

# Project Proximities: how design research addresses distance in complex collaborations

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**Abstract:** Complex collaborations involving multiple disciplines and stakeholders are seen as necessary in the pursuit of transformative innovation. Yet these ‘systemic’ science & technology-led projects pose a challenge for knowledge exchange, co-creation and co-operation. Design research teams brought in, often to work on tangible outcomes, are faced with chasms between the understanding of diverse actors. From this problematization of distances in complex collaboration, a new design research practice has emerged: Translational Design Practice (Page & John 2019). This paper builds on this concept through a ‘meta’ level review of the design research approaches in three European publicly-funded consortium projects to address observed distances by building proximity for i) partners, ii) external stakeholders and iii) wider audiences. Translational Design Practice is repositioned as an expanded, transferrable practice which can address the challenges of complex collaborations and therefore support transformative innovation, and I propose, beyond a technology-first approach.

**Keywords:** transformative innovation; translational design; design practice; design methods

## 1. Introduction

In recent years design researchers have been invited to work on complex collaborative research projects which seek to create change, transform or transition an industry or social system. The dominant focus in European publicly-funded research has been to pursue change through innovation in Science and Technology (S&T). Scientific partners have turned to design research to create innovative products or services which support the transition of a new technology towards implementation, to realise a desired future such as better use of resources, improved healthcare or regional production models. It is assumed that design will translate the novel technology into some ‘thing’ which addresses the values of end-users and key stakeholders, for example desirable garments made from more abundant materials. The value of design research is therefore in demonstrating the value of the technology so

that the next phase of development can be entered (scale-up, regulation, investment, new collaborations and so on). Fisher & Gamman (2018) comment that in this context designers must adopt 'tricky tactics' to move beyond what design is assumed to offer, working in between established modes of practice and expectations.

Although demonstration is important and tangible, design researchers have also reported that the value of their contribution to complex collaborative projects has gone beyond what was initially anticipated, such as supporting knowledge sharing among project partners, challenging mindsets, building partner relations, and communicating beyond the project (Simeone 2019; Wizinsky 2019; Hornbuckle 2018a; Earley et al 2016). This provides evidence, if needed, that translation is valuable in complex projects to overcome the challenges faced when people with different forms of knowledge or understanding attempt to come together to meet a particular challenge. The testimonies of design researchers encountering these challenges are scattered within research papers focusing on a particular design scenario, yet very little focus has been placed on the role design researchers can play throughout a complex collaboration to support its effectiveness and success. Design research has been ill-equipped to communicate the challenges faced in complex collaborative projects, and articulate the ability of design research teams, as a diverse collective of creative research and practice expertise, to reconcile distances in understanding using design thinking, methods and processes. This paper aims to begin to address this shortcoming, by seeking to articulate the challenge of complex collaboration and identify the design approaches that have been taken. Increasingly design research centres are seeking to lead large (currently S&T-led) innovation projects, and being able to communicate the value of design research will be an important factor in their success. Design research will need to be involved in the project conception to shape the methodologies of innovation projects and properly resource the necessary tasks and processes that have previously been overlooked.

Moreover, S&T projects are often naïve at the point of conception about the importance of technology in ameliorating the perceived problem, the intensity of collaboration needed to begin transition (even at the project level), or the barriers to acceptance or implementation beyond the project. This is further complicated by the need to disrupt established systems to implement the technology. In imagined future scenarios the stakeholder ecosystem is also in transition, meaning that stakeholders are difficult to define or unaware of the value of the technology for their activities and agendas.

The complexity of this tableau – where the developers of novel technologies embark on a 'systemic change' project through the implementation of their technology – means that project partners are dealing with diverse and shifting proximity challenges. Design research has now 'turned' towards the evident systemic nature of challenges, developing new tools, methods and approaches for addressing this complexity (Jones 2017).

This paper will present a meta-level review of three multi-stakeholder projects where the aim was to transition to preferred futures, primarily through the implementation of novel technologies. Differently from other studies, which have focused on one field of research

(Wizinsky 2019; Hornbuckle 2013), the approach here is to build on ‘translational design practice’ (Page & John 2019) and situate this as a transferrable design research methodology which responds to three observed distances. The tools and methods that design research teams have introduced on these projects, to build proximity between knowledge areas and established understanding, are identified and the purpose analysed at the meta level. It is not the intention to look in detail at the tools and methods, but to demonstrate the diversity of approaches and help researchers to understand and articulate the role of design research in complex projects that seek transformative change to address the social and environmental challenges. The paper finally raises the question: could this approach support design teams in leading systemic innovation through collaboration rather than the established technology-first approach which assumes social and environmental challenges rely on technological rather than other forms of innovation.

## **2. Background**

### *2.1 The relationship between complex collaboration and proximity*

It is now understood that to address complex challenges such as climate change, equal access to healthcare, standards of living, resources scarcity and so on, multiple and diverse expertise and perspectives are required. Light & Boys (2017) make a useful observation, that to ‘start from difference’, which is characteristic of multi- and inter- disciplinary collaboration, is essential for innovation to occur. Boschma (2005) echoes this sentiment by suggesting that industries and organisations that are in too close proximity or ‘closed’, are less likely to innovate. It is only by increasing distance from similarity that the organisation, team or individual can expose themselves to the possibility of change. In Innovation Management this has been described as ‘co-ordinated action’; Simeone (2019:364) argues (after Eisenburg), that agreement is not a pre-requisite for co-ordination, indeed a degree of divergence between partner views is both characteristic and necessary for multi-stakeholder projects which aim at transformative innovation. Therefore, distance and difference are seen as pre-requisite for projects that seek transition and change through innovation.

Multiple knowledge areas are needed to develop strategies for transitioning towards the new way of doing things, whether that’s moving from ownership models to rental models for clothing, from cotton to local bio-based materials, from large multinational production to regional, accessible, agile production models for medicines, textiles, and food. Central to the challenge of transition is the diversity of stakeholders whose activities and experiences are impacted by the change: from end-users to farmers, to scientists, industrialists, regional authorities and policy-makers, as well as those who wouldn’t ordinarily be involved in conversations about how transition could affect their future; the weavers, rag-pickers, textile sorters, the patients, the pharmaceutical factory co-habitants, and the natural world.

Within the context of complex multi-stakeholder systems, with which we must engage if alternative futures are to be realised, there is a great deal of distance. Distance between knowledge domains, distance between world views, geographical distance, distance in

communication (languages), and epistemological distance. These distances occur naturally in the 'real world', but they manifest as tangible differences that can be problematised within multi-stakeholder projects, where complex collaboration is needed to meet project deliverables and objectives. The 'problem' of collaboration is that to be successful these differences and distances need to be reconciled sufficiently so that a common or mutual understanding is achieved, around the goal of the collaboration, and how to progress towards that goal together, in 'co-ordination' (Simeone 2019). Mutual understanding about the value of the goal to different partners and stakeholders can support and guide the collaboration towards something that is meaningful to all (Akoglu & Dankl 2019).

## *2.2 Building proximity through translational practice*

Translational design has been recently exposed as a central practice in co-design for healthcare (Page & John 2019; Wizinsky 2019; Hornbuckle, Grimaldi & Prendiville 2020). This is a logical progression from the more conventional 'translational research' in the medical sciences, which has primarily been a branch of social science research enquiry and epistemology. However, translational practices have also been observed in materials research, where new materials innovations need to be translated into applications that have impact in 'the real world' (Hornbuckle 2013). This suggests that a transferrable design research methodology for transformative innovation projects may be possible, based on translational practices.

In their observations of translational design practice in multi-disciplinary, industrial design healthcare projects, Page & John describe a translational designer as "a designer who works with uncertainty and complexity, embraces iterative investigations, is a master of synthesis and interdisciplinary communication, disseminates research to wide and general audiences, asks naive questions, and encourages comfort with risk" (2019:702). They observe that translational design practice seeks to address 'gaps' and chasms' not only from basic to applied scientific research but also between actors in the development of impactful outcomes. These distances can be addressed or 'bridged' using design research methods and tools, which supports the notion presented in this paper, that design research teams can adapt their translational practices and co-design methodologies to enable complex collaborations. Therefore, translational design practices can be seen to play an important role in building proximity between participants and stakeholders, not so that they all share the same point of view, but so that they can understand one another's perspectives, can communicate and can co-create meaning, and consequently innovation through the collaboration (Wizinsky 2019).

On joining a complex S&T innovation project, a design research team is faced with a variety of translational challenges which is equal to the complexity of the system or problem space. As Boschma argues, there are different types of distance to overcome in complex collaborations of this nature: cognitive, social, institutional, organisational and geographical (Boschma 2005), and these are dynamically interconnected (Balland, Boschma & Frenken

2014). Effective translation and collaboration in these projects requires creative intuition, a knack for sense-making, holistic thinking and strategizing that are all akin to design thinking, research and process: there is an opportunity here for design research to take a lead in designing and facilitating systemic transformative projects of this nature requiring complex collaboration.

### **3. Case study projects and research approach**

This paper draws on the research and experiences of the author working on three complex collaborative research projects funded by the European Commission under the Horizon 2020 Innovation Action programme. The author was involved in leading tasks and deliverables for these projects as part of academic design research teams at University of the Arts London. This review covers only the design activities of the design research teams and can be considered an exercise in reflective practice (Schon 1987), using graphic visualisation to aid comparative analysis (Tufte 1990). The diagrams created as part of this reflective process and presented in this paper are from the perspective of design research and were created by the author to aid reflective practice, and therefore should be considered as one viewpoint on a subject and not the only or 'true' representation of that subject or phenomenon (Grady 2008). Therefore, these visualisations can be considered tools in the research process to assist with theory-building, rather than concrete representations of the projects described.

The aim of these projects was to progress a novel technology with a view to transitioning towards preferred future scenarios, and each differed in terms of the type of transition thought necessary, the readiness level and type of technology, and the types of stakeholders involved. Table 1 outlines the different projects and their characteristics.

In the convention of case study research, hybrid data was captured during these projects to aid analysis (Yin 2018; Costa, Patricio & Morelli 2018). Design research teams used mixed-methods approaches to complete the project objectives they were responsible for, these included interviews, co-design workshops, textile design practice, service design practice, action research and ethnographic research, some of which is explored elsewhere (for example Hornbuckle 2021; Hornbuckle 2020). There are multiple dimensions to the design research work which took place in these projects, however this paper will explore the translational dimension of the methods used to build proximity between stakeholders in the project eco-system, to enable knowledge exchange, collaboration and to develop mutual understanding.

Table 1: Characteristics of the three projects from a meta perspective

<b>Project &amp; website</b>	<b>Stage</b>	<b>Consortium partners</b>	<b>External stakeholder engagement</b>	<b>Assumed cite of innovation</b>	<b>TRL<sup>1</sup> targets</b>	<b>Consortium composition</b>	<b>Overarching transformative aim</b>	<b>Aim of including design research</b>
Trash-2-Cash <a href="https://www.trash2cashproject.eu/">https://www.trash2cashproject.eu/</a>	2015 – 2018	17 partners, 10 countries	Not directly (through dissemination events)	Recycled fibres for wearable textiles and composites	5-7	Multi-disciplinary circular supply chain	Circular textiles	To demonstrate the market value of the technology, designing circular textiles and garments
Pharma Factory <a href="https://pharmafactory.org/">https://pharmafactory.org/</a>	2018 - 2022	14 partners, 7 countries	Five co-design workshops	Medical products made using plant biotechnology	5-9	Pure science and spin-out SMEs	Local, accessible and inexpensive medicines	Public engagement to communicate the value of the science
HereWear <a href="https://herewear.eu/">https://herewear.eu/</a>	2020 - 2024	15 partners 9 countries	Five or more co-design workshops (planned)	Bio-based fibres for wearable textiles	6-7	Multi-disciplinary, circular, regional supply chain and stakeholder network	Local & circular textile economies through underutilized biomass	To demonstrate the market value of the technology, to design circular, local, bio-based textiles and garments and develop design guidelines

<sup>1</sup> Technology Readiness Level is used to describe the closeness of the technology to market, and is a typical measure of success in European S&T research projects.

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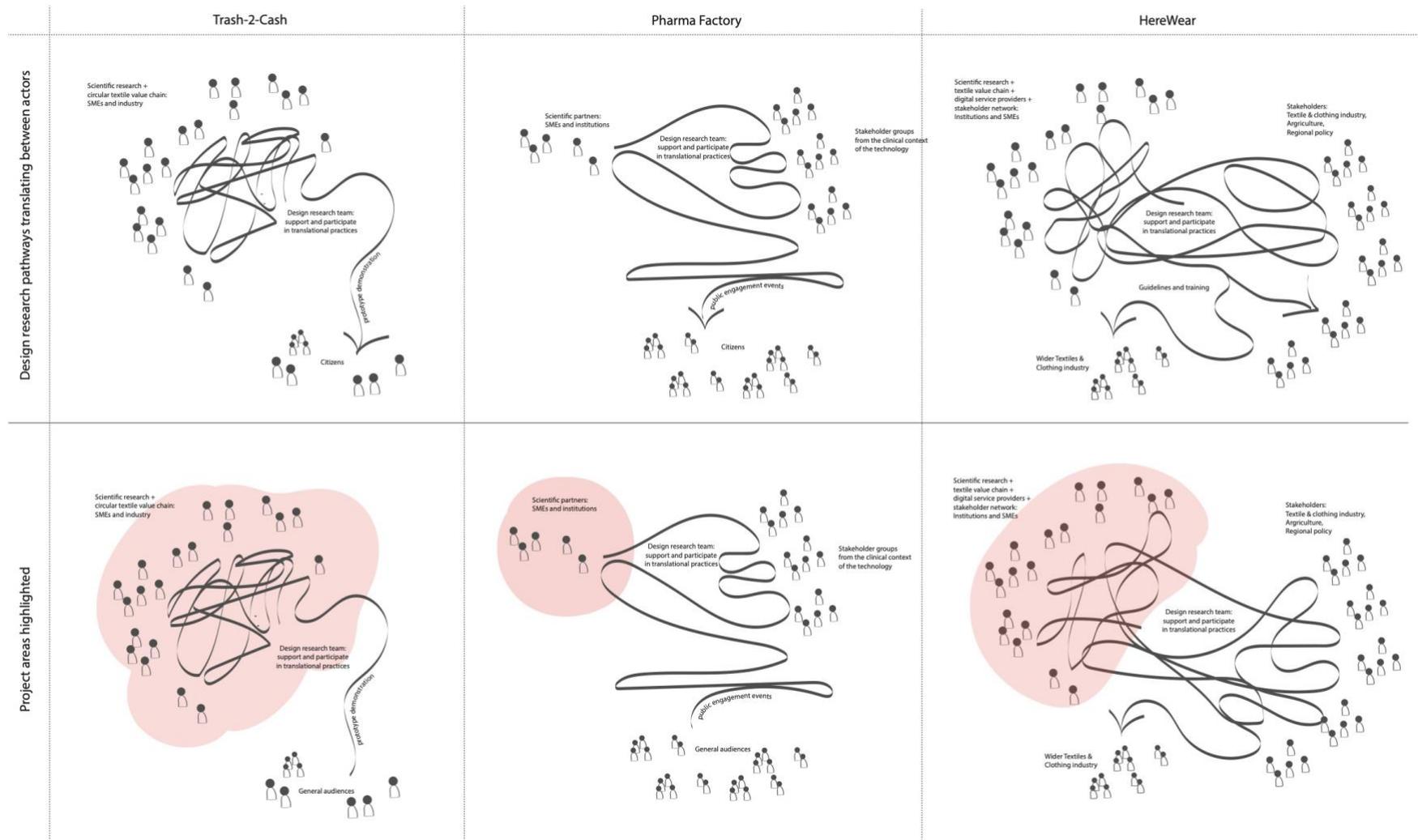


Figure 1: (Above) Reflective practice through visualisation: three Horizon 2020 Innovation Action Projects seen from the perspective of translational practice in design research. The pathways express the translations made between different domains of knowledge and understanding by the design research team. (Below) The coloured areas represent the project areas: these actors enjoy a degree of proximity due to their agreed partnership in the funded project, however there are still various distances to be overcome if they are to come to a common or mutual understanding

The projects are explored in chronological order of initiation. This is because the design methodologies developed, evolved and built as the projects progressed. The author worked on all three projects and naturally adapted methods between projects.

The visualisations that progress through figure 1 and figure 2, use a continuous line to represent the 'pathway' that design research teams took to translate and transfer knowledge between different stakeholders and actors. It is perhaps not surprising that these pathways are 'messy' and iterative in the convention of design processes; Page & John (2019:692) similarly observed this as 'reverse translation' "A 'bedside' (clinical or industry need) to 'bench' (research) to 'bedside' (impact) approach. Figure 1 also allows a comparison between each project in terms the actors inside and outside the project.

### *3.1 Trash-2-Cash*

The Trash-2-Cash project originated from a scientific impetus to demonstrate the potential of two technologies that could convert waste textiles into new high-value materials using chemistry: fibres for new textiles and polymers for moulded composites. The consortium was then built around the concept of circularity with much of the textile and garment 'value chain' represented. Engagement with industry stakeholders was listed as a minor task, but this was not actively pursued. Communication to general audiences was included and an exhibition was designed as a final outcome.

The design research team was brought into the project as experts in Circular Textile Design, to help observe and model the methodology, and to lead the communication work package, although this was not an area of prior experience. However, as the project progressed, design facilitation was recognised as a skill by the project co-ordinators and part of the design research team became much more involved in defining and implementing the cross-disciplinary collaboration. The collaboration was facilitated almost entirely through in-person whole-consortium workshops every two to three months with some in-between collaboration via teleconference.

### *3.2 Pharma Factory*

The Pharma Factory project originated from the field of plant biotechnology, with the objective of supporting SMEs to further develop and bring to market high-value medical products made using plant molecular farming technologies. Apart from the design research team, the consortium comprised research and industry partners from the plant biotechnology community. Only a small part of the value-chain was represented within the project, but it was intended that other stakeholders would be engaged outside the project as part of the established pharmaceutical eco-system.

The design research team was brought into the project under the guise of 'public engagement', but the Principal Investigator reframed the task as a co-design process within a service design framework, which focused on stakeholder engagement with public engagement outcomes.

### *3.3 HereWear*

The HereWear project is still in its infancy and is similar in many ways to the Trash-2-Cash project. Again, at the core is the impetus to prove a scientific concept for transforming underutilised biomass into textile fibres using chemistry. However, this is combined with the more ambitious aim of creating a systemic vision for local, circular, bio-based textile economies. The textile value-chain is represented by partners in the consortium, but tasks also include the development of digital service platforms and building a new stakeholder community, with the aim of supporting the transition to local, circular bio-based textile economies.

The design research team was brought in again as experts in Circular Textile Design, but also for their reputation for developing design tools and delivering innovative workshops with industry partners. Building on the experiences from the Trash-2-Cash and Pharma Factory projects, on this occasion the design research team were able to reframe the activities to include more tasks and resources dedicated to facilitating systemic collaboration, stakeholder engagement and translational practice.

### *3.4 Project similarities and differences*

As already noted, there are some obvious similarities between the Trash-2-Cash and HereWear projects, being focused on circular textiles. However, Trash-2-Cash was a very contained project, with more of a closed innovation outlook which is perhaps more typical of traditional S&T innovation research projects (see figure 1).

On first appearance, Pharma Factory has very little in common with either of the two textiles projects. However, all three projects focus on the material world; proposing technological innovations in the ways things are made, and therefore to change practices, operations and behaviours throughout their eco-system. For example, producing circular textiles, requires a change in the way that textiles are collected and sorted, the way that they are prepared for processing, and the processes they undergo to produce new fibres. They may need to be woven differently and dyed differently to reduce impacts, and the end-users (brands & consumers) may need to adopt new behaviours to ensure there is demand for circular textiles (to attract investment) and that textiles are recaptured for further circularity.

Likewise for new methods of pharmaceutical production to be taken up in industry, there are challenges for a number of stakeholders; regulators will need new ways of understanding the safety of the production methods, bio-technology researchers will have to learn new skills for drug discovery; the safety of the technology will need to be communicated to end-users, policy makers and the media; and investment will be needed to build capacity and infrastructure.

The similarity therefore between the Pharma Factory project and the HereWear project is in the need to engage stakeholders and understand their questions and concerns and reduce the barriers to acceptance and transition.

## 4. The (observed and experienced) distances

The translational challenge represented by each project can be demonstrated by drawing lines between the different areas of knowledge and understanding in the project eco-system, and beyond, shown in Figure 2; these distances are also summarised in Table 2.

Table 2: Distances (observed and experienced) the aim of translational design approaches

	Distance description	Aim of design approaches
Distance 1 (blue)	Between internal project partners (funded)	Mutual understanding of: a common goal (role of innovation); common ground; ways of working; assumed value and meaning of project outcomes
Distance 2 (purple)	Between project knowledge and external stakeholders	Dialogue which builds trust, distribution of knowledge which gives agency and adjusts power relations; to test assumptions; to reveal barriers to acceptance and opportunities for creating meaning and value through (often non-technological) innovation.
Distance 3 (green)	Between co-created and emergent knowledge from project participation and wider audiences	Dissemination & communication in the conventional sense; wider access to project knowledge; provocation & education; building literacy (agency); distributing tools

### 4.1 Distances within the project (blue lines)

Within the two textiles projects, there was a diverse mix of disciplines within the partner consortium. The co-ordinators acknowledged the importance of supporting the complex collaboration inside the project and were therefore very open to the involvement of design researchers in developing methodologies for building proximity between partners. The proximity of actors was already increased by their involvement in the project, therefore agreeing in principle to the goal that the project had outlined. However, there were still a great deal of distance in terms of cultural and natural language, personalities, expectations of procedure, and methodology (Boschma 2005). In Pharma Factory, there was no intention for interdisciplinary collaboration between the design research team and the scientific partners, and therefore there was little opportunity to problematise the distances between partners and tasks within the project, therefore the blue line is absent. In hindsight there were opportunities for innovation through collaboration between the design research team and the scientific partners which could have benefitted from translational practices from the outset of the project. Without sight of the collaboration between scientific partners it is difficult to say whether some of the less successful areas of the scientific collaboration could have benefitted from translational practice interventions from the design research team.

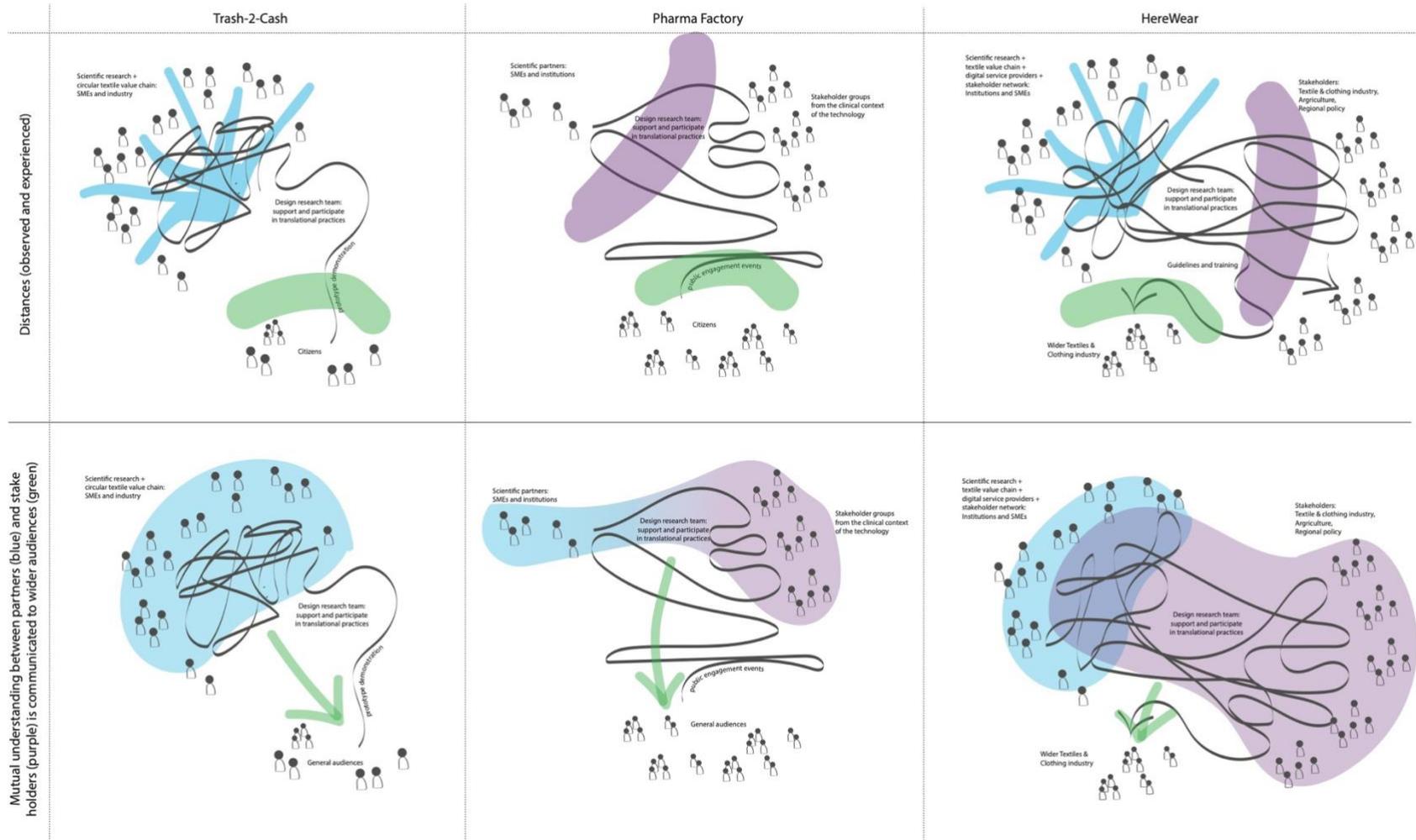


Figure 2: (Above) Observed and experienced distances which design research teams sought to address through translational practice, are highlighted on each project visualisation. Blue represents the in-project distances, typified by disciplinary differences; purple represents the distance between the project consortium and external stakeholders; green represents the distance between the whole project and general audiences. (Below) A degree of mutual understanding can be achieved using participatory and co-design approaches, represented by the blue and purple areas. However not all stakeholders can participate, at this point communication (represented by the green arrow) plays an important role in translating the common understanding of the value and meaning of the innovation, which has been established during the project, to a wider audience.

#### *4.2 Distances between the project and external stakeholders (purple line)*

In Trash-2-Cash there was little intention to build proximity between the project and external stakeholders beyond the usual dissemination approaches; therefore, the purple line is missing from the T2C visualisation. In Pharma Factory, the design research PI recognised the distance between the project partners and the external stakeholders and created a strategy within the design research task to address this distance. Although also a textile project, HereWear was far more ambitious than Trash-2-Cash in terms of the intended cite of innovation, by building a new community for local, circular textile value chains. Therefore, the 'stakeholder community' was included within the project consortium by the coordinator, but with no clear methodology for addressing the distance between some aspects of the project and the external stakeholders. Approaches to build this proximity were defined and built into the project by the design research team.

#### *4.3 Distances between the project eco-system and wider audiences (green line)*

This feature within S&T innovation project is far more established; EU project co-ordinators understand that the outcomes of their projects need to be communicated to wider audiences as stipulated by funding bodies. Therefore, communicating to wider audiences or 'dissemination' was pre-requisite in all three projects, and was also part of assumed value of including design research teams in the consortium. For example, in Trash-2-Cash the design research team was put in charge of the Communication, Dissemination and Exploitation work package even though they had no prior experience of leading this type of work in H2020 projects; in Pharma Factory the design research team was brought in to deliver 'public engagement' which was not their primary area of expertise, and in HereWear the design research team was asked to deliver 'training' as a dissemination task for the developed technologies, also not their primary expertise. In all three cases, the value of design research teams was assumed to be in the communication of project results; which of course is a skillset that many design research teams possess, demonstrate through their work or at least know how to commission. Nevertheless, the green line does represent a distance that can be addressed by design research teams whether or not communication design is the primary focus of their research, and therefore represents a valuable part of translational design practice in complex collaborations.

On reflection, it is apparent that each project might have benefited from adopting some of the methodologies of the other two; HereWear, being the last to be initiated, demonstrates a more complete set of methodologies demonstrated by design research teams to support proximity through translational practices.

### **5. Building proximity through translational design practice**

To address the observed distances, the design research teams introduced a wide range of tools and methods to build proximity within the project (project partner proximity), with stakeholders (stakeholder proximity) and with wider audiences, so that they might

understand the value of transitioning to the preferred future (closer proximity to 'normal'). Figure 2 shows the ambition of reaching mutual understanding through co-created knowledge exchange which can then be communicated to wider audiences.

Table 3 identifies the methods and tools brought into play by design research teams on the three projects and divides them into areas of translational design practice, with 'A approaches' introduced primarily within the project, 'B approaches' introduced with the project and with external stakeholders, 'C, D and E approaches' used by the design researchers themselves to sense-make, translate and synthesise, while 'E & F approaches' are used to communicate mutually established knowledge to wider audiences. These are mapped to a simplified model of translational design practice in Figure 3. It is not in the scope of this paper to analyse the use of individual tools in any detail. Rather the approach is to show the breadth of the offer provided by design research teams on these projects.

The diversity of these approaches is characteristic of design practice as bricolage (Louridas 1999), however it is important to recognise that this is not the work of one design researcher, nor one design research team. Although the design research teams were not necessarily experts in different media for communication design for example, they were able to curate and commission other creative expertise to create impactful and meaningful communication. Therefore, a further observation can be made about the role of diverse disciplines of design practice in complex collaborations.

It is also important to recognise that there are often people outside design research teams, who are skilled in boundary-spanning, working on these types of projects, even if they don't define their role as such (Hornbuckle 2018b). However, these people often reside in SMEs and do not have the resource to focus on translational tasks which fall outside their own agenda or part of the project, or they do not recognise or seek to expand their role beyond what they consider necessary within their own disciplinary experience. Design research teams have the skillset and the resource (if identified and detailed in the project proposal) to problematise 'distance' as a central barrier to successful transformative collaborations, whether that's between actors inside the project or outside the project, with stakeholders or wider audiences. This can involve co-ordinating activities, identifying and briefing promising translators and boundary-spanners, sense-making, connecting and convening, commissioning translation, visualisation and communication, as well as practicing translation themselves: Wizinsky observes: "design as a collaborative discipline is particularly suited to these challenges by translating complex messaging, meanings, and narratives of experience." (2019:5).

*Table 3: Design approaches introduced during the three complex collaborative projects*

	Trash-2-Cash	Pharma Factory	HereWear
<b>A) Design approaches introduced to build relations</b>			
Meditation	✓		
Facilitation & workshop planning	✓	✓	✓
Drawing	✓	✓	(pandemic) <sup>2</sup>
<b>B) Design approaches introduced for sharing knowledge</b>			
Partner Talks			✓
Artefact collections	✓		✓
Speculative prototyping	✓	✓	✓
Glossaries	✓	✓	✓
Project partner mapping	✓		✓
Ecosystem mapping		✓	✓
In-person co-design Workshops	✓	✓	(pandemic)
Online co-design workshops		✓	✓
Facilitation	✓	✓	✓
Socio-material narratives (ie roadmaps, life cycle maps etc.)	✓	✓	✓
<b>C) Social science approaches introduced for in-depth data collection</b>			
Interviews	✓	✓	✓
Surveys	✓	✓	✓
Field notes	✓	✓	✓
Field visits	✓	✓	(pandemic)
<b>D) Design approaches adopted during independent sense-making</b>			
Writing	✓	✓	✓
Visualising knowledge or insights	✓	✓	✓
<b>E) Design products for end-use</b>			
Exploratory making	✓		(planned) <sup>3</sup>
Product prototypes	✓	✓	✓
<b>F) Design approaches introduced to communicate with wider audiences</b>			
In-person exhibition	✓	✓	(planned)
Website / social media	✓	✓	✓
Brochures / guides / public report`s	✓	✓	(planned)
Postcards	✓	✓	✓
Animation		✓	

<sup>2</sup> The HEREWEAR project was initiated during the COVID pandemic when in-person activities were greatly restricted, this meant that some design methods were not possible.

<sup>3</sup> These methods are planned for later in the project

Podcasts	✓		
Posters	✓	✓	(planned)
Interactive (physical) play		✓	

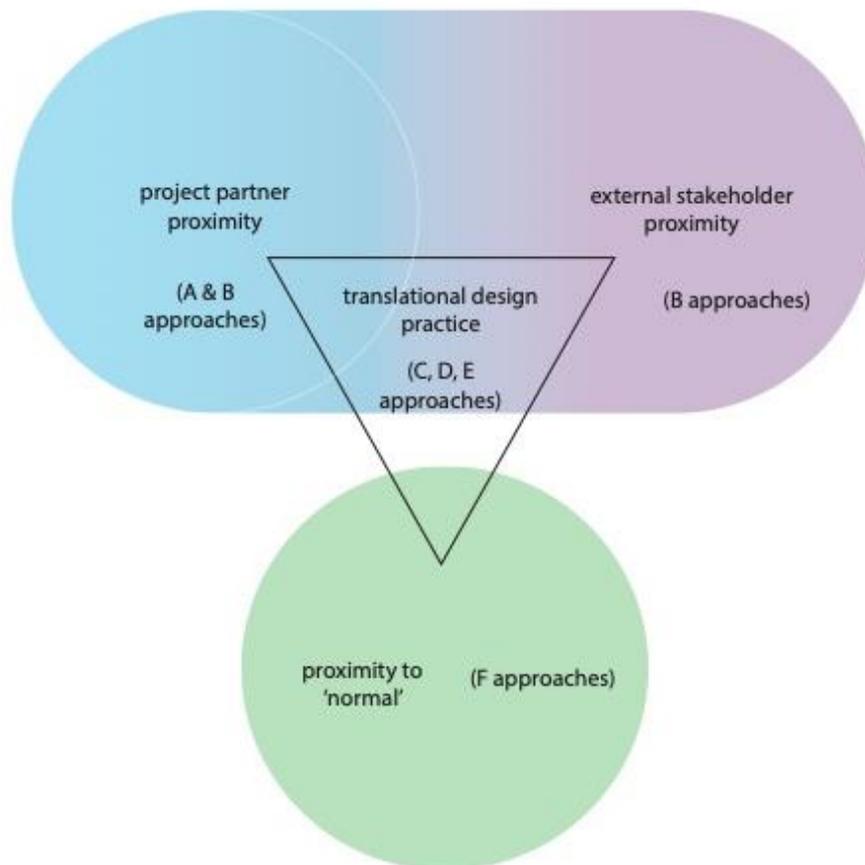


Figure 3: A simplified model of translational design practice with A, B, C, D, E & F approaches mapped (in reference to table 3)

## 6. Limitations and next steps

Design research teams are not the only ingredient to successful collaborations and there are other challenges to be met. The collaborations reviewed here relied on actors being willing to dedicate time to creating new knowledge in this space. Publicly funded research projects may be difficult for high-performing and profit-driven companies to participate in because of incompatible funding structures, and building proximity to stakeholders through participation is nuanced, takes time, resource and care. This deserves a more detailed analysis than was possible within the scope of this paper. Increasingly, these projects will need to engage policy-makers and local authorities if they are to have greater impact; currently this is mainly conducted through end of project white papers and policy

statements. However, more embedded design approaches such as those being explored by Policy Lab<sup>4</sup> and the Social Design Institute<sup>5</sup> could achieve more impactful outcomes to maximise the change potential of the research.

What-is-more, the approaches taken to build proximity and support collaborations develop through experience, they are difficult to generalise into one model. The effect of good translational practice might be difficult to identify, being fairly inconspicuous and ‘seamless’ when at its most effective; indeed this intangibility may be fairly off-putting for many design researchers and potential partners; a tangible outcome from the collaboration makes the process worthwhile for all. While this research builds the case for including ‘translational *design practice*’ in complex projects, we need to build capacity in this new area through design teaching and support.

Highly collaborative projects often mean stakeholders’ may need to compromise on their key priorities, and this can materialise in low satisfaction among partners. Simione (2019) for example, observed that partners were ‘satisfied enough’ (2019:269). For design researchers used to working with partners who appreciate and understand our role, this can be demoralising. In our design research team, we have found it’s important to understand that appreciation for our effort may come primarily through tangible outcomes; workshops often have sticky moments, feedback can be more conservative than we might like, and the tricky tactics of working in between tasks can seem almost invisible when they work well. This leads to the question of how to evidence the value of this translational role. The translational practitioner may come to value what the Swedish call ‘Lagom’ a positive appreciation for just the right amount – just the right amount of satisfaction, comfort, unfamiliarity and risk – a balance that must be achieved whilst accepting a degree of imperfection. Translational practices are about keeping the collaboration ‘in the balance’.

While ‘translational research’ as a core discipline originated in the medical sciences, out of a need to translate foundational scientific findings into clinical practice, translation as a key practice of design research has potential across a wide range of complex problem spaces. This review has focused specifically on complex multi-stakeholder science & technology-led projects, however the similarities in approach from both the literature and the projects perhaps demonstrates the potential for translational practices to have impact on complex projects with many different fields of reference. The meta-level of this review means that further research and analysis is needed to understand the detail, for example around how the design role emerged, was perceived, and valued by other partners. It also remains for additional studies to present and examine the type and quality of the engagement and participation of different stakeholders. Articulating this emergent form of design research practice, presents an agenda for future research within the design methods community so that we can progress with building capacity in this area, to support a wider range of transformative innovation projects. In particular, the aspiration is to see if translation

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<sup>4</sup> <https://openpolicy.blog.gov.uk/> (accessed 1/04/22)

<sup>5</sup> <https://www.arts.ac.uk/uai-social-design-institute/policy-contexts-and-implications> (accessed 1/04/22)

practice can support design research teams in leading complex collaborations that seek change through different types of innovation. To meet these aims, design research teams first need to understand the barriers to initiating a collaboration-first approach to complex challenges and address the assumptions behind the prevailing S&T approach.

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## **7. References**

- Akoglu, C. & Dankl, K. 2019. "Co-creation for empathy and mutual learning: a framework for design in health and social care", *CoDesign*. DOI:10.1080/15710882.2019.1633358
- Balland, P-A., Boschma, R. & Frenken, K. (2014): Proximity and Innovation: From Statics to Dynamics, *Regional Studies*, DOI: 10.1080/00343404.2014.883598
- Borges, H. (2020) A New World of Love. Maturana, Davila, Scharmer, Senge (blog post) Presencing Institute. Available at: <https://medium.com/presencing-institute-blog/a-new-world-of-love-maturana-davila-scharmer-senge-e52d633193d9> (accessed 25/11/21)
- Boschma, R. (2005) Proximity and Innovation: A Critical Assessment, *Regional Studies*, 39:1, 61-74, DOI: 10.1080/0034340052000320887
- Costa, N., Patricio, L. & Morelli, N. (2018) A designerly-way of conducting qualitative research in design studies. *ServDes 2018 Service Design Proof of Concept (conference proceedings)* Politecnico Milano 18-20 June 2018
- Earley, R., Vuletich, C., Hadridge, P. & Andersen K. R. (2016) A New 'T' for Textiles: Training Design Researchers to Inspire Buying Office Staff Towards Sustainability at Hennes and Mauritz (H&M), *The Design Journal*, 19:2, 301-321, DOI: [10.1080/14606925.2016.1130380](https://doi.org/10.1080/14606925.2016.1130380)
- Escobar, A. (2015) Transiciones: a space for research and design for transitions to the pluriverse *Design Philosophy Papers; Crows Nest Vol. 13, Iss. 1, (May 2015): 13-23.* DOI:10.1080/14487136.2015.1085690
- European Commission (n.d.) Horizon Europe. Available from [https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe\\_en](https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en) (accessed 24/11/21)
- Fisher, T. & Gamman, L. (eds.) 2019. *Tricky Design: The Ethics of Things*. Bloomsbury
- Grady, J. (2008) Visual Research at the Crossroads. *Forum: Qualitative Social Research*. 9(3), Art. 38, Sept 2008
- Hornbuckle, R. (2021) Mobilizing Materials Knowledge: exploring the Role of Samples for Supporting Multidisciplinary Collaborative Design for Materials Development, *The Design Journal*, 24:2, 277-297, DOI: 10.1080/14606925.2020.1849963
- Hornbuckle, R. (2018b) Materials Liaisons: facilitating communication in design-driven material innovation (DDMI) projects. *DRS2018: Catalyst, conference proceedings, Limerick 25th-28th June 2018*

- Hornbuckle, R. (2018a) What Else Do We Know? Exploring Alternative Applications of Design Knowledge and Skills in the Development of Circular Textiles, *Journal of Textile Design Research and Practice*, 6:1, 23-41, DOI: 10.1080/20511787.2018.1434745
- Hornbuckle, R. (2013) Materials Translators: observations from a study of sustainable materials information provision and design behaviour in London, UK. Sustainable Innovation 2013 conference, Epsom, UK
- Hornbuckle, R., Grimaldi, S., & Prendiville, A. (2020) Beyond Science Communication: a service design approach to building mutual stakeholder understanding in the development of novel biotechnologies. Proceedings of the 6th International Conference on Design4Health, Amsterdam, 1-3 July 2020
- Jones, P. (2017) The Systemic Turn: Leverage for World Changing (editorial). *She Ji: The Journal of Design, Economics, and Innovation*. Volume 3, Issue 3, Autumn 2017, Pp 157-163
- Light A & Boys J (2017) Collaborating across difference: learning at/with/from the edges. In: DiSalvo E, Yip J, Bonsignore E, DiSalvo C (eds) *Participatory design for learning*. Routledge, London.
- Louridas, P. (1999) Design as bricolage: anthropology meets design thinking. *Design Studies* Volume 20, Issue 6, November 1999, Pages 517-535
- Niinimäki, K., Tanttu, M. & Kohtala, C. (2017) Outside the “Comfort Zone”. Designing the Unknown in a Multidisciplinary Setting Design for Next. 12th EAD Conference Sapienza University of Rome 12-14 April 2017 doi: 10.1080/14606925.2017.1352940
- Page, R. & John, K. (2019) Commercializing Academic Medical Research: The Role of the Translational Designer, *The Design Journal*, 22:5, 687-705, DOI:10.1080/14606925.2019.1629776
- Schon, D. A. 1987. *Educating the Reflective Practitioner*, p. 27. San Francisco: Jossey-Bass.
- Simeone, L. (2019) Incompleteness and redundancy: organisational components of a design-enabled infrastructure to support coordinated action of multiple stakeholders, *CoDesign*, 15:4, 361-376, DOI: 10.1080/15710882.2018.1546320
- Tufte, E. (1990) *Envisioning Information* Graphics Press, Cheshire, CT. 126 pages. ISBN: 0-961-3921-1-8.
- Wizinsky, M. (2019) “HIV saved My life”: toward a translational model of design research through participatory design in public history and public health, *Design for Health*, 3:1, 4-26, DOI: 10.1080/24735132.2019.1583400
- Yin R. K. (2018) *Case Study Research and Applications: Design and Methods*. 6th Edition. SAGE, Los Angeles

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