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Slow knowledge in the 'real world'. Using s*low practice* to actively engage commercial collaborators in doctoral research

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Abstract: Slow knowledge in design thinking and practice has potential to create value in organisations outside of the academic and artistic settings. However, its adoption is challenged by ideological tensions with the imperatives of the commercial context. This article reports on part of a practice-based doctoral research project aiming to introduce this theory into the commercial design context. The six slow design principles provide a useful framework, whilst the slow practice tools help negotiate the engagements. Preliminary findings indicate arenas where the introduction of slow knowledge can create new value for commercial organisations. This article focuses on the methods and tools employed in overcoming the challenges of introducing the theory into this setting, and conducting effective collaborations to reveal potential benefits. The mind-set of the researcher-practitioner plays a significant role in negotiating access to people and resources, and negotiating value for both the collaborator and the research imperatives.

Keywords: slow knowledge, slow design principles, negotiation, strategic value, humbleness.

1. Introduction

Since its emergence in the early 2000's 'slow design' has been pursued largely within academic and artistic domains, and through SlowLab's engagement with communities through socially-led projects (SlowLab, 2018b). However there has been little in the way of published work exploring slow design in the commercial design context. Acknowledging the rhetorical paradox apparent between the imperatives of the commercial world and the values of the 'slow' doctrine, a doctoral research project was devised to investigate the potential value of slow design to commercial organisations. This paper discusses methods and tools used in; negotiating permission to access people and resources in an organisation, establishing longitudinal collaboration, and negotiating mutual value for the collaborator and the researcher.

The core aim of the research project is to introduce theory from slow knowledge in design thinking and practice (Strauss and Pais, 2016; SlowLab, 2018a) into the commercial design context through

design practice, and to subsequently identify where the practical application of the theory can create new value for commercial organisations. The six slow design principles – reveal, expand, reflect, engage, participate, evolve (Strauss and Fuad-luke, 2008) have been successfully used as a framework for transplanting the theory directly into commercial design situations, in engagements involving the researcher-practitioner in designing and facilitating roles. Commercial collaborators in the study are SME-scale organisations who are engaged in designing and manufacturing of a type or family of products.

To mitigate the self-evident challenges of overcoming tensions between the theoretical basis of the study and the target setting of the investigation, an open-receptive-reflexive-adaptive attitude has been developed by the researcher-practitioner. In conducting the collaborations using this approach a number of tools, characteristic of slow practitioners (Strauss and Pais, 2016; SlowLab, 2018a), have been adopted. In conjunction artefacts were designed and realised to materialise the researcher-practitioner's interpretations of the theory. These artefacts have methodological roles; developing researcher sensitivity to the three prominent spaces of influence in the study; supporting the engagements with commercial collaborators though embodying knowledge from abstract theory (Nimkulrat, 2013; Bardzell, Bardzell and Hansen, 2015).

2. Contextual Review: Slow Knowledge and Slow Design

In the context of the slow movement, and the many sub-categories thereof, 'Slow' can be understood as a doctrine where the notion of wellbeing is central, comprising a broad set of beliefs that intersect between individual, socio-cultural, and environmental wellbeing (Fuad-Luke, 2002). In his polemic 2004 article, Fuad-Luke positions slow design as an "anthropocentric" paradigm that challenges the "technocentric" role of design for consumerism, and advocates instead for a focus on the ecological harmony and the wellbeing needs of humans. Some examples include the Universal Human Needs (Max-Neef, 1991), and the concept of flourishing in positive psychology (Ryan and Deci, 2001, 2011; Huppert and So, 2013). This early position of slow design appears contradictory to the aims of the study, however the six slow design principles (Strauss and Fuad-luke, 2008) provide the framework to support introduction of this theory into commercial settings. Guiding principles are common throughout design practice (Lawson, 2005); the functional compatibility of guiding principles with design practice and processes allows, in the first instance, navigation around ideological tensions between the doctrine of 'slow' and the commercial setting.

Thorpe (2003) suggests that slow knowledge represents an alternative approach to that of the post-industrial 'fast' world; of sustainability and plurality that would restore balance within the fast/slow continuum. Griffiths (quoted in Thorpe, 2003) defines slow knowledge as "shared and multi-disciplinary, shaped to particular cultural and geographic contexts, and humble". Similarities to the dimensions of the Responsible Innovation Framework (Owen et al., 2013) are evident, albeit at a 'top-down' policy level. However, 'humbleness' is identified as a distinct tool of the slow practitioner (Strauss and Pais, 2016), along with many others including; *openness, reflexivity, receptivity, trust*, which are reflected upon through the activities reported herein. This set of methods and tools inform design practice from the 'bottom-up', reflective of a pre-requisite for a *design culture* (Manzini and Stappers, 2016).

A more recent explanation of slow knowledge is more implicit than definitive, describing "a ground of thinking-sensing-acting-relating" that allows for a deeper experience of the present, and a greater awareness in considering the future (Strauss and Pais, 2014). In a study situated in the commercial setting, where the complex of understanding-designing-manufacturing-producing-distributing-retailing-consuming-using forms the territory for exploration, could slow knowledge be compatible, desirable or valuable? Ultimately, Strauss & Pais conjecture is that slow knowledge is a cognitive vehicle for working towards more sustainable practises (2014). In the context of design, this vehicle is suggested to encourage designers to consider their practice more holistically; stakeholders, parameters, locale, time and materiality (ibid.). Within this research the vehicle of thinking-sensing-acting-relating constitutes a mindset, an "established set of attitudes" (OED, 2018) that are constructed upon values forming the doctrine of 'Slow', which is outlined previously. Findeli's "Design Mindfulness" (2016) moves towards a less abstract representation that better supports adoption of this thinking in mainstream design practises. Compelling designers to think more holistically about the implications of design actions and their context; being mindful of resource flows; a human-centred approach, valuing agency; celebrating plurality in time, place, and culture; avoiding gimmicks and unnecessary objects and devices, in favour of services (Findeli, 2016).

Slow knowledge in design thinking and practice becomes a theory for the behaviour of design in service of a holistic network of interconnected imperatives for wellbeing. Circular economy theory (Geissdoerfer et al., 2017; Medkova & Fifield, 2016; Søgaard et al., 2018) – slowing resource flows and closing-the-loop in material ecosystems – are common imperatives of both slow knowledge in design thinking and practice, and other fields. For instance, economists are proposing alternative models that aim to abolish linear economic growth in favour of economic regeneration (Fullerton, 2015; Raworth, 2017). Fullerton's model of regenerative capitalism (2015) reflects slow knowledge, appreciating that "universal principles and patterns of systemic health and development" proliferate throughout natural ecosystems and phenomena; bio-mimicry forms the foundation of this proposed model.

One particularly obvious challenge exists in the paradoxical natures of Slow Design theory and the commercial context. Typical imperatives of the commercial environment centre on satisfying financial objectives, whereas slow knowledge recognises this as just one of five sources of capital (Porritt quoted in Fuad-Luke, 2009). According to this model financial capital is in the tertiary level of the hierarchy, below human and social capital; all of which are subordinate to natural capital (Porritt, 2007). However, it is suggested that conceptual differences found in apparent paradoxes offer a rich opportunity for theory-building (Poole and Van de Ven, 1989), and that such tensions can share a common source (Smith and Berg, 1987). Porritt's five capitals model positions financial imperatives within the lens of slow design theory, therefore slow design has the hypothetical potential to create value in the commercial context.

Understanding the effects of applying slow design principles in a typical commercial product design process reveals further challenges. Previous work conducted to design consumer goods using the six principles of slow design posit that benefits extend only as far as the individual users, manifesting as enhanced experiences of mindfulness, ritual and embodiment (Grosse-Hering et al., 2013; van Rheden and Hengeveld, 2016). By contrast, in creative production there are many examples of physical artefacts informed by, or reflective of slow knowledge (Niedderer, 2004; Lommée, 2012; SlowLab and Various, 2012), where their value is in communicating rich narratives. These pieces tend to be one-offs that are not intended for the consumer market. Experiences from this study indicate

that when slow design principles are applied to designing a product, and resolved without contending commercial imperatives, the resulting outcome is highly priced and exclusive.

3. Methodology

A decade after they were first published, Strauss & Fuad-luke's six principles of slow design are considered by their originators to be out-of-date. This may be true for the purposes of progressing SlowLab's inquiry, but for the purposes of this study they have proven to be an effective way of packaging-up the slow design philosophy so that it can be transplanted from academia into a commercial setting. The commercial setting chosen is notionally termed 'specialist producers', the selection criteria can be summarised as:

- Small to medium sized enterprises that are specialists in producing a type or family of products for the consumer market;
- Who are actively engaged in the design and manufacture of the products they bring to market (through internal or external capabilities and resources);
- And where a route through which to approach them already exists, by leveraging either the network of the University, or the professional network of the researcher.

The over-arching structure of the methodology is action-research (Schön, 1983; Cole et al., 2005; McNiff and Whitehead, 2006; Crouch and Pearce, 2012), where the practitioner-researcher is an inherent part of the situation in which the study is conducted. Traditionally, action research is interested the development of practice; in this study the practitioner engages in different forms of practice, to both understand the practice of slow design and its principles, and the value of this theory in practice, within the commercial setting. During engagements with this setting, the practitioner takes a role in 'coaching' the participants in understanding the depth of theory encapsulated by the principles. An inherent limitation of the study is that this role requires the practitioner to have developed (and continue to develop) a robust understanding of the theory (in practice), as well sensitivity to the organisation and its broader context. Consequently, the general fields within which the investigation is conducted are influenced by the researcher-practitioner's existing body of knowledge.

Within the iterative structure of the methodology, several modes of inquiry have been pursued to develop the researcher-practitioner's sensitivity to the main spaces of influence. In parallel to primary engagement with organisations, and typical secondary research of literature and context, a significant role is played by practice-based designing and realising of physical and virtual artefacts. Archer acknowledges that there are "circumstances where the best or only way to shed light on a proposition, a principle, a material, a process or a function is to attempt to construct something, or to enact something, calculated to explore, embody or test it" (Archer, 1995). Through this research-through-design approach, the researcher-practitioner's sensitivity to one or more of three main influencing spaces is developed:

> *Contextual:* sensitivity to the wider context within which the collaborators are situated, for example: coffee preparation, or the technologies and cultures of cycling. This space represents 'the field' with which the organisation is engaged and is quite static relative to the duration of the study.

Organisational: sensitivity to the organisation's imperatives, strategic position, structure, value offer, internal culture. It is a space that is more dynamic than the field, although generally aiming for steady progression.

Theoretical: sensitivity to the theory underlying the study, and how the theory combines with practice. This space is the domain of the researcher; slow design is quite new, broad and unbounded, and is being used here in a new capacity. Hence, this space is highly dynamic and reflexive to what is being learned and observed in the other two spaces.
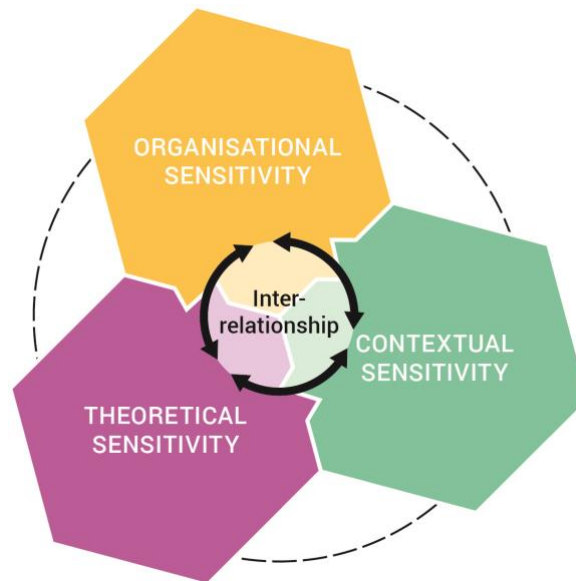

Figure 1: Inter-related sensitivity to three major influencing spaces

In action research tradition reflection-on-action (and practice) tends to be the prevalent analytical procedure, both in formative and summative modes of analysis (Rowley, 2014). Reflection as an analytical procedure has been used formatively throughout the study to progressively build insights through individual episodes of action. In the summative mode reflection has been used to surface patterns and themes once individual moments of action develop to form longitudinal episodes. However, in respect of the rich qualitative data gathered from workshops and interviews, reflection seems limiting as the only analytical process employed. The general inductive approach (Thomas, 2006) to thematic analysis has been utilised to code and categorise raw text data from transcriptions (Boyatzis, 1998). This procedure enhances the analytical phase of the action research cycle by surfacing themes through a structured process, which also has been used to allow statistical analysis of qualitative data, that is complementary to analyses through reflection. Summative analysis using reflection-on-action has shown to be effective in guiding the direction of this study, whilst thematic analysis of qualitative data helps reveal insights – or substantiate insights formed through reflection – to further investigate in the next iteration.

Whilst this mode of engagement shares characteristics of participatory action research (PAR) (Baum, MacDougall and Smith, 2006), it is important to clarify the distinction between this and the accurate term practitioner-led action research (PLAR). In this instance, the objectives and methods are determined by practitioner, and the understanding of the findings is built within the practitioner's intellectual frame of research aims and objectives (Macdonald, 2009). As is later discussed, the creation of value for the collaborator is an important factor in the study and is intrinsically linked to

the negotiation of the engagements. However, the core aim of the research is external to the collaborating organisations; comprising the development of a practice of slow design, based on an understanding of the value of this practice in the given setting.

4. Field work

Engagement with collaborating organisations provides a 'real-world' context within which the value of the principles can be investigated through practice. Members of the organisations are participants in the research, contributing through collaborative design projects, workshops, and individual semi-structured interviews. Additional data is gathered in the form of field notes from meetings, other face to face interactions, and correspondence exchanged between participants and the researcher-practitioner. The study involves three major collaborations; the small number of organisations involved is an inherent limitation, though it reflects what was possible to achieve given the timeframe available. Table 1 provides a brief description of the collaborators:

Table 1: Outline of commercial organisations collaborating in the study

	Scale	Sector	Customer Group
Organisation 1: Specialises in premium-level and bespoke road racing bicycles produced both in limited manufacturing runs and by hand using more traditional techniques for one-off frame building.	Approx. 8 personnel	Bicycle manufacture and supply	Private consumers
Organisation 2: An international industry leader in the design and manufacture of commercial espresso coffee machines.	Approx. 92 personnel	Coffee machine manufacture and supply	Private & commercial consumers
Organisation 3: A UK based brand of cycling luggage and apparel that specialises in products designed and manufactured for the UK market.	Approx. 20 personnel	Outdoor clothing & equipment manufacture and supply	Private consumers

Collaborations were conducted sequentially and on a longitudinal basis, lasting between 4 and 12 months, and insights developed through each collaboration built towards the next iteration of the study; this reflects the ongoing development of the approach taken. Engagements with the organisations begin with a process of negotiating permission to access people or teams within, to learn about their internal practices and processes, and effectively introduce the slow design principles. Once initial access has been negotiated successfully the basis for collaboration is established, which represents the next level of negotiated permission; agreeing on a collaboration that the organisation believes is valuable, but which also supports an effective exploration of the theory. This was negotiated on a case-by-case basis for each organisation:

- Organisation 1 – design project for a new product line. Engagement was ongoing and intensive, comprising meetings and production of design documentation, working closely with the organisation through the mode of a typical project commission (albeit without remuneration). The introduction of the principles to the process was led by the researcher-

practitioner and the exploration took place very much within the boundaries of the design project.

- Organisation 2 – internship with the internal research and development team. The basis of this engagement was to spend 1 week within the department, due to the industry-leading nature of the organisation, the process of negotiating initial access was challenging and required the backing of top-level executives.
- Organisation 3 – design workshop and interviews, with analysis and feedback provided to the organisation. Eventual engagement with participants through a design workshop, prototype, and a series of interviews was brokered through several months of meetings and correspondence with one participant from the organisation's design team.
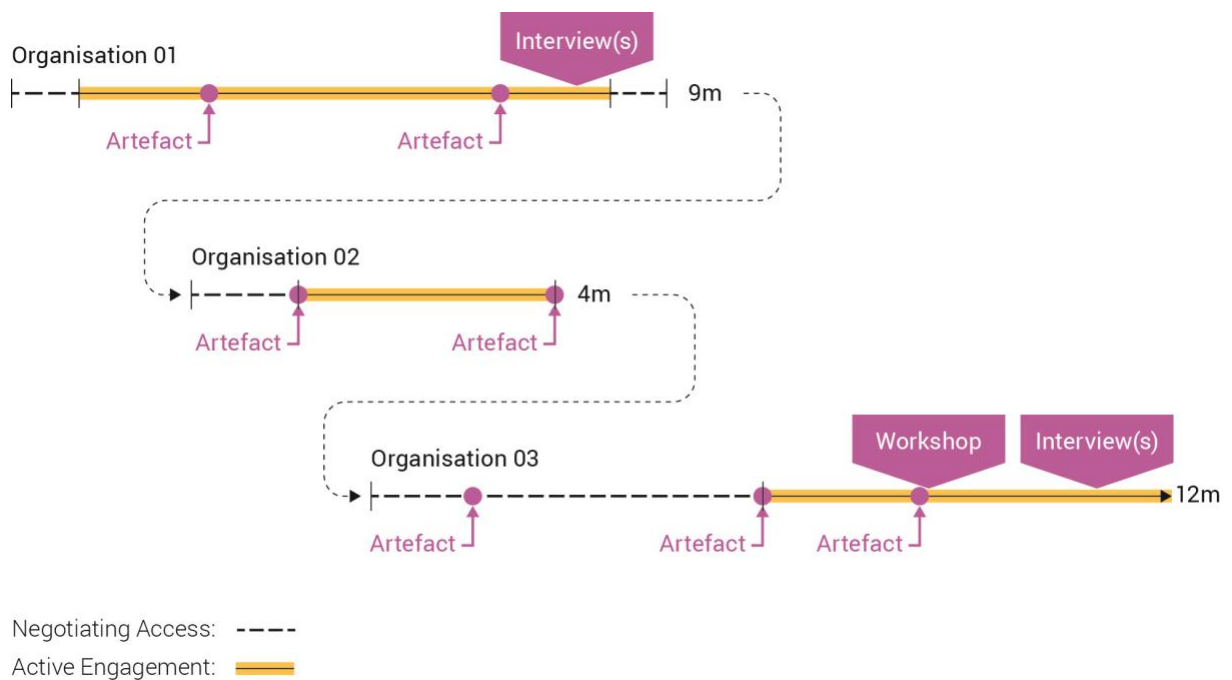

Figure 2: Timeline of engagements with collaborating organisations.

Figure 3: 'OpenCycle' prototype produced as part of the collaboration with Organisation 03. A typical bicycle that has been modified to incorporate fixing points located relative to the OpenStructures grid (Lommée, 2012), to create a highly adaptable open-source attachment system.

5. Preliminary Findings & Discussion

As discussed earlier slow knowledge is, in a rhetorical sense, somewhat paradoxical to the commercial setting. This presents a challenge when it comes to approaching commercial organisations to take part in the study; typically prompting the concern that "we can't do slow here". Inherently, in the case where the funding is not provided by the target organisation, the organisation has no obligation to collaborate or actively engage. The preliminary findings from this study centre on negotiating permission for internal access to the organisation, and in the process, honing an application of the 'tools' of slow practice (Strauss and Pais, 2016; SlowLab, 2018a); openness, reflexivity, receptivity, trust.

Part of the study's aim is to observe where the slow design principles can create new value for organisations; this is in the researcher's interest domain and in the organisation's interest domain. However, any new value created for the organisation is, in itself, the outcome of a process of negotiation to achieve mutual benefit for both parties; satisfying the research aims as well as offering a benefit to the organisation. This study indicates that the researcher-practitioner's *humble* attitude can contribute to success; using openness, receptivity, reflexivity, trust, and adaptiveness – whilst maintaining the ability to shift between different perspectives in response to the dynamic interplay of sensitivity to the spaces of organisation, wider context, and theory.
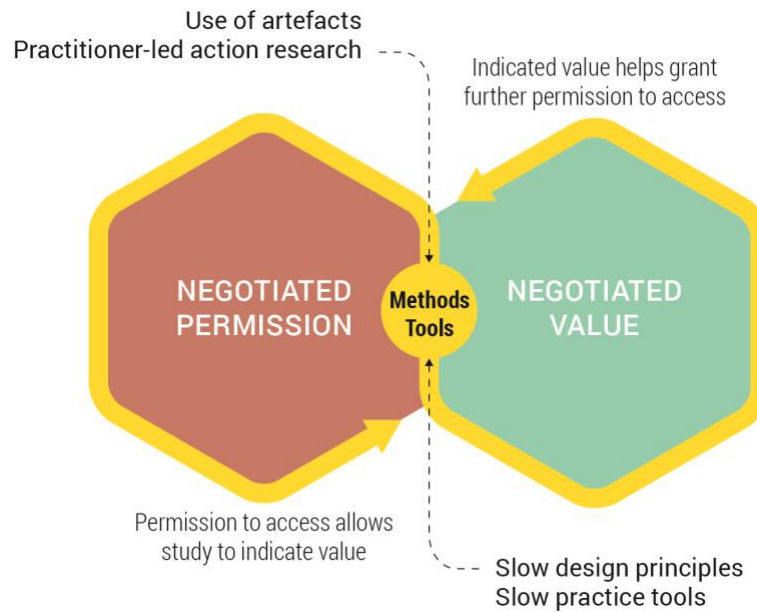
Figure 4: Methods and tools described form the approach taken to negotiating permission and value

5.1 Methods and tools – notional slow practitioner

As previously discussed, within this study slow practice in the context of design is best distinguished in terms of mindset, a set of attitudes responsive to the underlying values of 'slow' and a prerequisite for the mode of "thinking-sensing-acting-relating" described by Strauss & Pais (2014). The outward manifestation of this mindset, in respect of design practice, has been represented as a substantial list of 'tools' common between slow practitioners (Strauss and Pais, 2016); *openness, reflexivity, receptivity, and trust* can be identified in the way collaborations in the study have been conducted. These characteristics reflect the quality of 'humbleness' as a distinctive element of slow knowledge (Griffiths quoted in Thorpe, 2003). Through reflection on enacting the collaborative engagements, a working understanding of humbleness is tentatively suggested; in terms of the researcher-practitioner's approach it has been non-egocentric and involves deferring to other actors in the engagement. On reflection it seems that the confidence of the researcher-practitioner is an enabler in this instance, allowing a level of deference whilst maintaining an active voice in the engagement. The effectiveness of the four slow practice tools identified are reflected upon as follows:

> *Openness* – in openness there is an element of allowing others involved to share in the direction of the actions, and share in shaping the way that they are enacted. Openness, remaining unbounded and flexible, accepting and maintaining a certain amount of ambiguity.

> *Reflexivity* – dynamically changing one's approach to a situation in response to observed phenomena. What is learned in one sensitivity space affects the other spaces through a continuously dynamic inter-relationship; as the understanding of these spaces evolve, so should the practice being enacted. (Cunliffe, 2004; Hibbert et al., 2014)

> *Receptivity* – involving "willing to consider or accept new suggestions and ideas" (OED, 2018), however this also involves the pre-requisite of carefully listening to, and appreciating, such new information. Not all new suggestions or ideas are well-formed and easily apprehended, care was taken not to overlook such nascently articulated inputs.

Trust – an intrinsic factor in negotiation (Lewicki and Polin, 2013), refers to building credibility with the collaborator. Whilst intellectual property and commercially sensitive information is also an important factor of trust, there is also an element of trusting the collaborative process to produce mutual benefits.

Understanding the research territory as three distinct but inter-related and dynamic spaces of sensitivity – organisational, contextual, and theoretical – highlights the requirement for the researcher-practitioner to be adaptive. These tools can be identified in the way collaborations were conducted, in responding to new phenomena as it happens, and sustaining the ability to change direction or shift perspective.

5.2 Negotiating permission

Artefacts have played an important role in this study as a way of brokering initial access to the organisation. Physical and virtual artefacts have been realised through design and making practice, for the purpose of capturing the interest of key actors in an organisation, encouraging them to see the benefits of engaging in the study. Analysis of correspondence shows that when an artefact was presented to the organisation, the negotiation of permission to access the organisation moved forwards. This appears to be the case both in terms of initial access to the organisation and negotiating ongoing engagement. Artefacts are used to express the practitioner's competencies and skills, whilst also implicitly representing the practitioner's underlying philosophy, or embodying a narrative. Aside from the narrative that a designer or maker intentionally endeavours to embed in an artefact, or retrospectively identifies in its aesthetic qualities, an artefact is also able to embody the knowledge of others who engage with it critically (Bardzell, Bardzell and Hansen, 2015). In this way, the artefacts used in the study function both as "outputs" to communicate knowledge, and "inputs" to generate knowledge (Nimkulrat, 2013).

Openness was experienced to be particularly important at the early phase of negotiating permission. An example of the use of openness is in tentatively indicating how engagement could be valuable to the organisation, allowing the nature of the potential collaboration to be co-developed. Initially, the conversation is based on a specific agenda within the organisation's interest domain, which is used to suggest an example of how engagement could be beneficial. The best effort is made to synthesize theoretical sensitivity with what is known at that point about the organisational and contextual spaces, and at least allows the organisation to imagine a benefit. An open and reflexive posture allows the organisation to consider alternative agendas that they might prefer to focus on. To reiterate, the resulting bases of the collaborations were; for organisation 1, centred on concept development for new prototype product; with organisation 2 the intention was to contribute to research and development; and organisation 3 initially wanted to focus on potential to enhance research and development practices, but this focus shifted later.

In the case of organisation 3, sensitisation to the organisational context initially led the researcher-practitioner to identify 'enhancing research and development opportunities' as a mutually appealing agenda. Whilst this was of interest at the first point of contact, eventually executives decided they would be more interested in focussing on the organisation's sustainability agenda. The aim of the study is to observe the creation of value in a general sense, so whether it is value in developing new products or value in reducing environmental impact does not matter, as either could constitute the creation of new value. In this respect flexibility is built-in to the process, supporting the negotiation

of permission, and the slow design principles themselves are ambiguous enough to intervene in either instance.

5.3 Negotiating new value

A foreseeable challenge lies in the apprehension that what might be most valuable to the organisation might also not be relevant to the research aims; the respective imperatives of the research project and the organisation are different. These imperatives exist within the discreet interest domain of the organisation, or the research. To achieve a mutually beneficial outcome there should be a large enough intersection between these domains to support an exploration of the principles, whilst remaining within the frame of slow design. The negotiation is concerned with balancing authentic comprehension of the principles – ensuring that others' interpretations remain congruent to the underlying theory – with the imperatives and culture of the organisation. To some extent developing sensitivity to the three spaces previously identified is about expanding the intersection between these respective domains of interest sufficiently, to support an exploration of the slow design principles within the setting of the organisation.

Figure 5: Expanding sensitivities to organisation, theory, context, to establish a large enough intersection between interest domains

Interestingly participants from Organisation 3 identified that the principles of slow design could be beneficial if applied in other areas of the organisation (other than design); the areas identified included human resources, marketing, product and brand strategy. This realisation further improved the scope for exploration as the participants began to think beyond the extents of their own roles, as members of the design team, considering the inter-relationships between themselves and the various other teams in the organisation. Combined with efforts to increase sensitivity to the organisation and their wider context ('the field') and achieve a large intersection between domains of interest, the participants broadened the scope of the exploration and increased the potential to identify where new value could be created.

Participants were confident that for the principles to be optimally integrated – and for them to create long term value – they must be adopted holistically by the organisation, and used to inform executive-level strategic thinking. Participants conversely explained that they would be limited in the extent to which they could apply the principles in their design process if they were not holistically adopted. During collaboration with Organisation 1 the slow design principles were used with success to guide the early 'front end' stages, where much of the activity was about gathering and appreciating information, ideating and eventually framing concepts. However, the approach was not adopted into the overarching product strategy. As the concepts developed in to fixed proposals it was increasingly difficult to reflect an authentic and congruent interpretation of the underlying theory.
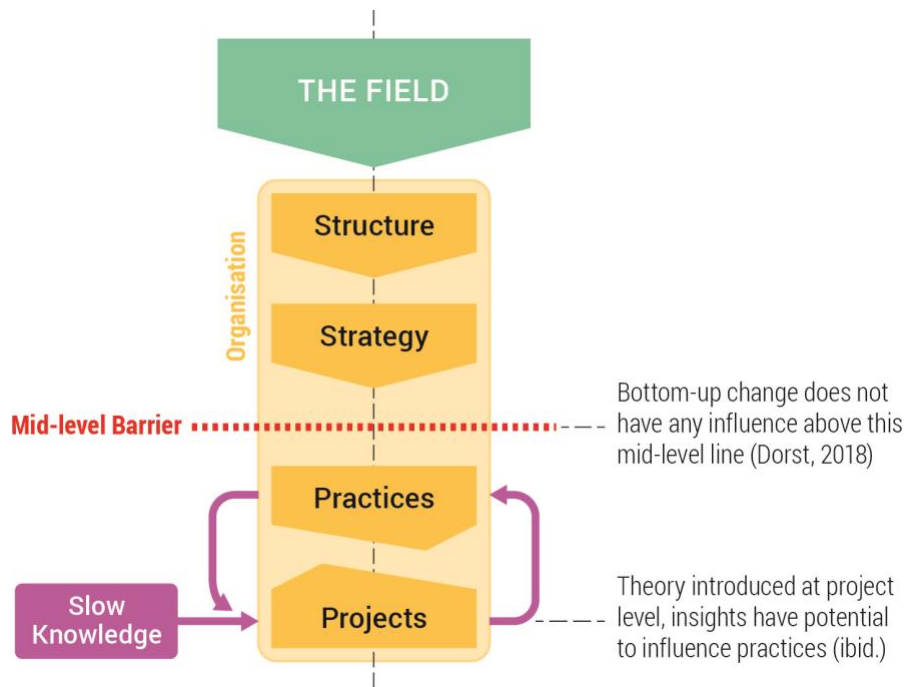

Figure 6: "Changing the game", influence barrier of interventions conducted at a project level (Dorst, 2018a). Diagram adapted from Dorst (2018b).

The limitation caused by lack of a holistic adoption of the principles by the organisation reflects Dorst's affirmation that it is very unlikely that insights from a project level can be pushed up the ladder to a create strategic change (Dorst, 2018a). Good projects can build deep insights, that can become good practices. However, practices are subordinate to strategy - so to embed new practices requires a change in strategy, but "strategy is determined top-down, so there is no way you can get into that discussion" from a project level (Dorst, 2018b).

6. Conclusion

This paper reports insight gained through a practice-based research through design investigation to introduce slow knowledge in design thinking and practice into the commercial design setting. The six slow design principles have demonstrated their effectiveness as a means of encapsulating this theory, through supporting several engagements with three separate commercial collaborators. Strauss and Fuad-luke's (2008) envisioned use of the six principles as *guiding principles* (Lawson, 2005) has proved to help mitigate perceived incompatibility between the underlying theory of the study and the target research context; the commercial setting. The role of the researcher-

practitioner is intrinsic to ensuring that participants' interpretations of the principles is authentic and congruent with this underlying theory. Personal development as a 'slow practitioner' was not an explicit research aim, although the approach to the engagements, the inclusion of researcher's standpoint and practice, and the over-arching methodology of action-research, have created the conditions conducive to this outcome.

Negotiation is a significant element of the study and has two dimensions; negotiated permission to access people and resources within the organisation, and negotiated value created through balancing authentic adoption of the underlying theory with the imperatives and culture of the organisation. Some of the 'tools' of slow practice, *openness, reflexivity, receptivity, trust* (Strauss and Pais, 2016; SlowLab, 2018a), can be recognised throughout the study. Use of these tools is apparent when conducting collaborations and when developing researcher sensitivity to the key influencing spaces. The slow practice tools are evident in the way artefacts have been designed and realised, and in the roles they perform:

- A method of developing sensitivity to the spaces of influence – theory, wider context, and organisation – and exploring their inter-relationships.
- As loci for initial engagement with collaborators, helping to capture their interest and communicating what the research is about, whilst maintaining an open dialogue and facilitating the organisation in co-creating the collaborative action.
- As embodiments of knowledge, where an artefact functions as an "output", communicating knowledge, and as "input" generating knowledge (Nimkulrat, 2013). Artefacts not only embody the knowledge or narratives that the creator imbues within them, but also have the power to draw-out the knowledge of others who engage with them critically (Bardzell, Bardzell and Hansen, 2015).

Through collaboration with organisation 3, using the reported methods and tools, the study is generating evidence that indicates how and where slow knowledge in design thinking and practice can create new value for commercial organisations. Within the timeframe of this study, the intention is to combine sensitisation to the three influencing spaces with the findings generated so far, to 'tune' the six slow design principles to the individual organisational contexts. By surfacing aspects of each principle that align more strongly to the organisation, whilst taking care not to compromise their integrity, the aim is to propose more explicitly where new value can be created. Beyond the time constraints of this study it is envisaged that the methodological approach, slow practice tools, and the eventual findings could provide the basis of a multiple case study. This could be one strategy for investigating a broader sample group of organisations, aiming to produce a more generalisable outcome. The preliminary findings reported herein are a result of negotiated permission and negotiated value, established through an iteratively developed approach using slow practices, to explore the value of slow knowledge in the commercial setting. However, a barrier exists between translating the indicated new value arenas into the creation of new value for commercial organisations. Dorst's (2018a) evaluation highlights this barrier well; that without strategic support for new practices, any successful intervention at project level is either limited in its usefulness or does not have longevity. The question remains, how to "get into that discussion"?

References

Archer, B. (1995). The Nature of Research. *Co-Design, Interdisciplinary Journal of Design*, (January), 6–13. https://doi.org/10.1007/s10165-008-0069-5

Bardzell, J., Bardzell, S., & Hansen, L. K. (2015). Immodest Proposals: Research Through Design and Knowledge. *Proceedings of the ACM CHI'15 Conference on Human Factors in Computing Systems*, *1*, 2093–2102. https://doi.org/10.1145/2702123.2702400

Baum, F., MacDougall, C., & Smith, D. (2006). Participatory action research. *Journal of Epidemiology and Community Health*, *60*(10), 854–857. https://doi.org/10.1136/jech.2004.028662

Boyatzis, R. E. (1998). *Thematic analysis and code development: transforming qualitative information*. London and New Delhi: Sage Publications.

Cole, R., Purao, S., Rossi, M., & Sein, M. K. (2005). Being Proactive: Where Action Research meets Design Research. *ICIS 2005 Proceedings*, 1–21.

Crouch, C., & Pearce, J. E. (2012). *Doing Research in Design*. London: Berg.

Cunliffe, A. L. (2004). On Becoming a Critically Reflexive Practitioner. *Journal of Management Education*, *28*(4), 407–426. https://doi.org/10.1177/1052562904264440

Dorst, K. (2018a). *Notes on Design: How creative practice works*. Amsterdam: BIS Publishers.

Dorst, K. (2018b). Notes on Design Lecture. Newcastle: University of Northumbria.

Findeli, A. (2016). Rethinking Design Education for the 21st Century : Theoretical , Methodological , and Ethical Discussion. *Design Issues*, *17*(1), 5–17.

Fuad-Luke, A. (2002). Slow Design, a paradigm shift in design philosophy. *Development by Design, Bangalore, India*, *44*(0), 01–02.

Fuad-Luke, A. (2004). *Slow Theory: A Paradigm for Living Sustainably?* Wuppertal, Germany. https://doi.org/10.1331/JAPhA.2008.08051

Fuad-Luke, A. (2009). *Design Activism*. London: Earthscan.

Fullerton, J. (2015). *Regenerative Capitalism: How Universal Principles And Patterns Will Shape Our New Economy*. *Capital Institute Think Tank*.

Geissdoerfer, M., Savaget, P., Bocken, N. M. P., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, *143*, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Grosse-Hering, B., Mason, J., Aliakseyeu, D., Bakker, C., & Desmet, P. (2013). Slow design for meaningful interactions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '13* (p. 3431). https://doi.org/10.1145/2470654.2466472

Hibbert, P., Sillince, J., Diefenbach, T., & Cunliffe, A. L. (2014). Relationally Reflexive Practice: A Generative Approach to Theory Development in Qualitative Research. *Organizational Research Methods*, *17*(3), 278–298. https://doi.org/10.1177/1094428114524829

Huppert, F. A., & So, T. T. C. (2013). Flourishing Across Europe: Application of a New Conceptual Framework for Defining Well-Being. *Social Indicators Research*, *110*(3), 837–861. https://doi.org/10.1007/s11205-011-9966-7

Lawson, B. (2005). *How Designers Think* (4th ed.). Oxford: Architectural Press. https://doi.org/10.1016/0142-694X(81)90033-8

Lewicki, R. J., & Polin, B. (2013). Trust and Negotiation. In M. Olekalns & W. L. Adair (Eds.), *Handbook of research on negotiation* (pp. 161–188). Cheltenham: Edward Elgar.

Lommée, T. (2012). Can we design hardware like how we design software? Retrieved June 8, 2017, from http://beta.openstructures.net/pages/2

Macdonald, F. (2009). An introduction to practitioner-led action research - a "how to" guide for practitioners and managers. Retrieved October 23, 2018, from https://www.gov.scot/Publications/2009/12/15095637/16

Manzini, E., & Stappers, P. J. (2016). Design Culture and Dialogic Design Ezio Manzini. *Design Issues*, *32*(1), 52–59. https://doi.org/10.1162/DESI

Max-Neef, M. (1991). *Human Scale Development: Conception, Application and Further Reflections*. New York: Apex Press.

McNiff, J., & Whitehead, J. (2006). *All You Need to Know About Action Research*. London: Sage Publications.

Medkova, K., & Fifield, B. (2016). Circular Design - Design for Circular Economy. *Lahti Cleantech Annual Review 2016*, (Hunter), 32–47.

Niedderer, K. (2004). *Designing the Performative Object : a study in designing mindful interaction through artefacts K . Niedderer*.

Nimkulrat, N. (2013). Situating creative artefacts in art and design research. *Making: An International Conference on Materiality and Knowledge*, *6*(September), 1–16. https://doi.org/10.7577/formakademisk.657

OED. (2018). Oxford Dictionary. Retrieved November 15, 2018, from https://en.oxforddictionaries.com/

Owen, R., Stilgoe, J., Macnaghten, P., Gorman, M., Fisher, E., & Guston, D. (2013). A framework for responsible innovation. In *Research Policy* (Responsibl, pp. 27–50). John Wiley and Sons. https://doi.org/http://dx.doi.org/10.1016/j.respol.2013.05.008

Poole, M. S., & Van de Ven, A. H. (1989). Using Paradox to Build Management and Organization Theories. *Academy of Management Review*. https://doi.org/10.5465/AMR.1989.4308389

Porritt, J. (2007). The Five Capitals Model – a framework for sustainability. *Action for a Sustainable World*.

Raworth, K. (2017). A Doughnut for the Anthropocene: humanity's compass in the 21st century. *The Lancet Planetary Health*, *1*(2), e48–e49. https://doi.org/10.1016/S2542-5196(17)30028-1

Rowley, J. (2014). Data Analysis. In D. Coghlan & M. Brydon-Miller (Eds.), *The SAGE Encyclopedia of Action Research* (pp. 239–242). London: SAGE Publications Ltd. https://doi.org/10.1561/2200000016

Ryan, R. M., & Deci, E. L. (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-being. *Annual Review of Psychology*, (52), 141–166.

Ryan, R. M., & Deci, E. L. (2011). A Self-Determination Theory Perspective on Social, Institutional, Cultural, and Economic Supports for Autonomy and Their Importance for Well-being. In *Human autonomy in cross- cultural context: Perspectives on the psychology of agency, freedom, and well-being* (Vol. 1). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-90-481-9667-8

Schön, D. (1983). *The reflective practitioner*. New York: Ashgate Publishing.

SlowLab. (2018a). Slow Practices. Retrieved July 12, 2018, from https://www.slowlab.net/RESOURCES/Resources-TOOLS-Slow-practices

SlowLab. (2018b). Slow Research Lab: ENCOUNTER. Retrieved November 14, 2018, from https://www.slowlab.net/ENCOUNTER

SlowLab, & Various. (2012). Slow Lloyd: Investigating Slow Creative Potentials of People, Place & Time. Retrieved November 14, 2018, from http://slowlloyd.slowlab.net/

Smith, K. K., & Berg, D. N. (1987). *Paradoxes of group life: Understanding Conflict, Paralysis, and Movement in Group Dynamics*. San Francisco: Jossey-Bass.

Søgaard, M., Remmen, A., Guldman, E., Brodersen, S., & Pedersen, S. (2018). Slowing and narrowing resource flows as part of circular economy business strategies, (June).

Strauss, C., & Fuad-luke, A. (2008). The Slow Design Principles. *Changing the Change: Design Visions, Proposals and Tools*, 1–14.

Strauss, C., & Pais, A. P. (2014). Take it slow: In the pursuit of well-being. *Crisp Magasine*, (#4), 24–27.

Strauss, C., & Pais, A. P. (2016). *Slow Reader: A Source for Design Thinking and Practice*. (C. F. S. Ana Paula Pais, Ed.). Amsterdam: Valiz.

Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, *27*(2), 237–246. https://doi.org/10.1177/1098214005283748

Thorpe, A. (2003). Fast and Slow Knowledge. In E. Van Hinte (Ed.), *Eternally Yours, Time in Design: Product Value Sustenance* (1st ed., pp. 214–238). Rotterdam: 010 Publishers.

van Rheden, V., & Hengeveld, B. (2016). Engagement through Embodiment: A Case for Mindful Interaction. *Proc. TEI 2016*, 349–356. https://doi.org/10.1145/2839462.2839498

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