A REVIEW OF DESIGN SUPPORT PROGRAMMES IN THE EUROPEAN UNION COUNTRIES

P. Swiatek and A. Whicher

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1. Introduction

Innovation has long been recognized as a driver of sustainable social and economic development. However, in the experience economy, the notion of innovation is evolving beyond the realm of being exclusively technology-focused and R&D-driven [Borras 2003], [OECD and Eurostat 2005], [Von Hippel 2005], [European Commission 2006], [OECD 2010]. There is a paradigm shift towards user-centeredness, openness and collaboration. The scope of innovation is broadening to encompass service [Gallouj and Weinstein 1997], [Miles 2005], social [Mulgan et al. 2007], [Hubert 2010], [OECD 2010] and public sector innovation [Borins 2001], [Mulgan and Albury 2003], [Mulgan 2007]. Whereas the drivers of technological innovation are predominantly R&D; the drivers of service, social and public sector innovation are, more often than not, based on the end user engagement and co-creation.

The definition of design is also constantly evolving and since the early 2000s, design has been repositioned as a tool for competitive advantage in business and transformation in the public sector and not merely a function of aesthetics [Bruce and Bessant 2002], [Borja de Mozota 2002, 2003], [DTI 2005]. Currently, design is increasingly seen as a collaborative approach to problem solving with the focus on people [Brown 2009], [European Commission 2009], [Verganti 2009], [Bason 2014], [Whicher and Walters 2014]. The fields of innovation and design are both converging on the user and therefore the importance of design for innovative processes is becoming more evident.

The paradigm shift coupled with a growing body of evidence of the impact of design on competitiveness for enterprises [Rae 2015], [Design Council 2015], [European Commission 2015a] and effectiveness in the public sector [SEE 2013a], [Design Commission 2013], [Puttick et al. 2014] make a strong rationale for design to be supported by governments. Design is progressively moving up the policy agenda at multiple levels of governance around the world. More and more countries are adopting dedicated design policies, which has even been called a "policy arms race" [Hobday et al. 2012]. Since the inclusion of design in the 2010 EU policy 'Innovation Union' design has received unprecedented investment from the EU as well as by national and regional governments in the member states (EUMS).

In 2015, 15 of the 28 EUMS had design explicitly included in national innovation policy [Whicher et al. 2015]. Furthermore, there is growing awareness of design as a factor for innovation at regional and local levels with a number of regions integrating design in their innovation policies and smart specialization strategies. This exponential increase in design policy practice has however not been backed by the same progress in design policy theory and design support research. The SEE Platform project – Sharing Experience Europe: Design Innovation Policy, funded by European Commission and led by PDR at Cardiff Metropolitan University, aimed at filling this gap in the knowledge to accelerate implementation of design in innovation policies across Europe. Through new research, case-studies and policy recommendations, SEE has built a bank of evidence to support governments to integrate design

into policy, programmes and their mainstream practice. Between 2012 and 2015, SEE project partners engaged with over 1,000 policy-makers across Europe to train them in design methods and as a result influenced 18 policies and 48 programmes for design. The partnership developed a number of tools to support public officials in developing and evaluating design support programmes [SEE 2013b], which were tested in 13 Design Support Workshops. Drawing on the research and experiences of the SEE and a survey among design and innovation agencies in the EU countries carried out between 16 November and 4 December 2015, this paper aims to present a review of design support programmes in the EU and anticipate emerging trends in design support programmes for the future.

2. Design gaining momentum in European innovation policy

Against the backdrop of economic turbulences and intensifying global challenges, such as pressures of resources or ageing population, the European Union set five objectives - on employment, innovation, education, social inclusion and climate - to be reached by 2020 in its ten-year strategy for smart, sustainable and inclusive growth 'Europe 2020'. Further priorities for innovation in the EU were enunciated in the Flagship Initiative 'Innovation Union'. The policy adopted a broad definition of innovation, beyond traditional R&D and technology, to include other innovation drivers, among them – design:

„Europe must also develop its own distinctive approach to innoation which builds on its strenghts and capitalises on its values by (...) pursuing a broad concept of innovation, both research-driven innovation and innovation in business models, design, branding, services that add value for users and where Europe has unique talents" [European Commission 2010]

For the first time design was explicitly included in the European innovation policy as one of ten priorities – "*9. Our strengths in design and creativity must be better exploited*" [ibid.]. To implement the ambitions of Innovation Union a call for proposals 'European Design Innovation Initiative' (EDII) was launched in 2011. Six projects, aimed at improving the impact of innovation policies by accelerating the adoption of design as a user-centred innovation tool in national, regional and EU innovation policies, were funded through EDII. The projects operated between 2012 and 2015 involving 46 organisations from 19 member states:

- SEE Platform – Sharing European Experience on Design Innovation Policy – led by PDR at Cardiff Metropolitan University (UK);
- IDeALL – Integrating Design for All in Living Labs – led by Cité du Design St Etienne (France);
- €Design – Measuring Design Value – led by Barcelona Design Centre (Spain);
- DeEP – Design in European Policies – led by Politecnico di Milano (Italy);
- EHDM – European House of Design Management – led by the Design Business Association (UK);
- REDI – Regions Supporting Entrepreneurs and Designers to Innovate – led by the Promotion Agency for Industrial Creation (APCI) (France).

The EDII-funded projects constituted an unprecedented investment of €4.8 million in design promotion by the European Commission. This amount was consequently multiplied on national and regional levels. The SEE Platform project alone influenced implementation of 48 design support programmes that amounted to over €8.5 million of new investment in design over three years. The aim of the SEE Platform was to accelerate the up-take of design in innovation policies and programmes and the project can demonstrate impact in all of the partner countries. Some examples of the programmes include the SME Wallet (Flanders), Design Innovation Alliance (Denmark), Design Bulldozer (Estonia), Design At Your Service (Silesia), Schauman Service Factory (Central Finland), Extraversion (Greece), Design for Dementia (Ireland), Design Thinking in Public Services (UK) and Design for Independent Living (Wales). Furthermore, SEE influenced 18 design-related policies such as the Estonian Design Action Plan and the Intelligent Development Strategy for Poland at national level, and the Innovation Strategy for Wales and the Smart Specialisation Strategy for Central Macedonia at regional level, among others. In 2013, the European Commission launched its Action Plan for Design-driven Innovation. Its goal is to accelerate the inclusion of design in innovation policies at European, national, regional and local levels to strengthen European economy:

"A more systematic use of design as a tool for user-centred and market-driven innovation in all sectors of the economy, complementary to R&D, would improve European competitiveness" *[European Commission 2013]*

The action plan consolidates the already existing instruments for design and sets three main objectives to build capacity for design-driven innovation in Europe:

- Promoting understanding of design's impact on innovation;
- Promoting design-driven innovation in industries to strengthen Europe's competitiveness;
- Promoting the adoption of design to drive renewal in the public sector.

The SEE Platform is highlighted in the Design Action Plan as a successful initiative in advocating design to government. In the action plan the Commission also called for the provision of specialised design-based training and mentoring programmes for SMEs, and of design-led innovation incubators to improve businesses' ability to use design as a driver for innovation [ibid.]. A further implementation mechanism of the action plan is the Design for Europe initiative led by the UK Design Council. Design for Europe is a one-stop shop focused on design for enterprises, the public sector and policy-makers. It creates a knowledge bank and a web-based platform for cooperation and dissemination, raising awareness and understanding of the strategic value among the three targets audiences.

The Europe 2020 Strategy works towards an unachieved Lisbon Strategy objective of devoting 3% of the EU's gross domestic product (GDP) to R&D activities. R&D expenditure is still one of the most popular indicators of innovation, despite the fact that innovation is changing. Measuring design and innovation in general poses many challenges, as both are fuzzy concepts that can be context and culture-dependent. The OECD recognizes the changing nature of innovation and regularly reviews its guidelines for measuring innovation activities. The last revision of the Oslo Manual in 2005 expanded the definition of innovation to include what used to be described as non-technological innovation, i.e. organizational and marketing innovations. The measurement of design has however fallen short of the expectations raised within the Oslo Manual. The lack of a common approach to capturing design as part of R&D and broader development efforts have dissociated it from the concept of product or process innovation and instead associate more with the marketing innovation [Galindo-Rueda and Millot 2015]. Among different methods, 'the design ladder model' is proving to be a successful tool for evaluating design and has achieved considerable popularity. It is based on the supposition, observed in the previous studies, that there is a range of roles that design can play in a company. The ladder model was developed by the Danish Business Authority (DBA) and Danish Design Centre (DDC) in 2003 and has become a reference for categorising design use according to four stages: 1) no systemic use of design, 2) design as styling, 3) design as process, and 4) design as strategy [DBA and DDC 2003]. The study revealed that companies that invest strategically in design register a growth in gross revenues almost 22% higher compared to companies that do not use design. Since the initial study in Denmark in 2003, the design ladder study has been replicated in Austria, Estonia, France, Ireland and Sweden. In 2015, as part of an Innobarometer study, for the first time, data became available comparing how companies in different EU countries consider the role of design within their operations. The key findings include that:

- More than six out of ten EU companies use design in some way and 13% considered design as a central element of their strategy.
- Enterprises in Greece, Cyprus and the UK (48%, 41% and 22% respectively) are most likely to say that design is central to business strategy compared with Slovenia (4%) and Latvia (5%) at the other end of the scale.
- Austrian (22%), Slovakian (17%), Portuguese (16%) and Italian (16%) firms are most likely to say that design is used as a finishing touch for styling compared to just 3% of firms in Estonia and Cyprus.
- Overall, one quarter of companies say they do not use design at all; with the highest rates in Estonia (66%), Italy (51%), Poland (46%), Slovenia and Bulgaria (both 45%).
- Companies from Luxemburg, Finland and Denmark are most likely to invest in product or service design (over 50%), while their Estonian (22%) and Lithuanian (28%) counterparts the least. In addition, 41% of American companies declare an investment in product/service design.

- There was a positive correlation between companies that had introduced at least one innovation and companies working with design. For instance, 65% of companies that consider design as central to their strategy have introduced innovative goods, compared to 28% of companies that do not use design.
- The profile of a company that is most likely to invest in design would be a manufacturing company with at least 50 employees and a turnover of above €2 million.
- A correlation exists between the use of design and the age of the company – the older it is, the less likely it is to use design as a strategy or a process and more likely not to use it at all. [European Commission 2015e].

These results support some long held hypotheses by design stakeholders. The real value in these types of surveys is in conducting regular data collection exercises to investigate changes over time. With the increasing number of governments integrating design into policy it will be intriguing to see in the coming years if company attitudes towards design change. Further research is also needed to better capture the economic and social value of design as a factor of innovation, as the data is still limited and fragmented.

3. Theory

The underlying justification for public intervention in the innovation processes used to be predominantly the market failure theory [Nelson 1959], [Arrow 1962]. Governments were aiming to correct situations in which competitive markets fail to invest in innovative activities as much as would be desirable [Jaumotte and Pain 2005]. In the interest of maximising returns to the general public, government policies for innovation were addressing market failures such as low availability of risk capital, information asymmetry, or skilled labour shortages. Market failures are applicable to all conditions and countries and therefore policy prescriptions tended to be uniform regardless their environment [Dodgson et al. 2011]. The Innovation Systems framework [Freeman 1987], [Lundvall 1988], [Nelson 1993], [Edquist 1997] directed the attention of policy-makers to possible systemic failures, which may hamper the innovative performance of the country or region. The system approach is broader and suggests that market failure rationale is not sufficient to justify government interventions [Bleda and del Rio 2013] as the efficiency of the innovation processes depends on the quality of interrelated elements of the whole system:

"The lack of interaction between the actors in the system, mismatches between basic research in the public sector and more applied research in industry, malfunctioning of technology transfer institutions, and information and absorptive deficiencies on the part of enterprises may all contribute to poor innovative performance in a country." [OECD 1997]

The relation between the two approaches is not well conceptualised, they are not mutually exclusive and they overlap in some parts. The main objective of both is to provide "*a sound methodology for action facilitating innovation activities*" [PRO INNO Europe 2009]. Innovation system framework has gained a considerable popularity and since its creation has been tested and validated by academic and policy communities around the world. It has increasingly informed innovation policies and design researchers have sought to transpose theory on innovation systems to justify policy intervention for design. According to Raulik-Murphy:

„By applying theory from National Innovation Systems, the notion of National Design Systems transfers established theory to the design domain and advocates that it could enable researchers to better inform policy-making by identifying insufficient interaction between stakeholders, which may be contributing to the limited use of design resources in national economies" [Raulik-Murphy 2010]

The terminology has evolved from 'Design Infrastructures' [Love 2007] to 'National Design System' [Moultrie 2009], [Raulik-Murphy et al. 2010], [Sun 2010], [Swann 2010], [Whicher et al. 2012], [Hobday et al. 2012] to 'Design Ecosystems' [Finnish Ministry of Employment and the Economy 2013], [Chisolm et al. 2013] to what this research is calling a design-driven innovation ecosystem or 'Design Innovation Ecosystem'. This hinges on the rationale that the design system should not operate in isolation from the broader innovation system in the country or region, it should be holistically integrated like biological ecosystems [Whicher and Walters 2014]. The Design Innovation Ecosystem is a theoretical construct developed by transferring the established theory of innovation systems and

consolidating existing research on design policy to allow academics and policy-makers to examine the interplay between the elements of the system and inform tangible policy action to strengthen the performance of the system. Design should be holistically integrated into the Innovation Ecosystem to ensure a balance between supply and demand. Through a series of 29 Design Policy Workshops across 11 European countries the concept of Design Innovation Ecosystems has been tested, refined and validated. During the workshops design stakeholders (policy-makers, designers, firms, academics and third sector organisations) collaboratively map their Design Innovation Ecosystems to tackle the gaps and capitalise on the strengths in nine components of the model:

1. Design users
2. Design support
3. Design promotion
4. Design actors
5. Design education
6. Design research
7. Design sector
8. Design funding
9. Design policy

In the systems failure rationale, design policy is government intervention aimed at stimulating the supply and demand for design to address failures in the way that components interact in the system. Design support programmes are policy implementation instruments aimed at improving the demand for design by raising understanding and capability of design among companies and public officials, they can also focus on the supply of quality design expertise in the professional design sector through training and mentoring [SEE 2013b]. SEE Platform has developed and tested in 13 Design Support Programme Workshops tools to support public officials in developing and evaluating such policy instruments – 'Design Support Blueprint' and 'Programme Evaluation Wheel'. Additional research to measure the impact of design support programmes and evaluate their effectiveness would be highly beneficial.

4. Programmes

This study updates the results of the Design Policy Monitor 2015 [Whicher et al. 2015] which reviewed the state of European Design Ecosystem at the end of 2014. Surveys and interviews with national (and in some cases regional) design centres, ministries, innovation and business development agencies were undertaken between 16 November and 4 December 2015 to map design support initiatives at the national level in EUMS. In 2015, there were programmes offering support for design in 17 EUMS. Eight of them had dedicated support programmes for design. In six member states[1] multiple programmes with design included as an eligible cost were in operation. Some countries, where more power and responsibilities is devolved to regional governments, tend not to have programmes on the national level. For instance, in federal Belgium there are instruments available for design in both Flanders and Wallonia, but there are no programmes on the national level. In Germany, there are many initiatives for design available in regions (like 'Design Transfer Bonus' in Berlin Region or a subsidy for commercialisation of innovative products and product design in Saxony), but on the national level financing of design through 'go-inno' vouchers is only implicit. In the UK, there is a support available for design through Design Council and Innovate UK initiatives, but Wales and Scotland have their own programmes or voucher schemes. Czech Republic is in a transition period between European financing perspectives, when a second edition of 'Design for Competitiveness' programme is being prepared. Also in Latvia, a new innovation voucher scheme, where development of industrial designs is an eligible cost, will be launched next year.

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[1] Ireland, Poland, Portugal, Finland, Slovenia, UK.

Table 1. Dedicated design support programmes in operation in 2015

Country	Programme name	Delivery body	Target audience	Project description	Cost to participant
Denmark	Scaling by Design	Danish Design Council (DDC)	small design-driven companies with growth ambitions	Two stages. Stage 1: training and workshop. Stage 2: 6-8 month mentoring and growth programme for selected companies	n/a
Estonia	Design Bulldozer 2015-2016	Estonian Design Centre (EDC)	Manufacturing companies with more than 10 employees	8-month product development project between 5 companies, 5 design managers and 5 design agencies. EDC provides consulting, mentoring, training, and financial support (50% of design invoice; max. €5,000)	€2,000 (participation fee); 50% of design invoice
Ireland	Competitive Start Fund - for design led start-up companies	Enterprise Ireland	Start-ups using design as a strategic element	Up to €50,000 investment to accelerate the growth of start-ups (i.e. build a prototype, evaluate overseas market opportunities, reach potential clients, secure partnership deal or alliance)	10% ordinary equity stake of the start-up company
Italy	Design +	Ministry for Economic Development	Micro, small and medium enterprises	1. Subsidy for industrial design registration €1,000-4,000 depending on the number of countries. 2. Grant for commercial exploitation of registered design (max €10k for design & engineering, €60k for preparation of production, €10k for marketing)	1. n/a 2. min. 20% of eligible costs
Hungary	Design Terminal	Design Terminal - National Centre for Creative Industries	Young entrepreneurs from creative industry	Growth programme offering training in business skills, international market validation, mentoring and investment mediation.	n/a

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				There is a grant available for entrepreneurs from pre-revenue start-ups, without other sources of income.	
Poland	Design, Business, Profit	Institute of Industrial Design	Designers, Companies, Students, Public sector representatives	Enhancing the environment for industrial design through exhibitions, workshops, trainings and on-line support	n/a
Poland	Design Formula for Competitiveness (Eastern Poland only)	Polish Agency of Enterprise Development (PARP)	SMEs from Eastern Poland	Two stages. Stage 1: subsidies up to €23,600 for design audit Stage 2: an investment and consultancy services of max €708k for implementation of design strategy developed in the first stage	Stage 1: 15% of the intervention cost Stage 2: 30% of the intervention cost
Slovenia	Competence Centre for Design Management	Consortium of 20 partners	Employees of private companies	Project management, events, studies, trainings, promotion of the sector to raise awareness and develop design management competences among employees and general public	n/a
Slovenia	Support for cooperation between young designers and SMEs & promotion of Slovenian design	Ministry of Culture of Republic of Slovenia	Young designers (up to 35 years old) and SMEs	1. Establishment of first-time cooperation projects between young designers and SMEs. The programme covers 50% of the young designer salary (€5-10k) for a joint project with SME. The objective is a functional prototype. 2. Exhibitions & promotional events of Slovenian design	50% of designer salary must be covered by an SME
UK	Spark fund	Design Council	Individuals with a product idea at prototype stage	Three stages process Stage 1. 40 product concepts (individuals or teams) receive 2-	5% of future product revenue is donated back into the Spark fund for

				day training workshop	future inventors
				Stage 2. 8-12 applicants are selected for 20-week bespoke design support programme and receive £15k (€20.8k) to develop their ideas.	
				Stage 3. Showcase where up to 4 products can receive a share of £150k (€208k) award.	
UK	Welsh Design Advisory Service	Welsh Government and PDR	Companies from any sector aiming to build capacity for design	Through a series of design diagnostics performed by subcontractors, mentoring is provided to companies to identify where design could add strategic advantage to their business.	Free

The majority of support programmes where design is an eligible cost aim to accelerate innovation processes in SMEs through greater demand for design expertise. Only four programmes, in Hungary (Design Terminal), Poland (Design, Business, Profit) and Slovenia (Design Management Competence Centre, and collaboration between young designers and SMEs), are focused on the supply side – strengthening design skills and competences, enhancing market position of designers or boosting employment in design sector. This is achieved through trainings and seminars to improve business skills of designers, workshops on new trends in design, exhibitions and trade fairs to increase awareness and recognition of national designers, on-line databases and platforms to ease communication between designers and companies or subsidizing young designer's salaries.

'Scaling by Design' (DK) and 'Spark Fund' (UK) offer bespoke acceleration programmes for innovative, design-led ideas. They combine training, mentoring and financial support for start-ups and individuals willing to grow their businesses through design. 'Competitive Start Fund – Design' (IE) also aims to accelerate the growth of design-led start-ups, but does not offer mentoring. For a maximum of €50,000 a company can reach key commercial and technical milestones to internationalisation, such as evaluating overseas market opportunities, building a prototype, developing a market entry plan or identifying suitable channels to international markets. However, a company needs to sacrifice 10% of its ordinary equity stake for this investment. Similarly, participants of the Spark Fund programme are expected to commit 5% of their future product revenue to be donated back into the Spark Fund to ensure sustainability of the fund.

'Design Bulldozer 2015-2016' (EE) and 'Design Formula for Competitiveness' (PL) aimed to introduce design into established companies. The second edition of a successful Estonian programme will match 5 manufacturing companies with 5 design managers/mentors. In two months' time design manager conducts a design audit and proposes a design project plan. Then a design agency is selected to implement the plan. EDC covers 50% of design invoice, up to €5,000. With continuous help of the design manager, a company is expected to gain better understanding of design and user perspective on innovation and possibly bring new products to the market. The programme ends with a showcase of

undertaken projects. Likewise 'Design Formula for Competitiveness' funds design audit in the first phase and its implementation in the second phase. It does not have however a mentoring component. The programme is funded through the Structural Funds for Eastern Poland and therefore is available only for SMEs from that region. Nevertheless a design agency selected for cooperation by a company does not have this restriction. As mentioned before, in the first phase, SME can receive 85% of the cost of design audit and design strategy development up to €23,600. Next, it can apply for a subsidy for consultancy services aimed at the implementation of a new business model, which covers 70% of eligible expenses up to €708,000. The amounts of subsidies offered by 'Design Formula for Competitiveness' are by far the highest among the other initiatives and it is debatable if they are justified. Italian programme 'Design +' offers two types of support. Micro, small and medium enterprises can obtain between 1,000 and 4,000 euros as an incentive to register industrial design. The amount of an award depends on the number of countries in which the design is registered. Further support is available for commercial exploitation of the industrial design. 80% of eligible costs up to €10,000 for design and engineering phase, €60,000 for production phase and €10,000 for marketing purposes can be covered through the scheme.

Innovation vouchers, where design is an eligible cost, are usually also targeted at SMEs. Only in Luxemburg innovation financing is open to large companies as well, but at a considerably lower rate (15-25%). There is a tendency to provide small innovation grants up to €5,000 without any match-funding or restricting provisions to encourage experimentation and innovative approaches. Higher amounts usually require company to cover around 25-50% of the value of the project. Some vouchers are earmarked to be spent in the creative industries (Wallonia Creativity Vouchers) and Innovate UK vouchers changes the focus with each call (e.g. the call open during the time of this research focuses on cyber security).

Another form of support for design activities is a tax credit or tax deduction scheme. French government offers 'Innovation Tax Credit', through which SMEs can receive a tax credit of 20% of expenditure for the design of prototypes or pilot introduction of new products (max. €400,000). In Portugal in turn companies can get between 32.5% and 50% deduction on corporate income tax if they invested in acquisition of new scientific or technical knowledge or exploitation of research results. In both schemes design is an eligible cost.

This research presents an overview of the scope, target audience and intervention type of design support programmes at the national level in the EU member countries. All dedicated design initiatives represents an investment of over €55 million. It would be valuable to establish the total amount of an investment in design through public support programmes; this is however proving difficult given the multitude of design initiatives in regions and problems with isolating cost of design from broader programmes. Furthermore the effective evaluation of design support programmes remains a major challenge. Capturing the impact from design support interventions, such as new products or services introduced on the market, new spending on design by companies and return on design investment needs to be systematic.

5. Conclusions

The growing interest of governments in design as a factor of innovation is reflected in a growing number of programmes that support the use of design. However, further research should be conducted to ascertain whether design support is more effective within a dedicated design support programme or when it is integrated more holistically within mainstream innovation support programmes. Programmes are still predominantly focused on product design, with the emergence of new fields, such as eco, social, service or public sector design, more initiatives in those domains are anticipated. Nevertheless, the evaluation of design support programmes remains a major challenge. Evaluation tends to be limited to measures of activity such as the number of supported companies or participants in workshops rather than impact indicators such as new products or services brought to market, new spending on design expertise and return on investment. There is an opportunity for academic research to create more effective evaluation, which could be highly beneficial for evidence-based policy-making in design. At present there appears to be a disconnect between theory on supporting design and policy practice in implementation. The programmes focus predominantly on stimulating demand for design expertise in

the private and public sectors. However, the components of the Design Innovation Ecosystem are all interdependent. If there is greater demand for design, governments should also encourage the supply of quality design expertise. In examining the nine components of the Design Innovation Ecosystem, it appears that the key component, the design sector, is being overlooked by government policy. This could create a scenario where there is not sufficient design expertise to respond to market demands. For design stakeholders, the increased focus on supporting the private and public sectors to use design through dedicated design initiatives as well as making design an eligible cost within broader innovation programmes is encouraging. There will be an opportunity in the future to see whether the European Commission has achieved its objective that by 2020 design should be a well know element of innovation policy across Europe [European Commission 2011].

Acknowledgements

References

Arrow, K. J., "Economic Welfare and the Allocation of Resources to Invention", In: Nelson, R. (Ed.), The Rate and Direction of Inventive Activity, Princeton University Press, Princeton, 1962, pp. 609-625.

Bason, C. (Ed.), "Design for Policy", Gower Publishing, 2014.

Bleda, M., del Rio, P., "The market failure and the systemic failure rationales in technological innovation systems", Research Policy, Vol.42, 2013, pp. 1039-1052.

Borins, S., "Encouraging innovation in the public sector", Journal of Intellectual Capital, Vol.2, 2010, pp. 310-319.

Borja de Mozota, B., "Design Management - Using Design to Built Brand Value and Corporate Innovation", Allworth Press, New York, 2003.

Borras, S., "The Innovation Policy of the European Union: from Government to Governance", Edward Elgar Publishing Limited, Cheltenham, 2003.

Brown, T., "Change by Design. How Design Thinking Transforms Organizations and Inspires Innovation", Harper Collins Publishers, New York, 2009.

Bruce, M., Bessant, J., "Design in Business - Strategic Innovation Through Design", Pearson Education Limited, Essex, 2002.

Chisolm, J., Mortati, M., Villari, B., "Glossary. Describing the System of European Design Policy", report prapared by DeEP Consortium for the European Commission, 2013.

Danish Business Authority and Danish Design Centre, "Economic Effects of Design", Copenhagen, 2003.

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

Design Commission, "Restarting Britain 2. Design and Public Services", Policy Connect, 2013.

Design Council, "The Design Economy. The Value of Design to the UK", Design Council, October 2015.

Dodgson, M., Hughes, A., Foster, J., Metcalfe, S., "Systems thinking, market failure, and the development of innovation policy: The case of Australia", Research Policy, Vol.40, 2011, pp. 1145-1156.

Edquist, C., "Systems of innovation approaches—their emergence and characteristics", In: Edquist, C. (Ed.), Systems of Innovation: Technologies, Institutions and Organizations, Pinter Publishers, London, 1997.

European Commission, "Design as a Driver of User-centred Innovation", SEC(2009)501 final, Brussels, 2009.

European Commission, "Europe 2020 Flagship Initiative Innovation Union", COM(2010)546 final, Brussels, 2010.

European Commission, "European Design Innovation Initative", European Commission official speaking at the SEE Design Innovation Policy Conference, Brussels, 23 March, 2011.

European Commission, "Implementing an Action Plan for Design-Driven Innovation", Commission Staff Working Document, SWD(2013) 380 final, Brussels, 2013.

European Commission, "Innobarometer 2015 - The innovation trends at EU enterprises", a survey conducted by TNS Political & Social at the request of the European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, 2015a.

European Commission, "Putting Knowledge into Practice: A Broad-based Innovation Strategy for the EU", COM(2006)502 final, Brussels, 2006.

Finnish Ministry of Employment and the Economy, "Design Finland Programme. Proposals for Strategy and Action", Helsinki, 2013.

Freeman, C., "Technology Policy and Economic Performance: Lessons from Japan", Pinter, London, 1987.

Galindo-Rueda, F., Millot, V., "Measuring Design and its Role in Innovation", OECD Science, Technology and Industry Working Papers, 2015/01, OECD Publishing, 2015.

Gallouj, F., Weinstein, O., "Innovation in Services", Research Policy, Vol.26, 1997, pp. 537-556.

Hobday, M., Boddington, A., Grantham, A, "Policies for Design and Policies for Innovation: Contrasting Perspectives and Remaining Challenges", Technovation, Vol.32, 2012, pp. 272-281.

Hubert, A. (Ed.), "Empowering People, Driving Change: Social Innovation in the European Union", BEPA – Bureau of European Policy Advisers, Brussels, 2010.

Jaumotte, F., Pain, N., "An Overview of Public Policies to Support Innovation", OECD Economics Department Working Papers, No.456, OECD Publishing, 2005.

Love, T., "National Design Infrastructures: The Key to Design-driven Socio-economic Outcomes and Innovative Knowledge Economies", International Association of Societies of Design Research (IASDR07), Hong Kong, 12-15 November, 2007.

Lundvall, B.-Å., "Innovation as an interactive process: from user-producer interaction to the national system of innovation", In: Dosi, G., Freeman, C., Nelson, R., Silverberg, G., Soete, L. (Eds.), Pinter Technical Change and Economic Theory, Publishers, London and New York, 1988, pp. 349-367.

Miles, I., "Innovation in services", In: Fagerberg, J., Mowery, D. C., Nelson, R. R. (Eds.), The Oxford Handbook of Innovation, Oxford UniversityPress, Oxford, 2005, pp. 433-458.

Moultrie, J., "Developing an International Design Scoreboard", SEE bulletin 1, August 2009, PDR/Cardiff Metropolitan University, 2009.

Mulgan, G., "Ready or Not? Taking Innovation in the Public Sector Seriously", NESTA Provocation 03, April, 2007.

Mulgan, G., Albury, D., "Innovation in the Public Sector", Strategy Unit, Cabinet Office, 2003.

Mulgan, G., Tucker, S., Ali, R., Sanders, B., "Social Innovation. What it is, why it matters and how it can be accelerated", The Young Foundation, London, 2007.

Nelson, R. R., "National Systems of Innovation", Oxford University Press, New York, 1993.

Nelson, R. R., "The Simple Economics of Basic Scientific Research", Journal of Political Economy, Vol.67, 1959, pp. 297-306.

OECD and Eurostat, "Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data", 2005.

OECD, "National Innovation Systems", OECD Publication, Paris, 1997.

OECD, "Social Entrpreneurship and Social Innovation", SMEs, Entrepreneurship and Innovation, 2010, pp.185-217.

PRO INNO Europe, "Challenges for EU Support to Innovation in Services –Fostering New Markets and Jobs through Innovation", PRO INNO Europe Paper No.12, Publications Office of the European Union, Luxemburg, 2009.

Puttick, R., Baeck, P., Colligan, P., "The Teams and Funds Making Innovation Happen in Governments around the World", Nesta, London, 2014.

Rae, J., "2014 Design Value Index Results and Commentary", DMI, 2015, Available at <http://bit.ly/1cPYj2C>, [Accessed 20.08.2015].

Raulik-Murphy, G., "National Design Systems", SEE bulletin 4, PDR/Cardiff Metropolitan University, October 2010.

Raulik-Murphy, G., Cawood, G., Lewis, A., "Design Policy: An Introduction to What Matters", Design Management Review, Vol.21, No.4, 2010, pp. 52-59.

SEE, "Design for Public Good", a report for European Commission prepared by the SEE Platform consortium, 2013a.

SEE, "Reviewing Design Support Programmes in Europe", SEE Policy Booklet 6, 2013b.

Sun, Q., "Design Industries and Policies in the UK and China: A Comparison", Design Management Review, Vol.21, No.4, 2010, pp. 70-77.

Swann, P., "The economic rationale for a national design policy", BIS occasional paper 2, London, 2010.

Verganti, R., "Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean", Harvard Business School Press, 2009.

Von Hippel, E., "Democratizing Innovation: the Evolving Phenomenon of User Innovation", The MIT Press, Cambridge, Massachussets, 2005.

Whicher, A., Cawood, G., Walters, A., "Research and Practice in Design and Innovation Policy in Europe", 2012 International Design Management Research Conference, August 8, Boston, MA, USA, 2012.

Whicher, A., Swiatek, P., Cawood, G., "Design Policy Monitor 2015", SEE Platform, PDR/Cardiff Metropolitan University, 2015.
Whicher, A., Walters, A., "Mapping Design for Innovation in Wales and Scotland", PDR/Cardiff Metropolitan University, 2014.

Piotr Swiatek, Research Assistant
Cardiff Metropolitan University, PDR
200 Western Avenue, CF5 2YB Cardiff, United Kingdom
Email: pswiatek@cardiffmet.ac.uk