

// European Design Systems and Innovation Policy



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Policy Innovation Design



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Design is an approach to problem-solving and can drive innovation in products, services and processes for the public and private sectors as well as society by integrating the needs of the users.

Research has demonstrated 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 is under-represented in policy across Europe.

Design policy is government intervention aimed at stimulating the supply and demand for design to tackle failures in the way that actors and components interact in the national or regional design system.

The SEE Platform is a network of 11 partners aiming to accelerate the integration of design into innovation policies and programmes across Europe. This SEE policy booklet proposes policy recommendations based on components of a design system.

The SEE partnership



// Policy recommendations

/ DESIGN INVESTMENT

- / Collect data on spending by companies and public authorities on professional design services to inform evidence-based policy-making.
- / Implement initiatives to connect small companies and designers.
- / Provide incentives for companies to develop in-house design capabilities.
- / Assist companies to invest in design, for example, through tax credit schemes.
- / 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

- / 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 mechanisms for design support such as intellectual property, tax incentives and integrating design into existing innovation support programmes.

/ DESIGN PROMOTION

- / 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 among the general public through better media coverage of design.
- / Monitor design awareness by different audiences.

/ DESIGN CENTRES, ASSOCIATIONS, NETWORKS & CLUSTERS

- / Encourage design associations and networks to gather intelligence.

- / 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 professional design standards for the different sub-disciplines of design to encourage designers to move into new design disciplines such as service design.

/ PROFESSIONAL DESIGN SECTOR

- / 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

- / 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.
- / Encourage collaboration projects between design students and other disciplines.
- / Enable business students to take modules in design management.
- / Make internships in industry and design agencies mandatory as part of design courses.
- / 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

- / 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

- / 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 & REGULATION

- / 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 multidisciplinary teams 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.

// Executive Summary

Despite research demonstrating that design can have an impact at both the micro level of the firm and as a driver of growth at macro level, design is under-represented in innovation policy across Europe. According to the Design Council's Value of Design Factfinder report (2007:4), for 'every £100 a design alert business spends on design, turnover increases by £225'. Furthermore, the Economic Effects of Design study (2003:3) by the Danish Business Authority states that 'there is a marked correlation between the use of design and the economic performance of companies and subsequent macroeconomic growth' and that companies purchasing design have registered a '22% above-average growth in gross revenue'. In the past few years, there has been a marked increase in the number of countries and regions with design included in innovation policies. The SEE Platform discovered that in 2011, 15 of the 27 EU Member States had design explicitly included in national policy, with prominent regional design policy initiatives in Catalonia, Flanders, Lapland, Silesia and Wales (2012:6). This SEE Platform Policy Booklet seeks to address the following three key questions:

What is the link between design and innovation?

What is the rationale for integrating design into innovation policy?

How can policy-makers develop policies to realise the potential of design?

The link between design and innovation is not new but it has not always been recognised at policy level. Design is one tool in the toolbox of innovation. Policy intervention in favour of design can be justified in terms of systems failure, where the role of government 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 (2012:3). Based on analysis of which components of design systems might be under-performing, governments can develop policy instruments to enhance the connectivity of the design system. A system is only as strong as its weakest part so by ensuring that all components of the system (design support, design promotion, design investment by the private and public sectors, design centres, associations, networks and clusters, the professional design sector, design education, research and knowledge transfer, policy, governance and regulation and funding) operate cohesively, design could be a source of competitive advantage for nations and regions. SEE is a network of 11 European partners, supported by the European Commission, aiming to accelerate the integration of design into innovation policies and programmes by developing a bank of evidence for policy-makers and programme managers. This policy booklet is intended to be a think piece to enable policy-makers to examine their policy instruments for design in more depth.

// Sharing Experience Europe – Policy Innovation Design

The SEE Platform is a network of 11 European partners engaging with national and regional governments to integrate design into innovation policies and innovation programmes. Between 2012 and 2015, SEE is operating as part of the European Commission's European Design Innovation Initiative (EDII). EDII seeks to embed design for user-centred innovation in government policies and company strategies across the European Union. The challenge we face is convincing a wider audience of the potential for design to foster innovation in small companies and deliver innovative solutions for products, services, society and the public sector. Through new research, workshops for policy-makers and programme managers, case studies, policy recommendations and the annual Design Policy Monitor, SEE aims to support public authorities to integrate design into their mainstream practice. Our key objective is to engage with 100 public authorities across Europe over three years.

It is the European Commission's vision that "by 2020, design is a full acknowledged, well-known, well-recognised element of innovation policy across Europe" (Peter Dröll, European Commission, speaking at the SEE conference, 29 March 2011). The SEE Platform, led by Design Wales at Cardiff Metropolitan University, will help to realise this vision. As part of the activities of the SEE Platform, the partners and their regional or national policy-makers met in Cardiff in June 2012 to map design systems and develop policy proposals for design. This policy booklet is the output from this workshop. The partners and policy-makers examined the strengths and weaknesses of their design systems, identified barriers to the better use of design, explored examples of successful policy initiatives and proposed recommendations to tackle the challenges.

/ SEE PLATFORM PARTNERSHIP

Design Wales/Cardiff Metropolitan University
(Lead Partner), UK

Design Flanders, Belgium

Regional Development Agency of South Bohemia (RERA),
Czech Republic

Danish Design Centre, Denmark

Estonian Design Centre, Estonia

Aalto University School of Art and Design, Finland

JAMK University of Applied Sciences, Finland

Business and Cultural Development Centre (KEPA), Greece

Border, Midland and Western Regional Assembly, Ireland

Castle Cieszyn, Poland

Design Council, UK



SEE partners at the Design Policy Workshop in Cardiff, June 2012.

// What is the link between design and innovation?

To understand the relationship between design and innovation we must first understand the concepts individually. While innovation is generally well understood by different audiences, there is a hiatus between how design is understood by policy-makers, businesses, practitioners, the general public and academics. According to Nonaka (1992:96), innovation is the creation of value through knowledge and its integration into technology, products, services 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'. Nevertheless, 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'. Both design and innovation can create competitive advantage in products, services and systems. The difference is that a process can only be termed an innovation in retrospect, that is to say, following the steps of an innovation process will not always lead to an innovation. Of course, design does not always lead to innovation but by following the steps of a design process the outcome (whether a product, service or process) will be fit for purpose and reflect user needs. Essentially, design is a tool in the toolbox of innovation. Design is an approach to problem-solving and can drive innovation in products, services and processes for the public and private sectors as well as society by integrating the needs of the users.

In discussions with policy-makers, it has become clear that design is a difficult concept to grasp without examples. Policy-makers are increasingly familiar with industrial and product design examples but are not necessarily aware of examples of design for services, particularly public services. To illustrate, the 'Make It Work' project found that government programmes to assist people to get back into work were not reflecting the needs of the individuals and so have seen millions of pounds being spent in areas that could be focused more effectively elsewhere. The initiative, led by Sunderland City Council, the Design Council and the design agency Livework, demonstrated that involving designers could make support services more user-friendly. The unemployed people needed to be engaged by a network of community organisations to ensure they were socially prepared before entering training and mainstream employment. The project found work for 200 individuals and reduced the cost of

getting someone back into work from as much as £60,000 to less than £5,000. Design can not only result in a cost benefit for the service provider or product developer, but it can also make a real difference to the end user if they are a critical part of the solution.

Design has a crucial role to play in innovation because innovation is no longer purely technology but increasingly it is about services, the user-experience and society. Design can act as the bridge between technological, service, user-centred and social innovation because at its core design is a human-centred process. Whereas the driver of technological innovation was predominantly R&D, the drivers of service, user-centred and social innovation tend to be intangibles. The NESTA Innovation Index (2009:11), which examines UK investment in intangibles, ranks design as more important for innovation and productivity than R&D. The report estimates that innovation was responsible for two-thirds of the UK's private-sector labour productivity but more of this was derived from hidden innovation, such as design (17%), rather than traditional R&D (11%).

Figure 1: NESTA Innovation Index 2009: UK investment in intangibles

| | Intangible investment | £billion | |
|---|-------------------------------|----------|-------|
| 1 | Training & skills development | 32.1 | 24.1% |
| 2 | Organisational improvement | 26.1 | 19.6% |
| 3 | Design | 22.1 | 16.6% |
| 4 | Software development | 20.2 | 15.1% |
| 5 | R&D | 14.9 | 11.2% |
| 6 | Advertising & market research | 14.5 | 10.9% |
| 7 | Other | 3.5 | 2.6% |
| | TOTAL | 133.4 | 100 |

Source: NESTA Innovation Index 2009 (2009:11)

The European Commission has also recognised that design is as important as R&D and cites the example of Apple in their report, The Transformative Power of Service Innovation:

'Apple invests heavily in scientific and technological R&D. However, the key factor in its extraordinary success (its market capitalisation has risen from around \$2 billion in 1997 before Steve Jobs resumed control to around \$300 billion at the end of 2010) relates to the company's flair for design, ability to integrate a range of technologies, and Steve Jobs' personal focus on – some would say obsession with – the user experience' (2011:1).

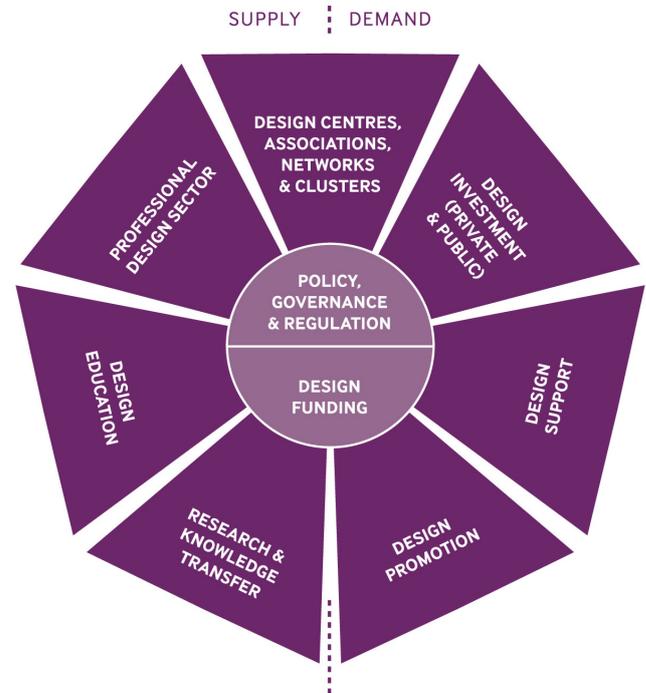
Consumers have become more demanding; this is as true for consumers of private goods and services as it is for citizens using public services. In this context, design has significant importance for companies, particularly small companies that may not always be able to invest heavily in new technology. Design can enable traditional manufacturing companies to develop a service offering around their core product to enhance the value of the customer experience. In sum, design can be a force for innovation in small and larger companies, public services and policy-making and in society.

// What is the rationale behind integrating design into innovation policy?

Innovation policy has been the prime instrument whereby governments seek to support growth in companies. Hobday *et al.* define innovation policy as supporting the 'generation of products, processes or services new to the firm as well as those new to the world or marketplace' (2012:273). 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)'. Policy-makers need to have an understanding of all components of the system in order to develop effective policies.

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), Swann (2010:4) and Hobday *et al.* (2012:277). For example, the challenge of low take-up of professional design services among SMEs is a failure that no one actor in the system could solve but would require a broader policy instrument coordinating multiple actors and initiatives. In the systems failure rationale, design policy is government intervention aimed at stimulating the supply and demand for design to tackle failures in the way that actors and components interact in the system. To model a national design system, Love (2007:5) lists 18 sub-system elements, Swann (2010:23) identifies five categories and Raulik-Murphy and Cawood (2009:8) offer the most comprehensive model including seven agents. 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 2: European Design System



Source: Whicher, A., Cawood, G., and Walters, A. (2012:4)

According to Hobday *et al.* (2012:277) 'Within a systems context, policy questions can then be asked about the ways in which current policies (both explicit and implicit policies such as tax, company start up, interest rates, etc) impact on design progress and whether new policies are required to make the system as a whole function more effectively—or whether existing policies should be removed or amended because they present barriers to progress'. The challenge is to develop effective policies to support different actors in making the most of design and ensuring that the system operates cohesively.

//How can policy-makers develop policies to realise the potential of design?

Design suffers from a lack of available data on the contribution of the sector to economic growth, which has implications for evidence-based policy-making. Without such statistics, design does not appear on the policy radar. However, in the UK, the Department for Culture, Media and Sport (DCMS) (2009:14) estimated design gross value added for 2009 at £1.8m or 0.14% of total UK GVA¹. Furthermore, DCMS (2009:16) estimate that exports of design services represent £104m or 0.1% of all UK exports. Therefore, a recommendation to governments seeking to develop policy initiatives for design is to conduct regular studies of the performance of the sector. To support policy-makers in developing effective policies for design, this SEE policy booklet proposes that governments conduct thematic analysis of the components of the national or regional design system. Following a focus group with design centres and policy-makers as part of the SEE Platform, this policy booklet makes a number of proposals. 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. This is certainly a systemic failure because it is not simply an issue of market failure on the part of the company and design agency but rather insufficient interplay between a number of components. The use of design by companies is linked to many components in the system, the culture of design appreciation in society, education, the competences of the professional design sector and design promotion. There was consensus among the focus group that indicators of company spending on design provided key insight into companies' use of design and how they value design. 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). The focus group deemed that the key barriers to the greater take up of professional design services in the private sector were lack of experience in commissioning design, lack of awareness of design and the design process, lack of understanding of the

return on investment, lack of time or staff capacity to manage the process and perception of design as an 'extra' cost. The issues of lack of experience in commissioning design and lack of awareness of design can be tackled by design support programmes and design promotion initiatives (see following sections). The challenges of lack of capacity to manage the design process and the perception of design as an 'extra' cost are more complex. Examples of existing initiatives to encourage companies to invest in design are tax credits.

Spending on professional design services by the public sector and the number of design managers within public authorities is also indicative of the capacity the public sector to be innovative. However, at this stage, spending on professional design services (whether communication or more strategic) across multi-levels of governance (national, regional and local) is impossible to estimate. However, the numbers of design managers in public authorities is small enough to capture. For example, in Denmark, Mindlab is a cross-ministerial design unit with a multidisciplinary team (including designers) that enables policy-makers to develop solutions from a citizen's perspective. The Strategic Design Unit at SITRA, the Finnish Innovation Fund, has set up the Helsinki Design Lab and a Design Exchange Programme that places designers in central and local government. At local level, design managers can be found in Cornwall County Council and Kent County Council in the UK, the City of Lahti in Finland, the City Council of St Etienne in France and the Marshal Office of the Silesian Voivodeship in Poland. This list is by no means exhaustive. These initiatives are illustrative of a changing of the tides where public authorities can no longer rely on the silo thinking, top-down approach to public governance. With greater demand for transparency, efficiency and citizen-involvement in decision-making, public officials are turning to new methods and approaches to innovation, such as design. Involving design managers in public authorities can assist in creative policy-making as design managers can build the citizen factor into understanding policy challenges.

Policy recommendations:

- / Collect data on spending by companies and public authorities on professional design services to inform evidence-based policy-making.
- / Implement initiatives to connect small companies and designers.
- / Provide incentives for companies to develop in-house design capabilities.

- / Assist companies to invest in design, for example, through tax credit schemes.
- / 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). An extensive list of examples of design support programmes from around the world is available in the SEE Case Study Library (www.seeplatform.eu/casestudy). However, some programmes are in the third or even fourth iteration of their cycle. Members of the focus group 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 mechanisms for design support such as intellectual property, tax incentives and integrating design into existing innovation support programmes.

/ 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 (€1.7m) is invested in design promotion each year. Among the focus group organisations, national publicity campaigns were the least popular of promotion activities as they are very costly. The most prevalent promotion initiatives are design awards, design weeks and design exhibitions. However, their effectiveness in engaging the key target audiences (i.e. those who do not yet understand the value of design) has yet to be proved. Indicative of design 'readiness' in society and

industry is the frequency with which design is reported in the media. 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). In Denmark, design has now moved away from the cultural section of the media and is more prevalent in the mainstream business sections whereas elsewhere in Europe this is not yet the case. Denmark is often cited as a 'design society' and this is evident in the day-to-day operations of companies and good design awareness (and demand) by the general public. This is not to advocate that policy-makers should artificially create a 'design society' but increasing awareness and understanding of design involves engaging with a range of different actors. Design promotion is a key activity to raise demand for design by consumers and industry.

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 among the general public though better media coverage of design.
- / Monitor design awareness by different audiences.

/ DESIGN CENTRES, ASSOCIATIONS, NETWORKS & CLUSTERS

Design centres are a key agent in the design system in terms of intelligence gathering, implementing design policy instruments and providing policy insight. The focus group participants revealed a number of opportunities for design centres, associations and network to support policy-making as increasingly across Europe the creative industries and innovation are at the heart of economic growth policies. Governments are beginning to recognise 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. For example, in Wales, according to research by the Creative and Cultural Skills Council (2008:3) design accounts for the greatest proportion of the creative industries in terms of gross value added (36%) and employment (22%). 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. This could involve

conducting a needs analysis of both the design sector and small companies to best respond to merging trends.

Policy recommendations

- / Encourage design associations and networks to gather intelligence.
- / 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 professional design standards for the different sub-disciplines of design to encourage designers to move into new design disciplines such as service design.

/ PROFESSIONAL DESIGN SECTOR

Statistics on the state of the professional design sector are crucial for 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. A more in depth profile of the competences of the professional design sector is important too, for example, whether they engage in continuous professional development, whether they are moving into new design disciplines like service design, whether they have the necessary entrepreneurial skills to run a successful business, whether they have the necessary skills to communicate effectively with industry and whether they are equipped to deal with challenges in the public sector. If designers are to contribute more strategically to product, service and social innovation, it is crucial to ensure that they are up to the task. Insight gleaned from the focus group 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. However, the skills set possessed by designers (creativity, ethnographic research and problem-solving) are extremely relevant to the business and policy challenges. To encourage designers to engage more with policy-makers will take them out of their comfort zone but designers can bring the user perspective to decision-making in public authorities.

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 institutions are also a crucial actor within the design system as they are the gatekeepers of the quality of young designers. However, education does not refer to higher education alone but also to primary and secondary schools. Design education varies across Europe, for example, 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. According to the Joint Council for Qualifications (2012:3), in the UK, in 2012, 240,704 candidates took their GCSEs (a national exam for pupils aged 15-16) in Design and Technology, with 17,105 taking A-level (national exam for 17-18 year olds). From UCAS (2012:43), there are approximately 80 higher education institutions that teach 189 design-related courses with 48,900 undergraduate students enrolled in 2011 on creative arts and design courses. From the focus group, a number of new trends in design education emerged, notably an increase in the number of multidisciplinary courses where students from management disciplines and design follow a number of joint modules. Participants revealed that in some cases, students emerging from design institutions do not always possess the necessary experience to work in the sector. However, graduates can be better prepared through initiatives to encourage design students to collaborate with students from other disciplines, study abroad and undertake work placements both in design agencies and industry.

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.
- / Encourage collaboration projects between design students and other disciplines.
- / Enable business students to take modules in design management.
- / Make internships in industry and design agencies mandatory as part of design courses.
- / 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

According to respondents, research and knowledge transfer 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. Examples of knowledge transfer programmes that enable students to collaborate on challenges in businesses, giving practical experience of problem-solving in a commercial context include Aalto Design Factory at Aalto University and SINCO (Service Innovation Corner) a service prototyping lab at the University of Lapland in Rovaniemi both in Finland. Similar initiatives also exist in both Denmark and the UK. Such initiatives give design students vital experience with industry and diffuse user-centre solutions to companies.

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 accessing innovation funding because they are not familiar with the bureaucracy involved in the process. A multitude of innovation funding schemes exist across Europe. Based on discussions in the focus group, 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. The consensus in the group was that 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 & REGULATION

Design is playing a greater role in policy than ever before. Not only do 15 of the 27 EU Member States have design included in policy (2012:6) but an increasing number of countries have dedicated design policies. For example, in Estonia, the National Action Plan for Design 2012-2013 was launched at the end of 2011. 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. During 2012, both the Finnish and Danish Governments have formal processes set up to develop national design policies both having had dedicated policies in the past, 'Design 2005!' and 'DesignDenmark' respectively. In 2011, the Danish Government published the 'Vision for Danish Design 2020', which 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 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). Design policies should be developed in conjunction with sectoral actors, based on analysis of the design system and linked to a clear division of tasks, financing mechanism, monitoring procedures and evaluation processes. As previously mentioned, design can also contribute to more transparent policy-making, governance and regulation. Designers, in conjunction with other professionals, can address issues such as greater SME access to public contracts by redesigning public procurement processes.

Policy recommendations:

- / Involve designers when developing policies for design, innovation and the creative industries (both as end beneficiaries 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.

//Conclusion

First and foremost, there is a gap in what data would best inform design policy-making and what is currently available. SEE seeks to encourage policy-makers to collect data on design, analyse their design systems, conduct a needs analysis of the sector and industry's use of design, identify the barriers to the better use of design and develop policies and programmes that tackle the deficiencies. Design is a force for innovation in Europe, particularly in the context of the paradigm shift away from technological to service, user-centred and social innovation. Design is a driver of innovation for private sector products, services and internal processes as well as for public sector service renewal and user-centred policy-making. Design still suffers from a lack of understanding in the private, public and third sectors and therefore policy intervention is required to mobilise design resources and realise the potential of the sector for contributing to economic, social and sustainable growth. 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, new funding does not necessarily need to be made available but existing funding mechanisms should account for design. 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. However, definitive proof of design's contribution to macro economic performance is still absent. Nevertheless, design could be a tool to mitigate risk in policy-making as design methods include in depth analysis of the end-user so ensuring that the solutions (whether product, service, process or policy) correspond to user needs. In response to this, SEE seeks to provide practical insight and examples of initiatives that governments could adapt and adopt to their requirements. Design is increasingly gaining attention at policy levels and greater understanding on the role of design in innovation is needed to secure design's position in future policy.

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