



Design in Action: Understanding the Drivers and Barriers to Strategic Use of Design for Innovation

Jea Hoo NA^{*a}, Martyn EVANS^a, Emilene ZITKUS^b, Anna WHICHER^b and Andrew WALTERS^b

^a Manchester School of Art, Manchester Metropolitan University; ^b PDR, Cardiff Metropolitan University

The strategic use of design has a critical role to play in driving innovation which results in societal and economic benefit. This is often achieved through the creation of new products and services, understanding and empathising with user and market trends, or employing creativity in the management of organisations. This strategic use of design as a catalyst for innovation is, therefore, increasingly recognised as an important asset for both private and public-sector organisations.

Drawing on a collaborative two-year research project which aims to develop an integrated action plan for design in the UK, this paper presents i) the context for the use of design as a driver for innovation, ii) the creation of a design stakeholder map from analysis of action plans across Europe, iii) the identifying of contemporary drivers and barriers to the strategic use of design by stakeholders in Scotland, and iv) recommendations for enhancing the strategic use of design in Scotland.

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* Corresponding author: **Jea Hoo NA** | e-mail: j.na@mmu.ac.uk

Introduction

Design is a strong and important sector in the UK and a significant contributor to national competitiveness providing £71.7bn GVA to the UK Economy in 2015 (Design Council, 2015b). Design is also recognised as a driver for innovation in the UK (Innovate UK, 2016) and more broadly in Europe with the European Commission (EC) recognising the potential for design to drive innovation across EU Member States as demonstrated through the establishment of the European Design Leadership Board (EDLB, 2012) which led to the development of an Action Plan for Design Driven Innovation which aimed to accelerate the take-up of design in innovation policy across Europe by 2020. In such contexts, design is increasingly being used to address policy issues within government (Montgomery, 2013) and the public sector (Reed, 2013), with its potential to tackle societal challenges being legitimised.

As a result of this increasing understanding of the role design can play as a driver in both economic and societal innovation, the EC is encouraging EU Member States to develop and implement design-related policies (European Commission, 2013). A growing number of countries have already developed design action plans including Estonia (Estonian Enterprise Policy, 2012), Denmark (The Danish Government, 2013), Finland (Ministry of Education and Culture, 2013), and Latvia (Latvian Design Council, 2015). The UK is not yet one of them. The lack of a national action plan might represent a missed opportunity to exploit and maximise the strategic value of design.

This paper presents a research conducted as part of an ongoing project to create a design action plan for the UK. Scotland was chosen as a first region to identify drivers and barriers and to recommend actions to encourage strategic use of design and as a result forms a case study within this paper. The 'Design in Action' project (Follett et al., 2016) provides a good example of how design can help generate business success in Scotland. Additionally, Whicher and Walters (2014) studied a design innovation ecosystem in Scotland where they identified its strengths and weaknesses at a policy-level. However, Scotland is still below the UK average for employment in design skills with a location quotient (LQ) of 0.61 where the UK value is 1.00 (Design Council, 2018). Further, there is stagnation in design employment in Scotland compared to 21.7% growth in the UK and a decrease of productivity by 4.8% in the period between 2011 and 2013 (Design Council, 2015b). Therefore, recommendations of this research are timely to encourage the development of a design action plan for Scotland.

This research comprises three interrelated parts. Firstly, a literature review in the area of the value of design provides foundations for understanding the key benefits and the stakeholders of design. Secondly, analysis of a workshop conducted at Glasgow, Scotland, with key informants identifying current drivers and barriers to the strategic use of design from a rich exchange of ideas and co-development opportunities. The workshop discussion also included the priority actions needed to effectively overcome the barriers and to maximise the drivers for Scotland. Finally, the synthesis of the findings from these two parts provide recommendations towards the development of a design action plan for Scotland.

While the drivers and barriers to strategic use of design have been discussed previously, this paper draws out contemporary insights by collating and analysing theoretical perspective with empirical research generated through a literature review and a workshop. The analysis shows that drivers for design use are well documented in both organisational and government literature. However, there is still lack of recognition and subsequent actions that support the systematic and strategic use of design. This research, therefore, contributes to the field of design, design management, and design-driven innovation by providing a real-world context in which a theoretical framework can be embedded. Furthermore, it provides an evidence base to support the development and practical implementation of a design action plan for both private and public-sector organisations

Literature Review of the Value of Design and Stakeholders

The literature review provides an overview of the research context including the meaning of design and its value both to innovation and stakeholder groups providing and using design. This section presents the key findings underpinning the theoretical base for this research.

The value of design for innovation

The role of design for innovation has long been discussed with Roy (1994) describing design as an input which determines innovation capabilities, Mozota (2003) describing the influence of design in both incremental and radical innovation, and Neumeier (2008) emphasising the creativity of design's ability to solve 'wicked' problems for better innovation. Verganti (2009) uncovered design's new meaning as a source of innovation,

and more recent studies have emphasised design's influence on innovation for economic and social benefits (Design Council, 2015a; Innovate UK, 2016; Rae, 2016; Cooper, Hernandez, Murphy & Tether, 2016). There is, therefore, an increasing potential for effective design-led innovation to be implemented at policy level to increase national competitiveness (Evans, 2016). The value of design for innovation is also cross-sectorial, from manufacturing (Na, Choi & Harrison, 2017) to service (Nam & Carnie, 2014) which incorporates system thinking (Jenkins, 2008), because the principles of design as a strategic tool, increasingly referred to as design thinking, uses creativity to foster enhanced understanding of problems and needs and increasing empathy for the users to create desirable, feasible and viable solutions in increasingly varied situations (Brown, 2009).

The value of design has been studied and understood by the design community for many years. The move towards using design more strategically at leadership level can be seen both by businesses and governments, as demonstrated by comparing two studies by Tether (2005) and Cooper, Hernandez, Murphy and Tether (2016). Although the sample sizes are significantly different (1,500 companies for Tether's study and 158 companies for the Cooper et al. study), the overwhelming majority in the 2005 study described design as a tool to "develop new products and services" (75%) and "how products look" (74%) with 34% responding that it is a strategic business tool. In comparison, in the 2016 study, more businesses are classified as using design as a process or strategy (79%) than just as styling (11%). Businesses are using design thinking, aiming to become more creative in managing business activities by balancing analytical and intuitive thinking (Martin, 2009). Governments are also placing greater emphasis on design in innovation. The EC established a European Leadership Board recognising the potential for design to drive innovation (EDLB, 2012) with similar recognition from the member states, as for example in the UK (Innovate UK, 2016).

While there is evidence of increasing understanding of the strategic role of design in innovation, wider acknowledgment and buy-in are still needed to maximise its potential. A national survey of businesses on design value identifies that using design more strategically generated higher performance in their innovation with better customer satisfaction and sales (Cooper et al., 2016). Research on the business benefits by the DMI also shows that 'design-centric' companies gain 211% more return over S&P 500 (Rae, 2016). Other studies show the contribution of design in the national economy, for example, 7.4% of UK total GVA (Design Council, 2015a) and

4.2% of GDP of New Zealand (DesignCo, 2017). These studies address both the perceived value and the economic benefits of design with emphasis on strategic use of design as a key to benefit both businesses and nations.

Strategic Use of Design

While the meaning of design has long been discussed, diverse perspectives and disciplines of design have made it difficult to define design for designers and non-designers alike (Trueman & Jobber, 1998; Mozota, 2003). Similarly, various perspectives of the work of design (see Table 1) make it even harder to create a definitive description.

Table 1 Various perspectives of the work of design. Adapted from Roy (1994) and Walsh (1996)

Designers	<ul style="list-style-type: none"> - creativity - problem-solving - art - technical performance - ergonomics
Managers	<ul style="list-style-type: none"> - product differentiation from competitors - making people want to buy, even in a recession - a product's commercial impact
Consumers	<ul style="list-style-type: none"> - creation of new styles fashions and images - product improvement: easier to use, longer-lasting or energy-saving - value for money
Strategic Management	<ul style="list-style-type: none"> - adding value to business, - increasing production - efficiency in the use of materials and energy - generating increased profits

Many authors describe the role of design by organisational structure or design maturity level. For example, Trueman and Jobber (1998) with a design dimension and attribute model, the Danish Design Council (DDC) (2003) with a design ladder, Mozota (2006) with the 'four powers of design', Le Masson (2010) with a Concept-Knowledge (C-K) theory, Mootee (2013) with design thinking and Na, Choi and Harrison (2017) with a design spectrum. While the contexts and methods of these approaches differ, they share a common theme that design can offer different benefits in an organisation: (i) design as an activity to create a product and/or service to satisfy the needs of users for an organisation, (ii) design as a process which

enhances the understanding of users and the market while facilitating collaboration within an organisation, and (iii) design as a strategic tool which helps the managing of an organisation at the highest strategic level to enable creative vision setting and the subsequent strategy.

Stakeholders Groups

The strategic use of design covers all the aspects and activities of design. However, adoption by businesses and governments as described by the previous section remains slow. In order to increase the adoption of design by broader society and sectors, several European countries have developed national design strategies, visions, action plans and policies. Although the strategies names vary, they aim to promote design (and the value of design) in their country and thus have a bearing on the present research. Analysis of six action plans from across Europe help understand the stakeholders, the key components in the actions proposed and the main beneficiaries of the actions:

- Denmark (2013): Denmark at Work - Plan for Growth in the Creative Industries - Design;
- Estonia (2012): National Action Plan for Design 2012-2013;
- European Commission (2013): Implementing an Action Plan for Design-Driven Innovation;
- Finland (2013): Design Finland Programme - Proposals for Strategy and Actions;
- Ireland (2016): Policy Framework for Design in Enterprise in Ireland;
- Latvia (2014): Creative Latvia 2014-2020 - Design Strategy.

The stakeholders are mainly the organisations or individuals who might be involved in implementing an action (or policy) or those who could benefit from an action (or policy). The stakeholders are organised into the following categories:

- Design Support Bodies – non-governmental institutions or organisations which promote or support design through campaigns or programmes of training or financial support.
- Education Sector – primary, secondary or higher education institutions involved in teaching or research related to design, including business support centres in those institutions.

- Public Sector – non-governmental and non-design-oriented organisations funded by the government (e.g. the NHS) who may also commission any type of design services.
- Government – government bodies (departments) which support design (through campaigns or programmes of training or financial support) and may also receive design services.
- Design Practitioners – companies or individuals providing any type of design services including tangible (product design) and intangible (design management/thinking) consulting to private and public sectors.
- Businesses (Private Sector) – companies or individuals which commission any type of design services.
- Third Sector – organisations which are neither public sector nor private sector including voluntary and community organisations (e.g. charities, associations etc.).
- General Public – members of society not directly involved with design who benefit from design individually or in-group. i.e. older adults, children, etc.

Some of these stakeholders were identified as implementers of the actions, while others were among the beneficiaries of the actions. For example, 'Design Support Bodies' were largely related to implementation of an action proposed, whether through support, promotion or research; whereas 'Government' were related to implementation through funding in many cases. The other categories were often identified as beneficiaries of the actions proposed. For example, in the 'Estonian National Action Plan for Design', among the thirteen actions to increase design uptake, one was related to 'Education Sector'; four to 'Public Sector' and all the others (eight) to maximising the take-up of design for 'Businesses'. In the 'Finnish Design Programme', on the other hand, among the fifteen actions to increase design uptake, the number of actions to benefit 'Businesses' and 'Public Sector' were equally defined – six each – with the other three aimed at the 'Education Sector'. The actions in the Finnish document are more specific, broadly covering the institution, organisation or government department responsible for implementing the proposed action.

Methodology

Due to the exploratory nature of the research, we adopted a qualitative approach to enable a rich exchange of knowledge with experts in the field.

Drawing upon the knowledge generated through the literature review which provided a theoretical base for the research, a participatory workshop explored the current drivers and barriers to the strategic use of design and identified the priority action needed for Scotland. To ensure that the workshop engaged directly with Scottish perspectives and involved key participants, the workshop was held in Glasgow, co-hosted by The Office for the Design Economy (OFTDE), an organisation supporting design in Scotland. A workshop was chosen as the primary research method as it provides an opportunity to directly engage with the stakeholders to identify practical issues and opportunities (Phaal, Farrukh & Probert, 2015). This approach ensured that the data generated is relevant to the current design climate, resulting in recommendations which will be effective in encouraging strategic use of design in Scotland.

Project time constraints meant that to obtain the most up-to-date expert opinions it was deemed appropriate to use purposive sampling where participants are specifically chosen by the organisers based on their expert knowledge to select participants who can represent the voice of the design community and the Scottish Government. Almost all participants were in a senior position in various organisations including the Scottish Government, UNESCO Design Dundee, Creative Scotland, Scottish Enterprise, Glasgow City Council, Glasgow School of Art, Dundee University, etc. Design practitioners were also selected from micro to medium size design firms across a range of design disciplines. Twenty-two experts participants were divided into four groups with a balanced distribution against stakeholder groups to ensure representative views were generated. A member of the research team (acting as a facilitator) was allocated to each group to stimulate conversations while ensuring the discussion is relevant to the topic. The facilitators were specifically instructed not to lead the conversation to eliminate bias in the discussion. The participants were asked to answer a simple survey to identify the overall understanding of design during the ice breaking session at the beginning of the workshop. The result indicates that the overwhelming majority described the design is multi-faceted which is a creative process, improves user experience and a problem-solving activity. There was no participant who defined design only as a styling of an artefact or part of a marketing strategy. Results indicate that the purposive sampling process has been satisfactory in selecting participants who are aware of the extensive value of design.

The workshop supported two main aims: 1), to identify the drivers and barriers to the effective use of design in Scotland (Activity 1), and 2), to

suggest and prioritise the actions required for the strategic use of design in Scotland (Activity 2). In Activity 1 - an initial discussion of the barriers and drivers - participants individually completed post-it notes and were asked to place the notes on a pre-prepared Stakeholder Map with key stakeholder groups identified (based on an analysis of literature as discussed above). In Activity 2, the participants were asked to discuss the actions for Scotland using a Priority Action tool designed to identify actions to support the strategic use of design in Scotland utilising the following prompts - What, How, Who, To Whom, and When.

All group discussions were voice recorded as a reference for analysis and the group presentations for the Activity 2 were video recorded as a summary of the discussion. The participants were encouraged to freely discuss the topic provided for each activity and note individual opinions on post-it notes. All of the opinions generated were used in the analysis of the workshop. Thematic analysis was used, grouping all the opinions into themes to provide an overview of the discussion topics, and the frequency analysis identified the number of occurrences of particular themes (Neuman, 2014). For Activity 1, one round of open coding (eclectic coding) was used to ensure that opinions were not over-generalised by the researcher (Saldaña, 2013).

Drivers and Barriers

Participant opinions were collected and analysed to provide an understanding of the current drivers and barriers to the strategic use of design in Scotland. In this section, key findings are presented in the order of the workshop activities.

Barriers

The workshop revealed perceptions that the key barrier to the strategic use of design in Scotland is different levels of understanding of the value of design across stakeholder groups. Participants also noted the lack of high-profile design leaders, ineffective communication of the value of design, and a lack of strategic vision from design users as additional barriers as shown in the Table 2. Key insights reveal that the design community, including design support bodies and design practitioners, still needs to promote and communicate the value of design more effectively, and design users, including businesses, government, education sector, etc. would benefit from

better understanding of the value of design and long-term strategic understanding.

Table 2 Top five barriers - Theme frequency mapped to stakeholder groups (DS=Design Support Bodies, DP=Design Practitioners, Ed=Education Sector, Bu=Business (Private) Sector, Go=Government, PS=Public Sector, 3S=The Third Sector, GP=General Public).

Themes	DS	DP	Ed	Bu	Go	PS	3S	GP	Total
Lack of understanding/ awareness - design value	5	1	0	9	4	4	2	3	28
Lack of early-years design education	0	0	9	0	0	0	0	0	9
Lack of designers in board/policy teams	2	1	0	0	2	0	0	0	5
Lack of communication and design voices	2	1	0	1	0	0	0	1	5
Lack of vision/strategy from design users	0	0	0	2	3	0	0	0	5
Other Comments	3	3	3	3	5	2	2	3	24
Total	12	6	12	15	14	6	4	7	76

The “lack of understanding and awareness of the value of design” theme counts for 37 percent (28 comments) of all participants’ comments regarding the barrier to the strategic use of design. Detailed participant comments are shown in the Table 3. The three main topics comprise this theme including (i) the narrow view of design value – perception of design in singular disciplinary act (e.g. product design) by the design users (11 comments), (ii) the narrow view of design value - seeing design as a cost rather than an investment and expensive to use (9 comments), and (iii) difference in interpreting design among the design community (i.e. design support bodies, design practitioners and design education sector) as well as between the design community and the design users (8 comments). The participants perceived the responsibility for these barriers lies primarily with businesses (as users of design) more than any other stakeholder groups, especially feeling that businesses have a narrow view of design. The difference in interpreting design related mainly to design support stakeholders while participants suggested a lack of unified definition of design both within the design community and the design users.

Table 3 Top five barriers to the strategic use of design.

Themes	Comments
Lack of understanding/ awareness-design value	<ul style="list-style-type: none"> - The undervaluing of design by businesses in Scotland continues to be a major barrier. - In the public sector, the general consensus is that design remains undervalued and seen as a cost particularly in the procurement process. - The differences were discussed in how design support bodies and other stakeholders describe design, which creates a language barrier with no unified definition of design.
Lack of early-years design education	<ul style="list-style-type: none"> - Not all students are taught design in the early stages of their education. - More emphasis on design in early education is needed to ensure the design culture is embedded, to produce excellent designers for Scotland.
Lack of designers in board/policy teams	<ul style="list-style-type: none"> - Need for high-profile design champions and economic leaders who advocate design are lacking in design support bodies. - Lack of designers on policy teams which take ownership of design for the government.
Lack of communication and design voices	<ul style="list-style-type: none"> - The design voice for the wider community (stakeholder groups) is lacking but is needed to address different views on design and promote its value. - The design sector including design practitioners has a quiet and fragmented lobbying voice. - Communication is lacking for existing design support mechanisms.
Lack of vision and strategy from design users	<ul style="list-style-type: none"> - Businesses lacking vision thus not using design strategically rather a focus on a short-term ROI. - The government relies on tried and tested methods and avoids risk.

Early year design education was the second most frequent theme with 12 percent (9 comments) of overall comments. The desire to foster a strong design culture from an early age was apparent as the participants discussed the importance of including design within the school curriculum. Concerns were raised regarding recent changes to remove (art and) design from the core school curriculum with potential for negative longer-term impacts (with

recognition of the STEM agenda is impacting on schools' ability and desire to offer creative arts subjects).

Other themes included the lack of designers in the board room and policy team (7 percent) addressing the lack of leadership that can champion design in decision-making positions. This relates to the design community and design users where design support bodies noted the lack of high-profile design leader. For the government and businesses, lack of design-minded leaders was also a barrier; while the lack of effective communication by designers of the benefits of using design. This theme included the lack of strong and coherent design lobbying voice and need to communicate the value of design to the wider public and stakeholder groups. Interestingly, the lack of internal communication within the design community was also noted where the availability and nature of current design support mechanism are not reaching design practitioners. Similarly, the lack of vision and strategy from the design users combined with an over-cautious approach to commissioning design from the businesses and the government was a barrier to the strategic use of design.

Barriers in relation to stakeholder groups

Participants were asked to place their opinion cards on a stakeholder map to identify with whom the responsibility for these barriers resided. The result showed that businesses and the government were regarded as being responsible for most barriers (see Table 2), where the most discussed topic for the businesses was the lack of understanding of the value of design, with more than half of the opinions addressing the issue. Businesses were regarded as lacking design appreciation, leading to design being used as a short-term solution instead of contributing to a long-term strategic agenda. Some participants commented that design is seen as expensive, which is a consequence of limited awareness of design value.

The wider range of barriers identified in relation to the government (policy context) included (i) low awareness of the value of design, (ii) lack of design ownership in decision-making positions, and (iii) a lack of design vision and strategy from the government. These lead to many of the public-sector barriers, especially relating to procurement, where there were concerns about how design is regarded as a short-term solution. Similar issues were also identified in the education sector where it was felt that the current curriculum does not include design as a core subject. Consequently, many participants commented that design should to be a core subject from

an early age. Current Science Technology Engineering and Maths (STEM) emphasis should therefore include Art and Design (STEAMD).

Drivers

Participants described the drivers for strategic use of design in the second part of the Activity 1. The comments, as listed in the Table 4, included current as well as potential (and often desired) drivers. The primary driver identified is the need for design leaders and champions both in the design community and design users. The need for better communication of the benefits of design, potentially through case studies were considered as a potential contribution from the design community; whereas the suitable resources and appropriate policies were an essential to convey the value of design to wider stakeholder groups and thus drive the strategic use of design in Scotland. Such issues were discussed throughout the workshop with exemplars of how design may be more effectively promoted, such as, the city of Dundee being the UK’s first designated UNESCO City of Design, and the opening of V&A Museum of Design in 2018, were all seen as positive drivers towards the more effective use of design across Scotland.

Table 4 Top five drivers - Theme frequency mapped to stakeholder groups.

Themes	DS	DP	Ed	Bu	Go	PS	3S	GP	Total
Design leaders and champions	0	3	0	4	3	1	0	1	12
Awareness raising/educating about design	0	1	0	1	2	3	0	2	9
Resources and policy	1	0	0	1	5	2	0	0	9
Case studies	1	1	0	4	0	0	0	2	8
Connecting design to design users	1	3	2	0	0	0	0	1	7
Other Comments	5	1	5	0	2	1	0	0	14
Total	8	9	7	10	12	7	0	6	59

Detailed discussion topics are shown in the Table 5 where one of the key issue identified was the need for design leaders and champions to advocate design (12 comments – 20 percent); while the lack of design champions in

decision making contexts underscored the need for design leaders to be able to influence decisions that lead to the strategic use of design in Scotland. Design leaders and champions refer to both designers as well as non-design professionals but key is their ability to convince stakeholders of the potential of design to drive positive change within organisations and make contributions that showcase the successful use of design. Awareness raising and educating the value and benefits of using design was the second most frequent theme (15 percent, 9 comments) and related more to educating business professionals and private and public sector organisations with how to use design strategically. More effective communication regarding design with stakeholder audiences, e.g. the general public, public sector and the government was considered important; whilst engaging with the right ‘context’ of conversation with the individual needs was also a factor. It was believed that such activities will increase understanding that leads to higher levels of acceptance of design as a valuable investment rather than a cost (a perception that was also mentioned as a barrier to the strategic use of design).

Table 5 Top five drivers for the strategic use of design.

Themes	Comments
Design leaders and champions	<ul style="list-style-type: none"> - Design champions in all stakeholder groups to drive the use of design. This includes non-designers such as business CEOs and companies showcasing the value of using design. - Designers in decision-making positions e.g. at board and policy-making levels.
Awareness raising and educating	<ul style="list-style-type: none"> - The right ‘context’ conversations to inform the general public what we are trying to achieve [strategic use of design]. - Helping the public sector to understand that design is an incremental activity which has value but incurs costs. - Study visits and design thinking programmes for government/policy-makers. - Educating the public sector in design literacy to give confidence to use design.

Resources and policy	<ul style="list-style-type: none"> - Grants such as Design Vouchers (Scottish Enterprise) and Innovation Grants (Scottish government) lead to more strategic use of design and help design to make it to the market. - Funding to support the use of design needs to be flexible to enable appropriate use. - Political support provides more visibility and promotion of design. - Cross-party consensus with a common vision of design should be presented to the government.
Case studies	<ul style="list-style-type: none"> - Tangible design-centred projects and business successes can communicate the value of design with examples such as Apple, IKEA, Jonathan Ive etc. but ideally within a Scottish context.
Connecting Design to the design users	<ul style="list-style-type: none"> - Use initiatives such as ‘Make Works’ to connect design and local businesses. - University collaboration with industries (knowledge exchange). - Engagement with non-design businesses and the public. - Connecting young designers with the public procurement framework. - Bridging private and public organisations (the design users) with the design community.

In order to engage more with the non-design stakeholders, resources and policy have to be in place to facilitate this (15 percent, 9 comments). This need for economic support such as flexible grants and design vouchers, and political support such as a policy to provide more visibility and promotion of design as well as the creation of the right conditions for better trade, were all noted as drivers. Alongside this, connecting design to design users (12 percent, 7 comments) through initiatives such as the ‘Make Works’, effective university-industry collaborations to engage with non-design businesses and the public to better understand the value of design were identified. There is potential for such activities and initiatives to be used as case studies (14 percent, 8 comments) that demonstrate the potential for the strategic use of design in Scotland.

Drivers in relation to stakeholder groups

In line with the barriers to the strategic use of design, the participants most frequently placed responsibility of the drivers to the government and businesses as shown in the Table 4. Design champions at board level or in a

policy-making position, whether a designer or non-designer, were among the most discussed topic with regard to both of these stakeholder groups. Examples of successful design projects from businesses were also regarded important to convey the practical outcomes of the use of design which then can become a part of a case study to promote the value of design. Financial support to encourage businesses to use design is also regarded as a driver where grants or tax credits can enhance opportunities for the strategic use of design.

The government can also provide other drivers, including creating policies which encourage an environment for thriving design; while there is potential to directly influence procurement systems in both the government and the public sector to make them fit for purpose (particularly in relation to the size and nature of design business, i.e. being predominately micro-enterprises). There is an opportunity for government bodies to promote design more widely to the general public while the inclusion of design in the school curriculum would increase the general awareness of design and ensure that there is a suitable pipeline into the design industry. The discussion regarding drivers in relation to government bodies was therefore mainly on the resources and policy.

Priority Actions for Strategic Use of Design

After completion of Activity 1 – the barriers and drivers to the strategic use of design in Scotland – the workshop then considered priority actions that would inform a design action plan for Scotland. The main priorities identified by each group can be divided into two themes. One relates to increasing design involvement in the procurement system (Group 1 and 3), and the second concerns the development of national design strategy (Group 2 and 4). All groups considered the importance of having a Chief Design Officer or Minister for Design to represent and provide advocacy for the design community and act as a focal point to drive the changes necessary to enhance the strategic use of design in Scotland. Cross-comparison with Activity 1 aims to explore how the proposed actions relate to the identified barriers and drivers.

Group 1: Creating a Design Society

Creating a design society was the main agenda for Group 1's discussion (see Table 6). In order to achieve this, the group discussed four main areas for further actions including (i) creating a design alliance, (ii) using

procurement, (iii) encouraging early education in design and (iv) increasing the government’s buy-in. Using these actions, Group 1 prioritised discussion of a design alliance to create a shared voice and vision for design in Scotland. The design community should lead this action to formulate cross-cutting agendas in health, culture, education and the economy. A wider public campaign for design projects on big social issues (e.g. use of plastics and zero-waste projects) will enhance understanding of the wider benefits of design. The action addresses the most talked-about barrier: the “lack of understanding and awareness of design value”, especially in unifying the differences in defining design in the design community. This could lead to overcoming the “lack of communication and design voices”, especially in expanding the design community’s lobbying voice by enhancing the drivers “design leaders and champions,” and “resources and policy”, as identified in Activity 1.

Table 6 Priority actions - comparison with barriers and drivers for the Group 1

What	How	Who	To Whom	Barriers/Drivers
Create a Design Society through Design Alliance, increasing the government’s buy-in, encouraging early education in design.	- Use of public procurement to enable design to be more widely used in public sector projects.	- Government and local authorities with the public sector - Industry with support bodies.	- Design Community and society.	- Lack of understanding/ awareness of design value - Lack of early-years design education - Lack of communication and design voices - Lack of vision and strategy from design users + Design Leaders and Champions + Awareness raising/educating about design + Resources and policy + Case studies + Connecting design with the design users.

To complement this action, the use of public procurement was considered as a way to encourage growth of small businesses and young designers. This action led by the government and public sector will help overcome the barrier of “lack of vision and strategy from design users” to guide the design users to adapt strategic risk-taking and a creative approach to managing and conducting a project. The action is also related to the

Jea Hoo NA, Martyn EVANS, Emilene ZITKUS, Anna WHICHER and Andrew WALTERS

driver of “connecting design to the design users,” with “training and education about design,” enabling both small businesses and young designers to respond to big public-sector contracts by forming consortia. The success of these projects will act as a “case study” to encourage continued support in “resources and policy.”

Group 1 also discussed education as a means of encouraging a wider early adoption of design. ‘Creativity’ is currently included in the Curriculum for Excellence, but a more proactive inclusion of design by introducing activities such as design competitions for schools and study-visits to public projects will address the barrier of the “lack of early-years education in design.”

Group 2: Developing a National Design Strategy

Group 2 discussed the development of a national design strategy for Scotland. The strategy would include better branding for design in Scotland, using case studies of successful projects and describing the contribution of design in wider society as shown in the Table 7. Agile thinking and co-operation among the design community will be required in order to achieve the action. Group 1 similarly suggested the unification of design voices, which addresses the barrier of the “lack of understanding and awareness of the design value” in the design community. A design champion is needed who understands the wider application of design, to unify the voice of design and identify differentiators which design can bring to current government economic and social strategies. This can also help overcome the barrier of the “lack of communication and design voices” by increasing the lobbying voice for design. The strategy should also include actions to increase an industry-wide awareness which will encourage collaborations with the design sector. This will encourage the development of one of the drivers identified in Activity 1 - “training and educating about design” - to have a dialogue about design in the right context with non-designers, in order to enhance the “understanding of design value”.

The relationship between design and the economy was also an important agenda for the group, which suggested that design should be the theme for the next National Economic Forum. The group also acknowledged the need to create a culture in which tax-payers will accept taking risks to use design more strategically in order to stimulate growth, with case studies demonstrating the successful use of design for both companies and cities in Scotland. A design support organisation is likely to lead this initiative, with government support. This collaboration will also enhance the understanding

of the value of design in government, thereby influencing policy development.

Table 7 Priority actions - comparison with barriers and drivers for the Group 2

What	How	Who	To Whom	Barriers/Drivers
Developing a National Strategy for Scotland	- Better PR and branding for design - Agile thinking and co-operation in the design community.	- Design industry, private sector - Design support organisations with government support.	- Wider society, including well-being and the economy.	- Lack of understanding/ awareness of design value - Lack of communication and design voices + Awareness raising/educating about design + Resources and policy + Case studies + Connecting design to design users

Group 3: A Chief Design Officer for a better procurement system

Group 3’s discussion focused on a professional facilitator for design - a Chief Design Officer - to create a better procurement system for design, to drive the creation of a design discourse, and to promote the value of design. This will address the identified barrier of the “lack of designers on boards and policy teams” who will take ownership of design for the government. One method for achieving this is to create a platform from which creative practitioners can lobby government and propose changes for design. This could also help address the “lack of understanding of design value” in the public sector, so that the view of design moves from a cost to an investment (see Table 8). It will also create a louder unified voice to report on design value to the government and stakeholder groups. Furthermore, the development of a procurement system for design will help “connect design practitioners to the design users.” Procurement will be a part of fostering and supporting a bottom-up approach to encourage the expansion of the role of design in Scotland. Government support and funding for design support organisations - including Creative Edinburgh and Creative Dundee - is also regarded as essential to encourage the take-up of design more strategically and to create a focal point and events to bring together existing activities.

Integration of design in the Fourth Industrial Revolution was regarded as a way to demonstrate the power of design and avoid the repetitive use of the word ‘design’. To clarify this proposition, however, a better

understanding is needed of where the discourse of design is situated in the Fourth Industrial Revolution Curve. While almost everyone would benefit from the actions discussed by Group 3, the group recognised there will be a small budget with selected beneficiary stakeholder group(s) in the initial introduction of the actions by the CDO.

Table 8 Priority actions - comparison with barriers and drivers for the Group 3

What	How	Who	To Whom	Barriers/Drivers
Better procurement system with a Chief Design Officer	- Support and funding for design support organisations - Create a platform for better lobbying.	- Cross-party government with support across cities, industry, academia and local authorities.	- All stakeholders.	- Lack of understanding/ awareness of design value - Lack of designers in board/ policy teams - Lack of communication and design voices. + Design leaders and champions + Resources and policy + Connecting design to design users

Group 4: National Ambition for Design

All the actions discussed by Group 4 were interrelated, feeding into developing a National Ambition - a vision for design as shown in the Table 9. In this vision, the actions include (i) enhancing promotion and awareness by identifying the benefits of design (skills) and celebrating good design, (ii) practical projects which help to build a design culture, and (iii) creating a voice for design which transcends sectoral boasting. The promotion of design should be based on identifying the ‘hidden’ values of design with good examples and accompanying analysis of how those designs were achieved. Furthermore, the driver of “design training and education” can be applied to provide the organisations (design users) with the skills needed to identify a good design. This will provide better “understanding [of] the value of design” to both businesses and the public sector.

Projects which can help build a design culture require a design fund in addition to the current driver of design i.e. “resources and policy.” The project and the associated fund will encourage organisations to hire designers, in both the private and public sectors, which also relates to public sector procurement. This will encourage organisations to appreciate the value of design and help overcome the “lack of communication and design voice” in wider stakeholder groups. The vision must also be reinforced with

a national discourse which will be a useful resource for the design community to convince design users of the value of design. The discourse should also include learning from other cultures and nations, whilst recognising the strength of Scotland’s competitiveness.

Table 9 Priority actions - comparison with barriers and drivers for the Group 4

What	How	Who	To Whom	Barriers/Drivers
Developing national ambition (vision) and a voice for design	- Creating a national discourse in design.	- The design sector, - Scottish policy-makers.	- Scottish public - The design industry	- Lack of understanding/ awareness of design value - Lack of communication and design voices. + Awareness raising/educating about design + Resources and policy + Case studies + Connecting design to design users

Shared Priorities

All groups considered the need for a unified and representative voice for design coming from a *Design Alliance* or *Chief Design Officer*. The main function of the post would be to champion the wider role of design in society by (i) leading the development of a national design strategy, (ii) strengthening co-operation within the design community and with other stakeholders, (iii) presenting a case for design support backed by greater understanding of design examples (discourse), and (iv) lobbying the government to enable better integration of design in the procurement system. Furthermore, the participants stressed the need for government funding and support through more procurement using design and funding to encourage the private and public sectors to use design. Another priority action discussed by all groups is the need for better branding or campaigning for design in Scotland, to enhance the understanding of the excellence of Scottish design to the general public and other stakeholder groups.

These actions address most of the current barriers and drivers identified in Activity 1. One barrier which is not discussed extensively is the early-years education, even though it had the second highest number of comments for the barrier, indicating that the priority is more on establishing design understanding across the stakeholder groups, with practical ways to overcome the barrier of “lack of understanding and awareness of design

value.” It is also apparent that in order to continue the discussion and implement the priority actions, an infrastructure and appropriate funding are required for a forum.

Conclusion

While design is increasingly recognised as a driver for innovation, it is still far from being used as a strategic resource by all stakeholder groups identified in this paper. Our study has revealed a range of barriers to its strategic use with the biggest barrier was the difference in understanding of the value of design among stakeholders primarily due to poor communications.

We have identified the value of design for innovation as (i) an activity to create a product and/or service to satisfy the needs of users for an organisation, (ii) a process which enhances the understanding of the users and the market while facilitating collaboration within an organisation, (iii) a strategic tool which helps the managing of an organisation at the highest strategic level to enable creative vision-setting and subsequent strategy. This link between design and innovation adopts a people-centre approach and provides a scaleable and transferable resource.

This research identified over thirty design support bodies which help the development of design in Scotland, including Architecture and Design Scotland (A+DS), Royal Incorporation of Architects in Scotland (RIAS), Chartered Society of Designers (CSD), Craft Scotland, Creative Scotland, Dundee Contemporary Arts (DCA), Office for the Design Economy (OFTDE), Scottish Enterprise. This is by no means an exhaustive list and there are likely others in Scotland which this research failed to identify. Furthermore, the vast number of design practitioners will create a large community which could have a prominent voice in Scotland. The challenge, however, lies in unifying the voice of different opinions and interests. A positive outcome of the workshop is that the participants representing some of the design support bodies all agreed on the need for this voice and called for leadership to enable this. These priority actions will help overcome the barriers to enhance the strategic use of design.

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References

- Brown, T. (2009). *Change by Design: How Design Thinking Transforms Organisations and Inspires Innovation*, NY, HarperCollins.
- Cooper, R., Hernandez, R., Murphy, E. & Tether, B. (2016). *Design Value: The role of design in innovation*. Lancaster, Lancaster University.
- DDC (2003). *The Economic Effects of Design*. Copenhagen, Danish Design Centre.
- Design Council (2015a). *Innovation by design: How design enables science and technology research to achieve greater impact*. London, Design Council.
- Design Council (2015b). *The Design Economy*. London, Design Council.
- Design Council (2018). *Designing a Future Economy: Developing design skills for productivity and innovation*. London, Design Council
- DesignCo (2017) *The Value of Design to New Zealand*. Auckland. DesignCo
- EDLB (2012). *Design for Growth & Prosperity: Report and Recommendations of the European Design Leadership Board. European Design Innovation Initiative*. Helsinki, Finland.
- Estonian Enterprise Policy (2012) *National Action Plan for Design 2007-2013*. Estonian Design Centre and Enterprise. Tallinn, Estonia
- European Commission (2013) *Implementing an Action Plan for Design-Driven Innovation. Commission Staff Working Document*. SWD (2013)380. European Commission
- Evans, M. & Chisholm, J. (2016) *Design for Europe: Employing Scenarios to Benchmark the Effectiveness of European Design Policy*, *The Design Journal*, 19, 253-268.
- Innovate UK (2015) *Design in Innovation - Strategy 2015-2019*. Technology Strategy Board. Swindon, UK.
- Latvian Design Council (2015) *Creative Latvia 2014-2020 - Design Strategy*. Latvian Design Council.
- Le Masson, P., Benoit, W. & Hatchuel, A. (2010). *Strategic Management of Innovation and Design*, Cambridge, Cambridge University Press.
- Martin, R. (2009). *The Design of Business: Why Design Thinking is the Next Competitive Advantage*, Boston, Harvard Business Press.

- Ministry of Education and Culture (2013) Design Finland Programme - Proposals for Strategy and Actions. Ministry of Education and Culture
- Montgomery, M (2013) *Government to use design principles in policy-making*. Design Week. 29 November 2013. London, UK.
- Mootee, I. (2013). *Design Thinking for Strategic Innovation: What they can't teach you at business or design school*, New Jersey, John Wiley & Sons.
- Mozota, B. B. D. (2003). *Design Management: Using design to build brand value and corporate innovation*, Allworth Press.
- Mozota, B. B. D. (2006). The Four Powers of Design: A Value Model in Design Management. *Design Management Review*, 17, 44-53.
- Na, J.H., Choi, Y., Harrison, D. (2017). The Design Innovation Spectrum: An Overview of Design Influences on Innovation for Manufacturing Companies, *International Journal of Design*, 11, 13-24.
- Nam, K. W. & Carnie, B. W. (2014) The Value of design for customers in the service industry: contributions and measurements. In: Bohemia, E. Rieple, A. Liedtka, J. and Cooper, R. (eds.) *Design Management in an Era of Disruption: Proceedings of the 19th DMI Academic Design Management Conference*, 02-04 Sep 2014, London. Design Management Institute, pp. 1365-1399.
- Neumeir, M. (2008). The Designful Company. *Design Management Review*, 19, pp. 10-15.
- Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches* (7th ed.). Harlow, Pearson.
- Phaal, R & Farrukh, Clare & Probert, D.R. (2015). Strategic Roadmapping: A Workshop-based Approach for Identifying and Exploring Strategic Issues and Opportunities. *Engineering Management Journal*. 19, 3-12.
- Rae, J. (2016). Design value index exemplars outperform the S&P 500 index (again) and a new crop of design leaders emerge. *Design Management Review*, 27, 4-11.
- Roy, R. (1994). Can the Benefits of Good Design be Quantified? *Design Management Journal*, 5, 9-17.
- Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers*, London, Sage.
- Tether, B. (2005). *Think Piece on The Role of Design in Business Performance*. London: DTI.

- The Danish Government (2013) *Denmark at Work - Plan for Growth in the Creative Industries and Design*. Ministry of Industry, Business and Financial Affairs. Copenhagen, Denmark.
- Trueman, M. & Jobber, D. (1998). Competing Through Design. *Long Range Planning*, 31, 594-605.
- Verganti, R. (2009). *Design-Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean*, Boston, Harvard Business Press.
- Walsh, V. (1996). Design, innovation and the boundaries of the firm. *Research Policy*, 25, 509-529.
- Whicher, A. & Walters, A. (2014) *Mapping Design for Innovation in Wales and Scotland*. PDR, Cardiff Metropolitan University.