

DESIGN FOR NEXT

Proceedings of the 10th
European Academy of Design Conference,
Suparna University of Rome, 13-14 April 2017
Institute of The Design Journaledited by
Loredana Di Loro, Lucia Lorenzini, Paul Addison

The Design Journal

An International Journal for All Aspects of Design

ISSN: 1460-6925 (Print) 1756-3062 (Online) Journal homepage: <http://www.tandfonline.com/loi/rfdj20>

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To cite this article: Cara Broadley, Katherine Champion & Lynn-Sayers McHattie (2017) Materiality Matters: Exploring the use of design tools in innovation workshops with the craft and creative sector in the Northern Isles of Scotland, The Design Journal, 20:sup1, S550-S565, DOI: 10.1080/14606925.2017.1353003

To link to this article: <http://dx.doi.org/10.1080/14606925.2017.1353003>



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Published online: 06 Sep 2017.



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Materiality Matters: Exploring the use of design tools in innovation workshops with the craft and creative sector in the Northern Isles of Scotland

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Abstract: This paper presents initial reflections regarding the use of bespoke design tools within a series of innovation workshops carried out with practitioners and stakeholders active in the craft and creative industry sector in the Scottish Islands of Orkney and Shetland. We argue that by emphasising such bespoke material tools located in and inspired by the local landscape, history and culture, we encouraged engagement, provided space for innovation and enabled creative collectives in their goal of enhancing and sustaining the creative economy in rural geographies.

Keywords: Design Innovation, Design Tools, Creative Industries, Craft

1. Introduction

Design-led innovation interventions are argued to help develop and establish successful collaborations of individuals with diverse and multi-disciplinary backgrounds (Norman & Verganti, 2014). The key tenets of a design innovation approach include: being participatory, user-centred, favouring collaboration and multi-disciplinarity; using experimentation and prototyping and undertaking an iterative approach (Lockwood, 2009). By harnessing a collective interest and diverse capabilities such approaches are argued to allow insights and ideas to be shared and developed which can tackle particularly complex challenges (Sanders & Stappers, 2014). The success of such interventions has been suggested to, in part, rest on the ability to stimulate shared understanding amongst those coming together. In order to enhance communication and collective knowledge framing between stakeholders, methods have developed to aid the collaborative process ranging from drawing and illustration to the three-dimensional making of artefacts including prototypes, mock-ups, and models (Lucero, Vaajakallio, & Dalsgaard, 2009; Sanders & Stappers, 2014).

Taking an Orkney and Shetland focus, the Innovation from Tradition pilot series of design innovation workshops is intended to promote innovative collaborations of craft and creative industry practitioners. This project builds on the team's experience of using design-led approaches to

promote the creation of innovative business products, processes and models (Broadley et al., 2016; Johnson et al., 2016; Kearney & McHattie, 2014). By engaging with the craft practices of making and the materiality of artefacts in our design tools, the workshops encouraged engagement, provided space for innovation and enabled creative collectives in their goal of enhancing and sustaining the creative economy in rural geographies.

The paper begins in the next section by exploring some of the challenges for innovation in the craft and creative sector in rural Scotland before introducing the potential role of design in ameliorating such issues. The scope of context then turns to specifically focus on the methods, tools and techniques offered by design to create conditions in the workshops for the participants' existing capabilities to be recognised and built upon. Following this the structure of the workshops is set out alongside the main design tools used across the series. Next, each tool is explored in turn to explain the role they fulfilled during the workshops. Finally three key reflections on the value of the tools developed are outlined before conclusions are drawn.

2. Scope of context

2.1 Innovation in creative industries in Scotland

Scottish Government statistics on the creative industries show that there was turnover in 2013 of £5.8bn with a Gross Valued Added (GVA) of £3.7bn. It is also estimated that the sector employed 71,800 people in 2014 and there were approximately 14,590 businesses in 2015 (2016b). However, the small size of many creative enterprises in Scotland means they are not captured in employment and economic data. Of those that are captured around 57% have no employees and 87% have less than 5 employees (SFC, 2016). An issue has been identified stimulating demand from creative industries practitioners in Scotland for innovation support and ensuring that they can deliver broad social and economic benefits that are based on their innovative potential (SFC, 2016). This report found that innovation approaches must acknowledge the complexities of the creative industries sector which include the prevalence of micro and solo enterprises; short value chains; fleet of foot and opportunity driven character; highly qualified individuals; high awareness of a triple bottom line and often spread across a very wide range of sub-sectors which have few or no interdependencies (SFC, 2016).

This project was undertaken in the Northern Isles of Scotland, which have a rich history of creative and craft work including the internationally recognised traditions of Orkney chair making and Fair Isle knitting. Creative work in the region is characterised by micro-businesses, self-employment and portfolio work, paradigmatic of the sector. Highlands and Islands Enterprise (HIE) have acknowledged that there is a lack of in-depth research on creative industries in the region (HIE, 2013). More broadly, Scotland has faced longstanding economic issues with low levels of entrepreneurialism, start-ups and innovation (Scottish Government, 2015; Scottish Enterprise, 1993), remaining one of the least entrepreneurial regions of the UK (Mason et al., 2015; Van Stel & Storey, 2004). The H&I region faces particular innovation challenges, including the dispersed working communities and technological infrastructure of the region, which can limit opportunities across the creative economy (HIE, 2013). The Scottish Government (2016a) has identified key concerns for creative enterprises in rural areas around the higher cost of working and the inadequacy of digital infrastructure, particularly broadband provision. The impact of such issues is particularly acute for the creative economy, where it is common for practitioners to be self-employed and there is a preponderance of project-based temporary employment and 'bulimic' patterns of work (Banks & O'Connor, 2009; Oakley, 2009; Gill & Pratt, 2008). This presents challenges for economic development and support

services in the context of flexible and precarious working practices within the creative industries. As we go on to discuss, design-led interventions offer opportunities for creatively engaging a range of participants with broad areas of expertise and fostering productive interdisciplinary relationships towards addressing complex societal challenges.

2.2 Design-led innovation: a participatory process

Design-led innovation interventions establish creative coalitions of design practitioners, design researchers, multidisciplinary experts, entrepreneurs, users, and communities (Norman & Verganti, 2014). Such design approaches have been suggested to contribute to more qualitative goals within economic growth and innovation (Johnson et al., 2016, pp.21-28) and more nuanced forms of evaluating KE impact (Fremantle et al., 2016). In advocating participatory design premises, Sanders and Stappers recommend that sharing ideas enables collective creativity and opportunities for innovation that respond to designers' and participants' first-hand insights (2008). Seeking to develop a series of interventions to support innovative collaborations between craft and creative industry practitioners in Orkney and Shetland, our approach draws from participatory design's inclusive and democratic ethos.

Emerging during the 1960s, Participatory Design (PD) was born from a desire to address power imbalances and regain human accountability in light of technological advancements. PD has since been adapted to explore wider social challenges with organisations and communities (DiSalvo et al., 2013). Steen (2011) positions PD as a practice in which designers and researchers devise methods to engage with users and stakeholders, understand their experiences and consider how these can be enhanced. Such activities build on primary knowledge and expertise ("what is") to imagine preferable scenarios ("what could be") (Steen, 2011, p.50). Initially concerned with understanding the world as it is, participatory design can be thought of as a research-led orientation in which designers and researchers gain an insight into the multifaceted nature of each design context and the areas of opportunity for intervention (Steen, 2011).

2.3 Tools for expression, ideation, and transformation

PD offers a nuanced range of approaches, tools, and techniques and in previous projects with which the authors have been involved in, it has been observed as able to be "transformative for company development and sustainability" (Johnson et al., forthcoming 2017, p.30). Designers and researchers working in PD employ creative, generative, visual, and participatory methods including collaging, sketching, 3D modelling tasks, prototypes and design games as ways of engaging with participants and *telling, making, and enacting* to envisage the future (Brandt et al., 2013). Hanington illustrates the evolution of traditional interviews and questionnaires, to adapted ethnographic methods including observation, arriving at the wealth of innovative strategies currently being applied in increasingly human-centred design contexts (2003, p.13). Focusing on the generative nature of co-design activities, Vaajakallio (2009) proposes that this fundamentally social and embodied practice originates from the dialogue that emerges when participants enact and describe their existing experiences through creative, expressive methods.

Various design toolkits and surrounding literature extensively advocate the use of ethnographic practices to gain an understanding of behaviours and situations (IDEO, 2002). Evoking concepts of cultural probes, self-documentation is explicated as a generic technique to learn about participants' lives by viewing their photographs, drawings and written notes, and to develop interpretative

descriptions of behaviours and needs to inform and inspire design solutions (Gaver et al., 1999; Mattelmäki, 2006). At the same time, established techniques including user personas, scenarios, and stakeholder maps (Hanington & Martin, 2012; Hanington, 2003) aim to create visual and textual representations of the people within the design context; describe their experiences, needs and aspirations; and depict the nature of their interactions within existing and speculative social networks.

These approaches aim to “promote the growth of diffuse collaborative design capabilities” (Manzini, 2015, p.154) in response to participants’ particular social, cultural, political, and geographic circumstances, and as such, in the context of the Innovation from Tradition workshops, we identified a role for visual and participatory design approaches in creating the conditions for participants’ capabilities to be recognised, externalised, accessed, shared, and utilised towards informing transformational change.

3. Innovation from Tradition

Innovation from Tradition brought together craft and creative industry practitioners with academics, policymakers and industry experts in innovation events guided by strategic design principles and enabled them to support the development of new ideas. Taking a Northern Isles focus, the pilot series of design innovation workshops were intended to promote innovative collectives of craft and creative industry practitioners and were delivered in collaboration with regional development agency, Highlands and Islands Enterprise (HIE). Carried out in both Orkney (Kirkwall) and Shetland (Lerwick) this a series of two interlinked workshops (with a three week intervening period) aimed to explore and inspire innovative ideas and future opportunities for the craft and creative industries sectors of the Islands. The workshops foregrounded questions around the role design can play in innovating craft practices, and in enabling creative collectives towards enhancing and sustaining the creative economy in rural geographies.

At the first workshops carried out in Kirkwall (Orkney) and Lerwick (Shetland) Autumn 2016, there were between 12-18 participants drawn from a range of craft and creative industries activities including textiles, design, architecture, soap making, jewellery, film and media, print and furniture making. Through a series of interactive sessions, the participants were introduced to design-led innovation tools and processes to support their critical reflection on defining, understanding, and addressing pertinent challenges; encourage them to experiment with alternative ideas; and explore how to implement genuinely innovative solutions.

The intention was to develop an intensive, immersive process, purposefully constructed to allow open, radical thinking through group interaction using a process that facilitated the generation of new ideas. The process can be broken down into several stages:

- Defining the scope of the innovation challenge
- Developing a shared understanding of the issues
- Considering alternative practices
- Using interactive sessions to focus on solutions

Facilitators supported participants throughout and experts in relevant fields assisted by challenging positions and perspectives. Furthermore, the workshops were designed to be a valuable experience in, and of, themselves and included elements of Continuous Professional Development (CPD), for example, pitching, presenting and collaborative working as well as contributions from industry

specialists. As Table 1 shows a range of tools were introduced over the workshop series and in the next section these are explored in turn.

Table 1. Summary of tools used in Innovation from Tradition Workshop Series

Stage	Tools
Pre-Workshop	Welcome Pack
During Workshop One	Delegate Pack (Profile cards, name badges, consent form and participant information sheet, agenda, team and contributor biographies) Likert Scale Wisdom Wall cards Idea Development Pack (business model canvas, value proposition, fast idea generator)
Pre-Workshop Two	Idea Development Pack

4. The Tools

4.1 Welcome Pack

The *Welcome Pack* (Figure 1) was sent as an electronic document to participants two weeks in advance of the first workshop. The packs were tailored and personalised to each island through the use of specific colour palettes and images taken from earlier scoping visits. For example an image of ring was used within the Orkney pack, which has a strong jewellery sector. The pack was used to inform participants and included the timing and location of workshops, information about the background to the workshops and the organising team as well as information about the speakers on the day. Imbued with an informal and welcoming tone, the pack's content was used to prime participants, encourage them to begin thinking of their innovation issues and prompt them to come with ideas and challenges. Consent forms and information sheets were also included for participants to review.

4.2 Delegate Pack

On the day participants received a Delegate Pack which contained hard copies of the research information sheet and consent form to be completed, as well as name badges, profile cards, an agenda for the day and team and contributor biographies. Each of these components was individually handed out by the team and explained verbally to participants. Participants wrote their names on Perspex name badges before filling out the profile card (Figure 2), which had five areas to complete:

- What's your name?
- What's your thing?
- Any ideas you'd like to share?
- What have you been up to lately?
- What tradition would you like to preserve?

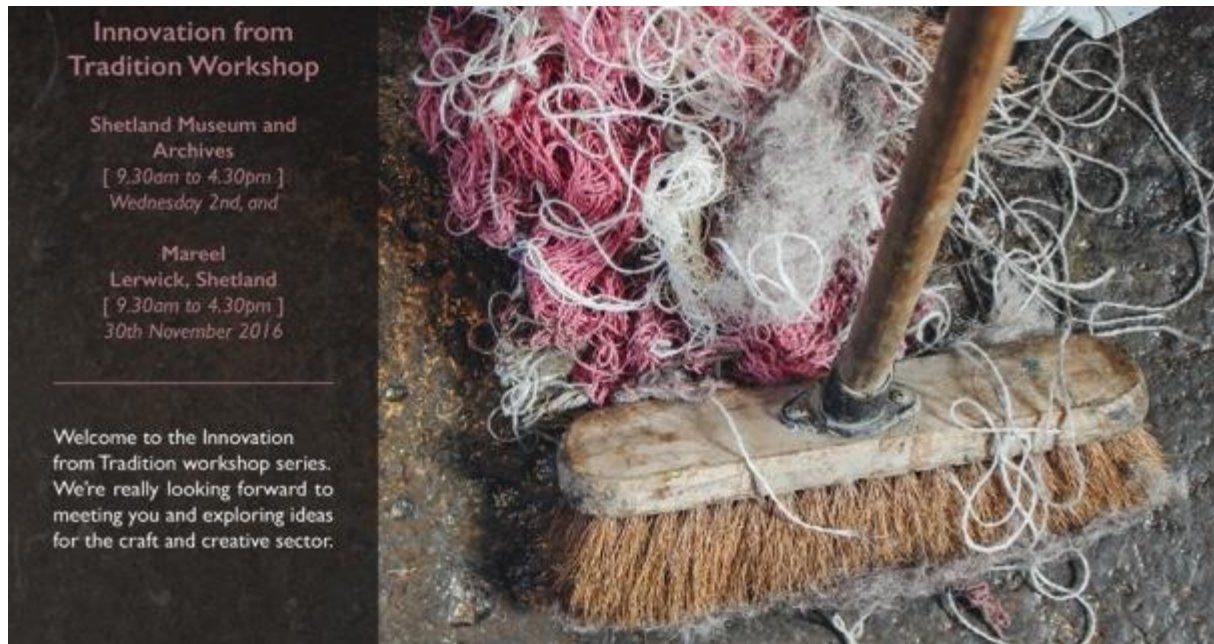


Figure 1. Welcome Pack – Cover: a digital booklet of introductory information was sent to all participants in advance to explain the nature of the activities that would form the Innovation from Tradition workshops. Our aim was to imbue the text and images within the pack with an informal and welcoming tone.



Figure 2. Profile Cards: cards provided to participants upon their arrival at the Innovation from Tradition workshops to facilitate introductions, underpin an initial icebreaker, and capture information around their areas of interest. Once completed the hexagonal cards were clustered to form a display of emerging participant collaborations.

The team added an instant polaroid photograph of the participant and asked them to affix it to the wall for display. During the first icebreaker session, the team referred directly to the final question posed on the profile card and asked participants to introduce themselves and share a local tradition they would like to preserve. This activity aimed to illicit a sense of the strengths in particular craft practices whilst helping participants to feel at ease and introduce them to the others in the room.

4.3 Likert Scale

Following this a *Likert Scale* exercise was carried out. The purpose was to scope understanding around innovation, relationships between place and practice and the role of heritage and tradition in their creative practice, through application of the likert scale method. This allowed respondents to specify their level of agreement or disagreement on a symmetric agree-disagree scale in response to the following provocations:

1. There is a strong relationship to place in my work
2. Customers will pay more for products or services produced with a strong sense of tradition and provenance
3. The sustainability of my business rests on the tailoring of products or services to meet market demand (for example tourism)
4. Local competition is a barrier to creative collaboration
5. To innovate is to create something new



Figure 3. Likert Scale Signage: The design of the Likert scale signage mirrored the muted colour palette and hand-drawn aesthetic style of the accompanying workshop materials.

To stimulate participants' discussions around contextual issues, the team placed likert scale signage in each corner of the room (Figure 3) and read the provocations aloud before encouraging participants to move to the area that best represented their response – strongly agree, agree, disagree, strongly disagree – and engaging the group in a collective discussion on their varying perspectives.

4.4 Wisdom Wall Cards

Participants were also asked to complete *Wisdom Wall Cards* (Figure 4 and Figure 5) to share existing assets and resources that could be reframed or reappropriated in the design of future interventions. These cards were themed:

- People (organisation or location): Who and where? What makes them inspiring?
- Projects: What and where? What makes it inspiring?

- Practices (skills, industries or interests): What is it? What is it being used for?
- Places: Where is it? What makes it inspiring?
- Technologies: What is it? What is it being used for?
- Materials: What is it? What makes it valuable?
- Wildcard: Any other suggested resources that do not fit these categories

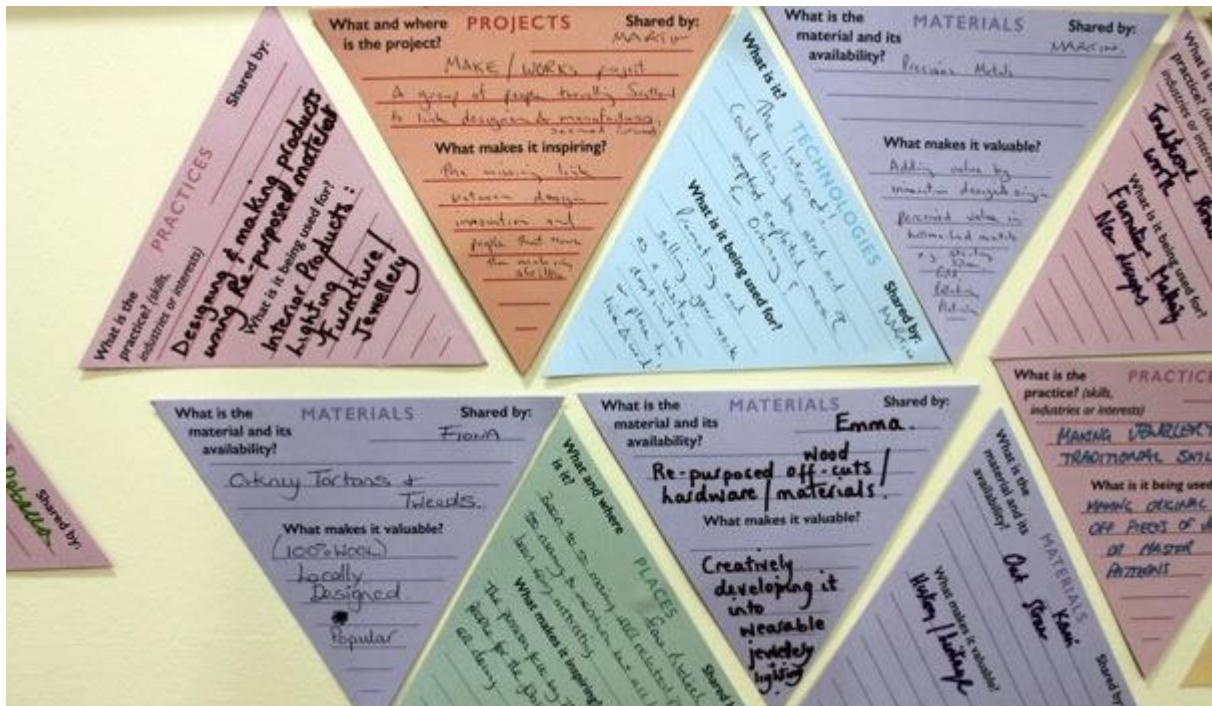


Figure 4. Wisdom Wall Cards: cards provided to participants to categorise and capture their knowledge and insights into existing resources that could be useful in inspiring ideas around innovation of the craft and creative sectors in Orkney and Shetland.

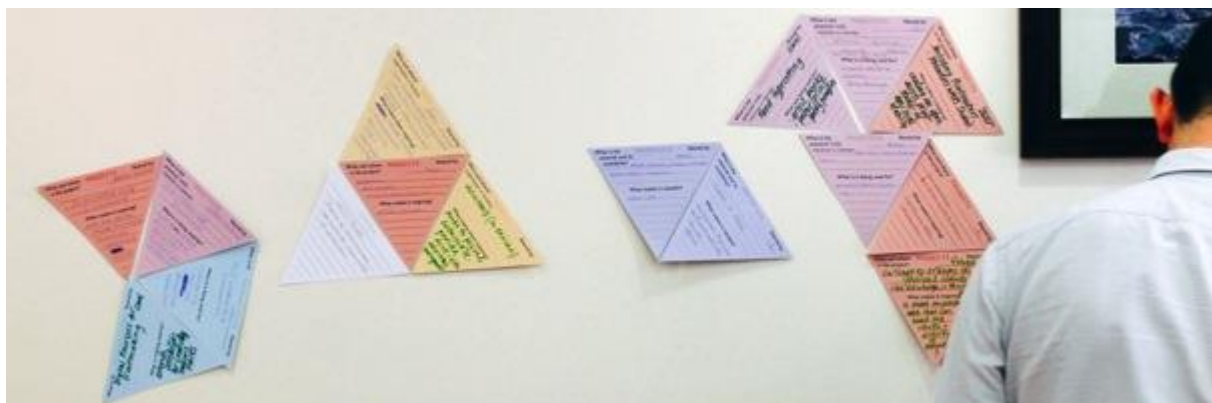


Figure 5. Wisdom Wall Cards display: once completed the Wisdom Wall Cards were clustered by participants to represent potential new configurations of resources.

These were affixed to the wall by participants and clustered around key themes or related areas.

4.5 Idea Development Pack

Towards the end of the first workshop, the Idea Development Pack (Figure 6) was introduced to the participants as a key resource for them to access and utilise during the three week intervening period

between the two workshops. Having generated ideas during Workshop One, the Idea Development Pack was to be used to support participants in refining their ideas before Workshop Two. The pack provided them with a range of design tools for idea development and refinement including: Personas; Value Proposition Canvas; and Storyboarding templates. A key aspect of the Idea Development Pack was the *Business Model Canvas* (Figure 7), which was introduced to the participants during the workshop.



Figure 6. *Idea Development Pack*: these printed booklets were contained a set of design tools to support participants develop their ideas between workshops 1 and 2.

The Business Model Canvas tool was designed to help participants to reflect on and critique the ideas they were developing. The Business Model Canvas is a global standard framework for modeling businesses of all sizes (Nesta, 2013). The tool used in the workshop was adapted slightly for the audience and the aesthetic was in keeping with the other tools developed. The aim of this tool was to help participants develop and document future ideas as well as to build the capacity to use this tool to map out their existing business outside of the workshop series.

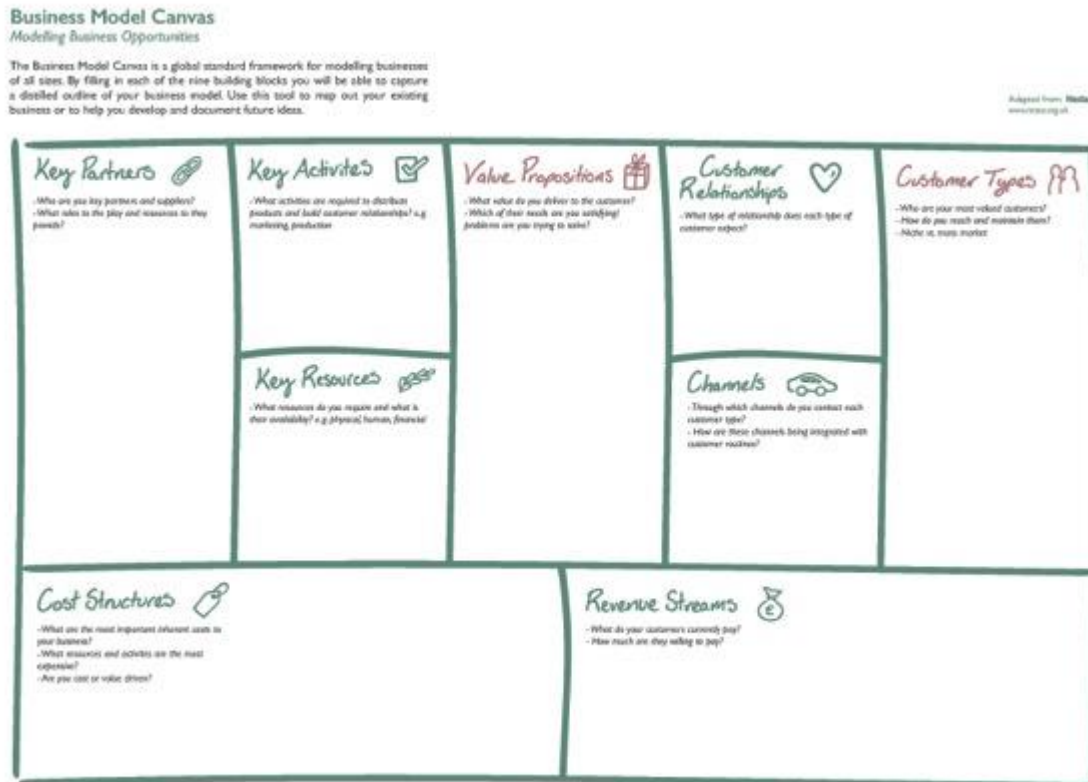


Figure 7. Business Model Canvas: Presented in line with the workshop materials, this tool was a central component of the Idea Development Pack and its introduction by the team to the participants formed a key activity in Workshop One.

The pack also gave them an outline of the day for Workshop Two including details of the expert panel who would provide feedback and offer further guidance and support on taking forward the ideas presented. An evaluation criteria was provided to help them critically assess ideas by themselves. The pack also provided blank pages in which participants were encouraged to record their reflections on their experiences of engaging with and trialing the tools. There is not scope in this paper to explore the participants' insights in depth, but in the following section we reflect on our own experiences of designing and facilitating the tools and how these practices align to the overarching research aims and contextual conditions.

5. Reflections

This section presents reflections from the experience of the tools in action and relates them to three key learnings around the successful utilisation of design innovation tools.

5.1 Building Trust

Acknowledging our positions as design researchers visiting the islands and thus our status as partial outsiders, we recognised the significance of embedding mutual trust in the Innovation from Tradition workshops. Creating safe spaces for the sharing of knowledge is crucial for meaningful relationships to develop, particularly for interdisciplinary collaborations. The knowledge generated with creative disciplines tends to be tacit and for its transfer much more reliant on the development of intense personal networks which foster trust and mitigate risk. Effective transfer of tacit knowledge generally

requires extensive personal contact, regular interaction and trust. This kind of knowledge can only be revealed through practice in a particular context and transmitted through social networks. This transmission tends to be fostered by face-to-face interactions, which are more likely to be developed in local networks. Comunian et al. (2015) advocate and build on Crossick's idea of "third or shared spaces" as a crucial component for embedding people and knowledge from academia and specialist knowledge in particular places. Crossick (2009) argues that as knowledge is by nature inherently networked, born out of the interactions of people with different skills and approaches, spaces for supporting the development of such relationships are more critical than *depersonalised* models for the transfer of knowledge already produced. As he explains, "Why spaces? Because what is needed is not a system to transfer from one party to another some knowledge that has already been produced, to transfer something that has already happened. But to create spaces in which something can happen" (Crossick, 2009, pp.11-12).

Drawing from Büscher et al.'s discussions of the distribution of risk and responsibility in participatory design processes, we sought to design and deliver a set of tools that would establish a sense of membership with the participants, provide a safe space for sharing experiences and ideas, and sustain their willingness to contribute (Büscher et al., 2002, p.184). As such, our intention with the Welcome Pack was to introduce the forthcoming workshop activities to the participants and establish a supportive and inclusive atmosphere to underpin the relationships we hoped to form once we met. This mode of engagement recalls the notion of cultural probes as tools that are sent to participants to support self-documentation of their daily experiences (Gaver et al., 1999; Mattelmäki, 2006), however, the Welcome Pack did not require any *homework* to be carried out by participants in advance. Affirming the need for a *practical politics* in PD to sustain commitment (Büscher et al., 2002, p.1), developing this mode of remote facilitation was particularly appropriate when coordinating workshops in Shetland and Orkney from our team's base in central Scotland (Broadley and McAra, 2013; Broadley, 2013). The Welcome Packs allowed us to connect with the participants across this relatively vast geographical distance.

5.2 Local Relevance and Reframing Assets

In order to develop research relationships with participants and support them through stages of exploration, ideation, and iteration in the workshops, we recognised the importance of developing design tools that reflected the local context of craft practice in the Scottish Northern Isles, and that were capable of eliciting relevant responses in return. The nature of interaction, the forms of participation, and the mechanisms by which control and power are distributed remain much contested issues in PD (Vines et al., 2013). Steen (2013) notes that the quality of participation "can vary greatly, ranging from superficial "hand-holding" initiatives to organising productive dialogue and intimate cooperation" (Steen, 2013, p.949). Equally, the ethical dimensions of building positive and productive relationships with organisations and communities underlines the need for designers and researchers to carefully choreograph their integration of contexts, participants and methods (Brandt et al., 2013; Vines et al., 2013). Misrepresentation, cultural sensitivity and the appropriateness of PD methods are amongst the barriers and hurdles awaiting designers and researchers (Robertson & Wagner, 2013). Exemplifying these challenges through their investigations of indigenous knowledge management systems with rural communities in Namibia, Winschiers-Theophilus, Bidwell and Blake (2012) advise that PD approaches be tailored to meet the viewpoints and agendas of all stakeholders involved. Following this perspective, methods, tools, and techniques should be designed to accommodate deviation and adaptation in line with participants' experiences, opinions, and ideas.

Following Dorst's *Frame Creation* model (2015), critical engagement with existing situations within the design context can illuminate both "significant influences on their behaviour and what strategies they currently employ", and "practices and scenarios that could become part of the solution" (Dorst, 2015, p.76). Setting out the principles and premises of design for social innovation, Manzini proposes that products, services, and models that address societal needs and foster new collaborations "emerge from the creative recombination of existing assets (from social capital to historical heritage, from traditional craftsmanship to accessible advanced technology), which aim to achieve socially recognised goals in a new way" (2015, p.11 – emphasis in original).

Aligned with this vision and having been adopted across areas of public health improvement, community development, and social services (Garven et al., 2016), an asset-based approach "values the capacity, skills, knowledge, connections and potential in a community" (Foot & Hopkins, 2010, p.17) as a means of reframing future opportunities. Emphasising the role of individuals, communities, and organisations as rich resources of knowledge and experience that can contribute to enhancing society and eventually lead to less dependency on professional services, asset-based approaches "focus on nurturing engagement and relationship building to enable strengths, capacities and abilities to be identified and developed for positive outcomes" (GcPH & SCDC, 2015, p.15). By adopting an asset-based mindset, the Wisdom Wall Cards mobilised the skills, talents, knowledge, and connections from within communities and organisations situated in Shetland and Orkney and supported participants to reframe these in response to future innovations.

5.3 Designer as Mediator

As already laid out, the inclusive nature of the design of the tools was very important to the workshop series. In co-creating social innovation initiatives, the characteristically visual and participatory methods contained within design toolkits strive to support input from a variety of actors with a stake, or at the very least, and interest in contributing to the design context. At the same time, the notion of a design toolkit has some intrinsic weaknesses. The first is that if adopted and applied as an infallible support mechanism, the users of design toolkits will be wholly responsible for managing problems independently. This presents a high risk of expectation and dependence regarding the capabilities of the tools therein.

A second weakness concerning the nature of these interventions, which we can call methodological tooling up, is that while design toolkits offer valid guidelines on how to focus and develop an idea, they contribute limited insights into the need to motivate people to implement design idea in practice. However, once we know this limit – what a toolkit can enable us to do and what it cannot – the needed complementary interventions can be defined and enhanced.

Thirdly, whilst the concept of a toolkit offers a framework for designers to develop a suite of approaches to engage and involve diverse individuals and communities as participants in the design process, there remains an onus on designers to devise methods, tools, and techniques that both respond to specific sociocultural settings and challenges, and recognise the experiential nature of participation and the emergence of intangible qualities such as understanding, empathy, rapport, and consensus through dialogue. This outlines the need for designers to consider how their methods can be capable of simultaneously gathering practical information and fostering productive relationships (Broadley, 2013).

Whilst the creation of the materials was a key aspect of our preparation for the workshops, we designed them to accompany a semi-structured facilitation schedule, which was devised collaboratively by the team. Coordinating and directing design activities with interdisciplinary participants, the facilitator role has received much attention as a social connector and agent of

change (Morelli, 2007; Manzini, 2009), and as offering seemingly neutral and objective support for clients as “trainers’ rather than ‘players’” (Julier, 2007, p.208). The bespoke, nuanced, and resonant nature of the tools coupled with mediation, facilitation and support of the workshop team played an important role in developing an atmosphere of trust and collaboration with and amongst the participants (Broadley et al., 2016).

6. Conclusions

This paper draws together findings from a very early stage of the project and as such is somewhat limited in scope. As the project develops, it is the aspiration of the authors that more detail is captured regarding the response and experiences of participants to generate more nuanced understandings of how, and indeed whether, the use of such bespoke tools have contributed to the development of a more trusting relationship with the project team and allowed them participate more fully than might have otherwise been possible. The development of more complex and intangible social contracts and cultures of reciprocity are crucial for innovation. In carrying out the Innovation from Tradition workshops, we acknowledged the role of such relationships to effective innovation, especially within a sector such as the creative industries, which is characterised by instability and precariousness. The emphasis on the development of trust and an assets-based approach within both the material and facilitation aspects of the workshop, we argue, promoted successful tacit knowledge exchange as it encouraged a sense of shared understanding and values of reciprocity in the design context. With the aim of supporting participants to apply their creative abilities in order to enhance and sustain the creative economy in their islands, we argue that by emphasising such bespoke material tools located in and inspired by the local landscape, history and culture, design researchers have a significant role to play in encouraging engagement, providing space for innovation and enabling the formation of creative collectives.

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Acknowledgements: We would like to acknowledge the support of colleagues from The Glasgow School of Art and Highlands and Islands Enterprise involved in the design and delivery of the workshop series and the funding from the Creative Futures Partnership. We are particularly grateful to Zoe Prosser, for the design of the workshop tools and Leigh Anne Hepburn for images included in this paper. We would also like to thank participants in both Kirkwall and Lerwick for their enthusiastic participation.