RESEARCH AND PRACTICE IN DESIGN AND INNOVATION POLICY IN EUROPE

Anna WHICHER\textsuperscript{a}, Gavin CAWOOD\textsuperscript{b} and Andrew WALTERS\textsuperscript{c}

\textsuperscript{a}Cardiff Metropolitan University; \textsuperscript{b} Cardiff Metropolitan University; \textsuperscript{c}Cardiff Metropolitan University

According to a European Commission public consultation, the greatest barrier to the better use of design in Europe is the lack of understanding among policy-makers. Academics have provided evidence of the impact of design on economic performance; however design, unlike innovation, is not well integrated into policy. This raises the question: How can academic evidence make a more compelling case for policy-makers to integrate design into innovation policy? This research seeks to develop a framework to benchmark policies for design in Denmark, Estonia, Finland and the UK and compare what data should be collected against data that is currently available. Ultimately, this research seeks to further develop the emergent field of research in design policy and provide practical policy insight.

Keywords: Innovation policy; benchmarking; design systems

CONTEXT

Research by the UK Design Council (2004:3) and Danish Design Centre (2004:50) demonstrates that design can have an impact at both the micro level of the firm and as a driver of growth at macro level. However, design currently remains underrepresented in innovation policy in Europe. To begin to address this, in 2010, the European Commission included design as one of ten priorities in their innovation policy (2010:3): ‘Our strengths in design and creativity must be better exploited’. The policy embraces design for bringing ideas to market, for innovation in both private and public services and for tackling social challenges (2010:17). Furthermore, it is the European Commission’s vision that by 2020, ‘design should be a well-integrated element of innovation policy across Europe’ (2011:1). Policy decisions should be made on the basis of evidence and academic research has the potential to generate such evidence. With design now on the European policy agenda and already part of 15 national innovation policies across Europe, there is an opportunity for academic research to further accelerate policy practice. However, the question remains: How can academic evidence make a more compelling case for policy-makers to integrate design into innovation policy? For policy-makers and academics, a prerequisite for evidence-based policy-making is benchmarking – a process of learning by comparison. Constructing a benchmarking model to examine policies for design poses a number of challenges not least because data on design is scarce. This paper seeks to develop, on the one hand, a...
Theoretical Benchmarking Framework with recommendations on what quantitative data should be collected to inform policy and on the other hand, a Design Policy Monitor to qualitatively analyse what data is currently available with policy recommendations. The wider research project seeks to build a body of academic evidence to advance the debate on design’s role in innovation policy and demonstrate to the innovation research community that design is more than just a link in the innovation chain.

DESIGN AND INNOVATION POLICY

This section examines three fundamental questions: i) What are design and innovation? ii) What is the rationale for integrating design into innovation policy? iii) How can academic research provide evidence to influence the policy process? In examining design and innovation from a policy perspective, there are a number of challenges to acknowledge. Many of the challenges stem from the most fundamental question of how to define design and how to conceptualise the relationship with innovation. In defining design and innovation, as Hobday et al. (2011:5) observe, ‘neither term is unproblematic and both have changed over time’. Innovation and design can be not only nouns (an innovation or a design), verbs (to innovate and to design) but also adjectives (an innovative idea or a designer brand). Conventionally the central tenet of design, as stated by Friedman (2000:1), has been as a ‘broad field of making and planning disciplines’ and according to Buchanan (1990:78), ‘virtually all definitions of design today are variations of this theme, each intended to draw out a different aspect’. More recently, design has been described as an approach to problem-solving. Expanding on this, Brown (2009:236) states that ‘Design, and more broadly, design thinking, can be viewed as a creative problem-solving tool that can be utilised across industries with respect to innovative products, services, processes and even societal challenges’. However, Dilnot (1984:19) and Margolin (1995:12) assert that design suffers from a lack of academic consensus, which has implications for design history, design practice, design philosophy, design research, design methodologies as well as its theoretical, political and social positions. In addition, there is an increasing hiatus between how design is understood by academics, design professionals, industry, the general public and policy-makers.

In contrast, Cruickshank (2010:23) observers that ‘definitions of innovation in innovation studies have a high degree of commonality’. According to Nonaka (1992:96), innovation is the creation of value through knowledge and its integration into technology, products, service and across company strategy. For Bonsiepe (1995:35), the ‘objective of design activity is neither the production of knowledge nor the production of know-how, but the articulation of the interface between artefact and user’. Both design and innovation can create competitive advantage through differentiation in products, services and systems. The distinguishing factor is that innovation is grounded in an established body of knowledge dating back to Schumpeter in 1934, codified in academically rigorous processes and is quantifiable while design as an academic discipline is less mature and the return on investment is difficult to isolate from other variables. Nevertheless, Cruickshank (2010:25) notes that ‘although the bodies of knowledge are highly overlapping, there is limited dialogue’. Design as a field of academic enquiry does not exist in isolation from a broader academic context; there is a need to further examine the relationship between design and innovation and make a stronger case to the innovation research community that design should form a greater part of their field. This is particularly pertinent at a time when design is starting to be recognised as a driver of innovation policy. Innovation policy is an established line of academic enquiry while design policy is emergent.

Design forming part of the European Commission’s policy Innovation Union is part of a broader trend where the scope of innovation policy in Europe is expanding. A paradigm shift is underway where the innovation policy remit now encompasses a broader range of
activities beyond purely technological, where as von Hippel (2007:293) and Bisgaard et al. (2010:2) contend, user-centred innovation, including design, is becoming more important. To align their policies with the European Commission, policy-makers across Europe at national, regional and local levels require evidence of design’s impact and the rationale for integrating design into innovation policy. According to interviews with policy-makers in Finland and Denmark, as well as micro level case studies where design has had an impact on an individual project, product or company, policy-makers require macro level statistical evidence of design’s economic performance. In 2004, the UK Design Council’s Design Index study (2004:5) tracked the share prices of 63 design-led companies over ten years and found that they outperformed the FTSE 100 indices by 205%. Furthermore, their Value of Design Factfinder report (2007:4) revealed that for ‘every £100 a design alert business spends on design, turnover increases by £225’. Despite these encouraging statistics, according to a European Commission public consultation (2009:8), the greatest barrier to the better use of design in Europe is the ‘lack of awareness and understanding of the potential of design among policy-makers’ and the second is the ‘lack of knowledge and tools to evaluate the rate of return on design investment’. While Roy and Potter (1997:12), Borja de Mozota (2003:88) and MacBryde and Moultrie (2007:315) have made a concerted effort to address the lack of knowledge on design’s economic value, there is still further to go to match the reliability and validity standards of government economists. Above all, policy-makers require evidence of design’s role in economic growth.

Policy-makers also require a rationale for design to form part of policy. Since the 1980s, political theorists such as Freeman (1982:18) and Lundvall (1985:15) have initiated a shift in the justification for policy intervention in favour of innovation away from the neo-classical market failure theory to embrace a broader systems failure theory. The innovation research community, including Bergek et al. (2008:407) have now ‘almost completely rejected the market failure approach as a basis of policy action’. According to Woolthuis et al. (2005:609) in the innovation system approach, ‘innovation is an interactive, non-linear process in which actors, e.g. firms, interact with a manifold of other organisations (e.g. research institutes, customers, authorities, financial organisations) and institutions (e.g. IPR, regulations, culture)’. Woolthuis et al. (2005:614) further acknowledge that ‘most problems in the innovation system will not be uni-dimensional but will consist of a complex mixture of causes and effects, and involve several actors’. Therefore, policy-makers need to have an understanding of all components of the system in order to develop effective policies.

Bisgaard et al. (2010:4) developed a model where the Danish innovation system is composed of eight categories i) innovation support (innovation programmes and pools); ii) technological service (technological institutes, tech-track); iii) innovation networks (matchmaking); iv) research (universities, research institutions and hospitals), v) education and competences (education, traineeships, further training), vi) counselling inventor schemes, patents, standards, design), vii) entrepreneurship and venture capital (scienceparks, incubators, public venture fund) and viii) international innovation (international innovation centres). Such frameworks enable policy-makers to identify those components of the system that are under-performing.

Policy intervention in favour of design can also be justified in terms of systems failure as stated by Love (2007:3), Raulik-Murphy and Cawood (2009:1) and Swann (2010:4). For example, the challenge of low take-up of professional design services among small companies is a failure that no one actor in the system could solve but would require a broader policy instrument coordinating multiple actors and initiatives. Despite mounting evidence that design can contribute to competitiveness, companies still have comparatively low awareness of what design can achieve for their business – not only in terms of client facing activities but also internal processes within the firm. According to the Design Council (2008:1), in only 22% of UK companies does design lead the development of new products...
and services and 44% of companies perceive design as having no importance. Low awareness of the value of design in the private sector is not surprising as design suffers from asymmetrical information; designers do not have the tools to calculate the return on investment and companies are unwilling to invest in a process when the outcome and return is unclear. In the systems failure rationale, the role of government intervention is to devise actions, programmes and policies aimed at stimulating the supply and demand for design to tackle failures in the way that actors and components of the system interact. Love (2007:5) lists 18 sub-system elements of national design infrastructures. Swann (2010:23) identified five categories to illustrate a national design system, including i) public investment in the design profession, ii) public investment in national design assets; iii) investment in financing mechanisms; iv) investment to support systems thinking and v) investment in educating end-users, companies and the public sector about the value of design. Alternatively, Raulik-Murphy and Cawood (2009:8) identify seven components of a national design system: i) design policy, ii) funding source, iii) design education, iv) design promotion, v) design support, vi) research and development and vii) professional associations. Raulik-Murphy and Cawood’s model is the most comprehensive but arguably missing two key components: the professional design sector itself and investment in design by private and public actors. Drawing on both the innovation and design systems literature, this research proposes the following model of a European Design System composed of nine components divided into supply and demand: i) design investment (public and private), ii) design support, iii) design promotion, iv) design centres, associations, networks and clusters, v) the professional design sector, vi) design education, vii) research and knowledge transfer, viii) funding and ix) policy, governance and regulation. A strategic design policy should examine each component of their national or regional system to devise actions and programmes to tackle specific challenges stemming from insufficient interaction.

Figure 1  European Design System
Source: Anna Whicher, Gavin Cawood and Andrew Walters (2012)
Without a common definition, the rationale for integrating design into policy remains disputed. According to Choi et al. (2011:70), ‘researchers have proposed that the purpose of a national design policy is to ensure that the appropriate design support is provided for businesses to become globally competitive’. Raulik-Murphy et al. (2010:53) offer the interpretation that ‘although the practice of design policy is developing, the general understanding of what is involved has not kept pace with those developments’. Furthermore, Sun (2010:71) has identified that ‘design policy and its deployment are largely constrained by the dynamics within the design industry and its wider context – the economy’. To enhance the role of design in innovation policies, there is a role for academic research to make a more compelling case to policy-makers.

According to the European Commission (2009:21), in many European Union countries, an ‘evidence-based approach to informed agenda setting and policy adjustments is relatively weak’. Nevertheless, Huggins (2010:640) notes that ‘benchmarking exercises have become increasingly popular [in Europe] in recent years, with some scholars arguing that regional benchmarking, undertaken carefully and meaningfully, is an essential prerequisite for informed and strategic policy-making’. Borras and Jacobsson (2004:187) assert that benchmarking is a methodology involving learning by comparison that can be employed by policy-makers across Europe under the EU’s ‘open method of coordination’ to analyse policy development, implementation and impact to accelerate policy learning and the transfer of best practice. Berger (2005:4) states that ‘due to the fact that benchmarking exercises are undertaken in various ways, it is difficult to come up with a single definition that covers all variations’. Many benchmarking initiatives exist for innovation policy, including among others the Europe-wide Innovation Union Scoreboard and the Regional Innovation Monitor; however, design is usually omitted from innovation policy benchmarking initiatives even though design is increasingly a part of innovation policies in Europe. While benchmarking is acknowledged by academics and policy-makers as an approach to evidence-based policy-making, Groenendijk (2004:3) warns against certain pitfalls involved such as selecting inappropriate indicators, an absence of data availability and an over-reliance on quantitative data. In developing a framework for benchmarking design policies in Europe, careful attention should be paid to the above risks. The aim of this research is therefore to develop a benchmarking framework to provide evidence-based policy insight to governments across Europe and to further the understanding of design as a legitimate domain in innovation policy research.

**METHOD**

This research seeks to bridge the gap between academic research and policy practice for integrating design into innovation policy. Huggins (2010:639) defines benchmarking as a methodology concerned with learning by comparison, where countries and regions examine the policies, performance and processes of their competitors in order to identify successful initiatives that could be adapted and transferred. A number of benchmarking studies exist for innovation policy-making but this approach remains under-developed for design policy-making. From the benchmarking literature, including the early 12-stage model developed by Camp (1989:23), Groenendijk’s 5-step process (2004:3) and the Innovation Policy Benchmarking Guidebook (2008:16), the following framework has been employed:

i) Identifying best in the class
ii) Defining the sample
iii) Selecting participants
iv) Developing indicators
v) Assessing the relevance for policy-making
vi) Establishing data availability
vii) Refining the indicators
viii) Collecting the data
ix) Determining the gaps
x) Recalibrating the benchmarking framework

This paper covers steps i to vii. The preliminarily stage of developing the framework was to identify the ‘best in the class’ against which to benchmark best practice and compare performance. Performing content analysis of the 27 European Member States’ innovation policy documents provided an assessment of the prevalence, scope and depth of the state of design in European innovation policy. Performing content analysis of policy documents revealed that in 2011 design featured in 15 of the 27 Member States’ innovation policies including the Czech Republic, Denmark, Estonia, Finland, France, Ireland, Italy, Latvia, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom. These references ranged from one or two sentences to entire chapters. Of course, many more European countries and regions have active design programmes, design centres and well-rooted design traditions such as Germany and the Netherlands but they do not have design articulated in a government policy document. While the statements in policy documents may not reveal the extent of implementation on the ground they nevertheless reveal key insight into government understanding of design and the value government places on design. Design’s representation in policy can be categorised into a number of levels: no explicit design policy, policy for industrial design, policy for service design (private and/or public) and policy for strategic design where design forms part of a broader policy agenda. Almost half of Member States (12) do not recognise design at policy level at all. Two fifths, mostly in Eastern Europe, recognise design narrowly in terms of industrial innovation. Only seven countries embrace the role of design in service innovation but mostly for the private sector not public services. Policies recognising the spectrum of design’s contribution from industrial and product design though service design to strategic design belong to a minority of European innovation leaders.

<table>
<thead>
<tr>
<th>No explicit design policy</th>
<th>Policy for industrial design</th>
<th>Policy for service design (private and/or public)</th>
<th>Policy for strategic design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Czech Republic</td>
<td>Slovenia</td>
<td>Denmark</td>
</tr>
<tr>
<td>Belgium</td>
<td>France</td>
<td>Spain</td>
<td>Estonia</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Ireland</td>
<td>Sweden</td>
<td>Finland</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Latvia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Poland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>Portugal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>Romania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovak Republic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Those countries with design best represented in policy were selected for study: Denmark, Estonia, Finland and the UK. Selecting participants was based on the actors in the best position to provide the data. Therefore national design centres and national government departments were selected, in this case the Danish Design Centre and Danish Business Authority, the Estonian Design Centre and Ministry for Economic Affairs, Aalto University...
Indicators for the benchmarking framework were derived from two sources: i) innovation policy benchmarking initiatives and ii) academic literature on national design systems combined with current data collected by design centres. From Huggins’ typography of benchmarking studies (2010:648), 497 policy indicators in seven multi-regional, innovation policy benchmarking initiatives were examined to inform the development of the benchmarking framework:

Table 2  Number of indicators in multi-region, innovation policy benchmarking studies

<table>
<thead>
<tr>
<th>Project name</th>
<th>European regional coverage</th>
<th>Number of indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  EMERIPA – European Methodology for Regional Innovation Policy Impact Assessment and Benchmarking</td>
<td>8</td>
<td>207</td>
</tr>
<tr>
<td>2  EURO-COOP – Regional Innovation Policy Impact Assessment and Benchmarking Process: Cooperation for Sustainable Regional Innovation</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>3  IASMINE - Impact Assessment Systems and Methodologies For Innovation Excellence</td>
<td>5</td>
<td>73</td>
</tr>
<tr>
<td>4  IMPACTSCAN – Innovation Policy Impact Assessment at Regional Level</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>5  INNOWATCH – Application of Technology Watch Methodology for Assessment of Regional Innovation Policy Impact on SMEs</td>
<td>4</td>
<td>61</td>
</tr>
<tr>
<td>6  MERIPA - Methodology for European Regional Innovation Policy Assessment</td>
<td>5</td>
<td>67</td>
</tr>
<tr>
<td>7  OMEN - Optimal practices, development policies and predictive Models for regions in an ENlarged EU</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td>TOTAL NUMBER OF INDICATORS EXAMINED</td>
<td></td>
<td>497</td>
</tr>
</tbody>
</table>

To select the indicators for the benchmarking study, the process indicated in figure 2 below was set in place. The 497 innovation policy indicators were compiled into a ‘long list’ and those which could be adapted for design were added to the list of design policy indicators compiled from the academic design literature and studies by design centres. The relevance of the indicators for policy-making were then assessed in a one-day focus group in Cardiff (UK) with representatives from Estonian Design Centre, Estonian Ministry for Economic Affairs, Danish Design Centre, Danish Business Authority, Aalto University, the Design Council and Welsh Government. Interviews with the Finnish Ministry of the Economy and Employment took place prior to this. The focus group guided the participants through four exercises intended to ensure the robustness of the benchmarking framework. Face-to-face interviews (Denmark and Finland) and telephone interviews (Estonia and the UK) also took place with the design centres to establish the extent of availability for the indicators. The feedback from the interviews and focus group was incorporated to refine the indicators. The design centre project managers and innovation policy-makers in national governments then responded to a survey to collect data according to the refined set of indicators.

Despite attempts to mitigate the risk of lack of data availability prior to data collection in interviews with design centres, there were still a number of gaps in the survey responses because data that the design centres initially perceived to be available proved too difficult to collate or were available in some countries but not others. Based on the feedback from the focus group there were performance indicators that policy-makers were keen to have but which design centres affirmed in interview were unavailable. These indicators could simply have been discarded but these were the measures which provided strategic insight into the use of design in a country. Consequently, following the two stage process, the indicators were categorised into indicators which should be collected – a Theoretical Benchmarking Framework – and indicators which are available despite not being uniformly available across the sample – the Design Policy Monitor. Innovation policy benchmarking exercises tend to be conducted in a longitudinal study over a number of years to compare policy
developments; however, such an approach for design raises a number of challenges to be discussed in the next section.

Figure 2 Indicator selection process
Source: Anna Whicher, Gavin Cawood and Andrew Walters. (2012)

FINDINGS
Initial findings reveal both barriers and opportunities for academic research to influence the policy process. A significant challenge is related to data availability to inform policy-making – i) key performance data on design is frequently not collected; ii) where data is collected, it is not collected regularly or on an annual basis; and iii) data is not necessarily comparable between countries. For example, data on companies’ spending on design is costly for design
centres to collect so this data only exits in Denmark and the UK. One off or infrequent surveys on employment of designers are available but for example, the latest figures for Estonia date from 2007. Furthermore, the design sectors are not always made up of the same disciplines, for example, in the UK, architects are usually considered separate from the design sector whereas elsewhere in Europe, like Finland, architects are included within the sector. Based on these barriers, a key recommendation for the European Commission is for Eurostat and national statistics’ offices to collect annual and comparable data on design. From these current gaps in data, a design scoreboard like the Innovation Union Scoreboard that assesses annual performance based on 25 innovation indicators is not appropriate and would require significant resources for new data collection. The challenges of data availability resulted in two outputs from this research, a Theoretical Benchmarking Framework with indicators that could be collected in the future and the Design Policy Monitor based on data that is currently available. The Theoretical Benchmarking Framework (figure 3) is based on quantitative indicators, which could be collected at a cost by sampling design agencies and companies and conducting interviews with design centres, public authorities and universities. In contrast, the Design Policy Monitor seeks to build a qualitative profile of design and the state of design policy according to the nine components of the European Design System to provide insight and recommendations to policy-makers.

The 40 indicators in the Theoretical Benchmarking Framework are divided according to the nine components of the European Design System and sub-divided into input and output indicators. For example, in the professional design sector, the input indicators are the level of education among designers (designers with tertiary education) and the number of designers working in the sector (employment in design sector). The corresponding output indicators are the amount the design sector contributes to the economy (design sector gross value added) and the value of international business (exports of design services). As previously mentioned, this data is not consistently available across the sample; however, all of these indicators are available in the UK for 2009/2010. According to the Design Council’s Design Industry Research (2010:2), there are an estimated 232,000 designers in the UK and 51% hold an undergraduate degree. However, figures for the gross value added (GVA) of the design sector in the UK are disputed. According to the Creative and Cultural Skills Council (2009:6), in 2009, design contributed £8.3m in GVA to the UK economy while the Department for Culture, Media and Sport (DCMS) (2009:14) estimated design GVA for 2009 at £1.8m or 0.14% of total UK GVA†. Furthermore, DCMS (2009:16) estimate that exports of design services represent £104m or 0.1% of all UK exports. As the majority of indicators identified in the Theoretical Benchmarking Framework are either simply not collected or not collected annually, this remains a purely theoretical model at this stage. A possible next step could be to secure funding to collect data according to indicators, perhaps in a larger sample of EU countries, by setting out a sampling procedure, data collection guidelines and interpreting framework.

Overall, the input indicators in the framework are more readily available while the output indicators, which seek to provide an insight into impact and are more relevant for policy-making, are less available. The two surveys, one among design centres and one among innovation policy-makers, collected data on 80 indicators (including some listed in the Theoretical Benchmarking Framework) to generate enough data to provide a qualitative profile of the state of design policy in the four countries. Analysis of these indicators forms part of the Design Policy Monitor, which will be conducted on an annual basis over three year.

† According to the DCMS publication (2009:7) GVA is ‘measured by the income generated by the business, less their intermediate consumption of goods and services used up in order to produce their output’.
Figure 3: Theoretical Benchmarking Framework. White boxes illustrate input indicators and grey boxes indicate output indicators.

Source: Anna Whicher, Gavin Cawood and Andrew Walters (2012)
The Design Policy Monitor examines policy trends and concrete examples of good practices, which could be adapted and transferred to less experienced countries or regions. The analysis is thematic according to the nine components of the European design system and proposes a set of policy recommendations. The policy recommendations are aimed at national, regional and local government; however, the specific actions may be better implemented by other actors, in which case it is the role of government to provide incentives (often financial) for actors in the system to comply.

DESIGN INVESTMENT
The core systemic failure a design policy should seek to address is the greater take up of professional design services in the private, public and third sectors. Innovation policy is after all is the cornerstone of economic growth and design is seeking to prove its worth in this domain. There was consensus among the focus group that indicators of company spending on design and the number of companies with in-house design team provided key insight. In the UK, Livesy and Moutrie (2008:6) estimated that UK firms spend around £50bn ($77.4bn) on design annually. In Denmark, the Economic Effects of Design research by the Danish Business Authority (2003:4) estimates that Danish companies spend upward of 7bn DKK ($1.1bn) on design each year. Furthermore, the Danish design sector has achieved 20% annual growth in the last ten years (2003:4). Taking into consideration the significant difference in population size in each country, Denmark spends marginally more on design per capita than the UK, $200 and $124 respectively. Of course, the two studies use different metrics to measure design investment so if data could be collected according to the same procedure then it is possible that the results might be different. In 2007, the Design Creates Value research (2008:23) revealed that around 16% of Danish companies have designers employed but only 1% had more than 10 designers employed. In contrast, the Design Industry Research (2010:1) estimates that 83,600 designers are employed in in-house teams, approximately 36% of all UK designers – an increase of 8% on 2005 but the study does not cover how many companies have in-house design team. Consequently, again, these figures are not comparable as they have slightly different foci. In Estonia and Finland, data on company spending on design has yet to be estimated and the respondents estimated that only a few companies have in-house design teams (possibly 40 in Finland, with the two largest in-house design teams in Estonia being in the retail and traditional manufacturing sector). The gaps combined with the absence of comparative data pose challenges for policy-making; however, it is clear is that design is a significant economic sector that merits closer policy attention. Spending on professional design services by the public sector and the number of design managers within public authorities is also indicative of the value the public sector places on design. However, at this stage, spending on professional design services (whether communication or more strategic) across multi-levels of governance (national, regional and local) has yet to be estimated. However, the numbers of design managers in public authorities is small enough to capture. For example, in Denmark, Mindlab is a cross-ministerial innovation unit with a multidisciplinary team (including designers) that enables policy-makers to develop solutions from a citizen’s perspective. In the UK, Cornwall County Council is the most prominent example of a design manager involved in re-framing challenges to tackle ingrained socio-economic issues. The next stage of the research is to understand the impact of design managers in public institutions.

POLICY RECOMMENDATIONS
- Collect data on spending by companies and public authorities on professional design services according to a standardised European procedure.
- Implement initiatives to connect small companies and designers.
- Provide incentives for companies to develop in-house design capabilities.
• Integrate design managers into public authorities to provide input for public service innovation as well as user-centred problem-solving in policy-making.

DESIGN SUPPORT
Almost every country in Europe has a design support programme. Government funded design support programmes are the primary implementation mechanism of design policies (whether explicitly part of a policy document or not). The UK programme Designing Demand and the Danish Ice-breaker programme are often used as reference points for developing new programmes – for example, the Estonian Design Centre has this year implemented a Design Bulldozer programme inspired by these experiences. However, programmes in both the UK and Denmark are in the third or even fourth iteration of their cycle. Policy-makers in Finland suggested that design support programmes now need to be more targeted to specific systemic failures. Whereas programmes tend to encourage all types of companies to participate, perhaps programmes need to be more strategic and more aligned to innovation priorities. For example, design support programmes could be more specialist and target high growth, high export, start-up or sector-specific companies such as the traditional manufacturing industry or focus on service design specifically for the private or public sectors. There is currently limited support in Europe for intellectual property and patent registration specifically for design.

POLICY RECOMMENDATIONS
• Align design support programmes with more strategic innovation policy priorities (high growth, start-up, sector-specific or high export companies or service design for private or public sectors).
• Examine broader design support mechanisms such as intellectual property, patent registration and tax incentives.

DESIGN PROMOTION
Educating a range of target audiences - the general public, small companies and public authorities - about the value of design is a costly undertaking. In Denmark, according to the Danish Business Authority (2003:4) upwards of 12.5m DKK ($2m) is invested in design promotion each year. Among respondents, national publicity campaigns were the least popular of promotion activities as they are the most resource intensive. The most prevalent promotion initiatives are design awards, design weeks and design exhibitions. Design is most frequently reported in the Danish and Finnish media (approximately 5-7 times a month in national newspapers and once a month on national television). Design appears 2-4 times a month in national newspapers in Estonia and the UK but mostly in the context of product or fashion design in the culture and lifestyle sections of the media and very rarely is design talked about as a business process or in an economic context. Alternatively, in Denmark, design has now moved away from the cultural section of the media and is more prevalent in the mainstream business sections. However, the crucial data on design awareness among the general public and small companies is difficult to operationalise and capture.

POLICY RECOMMENDATIONS
• Develop promotion activities to target specific audiences to raise awareness of design, for example, public authorities or small companies in specific sectors.
• Increase awareness of design by the general public through better media coverage of design.
• Monitor design awareness by different audiences.

DESIGN CENTRES, ASSOCIATIONS, NETWORKS AND CLUSTERS
A number of opportunities to support policy-making by national design centres were also revealed by the respondents. Innovation and the creative industries have been placed at the
heart of economic recovery policies across Europe. Governments are beginning to recognize the contribution of design to innovation and in a number of parts of Europe design constitutes the greatest proportion of the creative industries both in terms of employment and turnover. Consequently, design centres have enjoyed a closer relationship with government departments in recent years and actors in Denmark, Estonia, Finland and the UK have successfully engaged with government to positively influence the policy agenda. For example, the Estonian Design Centre’s cooperation with national government is described as ‘intensive’ with the centre being the main partner for the Ministry of Economic Affairs in ‘drafting and implementing the national design strategy and action plan’. Design centres have a crucial role to play in delivering the actions of the government policies for design. The central role of design centres, associations, networks and clusters should be as facilitating dialogue between the sector, industry and government to respond to raise both the standard of professional design practice and its use by industry and government. For example, professional standards for design only exist in the UK and if design is to be recognised as a strategic discipline, designers need to be able to step up to the bar and perform at this level.

POLICY RECOMMENDATIONS
• Encourage design associations and networks to collect annual data on their members.
• Conduct needs analyses of the design sector and small companies to ensure the activities of design centres, associations, networks and clusters are meeting the needs of the sector and small companies.
• Develop common European professional design standards for the different sub-disciplines of design to encourage designers to move into new design disciplines such as service design.

THE DESIGN PROFESSIONAL DESIGN SECTOR
Statistics on the state of the professional design sector are crucial for national decision-makers to appreciate the significance of the sector, not only in terms of employment but in terms of its contribution to economic growth in other sectors. Based on 2007 statistics, the Estonian respondent reported that there are 28,000 people employed in the creative industries but less than 1,000 are employed in design – approximately 4%. The GVA of the creative industries was estimated at €7.17bn, making up 2.9% of gross domestic product. Although the value of design GVA was not calculated – respondents reported a ‘moderate increase’ in the financial performance of design agencies in 2012 compared with 2011. Designers in Estonia and Finland are generally highly educated with between 60-79% and 80% respectively holding an undergraduate degree. The Finnish respondents also state that less than 1,000 people are employed in the design sector in Finland and that over 9% recruited graduate designers. Information about the profile of designers is important too, for example, whether they engage in continuous professional development, collaborate with other designers, move into new design disciplines likes service design, possess the necessary entrepreneurial skills to run a successful business, communicate effectively with industry and are equipped to deal with challenges in the public sector. Insight gleaned from interviews with the design centres would suggest that there is a huge range of competences within the sector and not all would be able to effectively engage with government and industry at a more strategic level.

POLICY RECOMMENDATIONS
• Implement initiatives to enhance the business and entrepreneurship skills of designers.
• Support designers in engaging with business associations, networks and clusters.
• Encourage designers to engage in continuous professional development and up-skill so that they can engage with larger clients in the public and private sectors.
DESIGN EDUCATION

Design education varies across Europe, in Estonia and the UK, design is taught in primary and secondary school whereas in Denmark and Finland it is not. In Estonia, design is taught in primary schools from the age of seven. Design was only recently added to the national curriculum from the first to the ninth grade as part of the arts as well as technology classes. However, teachers have yet to be trained to teach design and there is a lack of supporting material and textbooks. In the UK, in 2011, 254,000 candidates took their GCSEs (a national exam for pupils aged 15-16) in Design and Technology, with 18,200 taking A-level (national exam for 17-18 year olds). Approximately 80 higher education institutions teach design-related courses with approximately 16,000 undergraduate students enrolled in 2009. In the UK, designers have good career prospects relative to other professionals in the creative industries with the average designer earning £11.50 per hour comparing to £8.71 for the rest of the creative industries. In Estonia between 2007 and 2010, a total of 1,038 individuals received education in design, including 854 in higher education and 184 in vocational education. In all four countries, multidisciplinary higher education is becoming more popular. For example, in Estonia, there is a joint master’s programme in design and engineering between Tallinn University of Technology and the Estonian Academy of Arts, which joins students from different institutions on one course. In Finland, Aalto University is a merger between three previously separate institutions of economics, engineering and art and design where 300 students are enrolled on design courses. Increasingly there are initiatives that encourage students to spend time in a design agency and in industry and to take courses in entrepreneurship. In Denmark, Finland and the UK, design students can go abroad but take-up is very low whereas Estonian design students are reported to be ‘generally very active in going abroad with many also continuing their postgraduate studies abroad’. By encouraging design students to collaborate with students from other disciplines, study abroad and undertake placements, the develop the appropriate professional experience.

POLICY RECOMMENDATIONS

• Position design in the primary and secondary school curriculum as a subject that connects the STEM subjects (science, technology, engineering and maths).
• Train primary and secondary school teacher to better teach design.
• Integrate entrepreneurship skills into tertiary design education courses.
• Enable business students to take modules in design management.
• Encourage collaboration projects between design students and other disciplines.
• Make an internship in industry and/or a design agency mandatory as part of the course.
• Encourage design students to take up mobility programmes and study abroad.
• Instil the values of continuous professional development among design students.

RESEARCH AND KNOWLEDGE TRANSFER

Research in design is perhaps the weakest component of the system in terms of both competences and government initiatives. Design research still has to catch up with more established disciplines like innovation and to develop a body of knowledge to further develop the practice itself. Design rarely forms part of government research grants or multidisciplinary research calls, despite its transformative and problem-solving capacity. There is also no European framework to assess excellence in design research. Nevertheless, knowledge transfer and collaboration between academia and industry is becoming steadily more prevalent. For example, Enterprise Estonia (a division of national government) has an innovation voucher scheme that 690 companies have used for academia-industry collaboration projects since 2009 where companies can benefit from 4,000 to 16,000 Euros. Of the 690 companies, 50 companies have used the voucher to for collaboration on design. The Aalto Design Factor enables students to collaborate on challenges in businesses, giving them practical experience of problem-solving in a
commercial context. Similar initiatives also exist in both Denmark and the UK. Such initiatives give design students vital experience with industry and diffuse user-centred solutions to companies. Design academics should no longer be content with simply generating design research but should strive to diffuse new knowledge through knowledge transfer initiatives for impact.

**POLICY RECOMMENDATIONS**
- Re-position design research within innovation theory.
- Encourage doctoral level research in design.
- Implement academia-industry collaboration programmes to accelerate the diffusion of user-centred solutions to industry.
- Develop a framework to assess excellence in design research and education across Europe.

**FUNDING**
The challenge of using existing funding mechanisms to enhance design capabilities are twofold; on the one hand, companies do not use innovation funding to take advantage of design services and on the other hand, designers do not access innovation funding because they are not familiar with the process. A multitude of innovation funding schemes exist across Europe. In the sample, while design was not ineligible in certain funding mechanisms (such as innovation voucher schemes), since design was not explicitly included, companies very rarely use the funding for design. According to the Estonian policy-maker, design is a relatively low cost way for companies to innovate; however, design should be better accounted for in innovation financing instruments to increase the take-up of professional design services. Furthermore, designers could be missing out on funding opportunities, for example to develop new products or services with the traditional manufacturing sector, as they are inexperienced with the regulations and protocols.

**POLICY RECOMMENDATIONS**
- Include design explicitly in innovation funding schemes such as innovation voucher schemes, seed funding, venture capital and tax incentive schemes.
- Provide subsidies for small companies’ first design investment and provide support in commissioning professional design services.
- Simplify the innovation funding application procedures to enable designers to participate in realising innovation priorities.

**POLICY, GOVERNANCE AND REGULATION**
In Denmark, Estonia, Finland and the UK design forms part of innovation or enterprise policy. In Estonia, following a consultation process, the National Action Plan for Design 2012-2013 was launched at the end of 2011. Design also features in the innovation policy ‘Knowledge-based Estonia’. The framework for the action plan adheres to the model of the European Design System in that it makes provisions for design investment by public and private actors, a design support programme, design promotion, design education, initiatives to support the professional design sector and uses the design centre and association as implementation partners. It is the first phase of state support policy and will provide the basis of a national strategy for the period 2014 to 2020. Denmark has had a design policy since 1997, including three successive strategies with ‘DesignDenmark’ in place from 2007 to 2010. In 2011, the Danish Government published the ‘Vision for Danish Design 2020’, which is currently being translated into concrete policy actions. The vision states that by 2020 ‘Denmark is known worldwide as the design society. By that, we mean a society that, at all levels and in a responsible way, has integrated the use of design to improve the quality of people’s lives, create economic value for businesses, and make the public sector better and
more efficient’ (2011:8). In Finland, design forms part of the ‘Demand and User-driven innovation policy’ and interviews with two representatives with policy responsibilities for design in the Finnish Ministry of the Economy revealed that the Ministry is currently developing a National Design Policy in collaboration with a steering group of 17 design actors. Between 2000 and 2005, Finland had a dedicated design policy, ‘Design 2005!’ and from 2008 design has been included in the national innovation policy. In the UK, design is included in the ‘Innovation and Research Strategy for Growth’, which states that ‘Design can be transformative for companies, through leading or supporting product and process innovation, for managing the innovation process itself, for the commercialisation of science, and the delivery of public services’ (2011:35). The next phase of analysis will be to examine how far the implementation initiatives of these policies address the challenges they were developed to tackle.

POLICY RECOMMENDATIONS

• Involve designers when developing policies for design, innovation and the creative industries (both as end-users but also for creative problem-solving).
• Link design policy visions to concrete actions with a clear division of tasks, financing mechanisms, monitoring procedures and evaluation processes.
• Involve designers in a multidisciplinary team to re-assess the public procurement processes to not only to give greater preference to more user-centred solutions (perhaps by involving designers) but also to increase SME access to government contracts.
• Pilot a creative policy-making lab within public authorities as multi-disciplinary research team (including designers) to re-frame policy challenges and contribute to a more-centred approach to public governance.
• Examine design as an enabler of strategic change across policy domains such as climate change, health and welfare, energy and education.

CONCLUSION

First and foremost, there is a gap in what data would best inform a design policy benchmarking study and what data is currently available for analysis. Consequently, this research has produced two outputs, a Theoretical Benchmarking Framework to collect quantitative statistics in the future and a Design Policy Monitor to construct a qualitative profile of design policy developments in Denmark, Estonia, Finland and the UK to highlight potentially transferrable good practices. Furthermore, this research has sought to more firmly ground design in innovation theory, provide a rationale for design’s integration into innovation policy and take one more step down the road to design informing innovation policy and research. Further analysis of the preliminary findings of the Design Policy Monitor is required to construct an in-depth insight into the design systems in Estonia, Denmark, Finland and the UK but lessons can already be drawn. In Europe, funding is the single most powerful policy mechanism available to government to manipulate the innovation or design system. Of course, with budget cuts and public demand for more transparency in governance, public authorities need to do more with less. Funding is a prime incentive for governments to influence actors in the design system. Design should not receive government funding in preferential treatment over other sectors but in the context of the impact it can have on economic growth. Design should be explicitly integrated into existing innovation programmes and funding streams. However, definitive proof of design’s contribution to macro economic performance is still absent. In response to this, the Design Policy Monitor seeks to provide practical insight and examples of initiatives that governments could adapt to their requirements. Design is increasingly gaining attention at policy levels and research on the role of design in innovation is needed to secure design’s
position in future policy. This research not only seeks to develop a benchmarking study to forward design policy as a legitimate domain of study but also to engage with innovation academics to enhance the dialogue between the fields of innovation and design.

ACKNOWLEDGMENT
We would like to thank all the SEE Platform partners (www.seeplatform.eu) for their involvement in the Design Policy Monitor

REFERENCES


Danish Business Authority. (2003). The Economic Effects of Design. Copenhagen, Denmark


