of the programmes on the labour market, and whether there actually is a future labour market for these students. There is a danger that they will be unemployed after they have completed their education.

The advantage of the concept is the fact that nothing is excluded. The fact that "everything and everyone" can participate means that individuals and enterprises can be part of the trend and thereby be helped along to launch their ideas under a concept everyone knows.

From a political perspective there are difficulties with the wide definition of design. It makes policy work difficult since it is hard to see the importance of and the results of the use of design with traditional methods for making measurements. Comparing different studies with each other and knowing what should be measured is also complicated. Moreover, it is difficult to trace an economic outcome to an individual factor, which is made further difficult due to the lack of a common definition.

Probably it has to be accepted that design as a concept and phenomenon is, and will remain to be, a word with many definitions and areas of use. It is up to the user and the sector the user is in to define design. Despite the difficulty of establishing an agreed definition, there is a demand for a common international definition in order to be able to make comparative studies.

6.3 The horizontal perspective

The political interest in new potential areas for growth and development is large. All the concepts taken up in the report, such as design, the experience industry, and creative industries, are areas that have been ascribed considerable growth potential but which are struggling with quantification problems.

Countries have chosen different strategies to organize this sector politically. A number of countries have chosen to give the main responsibility to the ministry of industry, together with the ministry of culture and the ministry of education. The ownership of an operational area is not totally specific, which indicates difficulties in taking a comprehensive grasp of this sector. What is interesting in this connection is that many governments, for example New Zealand, see this as an industrial policy issue. Culture meets technology and gives new industries and growth. The countries in which the responsibility for design has been located in the ministry of industry define design as part of the innovation process. The fact that design and the other industries cannot be located in a specific policy area make the whole matter more complicated and makes it difficult for the sector to gain legitimacy.

The base industries have had a given position as the motor for growth in Sweden. They also have their own sector organisations that can work for them, emphasise the importance of the sector and work for national support. On the basis of the traditional division into sectors and the industrial coding system with relatively long time series, they can also prove the importance of their sectors for employment and growth. On the other hand, the horizontal industries, which cannot be placed in a sector, cannot be captured in a corresponding way with the customary measurement methods. The traditional policy areas and the traditional methods of allocating resources have difficulties in providing for all the horizontal areas. Good administrative coordination and new ways of thinking and working are required if resources are to be channelled to these areas and if they are to be given opportunities for development.

The studies presented in the report indicate that there is a relationship between the use of design and the financial performance of enterprises. However, studies of this type are associated with difficulties since it is difficult to isolate a single factor and make assessments of success on the basis of this factor. Therefore, it is necessary to develop new methods for making measurements which can capture in a better way the importance of the horizontal sectors and the creative/experience-related sectors. Work is being done at universities around the world to develop methods that capture these aspects.

6.4 Meeting renewal with policies

There is a variation between the countries studied in respect of whether a coherent national policy for design has been produced. It would of course have been interesting to study whether there is a relationship between political measures and a country's design maturity. However, on the basis of the countries studied, a political strategy does not appear to be of decisive importance for a country's design maturity, nor for the status design has or what design has achieved. Historical

heritage is probably one of the more important underlying factors for acceptance, status and performance.

Most Swedish political initiatives in the field have originated in the Ministry of Culture. On the basis of the review of political documents made in this study, there is no coordinated and uniform design policy at present that contains goals which can be evaluated. Instead the Swedish design policy acts through selective measures and other policy areas. There are both advantages and disadvantages in a situation in which there is no specific policy area for design, and in which no one ministry is responsible for design. One reason for allowing design to act through other policy areas is that design is not a goal in itself. Instead design should rather work to create other values. Many countries mention design as a possibility for generating welfare and increased employment.

Like many other countries, Sweden has a division of responsibilities where design matters are concerned. The Ministry of Industry owns the industrial perspective, the perspective close to innovation and production. The ministries of culture and education are responsible for the creative design perspective as well as education and research matters. To make a distinction of issues relating to design in this way is, in the same way as making a definition, no simple task. However, a clear division of responsibilities is nonetheless necessary to handle a horizontal policy area such as design. On the other hand, the Swedish division is still too vague and indistinct. Many countries with a similar division of responsibilities, for example Great Britain and Denmark, are specific in respect of those ministries the different design issues belong to. This facilitates both political action and makes things easier for the actors involved. In this way support is provided to give all perspectives in the field of design good conditions based on existing needs.

Denmark and Finland, among others, have established platforms and meeting places for design. The Finnish design centre, Designium, has been established by a programme of cooperation involving four universities in interaction with the public sector and private interests. In order to coordinate cross sector policy areas, it would also be of value in Sweden to create a platform where research, the public sector and private enterprise can meet.

The 2005 Year of Design has the important function of making design visible. The difference between the Swedish and Finnish design initiatives is quite clear. In Finland the government has chosen to have two main focuses in its design policy, Design 2005!, from the year 2000. One is that there is an extensive programme in respect of research and the other is that Euro 27 million has been allocated to increase the use of design by industrial enterprises. Furthermore, the Finnish design initiative has stipulated goals that shall be achieved in 2005. The 2005 Year of Design in Sweden should rather be seen as a starting point for creating interest in design as a competitive device. In order for the initiative to have an effect, it is desirable that work done after the end of the year focuses on, and is given a clear orientation towards, goals that will be evaluated after five or ten years.

On the basis of the pressure for adjustment, which has become a reality during recent years, there is reason from the Swedish perspective to take a comprehensive industrial policy grasp of the experience-based creative sectors. Many countries in Asia, New Zealand, the USA, Great Britain and Denmark have started to look at these industries from an industrial policy and growth perspective in order to secure growth in the future. Although, this does not mean that a new policy for design has to be established. First, the national government as a suggestion continue to make a clear and distinct divided in the area of design. And the second proposal is that the government examines the Creative industries and it´s potential for development and growth.

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Appendix 1 The design staircase

The design staircase is a method to measure the maturity of enterprises in the use of design. It has been produced by DDC.

In the same way as countries' definitions of design vary, their areas for marketing and uses also probably vary. Some countries equate design with innovation, others do not. This creates problems since the use of design and design maturity of enterprises is to be measured and benchmarks compiled on a country basis. Discussions on producing a common definition of design, at least for the member states in the EU, are therefore taking place at the countries' interest organisations for design.[87]

Different approaches for measuring the importance of design have been produced. For example, the Danish Design Council, DDC, has measured the economic effects of design in Denmark with the aid of its definition.[88] The survey, which is presented in chapter four, is based on the use of design by more than 1 000 enterprises (in the service and production sectors). The Danish Design Council has developed the "Design Staircase", which gives the degree to which enterprises use design in their work, i.e. the degree of design maturity possessed by the enterprises. The staircase consists of four levels. The higher up on the design staircase an enterprise is located, the greater the strategic importance the enterprise attaches to design.[89]

- **First step: Non-design**

Design constitutes an insignificant part of product development, for example. It is other professional groups and not a designer that does these duties. The point of departure of the design solution is in the perception of the people involved of functionality and aesthetics. The points of view of the users are of little or no importance for the result.

- **Second step: Design as styling**

Design is merely perceived as the final styling in the development of products or services. It can be a designer who does this work but it is usually done by other categories of personnel.

- **Third step: Design as a process**

Design is not a result but a form of work that is integrated at an early stage into the development process. The design solution has its point of departure in the problem and the production result necessitates the participation of several different professional skills, for example process technicians, material technologists, marketing personnel and organisation consultants.

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[87] *During the conference "Challenges of design promotion in Europe: Economy, innovation, national policies", Paris 2005-01-10-11 there was a discussion of the economic importance of design and methods for quantification.*

[88] *In the survey design is defined as design strategy, development and styling, everything the precedes the product itself or the implementation.*

[89] *See Erhvers- og boligstyrelsen (2003) "Designs ekonomiske effekter(Economic effects of design) SVID's website http://www.svid.se.*

- **Fourth step: Design as innovation**

The designer cooperates with management/owner in the work of renewing the entire business concept or large parts of it. The design process, together with the visions of operations, operational areas and future role of operations, are essential elements in this step.

Appendix 2 Italy

Relationship between design and economic growth. Experience from Italy

Daniele Mascanzoni

Design in Italy – not just styling

Today design is one of the most valuable weapons for competition on the global market. Italy is a country well known for its design. In Italy, design is interpreted in its widest sense and includes the entire product development process, from the needs analysis and planning stage to manufacturing and communication with the customer. The designer coordinates and gives shape to ideas, makes priorities between functions, specifies volumes, selects materials and manufacturing methods, and creates a marketing strategy. In other words, the designer gives the products a personality. In order for design work to be included as a successful and stimulating instrument in industrial production, it should speak a language that is in harmony with our time. Therefore, concepts such as ICT and sustainable development have become important ingredients in design work.

A designer's work is intimately related to the development of technology. This can be seen at many manufacturing enterprises where one important challenge is to reduce product development times. There are many successful examples of successful application of CAD systems for product design, even in the clothing and shoe sectors, i.e. mature, traditional sectors. Well thought-out design work has helped them to find an optimal mixture of quality in the product and efficiency in production, with low costs and high quality as a result. One interesting question in this context is whether design work affects an enterprise's productivity and profitability.

More profitable enterprises

There is a great deal that indicates that there is a positive relationship between design and, for example, a more rational use of resources in an enterprise. Two Nordic studies, one on Swedish enterprises on design – attitudes, profitability and design maturity (QBN Analys och Kommunikation AB), and one on the economic effects of design (Erhvervs- og Bolygstyrelsen), have shown with the aid of quantitative methods that investments in design can lead to enhanced profitability and competitiveness, specially in large enterprises. Similar studies have been made in Italy, with the difference that both large and small enterprises gain advantages by investing in design.

A study has also been made of the qualitative effects of design work in the enterprises, which has proved to play an important role for the success of enterprises. Apart from investments, increased exports etc, studies have been made of the ways in which design affects the strategies of enterprises, the role design plays for creating comparative advantages for enterprises, and the extent to which designers participate in the decision-making process. Design is considered to be an extremely valuable instrument for shaping the business concept in the enterprise's products

and this necessitates close cooperation between the designer and the enterprise's management/owner. It is therefore common in Italian enterprises that the designer's work is integrated into the enterprise's strategies and decisions. A focus on these qualitative factors reflects both the Italian view of design and the relationship between the enterprises and the designer.

Regional growth

Another, possibly even more interesting, aspect is the influence of design on the regional economy. Italian enterprises often collaborate with each other in networks based in the same geographical area and investments in design have proved to promote growth in the entire cluster where the enterprise works. In Italy today one speaks about economia del design, i.e. on the economic effects of design from the cluster-based perspective, which is becoming increasingly common.

In this respect it is important to point out that most investments in design in Italy end up in the upper steps in the design staircase (process/innovation) and it is innovative products that have become the Italian enterprises' foremost weapon in global competition. A product with a high degree of innovation also puts greater requirements on other parts of the production process. The enterprise's sub-contractors, often in the same region, are forced to be innovative in order to be able to supply the components and/or machine tools needed to manufacture an innovative product. Frequent contacts with design-intensive enterprises also lead to greater understanding of the importance of continuous development of materials, components and production processes. In other words, the refinement of products and production that is the result of design work creates a positive domino effect for other enterprises in the cluster.

Studies of the Italian innovation system show that local sub-contractors participate in an instructive process of learning by interacting with the enterprise that provides the innovation. Therefore, design work also has a number of positive effects for skills development in the enterprises in the region, due to the process of transfer of knowledge and technology that follows. As pointed out by a researcher, Franco Malerba at the Bocconi School of Economics in Milan, the Italian clusters can be regarded today as knowledge-intensive centres where design work and innovations are refined and disseminated to new actors which in turn contribute to further refinement and dissemination. This process is perhaps the most important explanation for the positive correlation between investments in design and regional growth in Italy.

Examples of this can be found in different sectors, from the light engineering industry to the furniture and textile industries where Italian enterprises have become leaders due to the added value resulting from design. In places such as Omegna, Carpi, Belluno, Civitanova etc, design is the most dynamic driving force for development locally. This relationship between design and regional growth should also be of great interest where Sweden is concerned.

Local support

Another interesting question is the support that can be given to promote development in the right direction. Since there is no national plan for the promotion of design, there are a number of private and institutional actors at the local level that stimulate the use of design. These organisations support design work by supplying targeted information on, for example, new materials or trends on foreign markets. It is a question of extremely concrete information which helps, in particular, small enterprises with small financial resources to successfully manage their practical design work.

The dissemination of information also has the effect that a growing number of people understand the importance of giving products the added value that design involves, not least to meet international competition. The strategy has proved to be very effective and the examples vary, from private organisations to organisations financed publicly, with varying orientations depending on the sector or industry that is predominant in the region where they are active. Two of the most interesting examples, Ervet and Citer, are in the region of Emilia-Romagna and both are the result of a merger between local entrepreneurs and the board of the region.

To sum up, in a network economy such as that in Italy, design is of great importance for the development of enterprises. Formal and informal networks constitute important channels for transferring information on innovative design to other enterprises, which contributes to enhancing their knowledge and competitiveness. Information on the positive effects of design circulates rapidly in the networks and stimulates a virtuous circle in which more enterprises make use of design. The result is better financial performance for the enterprises that primarily invest in design, as well as for other enterprises in the region that benefit from these spin-off effects. Accordingly, the successes that good design work can create in an enterprise also stimulate growth in the region. Local organisations are participating and provide assistance through targeted initiatives and a consistent focus on common problems. A study that describes and analyses these issues should be a stimulating subject for the Swedish debate on the utility of good design work.

Appendix 3 USA

Design in the USA: a study with a focus on development and policy

Helena Jonsson Franchi and John Wallon
ITPS Los Angeles, February 2005

What is meant by design?

In the USA, as in many other countries, there is no recognized definition that describes design and what the concept includes. On the other hand, various enterprises, schools and institutions have created their own definitions and explanations. An example is provided below that can give a picture of how the word is explained and interpreted in the USA

Professor Charles L. Owen at the *Institute of Design, Illinois Institute of Technology*, has stated that the word design is often used carelessly and with several different meanings. His own definition and explanation, which is used at the *Institute of Design*, is:

> *Design is a profession that is concerned with the creation of products, systems, communications and services that satisfy human needs, improve people's lives and do all of this with respect for the welfare of the natural environment. From kitchen utensils to computer systems, from print communications to exhibitions, web sites and information systems, design affects the way in which all people live, work and play. Design involves problem finding, problem solving, analysis, invention and evaluation guided by a deep sensitivity to environmental concerns and human-centered aesthetic, cultural and functional needs.*

Other expressions

As mentioned above, the word design is often used with several different meanings and in many cases other words are also used to describe the field or parts of it. Some examples of other expressions are: Creative Industry, Creative Arts, Arts and Culture, Innovation, Innovation Design, Product Development etc. In this report consideration has been given to this as far as possible.

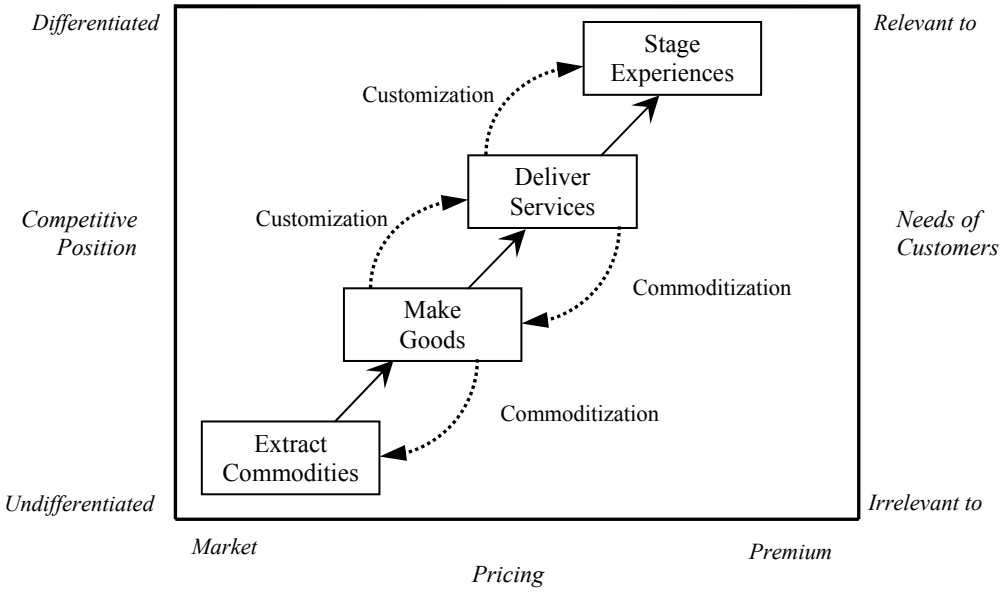
In the policy debate the question of design and its importance for economic growth has been obscure. There is no explicit national political strategy to promote the design sector with the aim of achieving increased economic growth. Nor are there any research findings, at least not to any great extent, in which the role of design in the economy has been determined. On the other hand, a certain amount of research has been pursued that focuses on the importance of the creative industries for economic growth.[90] Despite this, it is possible to find trends in the American economy which indicate that the importance of design in the USA has increased in the last few years. Some of these trends are described below.

[90] *For example,* Creative Assets and the Changing Economy by *Steven Jay Tepper, briefly described in chapter 4.*

Experience economy [91]

In the USA there are those who claim that the most correct word to describe the American economy today is the experience economy. The figure below shows the development of economic value for goods and services that has been taking place over a long period of time. At the bottom of the value scale comes commodities (standardised goods), thereafter goods (customised/differentiated goods), followed by services and finally experiences.

Figur 1 Economic Value Chain for goods, services and experiences



Source: The Experience Economy, Pine and Gilmore

The figure also shows that two parallel processes are taking place over time, namely commoditisation (standardization) and customisation. Goods and services that were once customised/differentiated often undergo a standardisation process when the enterprises want to reduce their manufacturing costs. In connection with this, the economic value also decreases or, to put it differently, the customers' willingness to pay diminishes. At the same time, all goods and services can be further customised which usually means a higher cost for the enterprises but it also has the effect that the customers' willingness to pay increases.

A good example is the coffee bean, which is sold today at all levels in this economic chain of value. When the coffee bean is harvested and sold, it is a typical example of a *commodity* and its price is therefore extremely low. When the bean has then been ground and packed and sold in a shop its price increases considerably. If you buy a cup of coffee in the popular coffee shops in the USA (for example at Starbucks or Coffe Bean) you pay for both the product itself and for the service: they make the coffee directly for you according to your specific needs. Today, Americans are happy to pay some 3 dollars for a paper mug of coffee at these

[91] *This section is based in its entirety on pages 1-72 in the book The Experience Economy.*

places. Finally, coffee can be bought to round off and enhance the experience of eating at a fine restaurant and then the customer's preparedness to pay is greatest. By creating an experience for the customer, the economic value of the product or service can be increased.

Statistics indicate that the increase in GDP in the experience sector during the period 1959 to 1996 was higher than in all other sectors. Moreover, the number of employees has increased most in this sector. These statistics, and the fact that design, from product design, via service design to the design of experiences, can be regarded as one of the most important tools available to enterprises to move their goods and services upwards in the value chain, indicate that design plays an important role for growth in the experience economy of today.

The new role of design

Enterprises on the global market of today are forced to choose between reducing manufacturing costs or inventing and creating high cost products and services. In the first mentioned case, enterprises often choose the strategy of moving production to low-income countries (*outsourcing*). Globalisation and outsourcing have had the effect that a large proportion of manufacturing and many job opportunities have been moved from the USA to India and perhaps, above all, Chine. When this happened, the American design sector was severely affected, with the result that a number of small design firms went bankrupt and the large firms were obliged to cut their staff. However, in recent years the design sector in the USA has undergone a process of change: instead of merely designing products, today information, services and experiences are also designed. For example, in the case of mobile telephones, the telephones are designed in China but the graphics, packaging and advertisements (personality of the product) are created in the USA. This has had the effect that the American design sector has undergone a process of renewal and has become successful once again.[92]

On the other hand, if enterprises want to create high-cost products, it is essential that they become more innovative and here design enters the picture. The following quotations show how closely related design and innovation are considered to be today.

> *When people talked about innovation in the 1990s – they were really talking about technology. When people talk about innovation today – they are referring to design.*

Erica Clark, Senior Vice President, Pasadena Art Design Center.

> *Lately the design profession has changed its core activity from the drawing board to thinking, from styling to innovation, from the forming of things to visualising new business paradigms.*

Bruce Nussbaum, leader writer, Business Week.

This has had the effect that industry is now attaching increasingly greater importance to design and this has had the result that designers have been given a higher

[92] *Redesigning American Business, Bruce Nussbaum, Business Week, 29 November 2004*

rank in the enterprises. Examples of this are that Ford and Samsung have appointed CCOs – Chief Creative Officers who are part of highest management. Other enterprises have employed CDOs - Chief Design Officers. One factor that is common to both CCOs and CDOs is that they are not regarded as product designers but go under the generic term of *design innovators*.[93]

This is also the main reason why education programmes in design are undergoing a process of change. It is a fact that in recent years it has become more common for the management of enterprises to train at design schools or at design consultants with the aim of becoming more innovative. Moreover, the subject of design is now much more than creating and using artistic objects, processes and buildings. Today the field is expected to also include an extensive number of philosophical principles and political goals, and to give due consideration to history, aesthetics and cultural diversity.

New demands on designers

The new and broader role of design also places new demands on designers. They should not merely produce new products, they should also manage and lead processes in which the products are produced and they must understand more about the ways in which products are used and the people who use them. Moreover, they should have a global perspective in their work and should be able to examine and explain the principles and methodologies behind design through systematic research, experimentation, analysis and theoretical speculation. They should also have the ability to communicate the results and contribute to an emerging academic discipline and to the science of design.

According to Erica Clark (Senior Vice President, Pasadena Art Design Center), in many respects the American education programmes in design lag behind their European counterparts. However, she also says that this situation is changing and that the American education programmes will have soon caught up.

Policies

In recent years the importance of design has gradually attracted the attention of decision-makers in the USA. As mentioned above, hitherto the USA has not had an explicit national policy that focuses on design or the creative industry. The same applies at the state level. Indirectly there is a policy which, for example, affects different parts of the cultural field, parts that can be difficult to relate to design. However, there are a number of studies in the USA that demonstrate the effects of the creative industry on the economy. Perhaps, in the future, these studies can lead to more political initiatives of different types.

Steven Jay Tepper argues in *Creative Assets and the Changing Economy* (2002) that it would be better to focus analytical capacity and policies on acquiring a better understanding of the ways in which creative work and institutions are being changed and what can be done to promote a sounder, more robust, creative and more multi-faceted cultural life. Instead, a great deal of energy is being expended

[93] *The Power of Design, Bruce Nussbaum, Business Week, May 17 2004.*

today to calculate the effects and size of the creative industry. Tepper concludes in his report that it can be a good idea to think of the creative industries at local or regional levels, where policy matters relating to economic and labour market development are more specific and where it can be easier to find synergies between different parts of the sector, for example between non-profit commercial, small and large enterprises etc. A number of examples of policy initiatives in the USA are given below which, to some extent, can be related to the field of design.

Creative Economy Initiative, New England

In New England (six states in northeast USA: Massachusetts, Connecticut, Rhode Island, New Hampshire, Maine and Vermont), studies have shown that art and culture are of significance for economic growth in the area. Art and culture have an effect on innovation capacity and the development of a skilled labour force, and they help enterprises to become competitive. New England has chosen to regard art and the cultural field as a regional industrial cluster in order to further create and develop opportunities that are expected to exert an influence of economic growth in the region. Cooperation between the cultural sector, enterprises and decision-makers is considered to be necessary and will be promoted and consolidated within the framework of the initiative.

The process in New England started with a multi-stage programme, *"the Creative Economy Initiative",* a study which had the aim of learning about and enhancing the growing economic importance of art and culture in the region by proposing an action plan. The study also had the aim of developing policies and increasing investments in the sector in the region. The study focuses on all economic components of the creative sector, both profit-making and non-profit activities, and individual entrepreneurs.

Some conclusions from the study, broken down into three categories, are provided below:

The creative cluster

Employees in art and culture constitute approximately 3.5 per cent of the total labour force in New England.

The sector is growing faster than other parts of the economy, 14 per cent compared to 8 per cent, between 1993 and 1998.

The creative labour force

According to the study, conditions at workplaces have changed in just one generation as well as the way in which business activities are performed. This is partly due to developments in technology, management, life styles etc. Success is measured in new qualities such as flexibility, the ability to cooperate, and the ability to think *"outside the box"*.

A number of studies show that *arts education* helps to develop the special needs that are sought at workplaces today.

The creative society

The study claims that competitiveness is strengthened in its entirety when society absorbs and strengthens cultural activities. The guiding principle is supply and attractiveness, which strongly correlate to life quality.

The study shows that research has demonstrated the importance of life quality and its capacity to attract enterprises and skilled labour. One conclusion mentioned in the study is that investments in art and the cultural field have considerable importance for all parts of society. Research has shown, for example, that the focus of economic activities is shifting more and more towards the service sector: it has been possible to see that a larger proportion of incomes are being placed in things that are relate to life quality.

The report takes up examples of fields that have developed policies in order to attract artists to certain places. Among others, Providence, Rhode Island, has chosen to provide an area in the centre for artists and has offered different incentives to investors. For example, artists that live in the area do not need to pay income tax to the state for their work, and property owners that convert commercial properties into housing for painters and artists do not need to pay property tax.

Design Industry Initiative

As part of the work on the *Creative Economy Initiative* mentioned above in section 4.1, a *Design Industry Initiative* has been produced that is being run together with actors in trade and industry, the academic world and political decision-makers. The aim is to promote design in various ways in New England by

- Informing on activities in the design sector
- Supporting, marketing and sponsoring design-related groups, activities and events
- Defining and marketing the concept of the creative economy

In addition to this, the region has decided to produce an annual report on the status of the creative industry. Moreover, a method is being produced to create an index for the creative sector, similar to Fortune 500[94], in order to provide a picture of developments in the sector as long as there are no other statistics.

Other states also have similar research initiatives which focus on the creative sector. Vermont and Maine, for example, focus on the strengths of rural areas in the creative economy. In Vermont an analysis is being made of the role of and challenges to the creative industries in the state and a practical and strategic policy agenda is being produced to strengthen the role of the sector. In Maine a study is currently being made of the ways in which local institutions exert an influence on the creative economy, with a focus on analysing rural areas. These types of studies will then be used with the aim of lobbying for an investment strategy and policy change.

[94] *Fortune magazine's ranking of the 500 largest enterprises in the USA. Size is based on turnover.*

Film and TV industry

Los Angeles in California has the strongest film cluster in the world. Other regions in the USA and other countries have noted the economic power of the sector, both in respect of job opportunities and incomes. A study made by the Milken Institute in 2001 shows that the film and TV industry in Los Angeles County directly employs 185 000 people and has a turnover of USD 24 billion each year. This constitutes 25 per cent of all production in the USA. The indirect effects from this industry are even greater. There are, for example, various local and state incentives and forms of tax relief that facilitate and reduce the costs of production. Other states in the USA and other countries in the world have understood the growth potential and the economic value of this industry and have created incentives to attract film and TV production to their regions. Canada, Australia and other states in the USA such as Utah, Colorado, New England etc have been relatively successful in this respect.

In New York incentives have been approved that have the aim of attracting more film and TV production. Among other things, an amount of USD 100 million has been set aside for four years to finance a form of tax relief for productions of which 75 per cent is made in the state. The study has shown that this initiative is expected to give back an amount of between several hundred million dollars and one billion dollars for productions that would otherwise have been made in other places.

New Mexico is another state that has focused on attracting film production to the region. Among other things, the state has offered USD 7.5 million in interest-free loans, a tax credit of 15 per cent, free use of 800 buildings owned by the state, and 50 per cent compensation for the use of trainees that are in the state's labour training programme.

The designers of tomorrow

There are a large number of education programmes in design at different levels in the USA. This report takes up some of the best known. All of them are at college or university level and have several focuses. In the more formal disciplines at academic level, a small but growing number of doctoral programmes in design have been started in the USA and other countries in the last ten years.

The more extensive and recognized education programmes in design in the USA are to be found at the *Institute of Design, Illinois Institute of Technology, Carnegie Mellon University, Art Center College of Design in Pasadena (California), Graduate School of Design at Harvard, Product Design Program at Stanford, MIT Media Lab* and *Design Research Institute, University of Cincinnati*. These programmes focus on teaching innovation strategies, innovation of services, customer experience etc.

In California there is very large number of design schools/universities. One of the better known is the Pasadena Art Design Center College which, among other things trains 50 per cent of the world's vehicle designers. Nokia's chief designer has also trained there as have many of Volvo's designers. Several of the universities that are part of the USA's largest university system, the University of

California (UC) system, are focusing on building up a design programme of one type or another, which shows that design is considered to be an important field in the future.

At Stanford in northern California a new design university is currently being built. Apart from design its programmes will include business administration and engineering in order to meet the new focus of the design field.

UCI, University of California in Irvine (in southern California) intends to start up the most competitive education programme in design in the world after having seen the increasing importance of design during recent years and the process of transformation that the sector has undergone during the last decade. The proposed programme will focus on an extensive, intra-disciplinary approach which will teach both the conceptual and theoretical foundations of design processes and methods in interactive design, product design, spatial design and design studies.

Art Center College of Design in Pasadena, California

The main focus at the Art Center is to train designers who can ”contribute to the real world”, i.e. contribute to the real situation, to the changing needs of the market and industry

The Art Center’s definition of design is, in brief, that the work of the designer is to solve problems and challenges in society. Furthermore, the goal is to train designers who will be the “alchemists” of the future and function as catalysts for change. The focus of the curriculum is on training *”designers for business and businesses for designers”*.

The Art Center has recently established a programme of cooperation with Caltech, a technical university in Los Angeles with many Nobel prize-winners and a worldwide reputation, and with JPL, Jet Propulsion Laboratory, which is associated with Caltech and known for its research and development work on space shuttles etc. The programme of cooperation has the aim of strengthening the ties between design and engineering.

Institute of Design, Illinois Institute of Technology

For many years, the Institute of Design has taught design in respect of thinking and strategy and offers both degrees in engineering and PhD programmes. Over the years it has been common for enterprises in the USA to send their designers to the Institute to be trained in research methodology. In recent years the trend has been that persons who are not designers have also shown interest in learning more about the field which is so closely related to innovation. The Institute has recently introduced a new programme, Master of Design Methods (MDM), which is directed towards management, engineers and others who want to be leaders in the field of innovation. The MDM programme focuses on providing a background to design methods in user observation and research, production of prototypes of new services and products, creation of innovation systems, visualisation pf alternative futures and linking the work with innovations to organisational strategies.

The programme has been produced in order to meet developments in the field which, according to the Institute, have gone from a focus on industrial design to innovation design.

Green product design

Green product design, also referred to as environmental design, design for eco-efficiency or sustainable product design, includes taking proactive consideration in the earliest stages of product development, with the aim of minimising negative effects on the environment through a product's life cycle. This is not a separate methodology but is integrated with the existing product design in enterprises in order to be able to balance environmental parameters with traditional product attributes, for example quality, cost and functionality. "Green" products can be manufactured with less material and can be designed to be easily upgraded, dismantled, recycled and re-used than their conventional counterparts. Green design can provide many advantages for an enterprise that wants, for example, to reduce costs and production times. Green design can also act as a driving force for innovation of products and processes in enterprises. Many enterprises in the USA use green design with the aim of living up to emission requirements, use of resources, and restrictions on the use of toxic and hazardous materials. Green design can also help enterprises to live up to the EPR, *Extended Pollution Responsibility*, mandate.

Development in green design in the USA has taken place to meet the needs of industry to handle environmental effects of produces in a cost-efficient manner through design with the aim of competing better on the global market where regulations, voluntary initiatives, certification procedures and consumer requirements can vary considerably and can have a direct effect on the possibilities available to enterprises to be active on different markets.

The American Environmental Protection Agency, EPA is pursuing a programme called "Design for the Environment Program" (DfE) which is a voluntary programme in cooperation with trade and industry which shall integrate consideration of health and the environment in the decisions of enterprises. The programme informs those persons who design on products and processes about new technologies that are cleaner more cost-efficient and safer for both workers and the general public.

The Swedish Institute for Growth Policy Studies (ITPS) is a Government Agency responsible for providing policy intelligence to strengthen growth policy in Sweden. ITPS primarily provides the Government Offices, Members of the Swedish Parliament, other state authorities and agencies with briefings based on statistical material, policy papers and key analyses. Business policy and regional development policy are areas given high priority. Changes in policy should be based on:

- Statistic data and analyses of the structure and dynamics of industry
  – to obtain an up-to-date view of future challenges and opportunities.

- Evaluation of results and effects of policy measures and programmes
  – to provide benchmarks and learn from measures implemented earlier.

- Policy intelligence in order to look outwards and ahead
  – what issues are likely to come on the growth policy agenda in the future?

These represent the principal missions of ITPS.

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