

Understanding audiences from industry sectors in knowledge exchange

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Summary:

This essay discusses the concept of Knowledge Exchange between industry and academia. In particular it focuses on ways in which academic organisations can learn about different industry sectors in order to identify potential Knowledge Exchange partners and how they operate. Three case studies of scoping approaches taken in the understanding of these audiences are presented followed by a discussion of their different strengths and weaknesses. This essay concludes with presentation of an initial framework for scoping and suggestions for where this work can be developed in the future.

Keywords: Knowledge Exchange, Design, Industry Engagement, Scoping Process

Introduction

Audience research allows those producing services for a population to make informed decisions about the design of those services. The need for conducting audience research is recognized and well understood by those working in fields such as media; however new and emerging fields have less of an understanding of the best ways to engage with and learn from their audiences. One such field is Knowledge Exchange, for which no best practice in understanding audiences exists at present. This essay will discuss the differences between

traditional audience engagement and the lesser known scoping process associated with Knowledge Exchange and the different challenges it brings.

The Design in Action (DiA) project is looking to overcome the challenges associated with both scoping in Knowledge Exchange and the facilitation of Knowledge Exchange between academia and industry. The three case studies of scoping approaches presented in this essay each include the rationale behind the approach and the methods used to scope a sector. Following each case study, the lead researcher of the case study will present their personal reflections on the advantages and disadvantages of the approach.

After the presentation of the case studies, this essay will examine the elements within the approaches that were successful and suggest a framework for future use. This framework is based upon existing principles and processes taken from design theory. It should be noted that this essay does not provide a definitive scoping process, but rather suggests elements that should be included, and invites and encourages further discussion of this new and exciting area.

Background

Traditional audience research has focused on understanding the audience by first dividing it into categories (e.g. geographical, demographic or psychographic) and then carrying out analysis on either all of these categories or on one specific target group. Methods used for analysis can include interviews, observations and diaries. Carrying out research into understanding audiences is not a new phenomenon for those working in media, business or design and this research is constantly advancing (Levac, Colquhoun, and O'Brien; Sison). However, other fields are also changing and could benefit from applying these audience research strategies into their own working practices.

Knowledge Exchange

One field which has the potential to benefit is "Knowledge Exchange" where collaboration between disparate groups is facilitated. Knowledge Exchange has the potential to assist the UK in developing a competitive edge in new and emerging industries (Brown) by enabling companies to make best use of external knowledge to encourage innovation (Fogg and Peers). Innovation is not merely the development of new ideas, but also the implementation of them (Martin and Turner). It allows firms to compete on a global level. Driver and Oughton argue that innovation can only occur if firms have the knowledge and capabilities required.

Universities are seen as a key producer of this knowledge, which can be used by industry (Martin and Turner). This process was referred to in the past as "Knowledge Transfer", suggesting a movement of ideas and knowledge from a knowledge source to its potential users. However, in recent years this has been superseded by the term "Knowledge Exchange" in recognition that the process described in Knowledge Transfer must be two way in order for it to be successful in bridging the gaps between academia and industry.

This in turn leads to a need for universities to produce knowledge which addresses gaps in existing knowledge (Weiler) and also responds to market needs (Martin and Turner). Despite growing interest by academics in Knowledge Transfer and Knowledge Exchange, there are a number of challenges to be faced in order for this to be realized. These include understanding how these linkages between industry and academia will work, and providing appropriate incentives for the academics. However, with the Research Excellence Framework (the system in the UK by which the value of research by universities is assessed) now including a focus on external impact, there is a growing need for academics to consider the outputs of their research beyond journals and conferences (REF).

Other means of seeing knowledge from universities reach mainstream development, such as spin outs or business incubators have not attracted the numbers needed to see large amounts of Knowledge Exchange happening (Martin and Turner). Universities are often accused of not understanding business or their modes of operating. This understanding is challenging for those coming from academic backgrounds. There are tensions with balancing economic and social needs, with government priorities and an academic's desire for pursuit of knowledge for its own sake (Harlos and Perry). This process could benefit from external support and by mechanisms which consider the full range of skills required to support innovation through Knowledge Exchange. While the government has highlighted the need for excellence in science and engineering to be translated into innovative products and services, less consideration has been given to investigating how other areas such as the arts and humanities could help this area. Martin and Turner suggest that this area should also be considered in the KE process.

Design in Action

One project currently navigating this challenge of KE is Design in Action (DiA). DiA, a four year Arts and Humanities Research Council Knowledge Exchange Hub, engages and supports stakeholders to support collaborative innovation through design in the industry sectors of Wellbeing, Food, Rural Economies, Sport and ICT. Design in Action will run fifteen events across the course of the project that are designed to foster ideation and innovation through Knowledge Exchange processes. These events are known as Chiasma. In a Chiasma, a diverse group of participants from different backgrounds are brought together through a common interest in the Chiasma Call, a topic identified by researchers on the project as being a complex challenge facing one of the industry sectors.

The researchers on DiA form a research active team with a collective rich experience of user engagement, allowing them to effectively apply qualitative techniques and academic research strategies. However, the researchers are not necessarily experts in specific industry sectors. Therefore, before stakeholders can be fully engaged in the project, the team must understand the context and sector in which the wider audience operates. These audiences are spread across the five major sectors of the Scottish economy identified by DiA, all noted for their diversity in terms of culture, use of language, strengths and economic challenges.

A key starting point in understanding the five industry sectors comes from a comprehensive scoping process. This involves determining sector boundaries and overlaps; looking at the key issues affecting stakeholders both in Scotland and globally; and identifying the major companies and groups within sectors. This enables the evaluation of sectors' potential to make use of design as a strategy for innovation. Previous scoping studies in academia have typically considered a narrow field which has aided researchers in identifying appropriate literature for searching and potential people to be interviewed (Ehrich et al.), this was not the case for Design in Action and so an alternative scoping process had to be undertaken.

For the scoping, different approaches were taken that combined traditional and contemporary methods, which were perceived to be most appropriate for each sector. Methods used included literature studies, policy and market analysis, time in the field, netnography, and make-a-thon events. As will be seen from the following case studies, this was not a straightforward process; the sectors are wide in range and gaining complete coverage of each sector is extremely challenging, if even possible (Levac, Colquhoun, and O'Brien).

This essay will present three case studies of scoping approaches, considering the differences and similarities and lessons that can be learnt from each for those wishing to explore this area further.

Case Studies

Study One – Food

Food and drink are a key part of the cultural identity of Scotland and perceptions of the country are often closely associated with renowned products such as whisky, haggis and shortbread. The sector plays an important role in the Scottish economy, as illustrated in government statistics – between 2008 and 2009 the turnover for the sector was £11.9 billion (Scottish Government, 2011).

Given the role of the sector in the economy, there exist a number of organisations tasked with supporting the sector. In order to understand the audience of the food sector, a scoping exercise was undertaken. The researcher began by considering the roles of the organisations involved in supporting food companies. These organisations have varying origins and operate at both the national and regional levels. For example at the national level, the sector is supported by Scottish Enterprise and associated trade representatives such as Scotland Food and Drink. Other support initiatives include the Food Health Innovation Service and Interface Food and Drink. At the regional level, Food Forum organisations such as the Grampian Food and Drink Forum also provide local networks and support for food companies.

To gain insight into the sector the researcher reviewed the information available from each support organisation including publications on the size, scope and scale of the sector and reviews of developments and trends in the industry. One challenge that emerged

from understanding the support currently available was to identify how best Design in Action could add value to the sector, to complement existing initiatives and be of benefit to companies.

Through the scoping process the researcher also gained an understanding of the nature and composition of the industry sector. It became apparent that in Scotland the food and drink sector is composed of a number of large well-known brands as well as a range of smaller companies and so it was important to explore the sector further to learn more about the smaller, lesser known firms. Moreover in terms of geography, Gray's School of Art in the Robert Gordon University, the partner leading on the food sector on behalf of Design in Action, is located in the North East of Scotland. This locale is a significant food producing region in Scotland. The initial scoping indicated that there are a plethora of smaller firms producing a range of food produce and the researcher was keen to further understand the requirements of this business audience.

To help order the scoping process and track the numerous food and drink companies, the researcher compiled a spreadsheet containing the company name, type of food or drink product, location and web address. This evolving spreadsheet provided a useful repository for mapping the sector and continued to be updated as new companies became apparent to the researcher. Various sources were consulted to identify as wide a range of firms as possible, with information from support organisations, trade reports, news articles and company websites reviewed. This process provided an extensive list of companies in both the North East of Scotland and the wider Scotland area that could form the business audience for the Design in Action Food Chiasma. In total approximately 180 companies were identified across Scotland.

Academic journal articles were also reviewed to understand the field further, with a particular focus on research into innovation and food producers to identify key issues and themes in the literature. Concurrently the researcher sought opportunities to meet with key figures in the support organisations and meetings were held with business support executives whose remit included the food sector and the researcher joined the local Chamber of Commerce food sector steering group to gain further insight. The researcher also attended a workshop event specifically for small and medium enterprises in the food sector and during the ensuing roundtable discussions gained a lot of information on the challenges in the sector. The researcher also met with an artisan food retailer to gain further understanding of the issues and challenges. This combination of desk based research and taking opportunities to meet those involved in the sector enabled the researcher to gain an insight into the food sector in a relatively short period of time. By understanding the nature of the sector and the breadth of the companies operating in the sector, this process of scoping the sector helped identify the business audience and shape the Food Chiasma offering accordingly.



Figure 1: Food Chiasma Call

Personal Reflections

Overall this iterative approach to scoping the food sector, whereby information was gathered continuously from a range of different sources, provided the starting platform on which to develop a Call for the Chiasma for the food sector. The strength of the approach was that the information gathering allowed the identification of a large number of companies operating in the food sector and provided an understanding of the issues and challenges in the sector. This insight enabled the Chiasma to be shaped to be of benefit to the sector. Given the limited time available this approach provided an insight relatively quickly however, if more time was available the approach could have been supported further by conducting interviews with a range of food producers to gain further information.

Study 2 – Rural Economies

Scotland is geographical rural, with 94% of land mass deemed rural and around 1 million out of 5.2million people classed as living in rural areas of Scotland (Rural Key Facts, 2012). Whilst there are distinct and very real advantages of rural life (e.g. less pollution, quieter life, easy access to countryside, cheaper housing etc.) they come at the cost of poorer communication links (e.g. transport and services including network access) with community and public funding opportunities much lower in comparison to urban settings. Understanding the value of rural landscapes is complex and even trying to ascribe a value in purely economic terms is challenging (Bosworth, 2012). Oxfam Humankind Index (Oxfam, 2013) attempts offer an alternative means of measuring the value of living in Scotland, including social and emotive parameters.

The primary stages of this scoping process began with desk research to develop a deeper understanding of the scale of the rural economy sector and to identify the opportunities for design led innovation. Additionally, it was important to identify the capabilities and capacity for innovation within Scotland's rural landscape.

The early stages of this research identified that the social and economic value were equally important to the cultural identity of Scotland. While businesses within the rural economy are either small or micro (less than ten employees) with a higher percentage of workers being self-employed compared to the rest of the country, more encouragingly rural Scotland has also been found to be more resilient than urban areas in the recent economic downturn with signs they will continue to flourish.

The next stage of the scoping process applied design centric methods – design sprint¹, mini make-a-thon², prototyping and visualization. The data captured throughout this process was shared with expert within the rural economy sector to align the key issues develop a deeper understanding of the networks, business models and practices within this rural landscape. The design sprint method (Frog, 2012) is traditionally utilised within project planning. In this instance it was applied over five days to support collective action by bringing together a research team (co-investigator, post-doc researcher and two PhD students) who had previously worked in isolation to collate and share individual research findings. The research was expanded upon by combining strategic design approaches such as design thinking, visualisation and low-fi prototyping. This enabled the team to develop a broader view of the rural landscape of Scotland and identify key themes and opportunities for new and emerging markets. This provided a large quantity of research references and the focus became too broad. Therefore a further task was required to refine and select a specific area of research. The final two days of the design sprint were used to share the findings. It was important to capture additional feedback from key stakeholders who either worked or lived within rural Scotland. The theme of 'Local Wisdom' was used to deliver a mini make-a-thon pilot to support an interactive conversation through visualisation and prototyping. This proved effective in eliciting information from rural citizens and business people. Further testing was conducted through field research by delivering a mini make-a-thon in collaboration with HI-Arts, an organisation who support makers and artisans working within the rural economy.

The final stage of this research focused on sharing the findings from the MMAT and Sprint with experts (Dot Rural Research Project, Oxfam, Steed, HI-Arts, Craft Scotland and Scottish Enterprise, 2013). To capture expert feedback on the identified issues.



Figure 2: Rural Economy Chiasma Call

Personal Research Reflections on Process

One of the main advantages of this way of working was bringing design approaches such as visualization and prototyping into the scoping process. This provided tangible props and enhanced our conversation with rural citizens, business people and experts. Through visualization of the sector key insights could be shared and mapped to create research clusters. There were further clusters beyond our final selection which have the potential to be expanded upon through further research.

The disadvantage to our scoping process was the restriction of time. We effectively disseminated our mini make-a-thon workshop with key stakeholders within our existing networks in the craft sector of Scotland. The specificity of the problem statement is a crucial element to the scoping process and this becomes stronger through validation by the peer review from experts. Therefore going forward, scoping would benefit from working with experts at the front end of the process.

Study Three – Sport

Method

Following the 2012 Olympics in London there has been a growth of popularity in sport in the UK with sport worth £20.7 billion in the UK (2010-2011). Sport is a large and varied sector and so the first stage in the process for scoping for the Chiasma was to gain a good understanding of that state of the sector in Scotland.

One challenge in understanding this sector audience was its diversity and also the lack of clarity of what was meant by the sector and who operated in it. Many companies who develop products or services for 'sport' do this in addition to other products and

services and may not clearly define themselves as working in sport. This lack of clarity may go some way to explaining why there is not an overall organization for sports companies within Scotland or a division assigned to it in business support agencies (e.g. Scottish Enterprise).

Therefore the first stage of the scoping process was desk-based research looking at the facts and statistics of the sector. In particular this focused on examining statistics on the numbers employed in the sports sector in the UK, the spread of this across various divisions (e.g. manufacturing leisure; tourism etc) and whether it was a growing sector or a sector in decline.

While there is a lack of concrete business reports on the sports sector within Scotland due to the social benefits of sport (which exist in addition to the economic benefits), there are many policy documents relating to sport (Scottish Executive; Department for Culture, Media and Sport) and the gaps in its provision within Scotland and the UK. These documents, which are commissioned by the government or ministers suggest some level of priority in the government to an issue and may give hints as to where funding will be available from in the future.

With such a large and diverse field as sport there was a need to understand the area before speaking to those working in it. It was important to learn about the field in order to talk confidently about it to the experts working in it. Following analysis of policy documents by both government and charities, priority issues were identified, including provision of sports for marginalized or minority groups. While this identified a social issue within Scotland there was still a need to identify a business case and it was at this point that experts in the area of sport within Scotland were consulted.

Experts from several universities who specialize in sport were consulted for their opinions on where business opportunities lie within the Scottish sports industry. All of these experts independently identified the outdoor sports market as being one of Scotland's strengths but an area which was struggling to bring in new customers. It would seem logical therefore to examine the barriers being faced by some of the groups identified in policy documents and whether these could be addressed in a Chiasma.

Personal Research Reflections on Process

The advantages of this approach were that it helped me to gain a full background understanding of the sports sector and of the complexities within it. This meant that when meeting experts, it was possible to begin a conversation using the researcher's existing understanding of the field. It also gave me the time to identify who to speak to in the field. The uses of policy documents meant that real world problems could be identified, which were backed up with in-depth research without having to carry out this research myself.

One significant disadvantage was that by relying on desk based research I ended up spending a lot of time looking at possible problems for calls which in the end failed. It also delayed the start of building a network of people interested in the Chiasma and delayed me in speaking directly to the audience.



Figure 3: Sport Chiasma Call

Discussion

The three case studies presented in this essay each took a different approach to understanding their audience and producing a call which would appeal to a wide group of participants. These different sectors presented a different challenge to the research team and this appears to have steered the direction that each scoping approach took. To examine this further it is helpful to examine the approaches taken.

Stages	Food Scoping	Rural Scoping	Sport Scoping
1	Review of information from support organisations.	Desk based research to map landscape	Desk based review of statistics of sector
2	Desk research of companies operating in sector	Design Sprint 1- pull together “Mini Make-a-thon” toolkit	Literature review of current policy documents
3	Literature search for themes	Mini Make-a-thon with a rural organization	Interviews with experts in social issues related to sector
4	Interviews with sector experts	Interviews with sector experts	Interviews with sector experts

Figure 4: Scoping Approaches

Each approach had roughly four stages (see **Figure 4**) during which time the researcher moved from limited understanding of the sector, to a broad but shallow understanding to finally a drilled down and deep understanding of the challenge faced by one audience category within their sector.

All of these approaches began with the researcher analyzing literature on the subject of the sector and attempting to gain a good background understanding while also identifying potential areas of interest to explore further. The approaches also concluded in the same way, with the researcher approaching experts in the field to gain their feedback on their ideas for potential Chiasma calls. The difference in the approaches lay in how the researchers conducted research to understand the issues of the sector (Stages Two and Three). There were reasons behind the approach chosen by the researcher and these approaches have their own advantages and disadvantages

Case Study One (Food) looked for details of companies working in the food industry alongside of current academic reports, which highlighted themes around issues related to the sector. This was possible due to the structured nature of organisations representing companies within the food sector in Scotland, making it easier to identify them and their collective issues. The lead researcher on case study one felt that the desk research in Stage Two was advantageous in allowing for information on a large number of companies to be gathered, however the disadvantage was that due to time constraints it was not possible to gather as many interviews with people in the sector as the research would have wished.

Case Study Two (Rural Economies) began by identifying the capacity for innovation within the rural economy of Scotland, before moving on to using design led mini make-a-thons with rural economy stakeholders to understand themes and opportunities of new and emerging markets. This was possible due to the collaborations the researchers formed with sector organisations. The lead researcher felt that this process allowed for enhanced discussions with stakeholders and helped to identify deeper insights into the issues being discussed. The disadvantage to this approach was the time burden it places upon researchers, particularly when scoping such a broad area. The researcher on Case Study Two recommends more involvement of sector experts at an earlier stage in the scoping process.

Case Study Three (Sport) made use of the large number of policy documents available looking at issues surround sport in Scotland, the UK and globally. These documents were relied upon due to the fragmented nature of sports companies within Scotland. This allowed the researcher to gain a full background understanding of the sector and identified groups that could be approached for interviews. The analysis of policy documents also helped to identify real world problems. The disadvantage of this approach was that it involved a high work load, policy documents are very detailed and a critical analysis of a significant number of them can be a demanding task. As with Case Study One, the researcher expressed a wish that they could have involved stakeholders earlier in the process.

Framework

Design in Action explores how design can play a strategic role in Research and Development for supporting SMEs across Scotland. This strategic roles requires a series of processes in which scoping is the first. Therefore we felt it was essential to apply a design centric approach in which the initial literature scoping is combined with discussions with experts in the field (see **Figure 5**). There is a danger when conducting desk-based research that too large a proportion of time could be devoted to it. By meeting with these experts it may be possible to narrow the area of literature that requires to be reviewed – avoiding the “needle in a haystack” problem that can face a researcher when scoping an industry sector which is new to them.

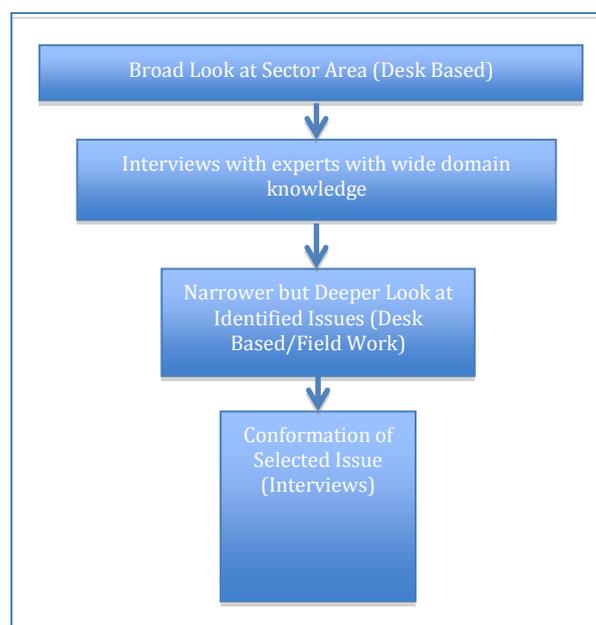


Figure 5: Suggest Methods for Scoping

The researcher should make every effort to meet with a wide section of experts in the field, including those from academia, policy, public sector and private enterprises. This is necessary both at the start when identifying an area to investigate further but also at the end to confirm the choice of the issue to be examined within Knowledge Exchange. This differs from traditional literature reviews in academia in that the researcher will be more reliant upon feedback from key stakeholders and is likely to iterate upon their idea based upon this feedback.

Following the identification of these methods, we developed an approach which can utilize these and make best use of them in the scoping process. This framework presents the convergence and divergence inherent in all of the three case studies in this essay and can be compared to the Design Council’s “double diamond” approach for design, in which the process is divided into four stages of discover, define, develop and deliver.³ The Design

Council developed this approach by meeting with eleven leading design companies from around the world and found this model to be the best way to define the design process.

The framework we suggest for scoping can be layered over this process (see Figure 6), with the discovery phase including the understanding the sector. In the defining phase, the issues of the sector are identified and converged to identify the current key issue. This key issue is then opened up in the development phase as the call is produced. After production of the call, it is presented to the DiA stakeholder network, which is then converged to select participants for the Chiasma.

SCOPING PROCESS

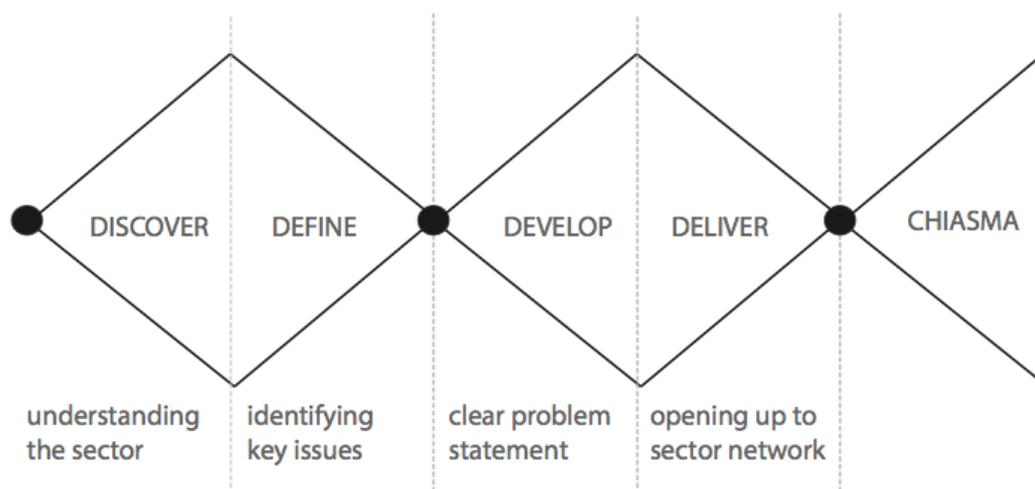


Figure 6: Scoping Process for KE

The DiA project is still in its infancy; to date only three events out of fifteen have been completed. This framework will itself be developed through further iterations over the course of the remaining Chiasma events. It is worth noting that scoping is a process that never ends, can never truly be considered complete. As the field is not a static entity, neither can research on it/complete understanding of it be static either. It will also be necessary to evaluate this approach against the results of the Chiasma events.

Conclusion

This essay has presented three case studies which have carried out audience understanding in selected industry sectors in the emerging field of Knowledge Exchange. As this is clearly an emerging area, to date there is limited evidence from studies that have conducted scoping in this manner on the success of the results of the process. This essay has presented elements that the authors would recommend those working in this field consider when beginning a scoping process which examines areas of industry into which there is the potential for KE to make a difference. We encourage others to use this framework and

further this discussion into the best way for academia and in particular those from traditional arts and humanities disciplines to understand different industry areas.

Biographical note:

Suzanne Prior is a post-doctoral research assistant on the Arts and Humanities Knowledge Exchange hub Design in Action. Her previous research investigated how adaptations to traditional design methods could facilitate the inclusion of adults with profound and complex disabilities in the design of assistive technology. Suzanne's current research interests surround the new trends in the design and use of social media and its effects on participation in other activities, and in particular sports. **Contact:** s.prior@abertay.ac.uk.

Deborah Maxwell is a post-doctoral Fellow on the Arts and Humanities Knowledge Exchange hub Design in Action at the University of Edinburgh, where she is investigating how design principles might add economic value to Scotland's ICT industries. Deborah is also a researcher at University of Dundee on 'SerenA: Chance Encounters in the Space of Ideas', a £1.87M Digital Economy RCUK-funded project exploring how digital tools can facilitate and encourage serendipitous encounters in research, and is a Co-Investigator on 'StoryStorm', a Communities & Culture Network+ network that uses storytelling as a method to explore and deepen our awareness and understanding of storytelling as a fundamental human activity. **Contact:** D.Maxwell@ed.ac.uk.

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Jen Baillie is a post-doctoral research assistant on the Arts and Humanities Knowledge Exchange hub Design in Action, at the University of Dundee in Scotland. She is currently engaged in a PhD linked to Textile Futures Research Group, funded by Neal's Yard. Her research explores how textile design practice might combine with social and digital media to develop new consumer retail experiences. This has been trialled through a series of textile interventions in partnership with fashion brands and consumers alike (most recently within Marks and Spencers Shwop Lab (2012)). **Contact:** j.ballie@dundee.ac.uk.

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Notes:

¹ Design Sprint – a project management method to support collaboration over an intense period of time.

² Mini Make-a-thon – adapted from the IDEO make-a-thon method (2012) to support collaboration and ideation through prototyping.

³ For more information on the Double Diamond see <http://www.designcouncil.org.uk/designprocess>.