

# The Danish Design Cluster

Final paper for Microeconomics of Competitiveness

May 4, 2007

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## I. Introduction

This paper analyzes the economic prosperity of Denmark in general and the structure of the Danish Design Cluster in particular. We describe a country among the most prosperous in the world that has benefited greatly in recent years from early labor market reforms in the 1990s. As prosperity has increased over the past decades, Denmark has increasingly shifted its cluster portfolio away from agriculture, fishing and food processing towards more value-added service industries such as business services, transport and logistics. In this context, the Danish Design Cluster plays a central role as one of the service clusters bound to become increasingly important to the future prosperity of the Danish economy.

## II.A. Country Analysis

Denmark is the smallest country in the Nordic Region covering 17,000 sq. miles. Located in the Southern part of the Nordic Region, with Norway to the North and Sweden to the East, the country has its only land border with Germany to the South. The country consists of the peninsula of Jutland and approximately 400 islands of which 78 are inhabited. The capital Copenhagen in eastern Denmark is connected to Sweden's third largest city, Malmö, by Europe's longest rail and road-bridge, spanning 25,738 ft. The country's population of 5.4 million is predominantly of Scandinavian descent, although immigrants and their descendants, mostly from the Middle East and South-East Asia, today comprise approximately 8.5% of the population. The official language is Danish, while English language proficiency is very high. Since the mid 20<sup>th</sup> century Denmark has been known for its "Scandinavian Model" of comprehensive social

security, health services, and education, which has resulted in Denmark obtaining the world's second-lowest Gini coefficient as of 2007. The World Happiness Index also ranked Denmark the happiest nation in the world in 2007<sup>1</sup>.

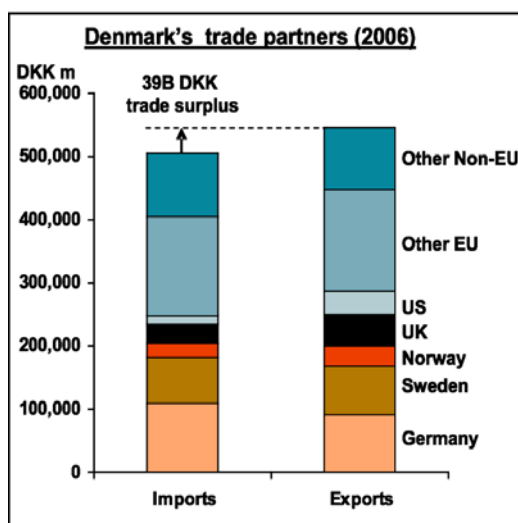
Denmark has a long history of independence dating back to the Viking Age of 800-1100 AD. In this period the country was first unified under one king and the name Denmark appeared for the first time. It was another thousand years before the country enacted a democratic constitution in 1849.

Of more relevance to the current prosperity of Denmark are the economic gains of the second half of the 19th century during which Denmark transformed from a land of poor peasants into the nation with the most prosperous small farmers in Europe. Prior to 1880, Denmark's prosperity was mainly based on exporting grain to rapidly industrializing countries such as Germany and the United Kingdom. As competition grew from other markets such as Australia and North America, Danish farmers switched to more intensive and profitable agricultural products such as fodder crops, bacon, butter, cheese, eggs, and meat. This increase in demand from the food-processing industry improved the industrial development in Denmark that was otherwise suffering from a lack of raw materials and heavy industry.

Due to its small domestic market, Denmark is heavily dependent on trade, which accounts for approximately 2/3 of GDP<sup>2</sup>. *Figure 1* shows how around 75% of Denmark's trade is with other EU member states, primarily its immediate neighbors Germany and Sweden. The close trade linkages within the Nordic region have been fostered by the Nordic Council which since 1952 has provided for a common labor market and free movement across borders without passports between the 5 member countries.

Denmark joined the EU in 1973 together with the United Kingdom, and pegged its currency to the German Mark around a narrow band from 1982 and onwards. Even when the Danes decided to remain outside of the European Monetary Union in 1993, Denmark lived up to the Growth and Stability Pact and the Central Bank of Denmark switched its peg of the Danish Crown from the German Mark to the Euro (then ECU).

*Figure 1 Denmark's trade partners in 2006*



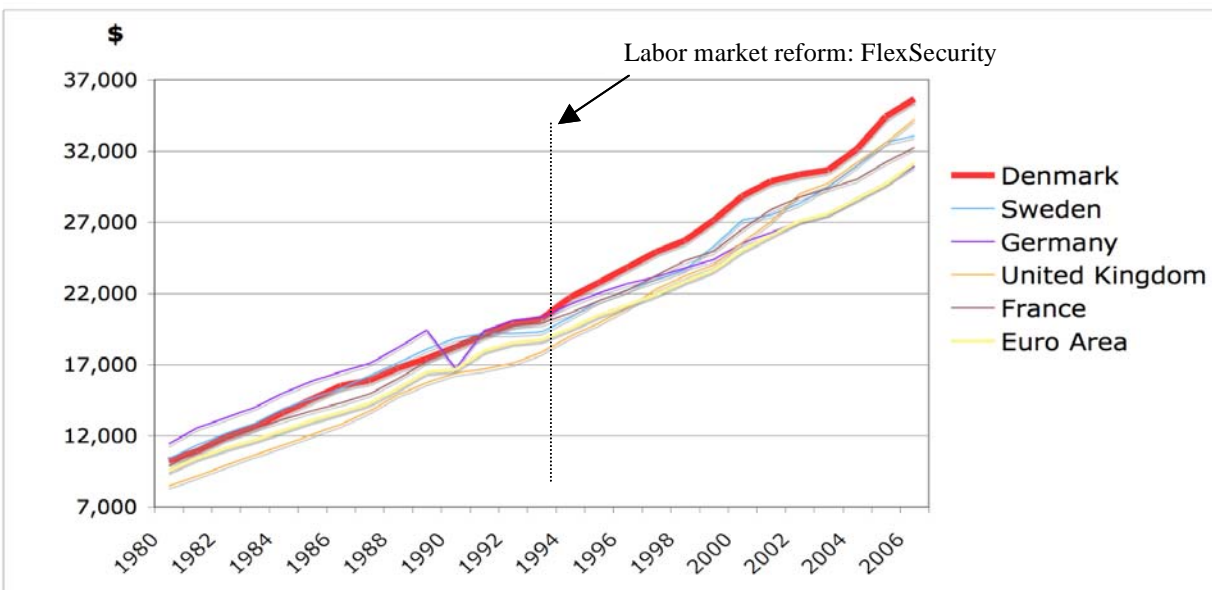
*Source: Statistics Denmark*

Denmark has a well-functioning multi-party parliamentary system in which the 179 seats of parliament are up for election approximately every four years. The Social Democrats, a centre-left party, has led the majority of governments since the Second World War, while the latest change of government came in 2001 when a centre-right coalition won the elections based on a campaign that focused on harder immigration rules and a promise not to raise taxes.

## II.B. Country Performance

Denmark is today one of the richest countries in the world with a GDP per capita at purchasing power parity (PPP) of US\$35,660<sup>3</sup> in 2006. This ranks Denmark as the 7<sup>th</sup> most prosperous nation in the world. *Figure 2* shows the development of GDP per capita

*Figure 2 Nominal GDP per capita at PPP*



*Source: The Economist Intelligence Unit*

in PPP for Denmark and a number of other Northern European countries over the past 25 years. Denmark has been outperforming its neighbors since the mid 1990s. In order to explain this we have decomposed Danish prosperity into three components<sup>4</sup>: Labor utilization, labor productivity, and domestic purchasing power.

*Labor utilization:* The biggest driver of Danish prosperity is the nation's utilization of its labor. Denmark has one of the highest labor force participation rates in the world with around 80% of its population between the ages of 16–64 enrolled in the labor force<sup>5</sup>. At the same time Danish employees work an average 1551 hours a year,

while employees in other Northern European countries such as Norway (1360 hours/year), Germany (1437 hours/year), and the Netherlands (1367 hours/year) work significantly fewer hours<sup>6</sup>.

In addition to its high labor force participation rate and high number of hours worked per employee, Denmark began restructuring its labor market in the 1990s using a model referred to as FlexSecurity. The FlexSecurity model was introduced in 1994 during a major labor market reform and was a model that combined safety for employees while at the same time providing employers with the flexibility to easily let go of their workers. *Table 1* provides a summary of the major components of the Danish FlexSecurity system. The FlexSecurity system provides employers with a flexible labor

*Table 1 Features of the Danish FlexSecurity system*

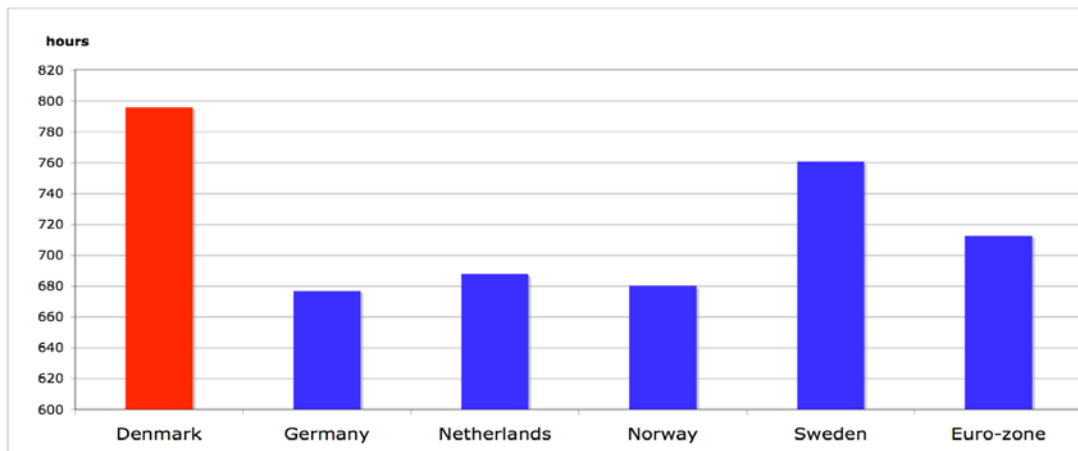
<b>FlexSecurity</b>	<b>Feature</b>
Reduced legislative framework	The law establishes no legal minimum wage, work hours per week, or right to strike Decentralized negotiations at company or branch level
Protection of employees	Optional unemployment system co-sponsored by the state and the employees In case of lay-off employees will receive 90% of previous wage for up to 4 years (ceiling of app. \$40,000 a year)
Incentives for job search	Participation in "job activation" programs are mandatory the first six months of unemployment Extensive opportunities for re-training of employees
High cost associated with system	Public expenditure on employment programs represents 1.66% of GDP in 2005

pool in which it is very easy for them to both hire and fire employees. 30% of the Danish work force changes jobs every year, while an average Dane only remains with the same company for 8 years<sup>7</sup>. To protect people from the possible economic hardships associated with a flexible labor market, the system also allows people to collect unemployment benefits while searching for new jobs. To keep incentives for employees to regain employment, various institutions such as forced activation and limits to how long unemployment benefits can be collected, are put in place. This early restructuring of the

labor market contributed to a drastic reduction in the unemployment rate from 9.7% in 1990 to 4% in 2006 – well below the consistent EU rate of 8%.

*Figure 3* below shows how the combination of high labor force participation rates, low unemployment rate, and high average hours of work per employee has resulted in extraordinarily high level of average working hours per head of population.

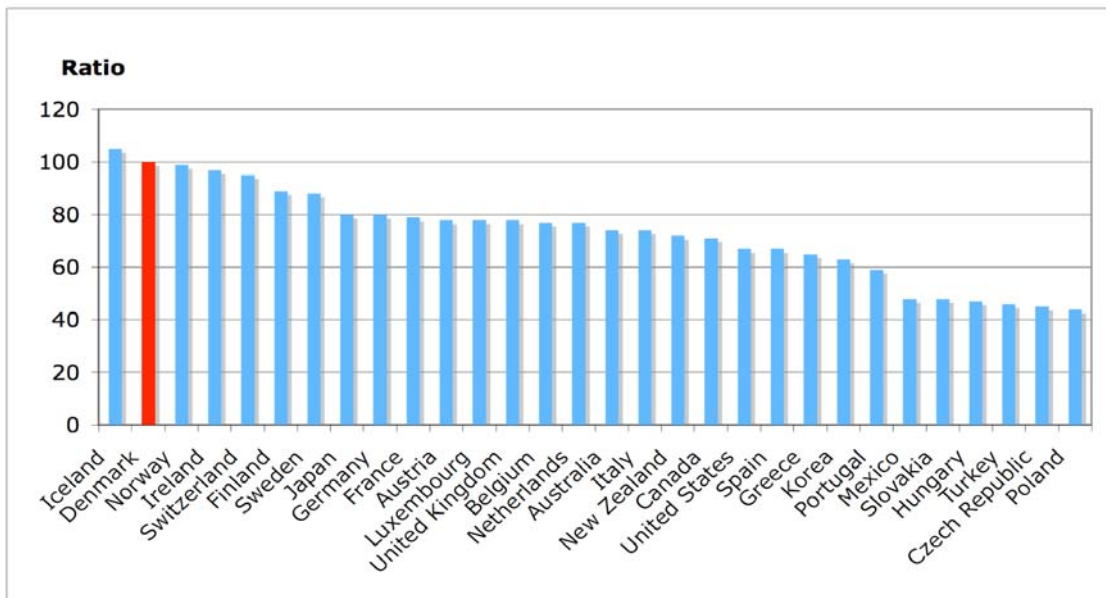
*Figure 3 Average hours worked per head of population*



*Source: OECD*

*Labor productivity:* The Danish workforce is in general very well educated with an average of 13.4 years of educational training. Education is provided for by the Danish state and all levels of schools are free of charge to all citizens. At the same time however, Denmark has a GDP per hour worked of only \$43.30. This makes Denmark the eighth most productive nation in the world, behind other developed nations such as the USA, Germany, France, the Netherlands, Belgium, and Ireland.

*Cost levels:* As *figure 4* demonstrates Denmark has the second highest cost level in the world, behind only Iceland. These high price levels are holding back the country's level of prosperity.

*Figure 4 Ratio of Danish prices to local prices, January 2007*

Source: OECD

Note: Note: Calculated from comparative price levels, defined as the ratio of PPP factors to exchange rates

## II.C. Danish National Business Environment

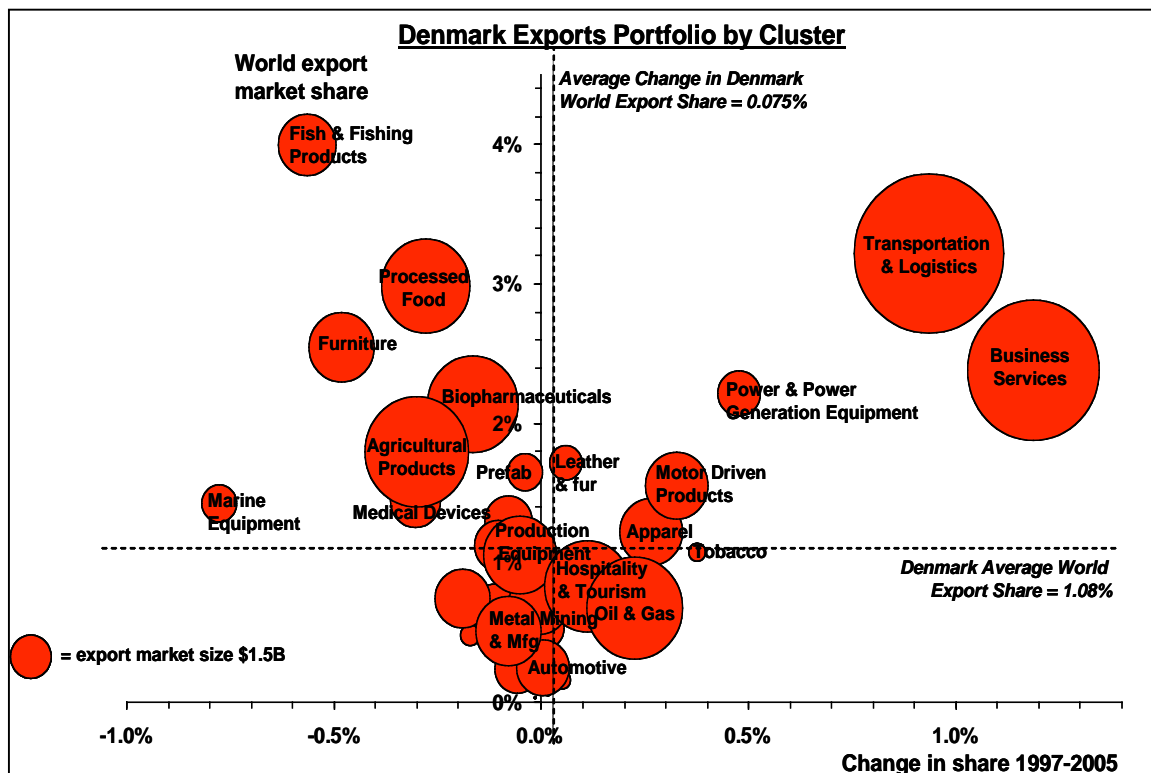
For a small economy, Denmark's export portfolio is very diversified, with 32 different clusters exporting above US\$500m annually<sup>8</sup>. Although Danish exports as a whole show low rates of growth (increasing their share of the world export market by only 0.075% between 1997 and 2005), the economy is shifting away from lower value, endowment-dependent clusters such as fishing and agriculture, and into more knowledge intensive service industries like business services and high-end transportation and logistics. Building on its historical strength in shipping<sup>9</sup> and a large road transport business, Denmark is now the world's tenth largest exporter of transport and logistics services and has pursued increased specialization in high-technology vessels such as liners, gas and chemical tankers<sup>10</sup>. The business services cluster initially grew out of



services to shipping, entering into insurance and banking products for merchants, and now includes a number of highly profitable Danish banks who are expanding globally through acquisition<sup>11</sup>. Finally, following the discovery of oil and gas fields in the North Sea, Denmark has been a net exporter of energy resources since 1997, and increases in world energy prices provide a major source of government revenue. Further reserves are estimated at 15-18 years at current extraction rates<sup>12</sup>.

The design cluster is not represented in *figure 5* directly, but design output factors into several other clusters, including Furniture (\$3.3B in 2005, includes Kitchenware and Household Articles), Apparel (\$3.2B), Plastics (\$2.4B), Building Fixtures & Equipment (\$1.9B), Textiles (\$1.1B), Leather & Fur (\$0.9B), Footwear (\$0.5B), Sporting, Recreational & Children's Goods (\$0.4B), Jewelry, Precious Metals & Collectibles (\$0.3B) and others.

*Figure 5 Denmark exports portfolio by cluster*



Source: International Cluster Competitiveness Project

The strength of Denmark's National Business Environment has been widely recognized. It was ranked 5th in the 2006 Global Competitiveness Report Business Competitiveness Index<sup>13</sup>, 1<sup>st</sup> in the Economist Intelligence Unit's 2006 Global Business Environment Ranking<sup>14</sup> and 7th in the 2007 World Bank Doing Business Report<sup>15</sup>.

## **Denmark National Diamond Analysis**

Denmark has strong factor conditions and context for firm strategy and rivalry, but is constrained by its small domestic market, limited access to capital and low levels of innovation.

### **Factor Conditions**

The key strengths of Denmark's factor conditions are in an outstanding infrastructure, a well-educated workforce with high levels of English-language skills, and in a robust and efficient legal framework. The government has promoted these factor conditions through a high level of education spending

#### **Timeline of major government changes and initiatives**

1994: Introduction of FlexSecurity  
2001: Change to centre-right government  
2007: Regional government reform: reorganization of 13 county governments into 5 administrative units, with the aim of improving competitiveness

(at 8% of GDP, the highest in the world, with additional investment in training through the FlexSecurity system), investment in technology<sup>16</sup> and the high levels of spending on public services like transport facilities and law enforcement. Some weaknesses remain in the area of access to capital: although Danish companies can easily access debt financing, the equity market is shallow relative to GDP, and there has historically been only a small venture capital industry. However the Danish venture capital market has been growing

steadily, growing from DKK 5.3B to 17.5B between 1999 and 2005, assisted by state-backed funds such as The Danish Growth Fund (Vaekstfonden), and now ranks 5<sup>th</sup> of 16 European countries<sup>17</sup>.

### **Context for Firm Strategy & Rivalry**

Denmark has a major competitive advantage in cooperative labor-employer relations. 80% of wage earners and 50% of private sector workers are organized, mostly in the Danish Confederation of Trade Unions (Landsorganisationen i Danmark, LO) and the Danish Employers' Confederation (Dansk Arbejdsgiverforening, DA). However despite this high level of organization, growth has not been constrained by higher wages, as wage rates have been set locally since the 1980s, while unions decide issues of holidays, pensions and working conditions under 3 year agreements. Wage growth has been kept to 3%, while consumer prices have risen only 2% per year since 2000, leading to increases in prosperity.

The other key contextual factor for firms in Denmark is that the government takes an active role in promoting economic growth, frequently by establishing institutions for collaboration between government, academia, labor and business, export promotion bodies and Excellence Groups. For example, in 2001 the government formed the Globalization Council, chaired by the Prime Minister, consisting of business leaders, academic representatives, global experts, and labor union spokespersons. Drawing on their input, in 2006, the government presented its globalization strategy for "Progress, Innovation and Cohesion", with 350 initiatives around strengthening education, research activities, and entrepreneurship. As a result of the government's proactive approach to the

issue, 77% of Danes see globalization as a good opportunity for their companies compared to an EU average of 37%<sup>18</sup>.

### **Related & Supporting Industries and Demand Conditions**

Despite strong links between clusters like transport and business services, the overall strength of related and supporting industries in Denmark is constrained by lack of scale, and thus often a lack of domestic suppliers. Scale also affects demand, as even with the relative wealth of the domestic market, it cannot sustain domestic-only industries. For example in the agricultural products cluster, Denmark currently produces sufficient food for 15 million people, well exceeding the size of the local market. Further opportunities exist for Denmark to leverage Nordic Council and EU trade links to develop cross-border supplier and distribution networks.

### **Company Operations & Strategy**

Despite the aggressive and successful government interventions, Danish prosperity is also due to a robust and strategic business sector. Danish companies are among the world's best, and continue to improve. The Global Competitiveness Report assessed the following strengths and weaknesses in the corporate sector, which are all relative to Denmark's extremely advantageous overall position.

<b>Key Strengths:</b>	<b>Key (Relative) Challenges:</b>
<ul style="list-style-type: none"><li>▪ Extent of staff training</li><li>▪ Willingness to delegate authority</li><li>▪ Defensible competitive advantage</li><li>▪ Capacity for innovation</li><li>▪ Customer orientation</li><li>▪ R&amp;D spending</li><li>▪ Regional sales</li></ul>	<ul style="list-style-type: none"><li>▪ Extent of marketing</li><li>▪ Extent of incentive compensation</li><li>▪ Control of international distribution</li><li>▪ Breadth of international markets</li></ul>

Given the overall strength of the business environment, Denmark has had historically low levels of patenting, and this is a cause for concern<sup>19</sup>. However, Denmark is dominated by small companies, who often do not have the R&D or administrative capacity to engage in patenting technologies. Most international patents are filed by large companies. Secondly, the areas of strength in the Danish economy (traditionally primary production and increasingly business services and transport/logistics) are not heavily patented fields compared to health sciences or technology.

### III. The Danish Design Cluster

In this section, we will describe and explain the Danish design cluster in greater detail. First, after having introduced and mapped the components of the cluster, we analyze the role design plays in the Danish economy. Second, we describe the historical performance of this cluster. Third, we analyze the competitive position of the cluster using diamond analysis, the results of which direct our policy recommendations in the following section.

#### III.A. Mapping the Cluster

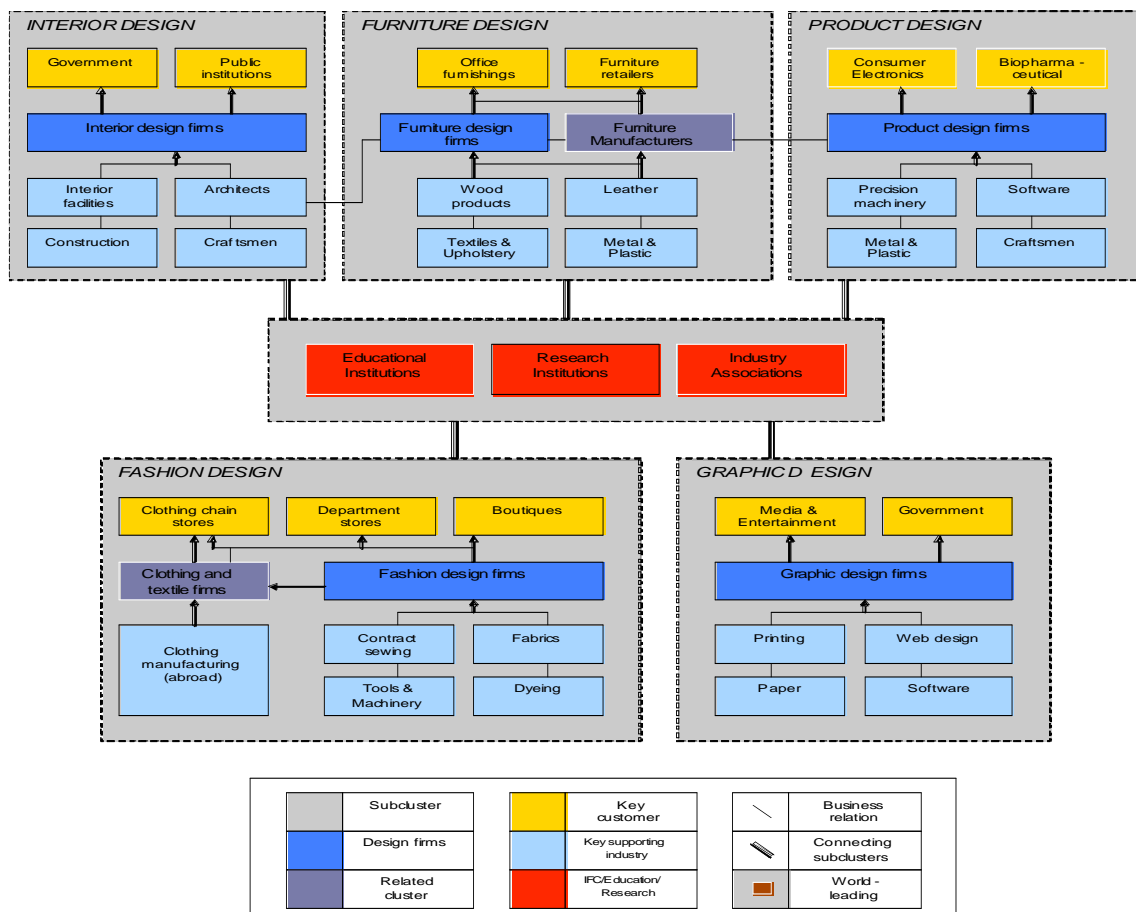
The Danish Design cluster consists of five sub-clusters: interior design, furniture design, product design, fashion design and graphic design. *Table 2* illustrates their relative share of the Danish Design Cluster. The different sub-clusters are connected through research institutions, education institutions and industry associations as shown in the cluster map in *figure 6*<sup>20</sup>.

*Table 2 Sub-cluster share of Danish Design Cluster<sup>21</sup>*

Graphic Design	32 %
Product Design	26 %
Textile/Fashion Design	13 %
Interior Design	11 %
Graphic Design	9 %

The number of independent Design firms has increased from 2,586 in 2000 to 4,951 in 2005, however, the cluster is dominated by very small firms: 86% of firms have no employees, and only 1 percent has more than 10 employees<sup>22</sup>. Of almost 5,000 registered firms, only ten firms have over 50 employees<sup>23</sup>. In addition to the remarkable growth in number of design firms, the increased demand for design services from Danish industry as a whole shows the increased importance of design.<sup>24</sup> The annual turnover of the Danish Design cluster is 40 Billion DKR and 80% is exported (Vækstfonden, 2006)<sup>25</sup>.

*Figure 6 Cluster Map for the Danish Design Cluster*



The Danish Design cluster is growing rapidly with a 20% CAGR in turnover from 1992 to 2002, which is almost four times the average growth of companies in other industries<sup>26</sup>. Moreover, Denmark is ranked 5<sup>th</sup> in the world in number of Design Awards between 2001 and 2005<sup>27</sup>. Fashion design has also become an important sub-cluster with a turnover of 20 Billion DKR in 2006 and Copenhagen Fashion Week is the largest Fashion Fair in Northern Europe<sup>28</sup>.

### **Understanding the Danish Design Cluster**

There are three different ways in which Danish Design cluster can be understood in commercial terms. First, there is a Business-to-Business relation, where the design firm sells design services to other firms. Second, there is the Business-to-Consumer relation, where either the total value of the product is the design or where design is added to a functional product<sup>29</sup>. For example, Bang & Olufsen, a Danish company known for high quality audio products, that employs no in-house designers, but outsources the design process to independent design firms such as Jacob Jensen Design and David Lewis “Idealand”<sup>30</sup>. The B&O product, such as a television or stereo system, is both a functional product and a design object. Hence, the company can be categorized as both purchasing design services and producing designed functional products. Although 80% of Davis Lewis’ design work is with B&O, the designer also sells services to other firms<sup>31</sup>. This is typical: Danish design firms usually sell services to more than one company and in more than one sub-cluster. The cluster-map illuminates this complexity by placing the design firms in the sub-clusters, even though the same firm could be in more than one sub-cluster. For example, Komplot Design designs furniture, products and graphic

designs and clients including retailers and other companies such as Copenhagen Airports and Trip Trap Denmark<sup>32</sup>.

The design cluster (including all five sub-clusters) is composed of research institutions, educational institutions and industry organizations that foster both independent design companies and in-house designers for Danish industry. The economic output of Danish Design is extremely difficult to quantify, however the figures suggest that most Danish Design is done by independent design firms. Danish companies invest around 5 billion DKR in purchasing design services externally, and 2 billion DKR in in-house design services. In addition, 86% of Danish firm use Danish Design exclusively<sup>33</sup>. A survey in 2005 showed that Danish firms are very satisfied (57%) or somewhat satisfied (34%) with the use of independent design firms<sup>34</sup>.

### **Understanding the Value-Add of Danish Design**

Design is an intangible factor that affects the way in which inputs are combined in the development of a product. For example, for each chair they produce, a furniture company needs different inputs, including labor, machines and tools, and wood or other raw materials. There are different ways in which the firm can combine the various inputs to produce the final chair, depending for instance on the workers' skills and the technology used. These factors are traditionally considered in microeconomic theory as levers to help a firm bring together the factors of production more efficiently. Design is another such lever, although instead of making the production process more efficient, it adds value to the final product.



As design is intangible, yet integral to the product, it is difficult to measure what part of the value of a product is derived from its design. Ideally, one would measure the economic value of design by comparing two products that are identical in the inputs used, but different only in their design, such as a simple, plain chair and a designed chair. The value-add of the design component would be the difference in price, less any cost difference. However since such direct comparisons rarely occur in the marketplace, an alternative valuation could be the wages paid to designers, plus some additional value captured by the product manufacturers.

For this analysis, the rapid increasing number of Danish Design companies, increasing exports of design products, and the increasing demand for design services illuminate the expansion of the cluster. These facts strongly suggest that not only does Danish design add value to production, but that this value has been increasing.

### **Historical cluster performance**

By 1960, Danish design was world renowned, and had penetrated the US market: Hans Wegner's "The Chair" was used in the first televised Presidential debate between Kennedy and Nixon. During the 1950s Danish furniture became popular amongst certain segments of American consumers. The 1954 to 1957 "Design in Scandinavia" touring exhibition to the USA and Canada was very successful, and was attended by over 650,000 people. Leading magazines such as *House Beautiful* featured Scandinavian and Danish design and department stores such as Crome & Goldsmith had brochures titled "Danish Design"<sup>35</sup>. Famous Danish design products included "The Chair" (Hans J. Wegner) and "The Lamp" (Poul Henningsen's PH lamp)<sup>36</sup>.

The foundations of Danish design are the principles of functionalism combined with a Danish legacy of good craftsmanship. Principles include ‘form follows function’ and ‘less is more’, combined into ‘timeless arts’, as seen in classic 20th century interior designs.

Instrumental in the success of Danish design was the appointment in 1924 of Kaare Klint as head of the Furniture School at the Royal Academy of Arts, the only school of design at the time in Denmark, and Klint’s cooperation with Cabinetmakers to develop quality design firms.

Historically, the most important institutions for collaboration were:

- The Danish Society of Arts and Crafts and Industrial Arts  
(Landsforeningen Dansk Kunsthåndværk): between 1930 and 1970, the Society represented Danish designers from most of the five sub-clusters<sup>37</sup> and built the Danish design brand both domestically and abroad. The Society focused on the key products of the day, primarily furniture, ceramics, textiles, glass and silver.
- The Cabinetmakers’ Guild Furniture Exhibitions (Snedkerlaugets Møbeludstillinger)
- Den Parmanente: established in 1931 and consisting of several hundred producers and designers, Den Parmanente was set up to facilitate the export of Danish Design<sup>38</sup>.

Other organizations in the cluster included the Furniture Producers Association (Møbelfabrikantforeningen i Danmark) and the Central Association of Furniture Retailers’ in Denmark (Møbelhandlere i Danmark). As a result of this collaboration,

during the 1950s and 1960s around 75% of sales were exported, mainly to the US and Japanese markets<sup>39</sup>.

The principles of Danish Design were also implemented by large companies such as Bang & Olufsen, LEGO, Grundfos, Novo Nordisk and Danfoss to “build intelligence into their product and make them outstanding, and to economize on raw materials”<sup>40</sup> in industries as diverse as electronics and medical devices<sup>41</sup>

Despite its success in the 1950s and 1960s, Danish furniture design export declined and went through a severe crisis in the 1970s due to a failure to meet the needs of mass-consumers. Today, big-name designers, such as Hans Wegner, Børge Mogensen, Poul Henningsen, and Georg Jensen are still the main brand of Danish design. However, other business successes inspired by the principles of Danish Design include Swedish Ikea and new Danish furniture and interior design company BoConcept.

### III.B. Cluster Diamond Analysis

All four aspects of the cluster diamond analysis contain competitive strengths. Overcoming some key weaknesses in Danish industry as a whole, demand conditions and relating and supporting industries are particularly favorable for design. Challenges include access to capital, management skills, and growing international competition.

#### Factor Conditions

Key Strengths:	Key Challenges:
<ul style="list-style-type: none"><li>▪ Well-trained designer work force</li><li>▪ IT infrastructure enables latest design technologies</li></ul>	<ul style="list-style-type: none"><li>▪ Weak in-house management and marketing skills</li><li>▪ Access to capital – relative weakness</li></ul>

The workforce of the Danish design cluster is well-trained and well-educated, with 83% having a design degree and 10% having an engineering degree<sup>42</sup>. This enables Danish design firms to compete at the highest end of the market and with the latest technologies. This strength is leveraged further by world-class IT infrastructure. Internet usage stands at 69% of the population (European average 39%) and Denmark ranks first among OECD nations in broadband infrastructure<sup>43</sup>. As much of modern design is computer-based and depends on sending large data files between designers, this infrastructure is an important competitive strength.

Labor is also abundant and relatively cheap. For example, the fashion sub-cluster can access a pool of 1000 graduates each year (as many as London or Milano) available at wage levels that are only 61% of those in Denmark's leading industries<sup>44</sup>.

While the work force has strong design skills, there are clear weaknesses in management, marketing, and entrepreneurial skills, in particular for smaller firms<sup>45</sup>. There is a culture of viewing design as an 'art form' performed by a 'solitary genius' rather as a demand-driven and team-based service, which has hampered the acceptance of modern business practices. Only in recent years have educational institutions started to address this weakness, adding administration and management to curricula in design and art schools<sup>46</sup>. We see this ability of cluster participants to react to market signals and upgrade as indicative of a healthy cluster, and expect this disadvantage to diminish.

As in the national diamond, many firms in the design cluster experience problems in accessing capital, particularly smaller firms and firms with high start-up costs, such as furniture design<sup>47</sup>. This is mainly a result of lack of knowledge about how to find and

market to capital sources, and lack of information about the design cluster among venture capitalists and banks<sup>48</sup>. As the number of firms in the cluster is growing rapidly, this represents a challenge to development and growth.

### **Demand conditions**

<b>Key Strengths:</b>	<b>Key Challenges:</b>
<ul style="list-style-type: none"> <li>▪ Growing demand design services</li> <li>▪ Strong loyalty of Danish firms to Danish design</li> <li>▪ Public sector institutions purchase Danish Design</li> <li>▪ Relatively sophisticated home market</li> </ul>	<ul style="list-style-type: none"> <li>▪ Danish Design principles and ideas are easily copied</li> <li>▪ Increased competition from other countries in manufacturing cheap/copied design</li> </ul>

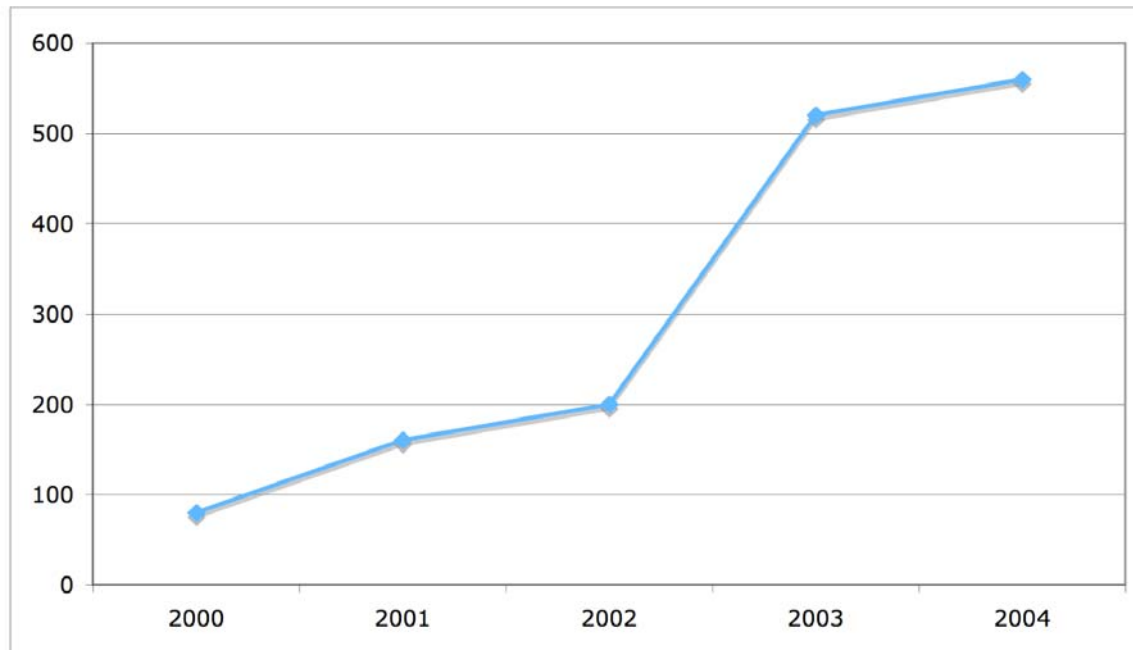
The cluster is driven by a strong demand for design services from Danish firms, people and public institutions. In 2000, 61% of firms with more than 100 employees bought Danish design services, an increase of 25% since 1997<sup>49</sup>. There is also sophisticated demand for design products among the general public. With the world's sixth highest GDP per capita, middle class Danes seem ready to pay a premium for high-end designer goods<sup>50</sup>. Public institutions also have a tradition of patronizing Danish creative arts, with government being an important customer for many sub-clusters<sup>51</sup>.

A challenge that has appeared in the last decade is stronger international competition. The enforcement of IP rights is extremely difficult and the principles of Danish design can easily be copied, so there is a growing risk that products are replaced with imports from countries with cheaper production costs<sup>52</sup>.

As shown in *figure 7*, the number of IP violating goods confiscated by Danish customs has risen drastically<sup>53</sup>. While not all of these violations relate the design cluster,

this trend represents a serious threat, which in the long run may undermine both local and world demand for Danish products with substantial design content.

*Figure 7 Confiscated illegal copies*



Source: Report from Udvalget om Styrkelse af Dansk Design, p. 34

### Context for Firm Strategy and Rivalry

Key Strengths:	Key Challenges:
<ul style="list-style-type: none"> <li>▪ Intense competition between many small firms</li> <li>▪ Strong and numerous IFCs</li> </ul>	<ul style="list-style-type: none"> <li>▪ A few 'classic designs' dominate interior design</li> <li>▪ Low level of 'cluster identity'</li> </ul>

The design cluster has a clear center of gravity in the larger cities, with a majority of firms (55%) located in Copenhagen<sup>54</sup>. It is further characterized by intense competition between a very high number of small firms. Small firms proliferate because there are fewer scale advantages in this industry, as design services are usually targeted to the specific needs of the customer and are rarely replicable with other clients. Another

reason is the aforementioned lack of management skills and capital, which function as barriers for small companies to grow in size. On the other hand, while the small size of firms makes it harder for designers to specialize, research shows that it increases openness to innovation and signals from other part of the cluster<sup>55</sup>.

Given the profile of the cluster – diffuse and with many small firms – institutions for collaboration play a critical role, in that they can they can channel spillovers and complementarities that small companies are not equipped to handle. The IFCs are numerous (about 15) and well-organized (see *table 3*). Some of them target only one sub-cluster, such as MOKO, an interdisciplinary platform for fashion research and knowledge sharing, working across public and private institutions<sup>56</sup>, but there are also cluster-wide IFCs, including Danish Design Center, and those oriented towards export promotion, such as BornCreative, an arm of the Danish Export Council<sup>57</sup>.

**Table 3 IFCs, Education and Research Institutions**

Cluster-wide	Specific to one sub-cluster	Export promotion
<ul style="list-style-type: none"> <li>• Danish Design Center</li> <li>• The National Center for Design Research</li> <li>• Danish Designers</li> <li>• Kolding Design Academy</li> </ul>	<ul style="list-style-type: none"> <li>• MOKO (fashion design)</li> <li>• Mads Clausen Institute (product design)</li> <li>• The Graphical Academy (graphic design)</li> <li>• Danish Architecture Center (interior design)</li> <li>• Danish Technological Institute (product design)</li> <li>• TEKO (fashion design)</li> <li>• Risoe (product design)</li> <li>• DTU (furniture design)</li> </ul>	<ul style="list-style-type: none"> <li>• Danish Export Council – BornCreative</li> <li>• Danish Crafts</li> </ul>

Government has played a central role in the creation of most of these IFCs, suggesting that the design cluster rests to a large degree on public initiatives. Perhaps as a result of this, we find a relatively low level of ‘cluster identity’, with firms taking few

independent initiatives<sup>58</sup>. Hence, there is room to improve the awareness among firms of their competitive situation and for firms to organize independently from government.

### **Related and supporting industries**

<b>Key Strengths:</b>	<b>Key Challenges:</b>
<ul style="list-style-type: none"> <li>▪ Many design-intensive manufacturing and service firms</li> <li>▪ Strong link to design education institutions</li> <li>▪ Strong design clusters in other Scandinavian countries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Relatively weak relationship to investors and venture capital</li> </ul>

Perhaps the most important competitive advantage of the cluster is the presence of a number of larger export-oriented companies that have made design an important part of their competitive profile. These often have an international profile or are leading in certain markets, such as Bang & Olufsen, which produces high-end consumer electronics with a sophisticated aesthetic identity, or Novo, a world-leading manufacturer of healthcare products, in particular relating to diabetes<sup>59</sup>.

<b>Number of Design Firms in Scandinavia<sup>60</sup></b>	
Sweden	11,199
Denmark	5,607
Finland	2,358
Norway	2,100
<i>Total</i>	<i>21,264</i>

There is also an important regional dimension, with strong design clusters in Sweden and other Nordic countries, which has created beneficiary scale effects in supplying industries<sup>61</sup>. Research and educational institutions, which are strongest in



Denmark, also attract students from other Scandinavian countries, in particular for furniture design.

#### IV. Strategic Challenges and Recommendations for the Cluster

*Table 4* below summarizes the strategic challenges the Danish design cluster is facing, and the goals that need to be achieved in order to overcome these challenges. After each goal, we list the specific policy recommendations that we believe different cluster participants need to execute to achieve these goals.

*Table 4 Strategic challenges for the design cluster*

Challenge	Goals And Recommendations
Weak management of small firms	<ul style="list-style-type: none"> <li>▪ Better dissemination of management skills and business knowledge</li> <li>▪ Universities and Design Schools to integrate business skills into professional education</li> <li>▪ Industry associations and IFCs to provide business and management knowledge to design firms, similar to the support that IDIS gives in the Netherlands<sup>62</sup></li> <li>▪ Firms to employ professional business managers and marketers to fuel growing scale of each firm</li> </ul>
Unstable deal and income flow for small firms	<ul style="list-style-type: none"> <li>▪ Create larger scale; implement professional marketing and sales of design services</li> <li>▪ IFCs to create forums for cooperation among design firms, not only for exchanging ideas on design issues, but also on business issues, especially marketing and the export of design services. Increased cooperation between Danish firms would increase their international competitiveness, allow them to pool managerial and business resources, and possibly lead</li> </ul>

Access to capital	<p>to some consolidation in the cluster.</p> <ul style="list-style-type: none"> <li>▪ Create “design VCs” to provide seed and growth capital, as well as business knowledge and contacts</li> <li>▪ Government and industry groups in partnership to create “Design VCs” and allocate capital to funds supporting design firms with seed and growth phases, as well as business knowledge, guidance and contacts. If state-backed funds are successful, private capital will follow</li> </ul>
Untapped potential in implementing design throughout Danish industry	<ul style="list-style-type: none"> <li>▪ Educate Danish industry about the benefits of including design in product development</li> <li>▪ Danish Design Center to refocus on strengthening design cluster networks, not just marketing awareness</li> </ul>
Most design services sold locally	<ul style="list-style-type: none"> <li>▪ Increased effort to export design services, and not just designed products</li> <li>▪ IFCs to encourage the export of design services through trade shows, exhibitions, publications, the creation of a contact center to match clients with firms, etc. Specifically, create a co-operative, export-oriented organization that would represent individual designers abroad (again, similar to support that IDIS provides for Dutch designers)</li> <li>▪ Firms seek to increase the export of design services</li> </ul>
Insufficient end-consumer awareness of Danish design to justify higher price premiums	<ul style="list-style-type: none"> <li>▪ Build Danish design as a global brand, connoting quality, functionality and fashionability</li> <li>▪ Government to establish a partnership with the private sector and industry institutions to build the Danish design brand through a marketing campaign, logo for Danish design, PR operation, collaboration with museums and other trend-setting institutions, industry publications, trade shows, creating and</li> </ul>

<p>Market reluctance to adopt innovative designs en-masse</p>	<p>promoting ‘celebrity’ Danish designers</p> <ul style="list-style-type: none"> <li>▪ Universities to increase research on user-based, commercially-oriented innovation and design, positioning Denmark as a powerhouse of innovative consumer design</li> <li>▪ IFCs to build the Danish design brand internationally by revamping and strengthening the Danish Design Center, to coordinate all the cluster's branding efforts</li> <li>▪ Firms (both design firms and product manufacturers) contribute financially to IFC market education, incorporate the Danish design logo on products and advertising, and increase marketing to consumers</li> </ul>
<p>Illegal copying of products and designs</p>	<ul style="list-style-type: none"> <li>▪ Promote “trendy” design through influential customers, media, educational institutions, art circles</li> <li>▪ Government to support the cluster by increased public purchases of Danish design, widening the existing policy of purchasing Danish design for public and governmental buildings, and creating as much visibility for Danish design as possible (e.g. in official functions, utilizing the royal family and royal properties to showcase Danish design)</li> <li>▪ Universities to create design “think tanks” to promote experimental and innovative design, in associations with museums, IFCs, the trade and media</li> <li>▪ Better IP protection and aggressive enforcement worldwide (in partnership with other governments and industries)</li> <li>▪ Government to increase design IP protection and worldwide enforcement, in collaboration with other governments and international organizations representing all industries in need of protection (apparel, accessories, software, pharmaceuticals, entertainment, etc).</li> </ul>

	<p>Action may be undertaken also through the WTO and WIPO and applying pressure on manufacturing countries, such as China, to better enforce IP rights</p> <ul style="list-style-type: none"> <li>▪ Firms to obtain global patents on designs, investigate and report IP infractions, aid enforcement, and sue violators to deter future violators</li> </ul>
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## V. Strategic Challenges and Recommendations for Denmark

As discussed above, Denmark has an enviable competitive position, with an excellent business environment generating high levels of both prosperity and equality. This is a result of both government intervention and a robust and strategic private sector. We see the primary challenge for Denmark as continuing to find avenues to leverage its infrastructure and other competitive strengths into further development of knowledge-industry clusters and continual up-grading of its competitive position while maintaining its enviable balance between competition and cooperation.

In response to the strategic challenges discussed in this paper, we propose the following actions:

Challenge	Goals and Recommendation
High price levels limit prosperity	<ul style="list-style-type: none"> <li>▪ Continue cooperative approach to moderated wage increases while constraining CPI growth</li> <li>▪ Increase transparency and price competition through antitrust efforts</li> </ul>
Historically limited access to equity and venture capital (now much improved)	<ul style="list-style-type: none"> <li>▪ Government to continue successful support for business incubators and state-backed venture capital funds</li> <li>▪ Industry groups to explore investments in non-traditional VC industries (i.e. outside high tech and healthcare)</li> </ul>
Limited patenting relative to wealth and competitive position	<ul style="list-style-type: none"> <li>▪ Government to institute programs, such as a Danish Innovation Clearinghouse, to</li> </ul>

	<p>assist small firms in obtaining global design and product patents</p> <ul style="list-style-type: none"> <li>▪ Government to step-up enforcement of IP laws domestically and against international manufacturers to encourage Danish firms to see the value in patenting</li> </ul>
Extent of marketing	<ul style="list-style-type: none"> <li>▪ Government to invest in training programs and better dissemination of business skills</li> <li>▪ Private sector to invest in professional global marketing for strategic industries</li> </ul>
Extent of incentive compensation	<ul style="list-style-type: none"> <li>▪ Government to encourage further incentive compensation through tax adjustments while preserving social equality and protections. Such a change is consistent with and represents an evolution of FlexSecurity reforms of the 1990s</li> <li>▪ Private sector to adopt incentive compensation where appropriate</li> </ul>
Limited scale constrains growth in supplier networks and local market demand	<ul style="list-style-type: none"> <li>▪ Government to assist in removing remaining barriers to cross-border collaboration and</li> <li>▪ Private sector to leverage Nordic Council and EU trade links to develop cross-border supplier and distribution networks and institutions for collaboration</li> <li>▪ Government and industry groups to build on 'neighborhood' trade links and establish strategic bi-partite trade relations with key markets (e.g. Japan, Asia)</li> <li>▪ Private sector groups and companies to build global distribution networks and relationships, including end-to-end consumer channels (see for example Bo Concept)</li> </ul>

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<sup>9</sup> Factors in Denmark's historical strength in shipping include its physical location on the coast of northern Europe, composition of 407 islands, Viking heritage and colonial history in Greenland, Faroe Islands and Iceland, as well as India, Africa and the Caribbean.

<sup>10</sup> Preeminent companies in the transport cluster include the A. P. Moller-Maersk group; CIA World Factbook

<sup>11</sup> Such as Nordea & Danske Bank: [www.denmark.dk](http://www.denmark.dk)

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<sup>14</sup> <http://www.globalisering.dk/multimedia/Globalisering1.pdf>

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