Decolonising Design: Mapping Futures

Written and submitted by

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I dedicate this thesis to my wife, Bec and our daughter, Elke.
Abstract

This thesis expands upon design theories and methods for understanding and speculating futures. New perspectives on participatory design techniques combined with Indigenous approaches to knowledge production are presented as experiments of decolonising futures through creative critical mapping practices. Informed by my Australian Aboriginal and European ancestry, I outline the practice-led research including ways for readers to apply the creative experiments, provided in a series of reflections and appendix guides. I ask what might be an appropriate way of enabling people to map options for their futures. I consider how one might create a design practice that collaborates with people intent on navigating decolonising options. The research reveals strategies for decolonising the self, one’s practice and design. It demonstrates the designing of effective modes of listening, articulating and communicating with people about plural options for their futures.

The thesis theoretically develops a critical lens on modernity and colonialism, particularly detailing how continuing and emerging conditions of coloniality debilitate Indigenous peoples’ ability to transition to decolonising futures. It then provides methodologies for a practice of decolonising mapping in which one’s relationship with modernity and coloniality can be understood. The creative experiments apply these methodologies in educational, arts-based, community-based and other event-based and organisational settings. These diverse settings demonstrate a spectrum of new strategic combinations of, for example, Aboriginal yarning, relational mapping, design fiction, plausibility and futures thinking and concept articulation tactics in strategic sessions, participatory workshops, major public arts events, an interactive website and other environments and mediums. The work contributes not only to scholarship in design research, studies, thinking and education, but also beyond the broad design community to policymakers, government, organisational management and other community and social groups who are looking to think about, talk about, and mobilise futures. The practice in this research should be understood as creative experiments, not as ‘proof of commercialisation’ or ‘product’ designs. The primary focus of this qualitative research contribution is on experimentation, creative insight, iteration and reflection of how mapping with people in situated contexts can occur, rather than what has been articulated. Experiments in this research all occurred in Australia, mostly in South-East Queensland. Archived evidence of the creative practice is represented with photos and graphics integrated throughout the document chapters and in a comprehensive appendix. The implications of this research are that it contributes to redirecting the locus of design from a service provision activity towards a rapidly emerging critical design field. This thesis exhibits a unique theoretical, methodological and creative body of work of critical mapping as an articulatory design practice.
Statement of originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Tristan Schultz

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Signature

Feb 12 2019
Date
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Auntie Maureen Newton said to a young version of me, "you don’t know it yet, but one day you will give back to the Aboriginal community in thanks for this chance at an education". Her words stayed with me, because I had never known how to give back to the community that I lived on the border of. But she was wise. Her words triggered my years of working with community and this thesis, which, if it attests to anything, deems Auntie right. Thank you, Auntie. And thank you to all the Elders I have been inspired by over the years. This includes Uncle Norm Sheehan, who has remained my friend, my philosophical and academic mentor and supervisor for this research. Norm encouraged me to listen to the layers. Professor Sheehan’s confidence in me has been unwavering. Allowing me to be such an integral voice in so many yarns has undoubtedly developed my mapping practice exponentially.

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Acknowledgement of Published and Unpublished Papers
Included in this Thesis

Included in Chapters 2, 3, 4, and 5 are sections of papers of which I am the sole author. The bibliographic details for these papers are as follows:


Additionally, included in Chapters 5, 6, and 8 are sections of papers which are co-authored with other researchers. My contribution to each co-authored paper is outlined at the front of the relevant chapter. The bibliographic details for these papers including all authors, are as follows:


“Copyright Permission for Published Articles in the Thesis” is included in the appendix. “Statement of Contribution to Co-Aauthored Published Papers” is included at the beginning of each relevant chapter.

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List of Published Work that Contributed to this Thesis

Refereed Publications Which Form Part of the Thesis

*Sole Author*


*Co-Author*


**Symposiums and Colloquia**

Material arising from this study has been previously presented at these conferences:

**Sole Author**


———. 2015. "Design as Event in Practice of Redirection & Repair." Griffith University: Melanesian Spearhead Group and Griffith University Australian Award Fellowship Program Overview Symposium, Gold Coast, Australia.


Co-Author


Creative Outputs Which Form Part of the Thesis:

Sole Author


———. 2015. Aboriginal & Torres Strait Islander Cultural Expression as Redirective Practice Cognitive Redirective Map. Gold Coast, Australia: Australia Council for the Arts.
———. 2016. Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab. Sydney: Australia Council for the Arts


Co-Author


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Introduction
This thesis expands upon design theories and methods for understanding and speculating futures. New perspectives on participatory design techniques combined with Indigenous approaches to knowledge production are presented as experiments of decolonising futures through creative critical mapping practices. The research provides examples for designers, educators, community practitioners and activists seeking methods for working with decolonising worldviews and future-facing perspectives.

This introduction explains the position, theoretical framework and methodologies of the research. I provide explanations for key terms and position the work as a practice-led design thesis that contributes to critical design research. My research question is, what might be an appropriate way of enabling people to map options for their futures? To answer this question, I developed a theoretical perspective on decolonising, design, mapping and futures. I then established a methodological process based on these perspectives. Finally, I creatively experimented with these methodologies and processes in educational, arts-based, community-based and other event-based and organisational settings.

The contexts in which these methodologies and processes can be productively applied is particularly in participatory or co-design workshop activities either expert-led by designer-facilitators or by non-expert designers on their own. Applications exist in approaches to design thinking and mapping, mapping as a learning tool, mapping for social innovation, social enterprise, strategic design, systemic design and in particular an emerging context of decolonising design. These terms will be summarised below. There are professional practices in Australia and across the globe either specific to these approaches, or working in interdisciplinary contexts inside design, or operating transdisciplinary practices. The latter emerging transdisciplinary practices are where processes developed in this thesis might be most usefully applied. These professional settings often intersect with business, government, organisations and academic institutes to leverage the best of industry, community and research. They facilitate design-led conversations about social complexities and rapid change and their common aims are to be futures-facing in order to future-proof individuals, communities and societies’ relation with work, leisure and everyday life. They contribute to the creation of, or submission of tenders to, large and complex design projects that bring together multiple stakeholders from multiple disciplines inside and outside the field of design.
Tracking Where I Stand

Historical conditions have shaped this research and provide a context through which it can be understood. My childhood was spent in an Anglo-Australian urban environment, in mainstream Australian public schools. Western modernity, the Enlightenment, and their darker side—colonialism—were and still are dominant forces shaping this environment. The invasion by the British (part of my European ancestry) of the geography of Australia and its peoples (part of my Aboriginal ancestry) was legitimated under the British law of *terra nullius* (a term designating a geography ‘empty of people and law’). Under this law, the British acquired the land without treaty, conquest, or ceding. It wasn’t until 1992 that the High Court of Australia acknowledged the principle of *terra nullius* factually incorrect, but this has not yet brought a treaty or other official sovereignty recognition.

During my childhood, my Anglo-Australian mother was studying Anthropology, specialising in Aboriginal women’s health. Her studies exposed me to research and discourses that left in me a lingering bitterness about the rupture between my European and Indigenous worlds. The many days I spent in academic libraries photocopying pages for her research also gave me a sense that human existence was the subject of deep investigation and that all truths were not known. This upbringing also points to the relationship I had to my own Aboriginal heritage: one that was an intellectual acquisition, mixed with a secondary form of community immersion that came with my mother engaging with Aboriginal communities. Later in life, this changed to a first-hand connection with communities. My family connection had been broken and concealed two generations before. It was my father’s brother who did the hard, analytical work early in my life that retraced our Gamilaroi genealogy.¹ His father, who died when my father was ten, along with his siblings were told by their parents to say they were Sri Lankan, not ‘half-caste’ Aboriginal, to avoid being forcibly removed. This intergenerational rupture is a familiar story, and the reconnection I have had to my heritage is a common journey for many. But it is an important condition that shapes the lens I bring to my identity and to Aboriginal futures. My mother’s intellectual influence, my uncle’s research, along with the fact that I have fair skin and can just as easily pass as European shapes the way I arrive at being Aboriginal. My life is not an experience of my body racialised or oppressed.

At age fifteen, I moved from Brisbane to the Gold Coast, a place I had spent a great deal of time while growing up, since my father’s side had lived on the Gold Coast for generations after migrating from their Gamilaroi Country (Tamworth surrounds) via Sydney. As much as I felt a connection to the Gold Coast, the catalyst for the move was a shift to make a new life after a fragmented relationship with a stepfather in Brisbane. Learning how to become the moral man

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¹ Gamilaroi is the name for the language group, location and group of people that make up an Aboriginal nation stretching through vast areas of northern New South Wales into Queensland.
I hoped to be a normal condition. This early desire to know ‘how-to’ transform futures continued and unquestionably shaped the way I approached knowledge inquiry in early university studies, in professional practice, in my critical design practice, and in the creation of this thesis. This upbringing, I feel, has conditioned me to reject constraint and to critically analyse everything in life in search of better worlds.

From 2006 to 2010, I worked as a commercial designer in the surf industry. However, I soon became disillusioned as I found myself creating designs for items that were superfluous and merely capitalised on consumers’ desire to express their ‘coolness’. I realised that I was responsible for the items I designed—both in their material and semiotic sense—and I felt uneasy at my participation in this world. Therefore, I decided to return to postgraduate studies to pursue a Master of Design Futures.

The experience of the Master’s program, led by design philosopher Tony Fry, shaped my ability to articulate how my disillusionment with a consumer-capital mode of designing is an outcome of the way I was taught and practiced design as a product of Western modernity. Modernity is a narrative, Argentinean decolonial theorist Walter Mignolo argues, “whose point of origination was Europe; a narrative that builds Western civilization by celebrating its achievements while hiding at the same time its darker side, ‘coloniality’” (2011p, 2-3). In my Design Futures Masters studies, I had developed a perspective that design is insufficient to confront the immense and complex unsustainable and oppressive issues of today and to transition humans to viable plural futures. I return to this argument throughout this thesis. Under Fry’s leadership, our annually fluctuating cohort of four to six Master’s students delivered three international hothouses (Paris, Greece, and Egypt) and another series of national hothouses in Brisbane. It was during these experiences in particular that I began to note the lack of techniques the group had at hand to understand and articulate the information we were eliciting together as a group. This always agitated me and highlighted three shortcomings in the way that I felt Fry engaged with groups. Firstly, there were seldom techniques provided to arrange complexity into spatial and temporal scales. Secondly, Fry’s political tone at times ostracised workshop participants while at the same time there was a politics in Fry’s positioning whereby he placed his own identities at arm’s length. And thirdly, Fry often ignored or was antagonistic towards other contemporary critical design movements that similarly advocate worthy socially engaged design and futures. I came to realise my perspectives were being shaped by different approaches connected with my own identity and mode of communicating with people, which catalysed this research.

During and after the Master’s, I began transforming my practice and my life. I left behind a successful commercial design career to make myself anew. I married, I divorced. I found my life partner and the joy of a child. I left a ‘big’ house and moved into a very small unit. I
increasingly asked the question ‘why’ of design. I made a commitment to attempt, at least, to make better worlds, professionally via my practice—design. My instinct at the time was that I could not achieve the freedom—liberation from conditions of constraint—to think as critically as I needed to if I remained inhibited by personal, professional, moral and ethical contradictions. I sought to render my life, as bell hooks (1994, p. 48) writes, as “a living example of [my] politics”.

Being Aboriginal
As indicated above, I have no direct experience of oppression on the basis of race. My experience of Aboriginality is sharpened, however, by missing an Aboriginal cultural upbringing because of family disconnection. The unknowing rift causes speculation without ground, which psychologically unsettlements my identity and amplifies my personal empathy towards the horrific experiences my Aboriginal ancestors endured. Upon my entrance to undergraduate studies through assistance from Aboriginal support mechanisms, Auntie Maureen Newton said to a young version of me, “you don’t know it yet, but one day you will give back to the Aboriginal community in thanks for this chance at an education”. These words stayed with me, because I had never known how to give back to the community that I lived on the border of. Her wise words triggered the years of work with community I embarked upon and this thesis, which, if it attests to anything, deems Auntie right.

I have been shaped by working closely with Aboriginal organisations, businesses, groups and individuals in community, professional and academic contexts for many years. These experiences have involved listening in respectful and relational ways to other genealogies of thought. One of these contexts has been working closely with Aboriginal (Wiradjuri) designer and Indigenous Knowledge (IK) scholar Norm Sheehan, director of Gnibi Whandaran School of Indigenous Knowledge and Aboriginal Futures, Southern Cross University. There, on Bundjalung Country, my understanding of how design and visual dialogue can affect change was fostered. For decades, Sheehan has written about and practiced with community Elders what he calls ‘Respectful Design’ (Moran, Harrington, and Sheehan 2018). While this will be further discussed in Chapters 1 and 2, in summary, the Indigenous conception of Respectful Design “is not based on what design is, what design does, or what design means; it is founded on how design positions itself in relation to natural systems and the social world” (Sheehan 2011a, p. 70). In my work with Gnibi and in the numerous other cases detailed in subsequent chapters, I have remained cognisant of my positionality. I am not there to harvest people’s stories, nor am I there to relate to oppressive conditions that I did not inhabit. I am there to listen and assist in people’s reflections through experimenting with process-enabling and articulation tools. This is why no primary data of participants' stories is discussed in this research. This creative experimental mode of thinking of my practice has led me to understand the thesis as articulatory and practice-led research, terms I will explain below.
Articulatory Design Practice

‘Articulatory design practice’ is a fitting way to classify the kinds of strategic process–enabling tools discussed in this research. Articulation as design practice has been thoroughly outlined most recently by my comrade and recent PhD Design graduate Mahmoud Keshavarz (2016). Keshavarz has concluded that “rather than reducing everything to economics or ‘modes of production’ in Marxist terms, articulation examines how heterogeneous forces interact and combine to produce effects that are not necessarily identical to those elements existing in the articulation of a force, a thing or an event” (2016, p. 40). My research extends Keshavarz’s theoretical articulations by experimenting with practice-led articulating mapping practices that can situate linkages, connect and recognise disconnections (disarticulations), and forge and speculate new relations (rearticulations) between links.

The articulating tools developed throughout this research take an open-loop understanding as a component of mapping with ambitions to support people to think, talk and map ways out of conditions of oppression and uncertainty. However, I do not use the term ‘articulation’ with most participants I work with in creative experiments when communicating and sharing these strategies with them. Instead, I use a cartographic suite of terms. This is done for two reasons. Firstly, because this language fits well with my IK conception of mental mapping as a spatial ‘tracking’ (articulating) of linkages (material realities, histories, conditions, knowledge). It helps with on-the-ground understandings of the processes that participants are asked to work with. Secondly, this research explores how dominant Western forms of cognitive mapping and cartography in design practice can sometimes overprescribe realities in a determinist sense and so it experiments with re-accenting cognitive mapping and cartographic thinking from a decolonising mapping lens. Critical mapping as an articulatory design practice is discussed at length in Chapter 1.

Practice-Led Research

This research can be defined as ‘practice-led’ because I am developing original investigations by means of my design practice and by critically reflecting on the outcomes of that practice (Candy 2011). I have also developed tactics that invoke reflective conversations among others. This aligns with the way that philosopher Donald Schön (1995) defines design practice. He asserts that designers need not be guided by technical rationality but can learn from experiences and be guided by material situations in which the designer operates. Cultural theorist Christopher Frayling’s (1993) conception of ‘research through design’ also helps explain the practice-led research outlined in this thesis. Frayling identified three categories in design research: ‘research into design’, in which historical, aesthetic and theoretical
perspectives of inquiry are undertaken; ‘research for design’, where “thinking is embodied in the artefact” (1993, p. 5); and ‘research through design’, in which researchers reflect on their design practice, which in turn leads to further experimentation.

This thesis is also the result of research through border thinking. Drawing upon social theorist Ashis Nandy (1987), I avoid an anti-science/technology position when speaking of the consequences of modernity. Similarly, Mignolo and Madina Tlostanova promote a “border thinking” (2006) of the critical plural uses of the ruins of modernity. Tlostanova writes that “border thinking and border perception originating on the fringes of modernity are marked by double consciousness, multiple optics and many-valued logic, and can potentially lead to a more radical rethinking of design, to its decolonization as an overall perceptive mechanism hiding its locality behind false universalism” (2017, p. 54). I sit at the borders of an identity between Aboriginal and European racial designations and between Indigenous relational worldviews and Western rational worldviews. From this place, I ask why, given the complex and interrelated conditions of the world/s humans inhabit—from climate change and resultant human movement to continual global inequity in a myriad of ways—does research through design remain reluctant to approach inquiry in a relational border thinking way? This question orients my design practice.

Situating Decolonising, Design, Mapping and Futures

This research is located at the nexus of three broad fields: design, futures, and decolonial thinking (figure 1). The way I understand and approach these terms, shaped by my experiences outlined thus far, will now be explained.

Figure 1: Venn diagram of fields of research
Design
Design has traditionally been characterised and understood as design agencies designing products (e.g., cars, washing machines, campaigns, or brands). More recently, design is additionally typified as providing new services. Moreover, it is generally accepted by leading design researchers (Irwin et al. 2015, Willis and Elbana 2017, Manzini 2015, Ehn 2014) that co-design processes (emerging from the interactions of different actors) are dominant characteristics of contemporary design. However, as repetitive, predictable, technical abilities of designers become more democratic—more accessible to everyone because of technological automation and replaced by that same automation—so it is becoming increasingly evident that design is being radically redefined. Socially messy, complex, creative, unpredictable, strategic and systems-based skillsets are least likely at risk from technological automation and are most rapidly increasing in design. To this end, descriptors in emerging Western design include: design as situation facilitation; service design, policy, planning design and strategic design; social design; social innovation and activation design; participatory design; and social enterprise design.

However, there is nothing restricting these kinds of designing practices from enabling futures that are just as destructive as the consumer-driven design industries they follow. The rise of the ‘doing good’ movement in design (design activism, socially engaged design, humanitarian design, social innovation design) has brought about an important questioning for designers.

Design Thinking
‘Design thinking’ is a term often used to describe this new epoch of Western design. For design researcher Lucy Kimbell, designers who say they are practicing ‘design thinking’ are associated with having a human-centered approach to problem solving, in contrast to being technology- or organization-centered. They are seen as using an iterative process that moves from generating insights about end users, to idea generation and testing, to implementation. Their visual artifacts and prototypes help multidisciplinary teams work together. (2011b, p. 287)

Kimbell suggests design thinking should extend to be understood as a “situated, contingent set of practices” (2011b, p. 287). However, some design thinking practices risk a major weakness that Kimbell recognised; that design thinking is often practiced as a “disembodied and ahistorical cognitive style”. At the end of this section, I compare a matrix of design professional practices, distinguishing my work in relation with others. In many of these cases, their mode of design thinking is not in conflict with my design practice particularly when approached from a situated, critical context. A further departure from the design thinking undertaken in this thesis is that some design thinking activities are mediated by a myriad of excessively rationalist mapping methods deployed for competitive neo-liberal business strategies. For example, Tim Brown, the CEO and President of IDEO, one of the world’s largest interdisciplinary design firms
focused on human-centred design thinking, has expressed his excitement in their version of design thinking contributing to a new epoch of ‘democratic capitalism’ (2019).

In almost all cases of design thinking, mapping plays an important role. For example, IDEO recently launched their Circular Design Guide website featuring numerous mapping templates and resources that they suggest help people “explore new ways to create sustainable, resilient, long-lasting value in the circular economy” (2019). Another example is the Systemic Design Toolkit (Ael et al. 2019), created in collaboration between leading European interdisciplinary design firms. It offers free to download mapping guides and templates described as interventions to tackle organisational and societal complexity. The relation between these mapping tools along with others and those I have developed in this research are also compared in a visual matrix below. Chapter 1 continues a review of ways of understanding and practicing critical mapping and their relationship with the way that theories and practices of mapping are offered in this thesis. It also posits my case studies of my work in this thesis in relation with an associated area of practice known as critical map art.

**Mapping as Learning**

As with the relation to the practice of map art, some of the cases studies of my work in this thesis are situated in educational contexts. The relation between cognitive mapping and learning has arisen in my work since I have been involved in lecturing and workshopping with design students over a number of years and have been motivated to explore ways for students iterate their ideas. My work could be regarded as extending on simple cognitive mapping techniques such as mind mapping and concept mapping that education scholar Raymond Dixon suggests are increasingly approaches being used in education as a technique to guide and “stimulate creative thinking and problem solving” (Dixon 2014, p. 2). Mind maps make visual reference, in any way, to internally represented schemas or mental models. Concept maps can be thought of as externalisations through graphical representation of those mental models in causal relationship form. In simplistic terms, children in early education begin learning concept mapping techniques, and as they age, Dixon writes “they are capable of representing concepts and the links between the nodes [that] capture their interrelationships” (2014, p. 3) in more complex ways. Placing this pragmatic educational technique into a critical context, my interest has been to search for alternative forms of problem solving that go beyond what Brazilian educator Paulo Freire (1998, p. 54) describes as an imperial epistemology of modernity of a banking concept of education which acts to “minimise or annul the student’s creative power”. I have sought to develop through a mapping practice a way to provide students the ability to develop, as Freire writes, a “power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality, but as a reality in process, in transformation” (1998, p. 77).
Social Innovation, Social Enterprise and Strategic Design

Other case studies of my work in this thesis fit within the realm of mapping as either social innovation, social enterprise or strategic design practice. Social innovation approaches articulating new ideas by focusing on practical social needs in the now, such as community, education and health. A common thread of social innovation is a goal of amplifying civic and democratic processes of participation in grassroots issues. Ezio Manzini, a global leading author and practitioner in design for social innovation, suggests that bringing autonomy and collaboration together can develop new forms of design intelligence for the good of the communities and society as a whole (Manzini 2019).

With similarities to social innovation, social enterprise design focusses more on social business models of innovation that generate revenue streams. Leading social innovation designer Matthew Manos (2016) advocates for a shake-up of social innovation and social enterprise to become less reactive to social issues and more pre-emptive to future forecasting instead. This turn in social innovation and social enterprise particularly fits with the bridging of my practice between futures studies, design and social entrepreneurship. The research aligns with Manos’ application for “preemptive entrepreneurship [that] takes what is expected of the future and turns it on its head in order to change the ways in which we understand the world through futures-driven business-design. It is a method of storytelling through imagining new business and a tool to help imagine new innovations within the business industry in order to craft the culture of the future, or critique the culture of the present” (Manos 2016, p. 62).

Finally, strategic design is a broad term that encompasses both social innovation and social enterprise design. However, unlike the former example’s inherent focus on social impact, strategic design, similarly to the design thinking examples above, can also be appropriated for neo-liberal corporate strategies. Helsinki Design Lab (2019) consider strategic designers to have three core competencies, all of which fit with the mapping practices developed as part of this thesis, yet in these descriptions an absence of political agency distinguishes the departure taken in my practice:

1. **Integration**: an integrative approach of design helps illuminate the complex web of relationships— between people, organizations, and things—to provide a holistic point of view. By working across different areas of expertise, strategic design outlines the “architecture of the problem,” highlighting key opportunities for improvement in all aspects and outcomes of a problem.

2. **Visualisation**: Fluent in visual representation, the strategic designer uses this skill as an important and iterative means of communicating complex, even contradictory, relationships—which would be difficult or impossible to explain in text and numbers alone.

3. **Stewardship**: In recent years, the emphasis on “design thinking” has powerfully demonstrated the value of applying creativity in a business context. But successful design
is not only about creative thinking. It also involves implementation and ensuring that key ideas maintain their integrity during that process. Designers must be involved over the duration of change processes, providing constant expertise and feedback to identify, test, and deliver durable solutions (Helsinki Design Lab 2019).

Systemic Design
Extending on strategic design, designing and mapping in this research is also situated in the realm of systemic design. A leading systemic design movement, transition design, describes this area of design as “concerned with understanding approaches to help shift the trajectory of systems through strategically placed, designed ‘interventions’ over short, mid and long horizons of time” (Irwin 2019).

Transition design and similar systemic design discourses conduct design thinking and practice through the premise that humans and other lifeworlds exist in a dynamic maelstrom of living systems, be they natural living systems in ecologies or socio-technical systems. This follows a lineage of systems thinking particularly from Humberto Maturana and Francisco Varela (1992) to leading systems theorist and deep ecologist Fritjof Capra, whose central argument is that “we now live in a time in which we’re beginning to recognise that systemic problems are all ‘interconnected and interdependent’” (2015, p. 248). Capra, following a broader turn in Western epistemology asserts that this new epoch has been brought about through shifting from a dualist view of life, or Cartesian division between mind and matter, to a return to a systemic view of life. A Cartesian view, a philosophy that predominates Western thinking and began from one particular philosopher Rene Descartes and subsequently by other seventeenth century thinkers, is the view of the human body as a machine and the mind as a separate entity. A systems view of life, according to Capra, and based on emerging understandings in multiple scientific fields, rejects this wholly. This view, and these scientific insights explain that “not only the brain, but also the immune system, the bodily organs, and even each cell is a living, cognitive system, such that human bodies and minds are connected living systems, connected with all other living systems in this world and cosmos” (2015, p. 243). However, the Cartesian, or dualist view of the world lives on in the way life is perceived and structured across much of Western society. This a view that places the human mind outside of nature, not as part of it. Everything else, everything material is simply there, for human exploitation. For Capra, Western epistemology is in a moment of transition towards a systems view of life, asserting that there is an imperative to deploy creative means that foster a “fundamental shift from seeing the world as a machine to understanding it as a network” (2015, p. 245).

In systems thinking key theories are self-organisation, emergence and feedback loops. These theories describe ways in which systems impact humans, lifeworlds and ecologies both in
positive ways, and in wickedly systemic ways – as wicked problems. It is the term ‘wicked problems’ that design theorist Richard Buchanan (1992) integrated with design thinking, and wicked problems are what systemic designers particularly look to interrogate, understand and ultimately transition through. This is based on a premise that self-organisation, emergence and feedback loops are not closed loop systems but rather they are open and able to be intervened in, by design. Transition design as a movement describes open loops as leverage points in systems in which feedback loops can be redirected towards more sustainable futures. Systemic design asserts that to be able to (re)learn that ‘we’ are living systems, ‘we’ need to think, and design, systemically, in terms of relationships, patterns, and context. There is a wide variety of systemically designed interventions now interlinking problems of energy, food, poverty, and climate change, for example. In this, there is a critical mapping practice to which this thesis contributes, of interlinking connections through systems-based network visualisations and thinking techniques that elicit graphical representations of patterns of information.

Systems thinking and systemic design have been critiqued for being over mechanistic, instrumental and void of being critical to ideas of reason and questions of power, thereby falling into Cartesian traps it sought to transition away from. Wolfgang Jonas summarised these limits of systems thinking as it relates to practice-based research through design as “blind spots in design research [that] manifest themselves in multiple forms” (2014). These are summarised as: unconsciously defined and intransparent value systems; implicit driving forces based on optimistic or pessimistic views assumed futures based on biased selective pasts, and; pseudo-objective scenario techniques. The mapping practices in this research both align with systemic thinking and seek to extend a practice-based research through design that alleviates these blind spots akin to critical systems thinking (Ulrich 2000). For Jonas critical systems thinking “explicitly addresses the human involvement and the restrictions and limitations resulting from this” (2014, p. 6).

**Design Anthropology**

To address the blind spots of systems thinking critically, systemic design requires an understanding of its relation to ethnographic discourses and practices. Ethnography is an extension of anthropology. Anthropology is loosely described as the study of human behavior – how people experience and make sense of what they and others do – of culture. However, early structural anthropology was embedded in colonial structures by supporting the image of races across the world as ideas, forms, or schemas which selected and edited out that which did not fit the dominant narrative of an ‘essentialist’ picture of Indigenous cultures across the world. From the 1980’s, following postcolonial critiques from the 1960’s, scholarly attention had transitioned anthropology towards a reflexive turn. One of the leading authors in this turn was James Clifford, a contemporary anthropologist who writes, “the history of anthropological relations with local communities includes many examples of insensitive data and artifact
collection. These, combined with general assumptions of scientific authority, are understood as modes of colonial domination from the other side of a structural power imbalance” (2004, p. 5).

Speaking to this turn, design researcher Cameron Tonkinwise asserts that “ethnography arose in an anthropological discipline at war with its own colonial heritage” (Tonkinwise 2014, p. 25). Ethnography is typically viewed as an engaged form of observation. In the anthropological turn, it moved from a typically etic perspective (the perspective of the outsider looking in), to an emic perspective (to an insider’s point of view). Design ethnography is a practice widely used by designers as a way of observing emergent behaviours collaboratively with users of future designed artifacts and services in mind. ‘Emergence’, in this way, is understood by design anthropology authors Yoko Akama, Sarah Pink and Shanti Sumartojo as acknowledging that “we live in and grapple with worlds that are ongoingly emergent and changing configurations of things and processes” (2018). They follow the work of design anthropology scholars Rachel Smith and Tan Otto who suggest that “design anthropological interventions might function to condense or accelerate time in order to explore and understand the emergent and the potential futures and imaginations it may hold, or in other words, to make virtual experiments on the emergent” (Smith and Otto 2016, p. 21). When design anthropology is done respectfully, methods avoid blind spots by ensuring that designer-facilitators are reflexive of their pasts and perspectives that inescapably integrate into experiments when designing collaboratively with people speculating future designed things and processes. In a latter section of this introduction I review discourses of decolonising research methodologies and participatory action research through design that are followed in this research which align with this kind of reflexive design anthropology. Throughout the chapters, reflections on my case studies include discussions about the reflexivity of my presence in facilitating. For instance, there is always a politics and power dynamic at play with my own bodily appearance, as a white-looking male, in many settings. This presence is ultimately performing back on participants and ontologically affects methodologies. In all accounts, personhood, worldviews and methodologies configure experiences of mapping collaboratively with people. This is contrary to a dominant understanding of methodology in design that follows a lineage of methodologies deriving from structural anthropology. The use of a methodology of mapping alone in this research does not assume to constitute a sole causal catalyst for change.

So far, I have introduced ways I approach design, design thinking and mapping, mapping as a learning tool, mapping for social innovation, social enterprise, strategic design, systemic design and design anthropology in this research. Tony Fry (2009) argues that two more crucial foundations are important for a critical design practice: an understanding of ontological design, and an understanding of moving beyond the insufficiency of the rhetoric of sustainable design, towards ‘sustainment’. Additionally, as this research argues, future-making requires a critical understanding of social, cultural and technological pasts, presents and future forewarnings and megatrends. This includes a critical lens on modernity and
colonialism, particularly its destruction of Indigenous Knowledge. These areas will now be outlined.

**Ontological Design**

Ontological design can be explained through a simple example. If one asks a person to design a new chair while they are seated in a chair, that chair will have an impact on the new chair design in their mind. The chair’s environment (the space it holds among other designed furniture and the built environment around it), the chair’s ergonomic qualities, and the chair’s material and historical conditions will influence this person’s perception of what the next chair should be. Thus, the designed chair goes on designing one’s perception of a way to design a new chair, and it designs the way people act, think, and know in its presence. This feedback loop influencing the very nature of our existence is ontological design in practice. It is the way in which humans evolve with things. Anne-Marie Willis succinctly summarises this approach: “we design our world, while our world acts back on us and designs us” (Willis 2007, p. 70).

The concept of ontological design was first explored by Terry Winograd and Fernando Flores (Winograd and Flores 1987), who argued against systems design for being too techno-utopic. Their work helped develop the now widely accepted notion in Science and Technology Studies (STS) that technology designs humans’ relation to the world. Ontologies are always changing according to our mental perception and interactions with the world. Therefore, articulating the way people relate to things ontologically (be they chairs, cars, hammers, iPhones or policies) offers insights into how rearticulations towards new relations with things might occur. A designer who is knowingly, rather than unknowingly, ignorantly or unconsciously, experimenting with disarticulating the myth of closed-loop determined systems and helping people rearticulate previously concealed or incommensurable open-loop design opportunities is a designer experimenting with practicing ontological design.

**Sustainment**

Design, or any kind of prefiguration of an idea brought into existence, is always political. When one projects an image, product, service, system, process or other way of animating an idea in its realised direction (and therefore what direction not to take), there is an inescapable value judgement being made about what future one wants. For Fry, this is the “dialectic of Sustainment” (2003, p. 2), a term he coined to mark a departure from pragmatic sustainability discourse. The contradiction Fry is identifying is that firstly destruction and creation are indivisibly implicated in each other, and that secondly the rhetoric of sustainability lacks emphasis on this inevitability. For Fry, designing for sustainment is premised on directing designs on future paths

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2 Other key design researchers have also explored ontological design (Fry 2012, Lopes 2017, Stewart 2015).
that make time, which he calls ‘futuring’. Time, he argues, in the sense of a human experience, is made when designs ontologically extend the human species and the biophysical world upon which humans depend, before an inevitable extinction. Conversely, he calls that which takes time away for humans on this planet—i.e., which accelerates our species’ extinction—‘defuturing’. Following this, to map sustainment is to articulate, disarticulate, and rearticulate the price to be paid for creation offsetting greater value and extended time than its related destruction.

**Futures**

There are many practices across a broad variety of disciplines that overlap with design practice, that deploy mapping futures. These include foresighting, scenario planning in urban and master planning, strategic foresight in corporate consulting, forecasting in meteorology and risk indexing in insurance and investment sectors. These disciplines have coalesced into a broader field known as futures studies (Slaughter 2003). Futures studies scholar Richard Slaughter writes that a history of the emergence of future studies is found in the emergence of “powerful processes that included urbanization, industrialization and colonization…[which]…rendered the future more problematique than it had even been historically” (2003, p. 32). The insight, Slaughter suggests, is that there was no “no longer ‘a future’ at all, but, rather, a vast array of possible futures” (2003, p. 32) and hence the formal study of the future emerged. Slaughter’s analysis follows a vanguard caveat put forward by the novelist (and perhaps the first futurist) H.G. Wells way back in 1932 aired on prime-time BBC radio:

> It seems an odd thing to me that though we have thousands and thousands of professors and hundreds of thousands of students of history working upon the records of the past, there is not a single person anywhere who makes a whole-time job of estimating the future consequences of new inventions and new devices. There is not a single Professor of Foresight in the world. (Wells 1989, p. 3-4)

Amongst future studies disciplines there are vast epistemological and methodological differences, however one common goal is to help people consider how things could, are likely to, and should be different in times to come. In almost all cases these are connected with actions that might be taken in the present to get to those futures. More recently a critical future studies field has involved ‘futurists’ broadening their interests in non-Western futures thinkers such as Ivana Milojević and Sohail Inayatulla (2015) recently and Ashis Nandy (1987) before that. Design practice connects with future studies by offering approaches to bringing visions into existence through compelling storytelling and visualisations, commonly known as creating design fictions. Design fictions are beneficial for conceptually testing ideas for futures as if they are already in existence, without wasting the time, money and resources they might consume in reality. Connecting with design anthropology’s virtual experiments on the emergent, design
fictions might test and convince people of the probability of the potentially harmful fusion between people and technologies, services and systems, without the consequence of bringing that hard-to-separate fusion into actual material existence. Over the course of the twentieth century this ‘predicting fusions’ propensity by design has had mixed results. As Damian White describes, “early modernist architecture, industrial design and utopianism were almost indivisible…to stimulate change and sometimes to recoil from it (2015, p. 12)”. It was a propensity that was decisively challenged by the utopian ideals behind the Holocaust. Contrary to utopianism, critical design practice makes attempts to move beyond singular, linear and static visions of ‘the future’ towards understanding ways to comprehend plural visions across different cultures and worldviews. One approach to designing futures described by Akama et. al., is where “facilitators might introduce ‘what if’ scenarios or a problem context to trigger engagement, or ask the group to make, perform, play a game as a way to work through an idea” (Akama, Pink, and Sumartojo 2018, p. 12). They describe these kinds of workshops as a “form of praxis (theory + practice), and in design research contexts workshops are often used as a means to precipitate understandings of participants’ perspectives as well as to co-create ideas and prototype with them” (Akama, Pink, and Sumartojo 2018, p. 12).

In all futures-oriented practices across a broad variety of disciplines that overlap with design practice mentioned above, practitioners are either concerned with systems in isolation or interlinked systems, such as health, human movement, conflict, the climate, politics, food and water. Futures of these system categories are speculated from the perspective of worldviews, be they humanist, spiritual, pluralist, Indigenous, decolonial or neocolonial worldviews. In each of these worldviews a view of technologies role in futures is also present, anywhere in a spectrum from techno-phobic to techno-determinist worldviews. Moreover, practitioners are positioning their concern and focus within a spectrum of futures ranging from most probable futures to a broader reach of plausible futures, to an even broader reach of radical and possible futures. For example, CSIRO’s Data 61’s division (2019) focuses on the most probable Australian future Megatrends. Whereas the World Economic Forum’s Annual Global Risks Report (2019) focusses on a broader scope of possible futures. Design theorist Tony Fry (2017), at the end of a spectrum, focusses on radically possible futures, however he politically positions them as the most likely (probable) futures. Finally, in each case of mapping and speculating futures, practitioners ultimately recommend preferable futures. These preferable futures may be on a spectrum ranging from a current probable direction to a radically alternative proposition.

Designers and researchers Dunne & Raby articulate options of futures via a well-known diagram known as the ‘possibility cone’ or the four ‘P’s. In figure 3 below the possibility cone is seen on the left. Beside it is a reduced version of my mapping practice diagram, with the futures parts remaining highlighted in their respective colours (the full version can be found in Appendix
A). In my practice, I often refer to the possibility cone as the ‘plausibility futures’ and it has been most useful when used alongside my own ways of visually expressing futures with participants, though as is indicated here, it forms a small part of a much larger and complex whole. The diagram at right illustrates ‘place’ of the plausibility futures. This situatedness is both temporal (in the way futures are introduced in workshops only after time is spent on past and present concerns) and spatial (in the way futures can help to demarcate a landscape; a place to redirect around). Dunne & Raby explain their possibility cone: “...[The first cone]...is where most designers operate. It describes what is likely to happen unless there is some extreme upheaval such as a financial crash, eco disaster, or war...” (*Dunne and Raby* 2013, p. 4). In my practice, I tend to describe this as a future direction of accounts of history, if nothing changes. The next cone for Dunne & Raby,

describes plausible futures. This is the space of scenario planning and foresight, the space of what could happen. The space of plausible futures is not about prediction but exploring alternative economic and political futures to ensure an organization will be prepared for and thrive in a number of different futures. (*Dunne and Raby* 2013, p. 4)

I extend on plausible futures in my practice by including a step articulating ‘a future out there’, full of unchangeables, such as a rising sea, or an amount of methane in the atmosphere. This future is hurtling back on the former and at any future date critically intersects with the first. When this future is articulated, plausible futures are better understood. Dunne & Raby continue, “the next cone is the possible, where radical paradigm shifts could occur; changes in political, social, economic, and cultural are not impossible but it can be difficult to imagine how we would get from here to there” (*Dunne and Raby* 2013, p. 4). I regard this as a spectrum of futures, where accounts of histories are intervened, intersections are rearticulated, and directions of futures are prefiguratively and projectively shifted. The fourth ‘P’ for Dunne & Raby is the preferred future, the value judgement one makes about what to project into the future. I describe this as a redirected future that has navigated around any clash between the current future directions and the ‘futures full’ hurtling back. Similarly, redirected Futures is a term originally popularised by Fry (2009).
Figure 2: Left: Possibility Cone. (Dunne and Raby 2013, p. 4). Right: My own mapping practice diagram with the futures parts remaining highlighted in their respective colours (the full version can be found in Appendix A). The possibility cone is situated at centre bottom.

The visual articulations of futures in figure 2 between the left diagram; the Possibility Cone’s linear and straight 4Ps model, compared to my own diagram on the right; an undulating, multiple, situated and spatial diagram, is a deliberate act of embracing an inescapable, messy complexity that constitutes the living systems humans exist within. Hidden from this simplified view is a set of tactics in an order that have been effective in encouraging transformative conversations and radical ideas. I outline these step-by-step processes in chapter 5, and in a different guide format in Appendix A: Critical Mapping as an Articulatory Design Practice: A Visual Guide. In that package, there are over 30 possible steps featured, each with four sections: the step as it relates to the overall map steps, theories, practical steps and reference to more information and accompanying tools. Each page therefore has enough information to be read in isolation, so it can be recombined with other step sequences. The visual growth of the map template on each page is deliberately messy and relational to encourage the same engagement.

There are innumerable future themes one might map and countless typologies, processes and methods. In futures studies Antonie Jetter and Willi Schweinfurt suggest that causal mapping, or simple ‘loop and arrow’ mapping has long been used as a means to “elicit worldviews of multiple experts, facilitate discussion, and challenge and improve mental models” (2011, p. 52). One formalised version of this being rapidly adopted in future studies is known as ‘Fuzzy Cognitive Mapping’. Jetter and Kok describe Fuzzy Cognitive Maps as

directed graphs: they consist of nodes, so-called “concepts” that are connected through arrows that show the direction of influence between concepts. A positive (negative) arrow pointing from concept A to concept B indicates that concept A
causally increases (decreases) concept B. Concepts are verbally described and can contain hard to quantify concepts, such as “environmentalism” or “cultural identity”.

To reflect the strength of causal links, weights are assigned to the arrows. (Jetter and Kok 2014, p. 46)

Mixing quantitative and qualitative approaches in this way is suggested by Jetter and Kok to effectively “integrate expert, stakeholder, and indigenous knowledge by creating scenarios” (2014, p. 45). However they also admit there is an “underlying epistemological stance of many technical Fuzzy Cognitive Map publications – the data-driven search for objective knowledge that makes correct predictions possible – [that] is often at odds with future studies, which emphasize that the future cannot be known” (Jetter and Kok 2014, p. 46). My research and the way I practice mapping also rejects this kind of search for inclusion of quantifiable futures. Instead, where giving concepts hierarchy is useful, this research demonstrates numerous other messy, creative ways to more respectfully reflect the meshwork and ‘fuzziness’ of life and futures.

In my practice, climate change, human mobilisation (increasingly, for example, because of degrading climatic conditions in homelands), and technology are commonly prompted as starting themes and feature throughout this thesis. On technology, Mignolo (2011), historian and philosopher Yuval Noah Harari (2015), Fry (2017) (via Bernard Stiegler), and decolonial theorist and anthropologist Arturo Escobar (2018) all discuss the homogenising role the new technological revolution is performing. For critical philosopher Bernard Stiegler, this revolution has moved first through administrative spheres and then onto cultural spheres, homogenising ontologies of ‘what’ and ‘who’ ‘we’ are along the way (Fry 2017). Cultural theorist Paul Virilo’s (2008, 2012) radical theory on the devastation of communities by proliferating technologies of control also raises concern for Fry, as it amounts to a “technological colonisation of imagination” (2017, p. 100). I extend on this argument in Chapter 2 of this thesis by describing how this latest revolution may well be eliminating people’s ability to advance decolonial political imaginations, particularly for Indigenous people’s futures. Furthermore, this is occurring inseparably from another profound defuturing event in which redress is urgently needed through decolonial socio-ecological options: climate change.

**Indigenous Knowledge**

My diagram at right in figure 2 is also an experiment in visually representing notions of futures that come from Indigenous Knowledge approaches I have learned over years of deep listening and collaborating with experienced Aboriginal Elders and communities. The typology of this diagram is such that its intention is to appeal to, and nudge participants towards, a visual dialogue that invokes a relational outcome from the visual and relational process. At the top middle, for example, a circle with three smaller circles and human figures represents a yarning circle, the first step in any participatory engagement. This reminds users of the diagram of
where to begin with a respectful yarn and draw together the information from the yarn to inform a subsequently similar cyclical and relational mapping process. I explain yarning in more detail below, and in Appendix A. The diagram also represents a boundless meshwork of unbounded entanglements of lines in fluid space. Meshwork’s are suggested by reflexive anthropologist Tim Ingold (2011a) as a way to understand an Indigenous Knowledge view of the world, rather than a bounded entity surrounded by an environment.

I align with an Indigenous Knowledge philosophy that respects the relational livingness between systems, not just human-to-human relations, but also relations between humans and lifeworlds, Sea, Sky, and Country. Everything has patterns that are alive to see, listen, and learn with. This understanding has been most inspired by the visual philosophy of Indigenous Knowledge (IK) relayed to me by Sheehan, who writes, “making and sharing images is a deeply productive interaction—with each other and the world—that conveys significance and engages us relationally within the original shared cognizance of all “things” (Sheehan 2011a, p. 71). For Sheehan, IK is respectful if it “aspires to a deeper situational awareness deriving from natural patterns and systems occurring in place” (Sheehan 2011a, p. 70). Sheehan is referring to a respect not necessarily for the ‘natural’ environment, but rather in the way patterns naturally occur. I am not on the outside of these everyday life experiences, but an active agent in the messiness of these experiences with community and groups, locating myself within the research context. I embrace relational complexity because human lifeworlds are complex and plural, and designing sustainable futures is a complex plural responsibility. IK is a reciprocal, co-creative dialogue: young people, non-designers, experts, and plural worldviews all interact and learn from one another to benefit community. IK is ethical and responsible, because it emphasises a decolonising lens through which narratives are interpreted, or subordinate to, Indigenous pre-colonial inscriptions of knowledge that can be reinscribed in futures in various ways. The depth of this knowledge may never be achieved again, but there are still those who place this knowledge at the centre of their worldview, and there is a responsibility to ethically share and represent that knowledge back to communities. I take IK as collective knowledge, sharing through co-creation of story in creative ways that respect everyone contributing to this sharing, and allows for dialogue to flow in safe and respectful ways. Co-creative sharing captures the openness and livingness of things. Moreover, when knowledge production happens in creative ways, it neutralises Western hierarchical and patriarchal power relations.

My perspective of IK is also loaded with a responsibility for contributing to sustaining humans and the quality of lifeworlds on which all humans depend. In caring for Country, Sea and Sky, IK has always upheld this responsibility. Today, among ongoing effects of colonialism, there is a responsibility to bring to focus values in IK for sustaining humans and lifeworlds through IK skills in repair, resilience and resourcefulness. Finally, IK is place-based. As Aboriginal Koombumerri Elder and academic Auntie Mary Graham (2007) writes, IK is connected to
different places, with Aboriginal people in those places producing their own geo- and body-politics of knowledge not necessarily produced in terms of something material that exists out there, that is free for anyone who can access. Access to ‘place’ is a respectful, reciprocal, relational, responsibility-laden journey.

Finally, a crucial perspective of IK relating to the mapping processes undertaken in this work has been relayed by cultural anthropologist Tim Ingold. Following Gilles Deleuze’s observations of the living organism as a bundle of lines of becoming, Ingold describes how a Western conception of life erases the lines and instead “puts life on the inside, and the world on the outside, of innumerable compartments or cells” (2011a, p. 63). He uses the term ‘inversion’ to refer to the Western operation that wraps life, lines, into bounded points. Ingold prefers what he repeatedly observes in Aboriginal articulations of conceiving being—of being in ‘meshworlds’ of entangled lines of life, growth, and movement. For Ingold, “what is commonly known as the ‘web of life’ is precisely that: not a network of connected points, but a meshwork of interwoven lines” (2011a, p. 63). In this ontology, “beings do not propel themselves across a ready-made world but rather issue forth through a world-in-formation, along the lines of their relationships” (2011a, p. 63). This description, which fits my understanding of IK, forms a crucial visual strategy spoken about and employed in my creative work. I am not inquiring about the world but researching through designing, thinking and mapping with a condition of being in it, of being alive to our world.

Modernity/Coloniality
To what extent Western modernity contributed to the modern world, or even existed at all, is contested in critical discourse, particularly by Bruno Latour’s groundbreaking provocation that “no one has ever been modern. Modernity has never begun. There has never been a modern world”, outlined in his book *We Have Never Been Modern* (1993, p. 47). Mignolo (2011) also develops a thorough argument about the existence of three types of critique of Western modernity. The first is “internal to the history of Europe (for example, psychoanalysis, Marxism, poststructuralism, postmodernity)” (2011, p. xi). The other two are types that “emerged from non-European histories entangled with Western modernity. One of them focuses on the idea of Western civilization (for example, dewesternization, Occidentosis), and the other on coloniality (such as postcoloniality, decoloniality)” (2011, p. xi). Mignolo is not dismissing postcolonial thinking nor framing it in conflict with decolonial thinking. According to Mignolo, the two are invested in different questions and goals. Namely, postcolonial thought derives from a Euro-centred academic venture, while he argues decolonial thought derives from the mixed thinking of the Global South. Mignolo’s thinking fits with a contemporary line of discourse that proceeds more than half a century of activist, revolutionary and intellectual work on anti-colonial thinking globally, particularly through Frantz Fanon’s (1952, 1967) groundbreaking works. Other authors, such as Edward Said writing on ‘Orientalism’ (1991), Samir Amin writing on
‘Eurocentrism’ (2011), Homi Bhabha writing on ‘Third Space’ (1994) (similar to border thinking identified above), and Stuart Hall writing on power structures in communication (1989), have critiqued European modernity and its oppressive relationship to non-Western Others. For Mignolo, this acceptance has created a darker side to modernity, which he terms ‘the logic of coloniality’. Latin American decolonial thinkers such as Mignolo and Peruvian sociologist Aníbal Quijano are at the forefront of a unique emerging decolonial discourse, as their histories have been entangled with Western modernity, since the conquest of their worlds constituted the beginning of the ‘new world order’. This conquest, for Quijano, is “culminating five hundred years later, in a global power covering the whole planet” (2007, p. 168). This unique emerging decolonial discourse is important to my research since it provides an extended global view of coloniality, the ontologies and epistemologies, and the colonising designs that arrived with European modernity in Australia 250 years later, by then deeply perfected and entrenched. The concept of coloniality is introduced by Quijano:

In the beginning colonialism was a product of a systematic repression, not only of the specific beliefs, ideas, images, symbols or knowledge that were not useful to global colonial domination, while at the same time the colonizers were expropriating from the colonized their knowledge, especially in mining, agriculture, engineering, as well as their products and work. The repression fell, above all, over the modes of knowing, of producing knowledge, of producing perspectives, images and systems of images, symbols, modes of signification, over the resources, patterns, and instruments of formalized and objectivised expression, intellectual or visual. It was followed by the imposition of the use of the rulers’ own patterns of expression, and of their beliefs and images with reference to the supernatural. These beliefs and images served not only to impede the cultural production of the dominated, but also as a very efficient means of social and cultural control, when the immediate repression ceased to be constant and systematic. The colonizers also imposed a mystified image of their own patterns of producing knowledge and meaning. At first, they placed these patterns far out of reach of the dominated. Later, they taught them in a partial and selective way, in order to co-opt some of the dominated into their own power institutions. Then European culture was made seductive: it gave access to power. After all, beyond repression, the main instrument of all power is its seduction. Cultural Europeanisation was transformed into an aspiration. It was a way of participating and later to reach the same material benefits and the same power as the Europeans: viz, to conquer nature in short for ‘development’. European culture became a universal cultural model. The imaginary in the non-
European cultures could hardly exist today and, above all, reproduce itself outside of these relations. (Quijano 2007, p. 169)

Disengaging from this colonial matrix of power is precisely the project of decolonisation. Delinking tactics exist in various forms across the globe at ground level, and at nation-state level too. Bolivia and Ecuador, for example, have recently worked on decolonising their constitutions. Mignolo argues that these delinking projects mark a world now unstoppably in a process of fragmentation, changing towards a polycentric world order (2011). Mignolo describes a change in the terms of conversations of power—a tipping point when anthropos (those who enunciate their worlds grounded on a geo- and body-politics of knowledge), who make up 80% of the world, realise they are the majority. For Mignolo, this marks the final limits of humanitas linear thinking (those who build and are built by a theo- and ego-politics of knowledge) (2011, p. 82). Put another way, for Mignolo, the time when Western civilisation no longer posits itself as superior—as it has for the last five hundred years—will be determined by geography. Increasingly around the globe, there is a momentum of options arriving from the marginalised and oppressed that may offer more sustainable human futures. He writes:

In the forthcoming decades, the world order will be decided in the struggles, negotiations, competitions, and collaborations between five different and coexisting trajectories—without a winner. If there is a winner, it would be the agreement that global futures shall be polycentric and noncapitalist; a decolonial option. Which means that a struggle for world domination that was based on wealth accumulation, military power, and the pursuit of a form of supremacy that could impose its own notion of universality would yield to pluriversality as a universal project. (Mignolo 2011, p. 33)

For Mignolo, building on Humberto Maturana, the decolonial option is but one option, not another universalising ideal. He outlines five co-existing options: dewesternisation; rewesternisation; the reorientation of the left; the decolonial option; and the spiritual option (Mignolo 2011, 35, 64, 68). This research asks, how does one create a design practice that both collaborates with people intent on navigating decolonising options and with those people complicit in defuturing yet open to transform their trajectory to decolonising options?

In identifying pathways through these questions, Fry encourages looking much further back than the last five hundred years. He argues:

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3 Pluriversality calls into question the concept of a universal way of being commonly imposed in Western thought. It describes the co-existence of multiple cosmologies, is discussed by thinkers such as Mignolo and Escobar, and is practiced by many Indigenous peoples worldwide.
Having perhaps 10% of the global population as refugees, together with large numbers of ‘internally displaced persons’ (IDPs), combined with the climate-forced relocation of many towns and cities, means that it is possible that the ‘twelve-thousand year epoch of human settlement’ will come to an end and be replaced by an age of unsettlement. (2017, p. 6)

This situation, Fry warns, “will likely change the human psyche and create unprecedented risks of conflict” (2017, p. 6). He asks what might be learned from 160,000 years of human movement and once again be on the move. Over the past four years, I have developed a mapping praxis that, I argue in this thesis, enables people to grapple with radical questions such as these.

**Decolonising Design**

These kinds of questions are increasingly being asked in the context of developing a praxis of decolonising design. Since 2015, I have been in daily online communication with a group of eight internationally dispersed young design research scholars, Ece Canli, Danah Abdulla, Mahmoud Keshavarz, Pedro Oliviera, Luiza Prado, Ahmed Ansari, and Matt Kiem. Together, we make up the Decolonising Design Group (Schultz et al. 2016). Our website decolonisingdesign.com illustrates our efforts to provide a platform for ourselves and others to share their concerns, in the form of academic papers, conference audio and posters, in the face of current critical design studies discourses not adequately addressing the centrality of coloniality to design. Our first formal project was organising a symposium held in Malmö, Intersectional Perspectives on Design, Politics, and Power. It was recently reviewed by Dimeji Onafuwa (2018) in our second major project, a special issue of the journal *Design and Culture* titled “Decolonising Design” (Schultz, Abdulla, Ansari, Canlı, Keshavarz, Kiem, Martins, and Vieira de Oliveira 2018). This publication was a way for our group to formalise our discussions and curate significant and emerging authors.

A book edited by Fry and Kalantidou, *Design in the Borderlands* (2014), also collates authors representing a broader decolonial turn in design research and studies, and a special issue of *Design Philosophy Papers*, “Design for/by ‘The Global South’” (Fry and Willis 2017) continues the turn. One of its prominent contributors, Madina Tlostanova describes modernity/coloniality as “an overall design” (2017, p. 52). For another contributor, decolonial thinker and sociologist Rolando Vazquez, “what is at stake in the question of decolonizing design, and more broadly modernity, is our relation to Earth, and the dignifying of relational worlds” (2017, p. 79).

For these researchers, and for myself, this decolonising turn argues for action no less historically transformative than the Enlightenment, yet decolonial arguments criticise the hegemonic ambitions of the Enlightenment and instead focus on articulating heterogenous
options for futures. As Boaventura de Sousa Santos (Santos 2014) argues, we are facing modern problems for which there are no modern solutions. A tension exists here: on the one hand, a remaking urgently needs to unfold; on the other, this remaking needs to be plural and needs to patiently unfold over an indefinite period of time. This amounts to the need for an ‘urgent patience’, whereby people (particularly in the Global North) need to give over to a condition beyond the modern appetite to become, and to give in to a becoming—an always moving, a working with what remains, while never arriving anywhere new (Schultz, Abdulla, Ansari, Canli, Keshavarz, Kiem, Martins, and J.S. Vieira de Oliveira 2018). The question is how can designers balance the imperative of designing or eliminating designs swiftly in the face of defuturing forces to create viable human futures, yet with an ontological designing lens that is slow and long? Akama et al. also refer to the urgent patience tension of evading ‘governing uncertainty’ when working with people grappling with co-designing futures. Instead they like to understand designing with uncertainty “as an ongoingly emergent and inevitable condition of moving forward into the unknown [that] entangles in processes of action, experience and affect” (Akama, Pink, and Sumartojo 2018, p. 36).

Decolonising design education also might benefit from an urgent patience, a much slower experience where students are mentored through unlearning modernity as much as by learning modernity. This might be an experience whereby students recognise that much of what they know from the imperial epistemology of modernity they were inducted into needs to be abandoned. Brazilian educator Paulo Freire (Freire and Macedo 1998, p. 54) describes the imperial epistemology of modernity as a banking concept of education, which acts to “minimise or annul the student’s creative power”. For Gloria Anzaldúa (2012), a university that provides the space for this breaking and subsequent remaking to occur is one that has managed to move beyond the epistemology of reason and toward pluriversal accounts of being. She describes this as a form of ‘border consciousness’, one that navigates through worlds in their difference and fosters the emergence of a pluriversal mode of learning (Schultz, Prado, and Abdulla 2017), which other advocates have repeatedly named as a ‘pluriversity’ (Boidin, Cohen, and Grosfoguel 2012).

Decolonising Design / Mapping Futures
This research and practice aimed to support people in Australian and Aboriginal & Torres Strait Islander communities and contexts think, talk and map their situatedness within modernity/coloniality and to consider mobilising decolonising options for their own worlds. This in an age in which Frederic Jameson writes that there is an urgent need to “invent…strategies for overcoming [the] dilemma that modernism or, perhaps better, the various modernisms as such emerge: in forms that inscribe a new sense of the absent global colonial system on the very syntax of poetic language itself” (1990, p. 3). This thesis relates to Jameson’s call to a cognitive mapping practice that facilitates mental maps of global and social totalities that “we carry around in garbled forms” (1990, p. 3). Yet, it
extends this call with a politics of decolonisation; within parameters of mapping totalities, or truths only in subjectivity. And it experiments with matters of form in efforts for the process to not become what Guy Debord (1970) and Jean Baudrillard (1993) warned us happens to all representations in the modern world: an image and a spectacle where the referent disappears.

This research is not making any attempts to posit the word ‘decolonising’ as a qualitative modifier to what ‘design’ is, in the same way that ‘product’, ‘graphic’, ‘digital’, ‘service’, ‘speculative’, and ‘participatory’ might be. As I have noted elsewhere, “there cannot be a decolonising design which merely ‘cleans out’ the colonial bits and pieces of the field and delivers, much like a service or a product, a guilt-free decolonised version of what design supposedly is” (Schultz, Prado, and Abdulla 2017, p. 1). This is why ‘decolonising’ is employed, rather than ‘decolonial’; decolonising design through mapping futures encompasses an ongoing political, radical struggle of articulation, disarticulation, and rearticulation.

A Matrix of Practices from Expert-Led to Co-Designing and Linear to Systemic

Thus far, I have situated ways this research configures with design, design thinking and mapping, mapping as a learning tool, mapping for social innovation, social enterprise, strategic design, systemic design, design anthropology, ontological design, sustainment, futures, Indigenous Knowledge, modernity/coloniality and decolonising design. I will now provide and explain a visual matrix that comparatively situates professional design practices in Australia and across the globe within these contexts (figure 3). The practices, or ‘labs’, ‘agencies’, ‘studios’, ‘hubs’ (or similarly named organisations) have been selected on the basis that they generally have a selection of common attributes: they facilitate design-led conversations about social complexities and rapid change; their common aims are to be futures-facing in order to future-proof individuals, communities and societies’ relation with work, leisure and everyday life amidst rapid change, and; they generally all contribute to the creation of, or submission of tenders to, large and complex design projects that bring together multiple stakeholders from multiple disciplines inside and outside the field of design. Some of these practices intersect with business, government, organisations and academic institutes to leverage the best of industry, community and research. Overall, they fit with an emerging transition field. In investigating roles of design in sustainability transitions projects, design researchers İdil Gaziululsoy and Chris Ryan suggest, “as transitions projects require large-, multi-stakeholder, multi-sector consortiums, the most likely bases for such practice will be strategic design consultancies and organisations responsible for public policy making rather than companies providing business-to-customer products and services” (2017). Importantly, my own practice, named in these matrix’s as Relative Creative, configures in this field and can be situated to give a
greater sense of its points of distinction. In mapping the field of strategic design practices known in Europe as Living Labs, Schäpke et. al., (2018) created a useful semantic map of European based strategic design practices that illuminated a suite of key terms that fits with the kinds of activities designers undertake in all these practices: sustainability, collaboration, innovation, transition, strategic, energy efficiency, low-carbon economy, transdisciplinarity and experimentation. So too, Gaziuslosoy and Ryan provided a useful summary of the activities they see reoccurring in these practices:

participatory inquiry, analysis and synthesis of different knowledge forms in vision development, systematising problem framing and solving methodologies dealing with wicked problems, attending to different politics and value sets of stakeholders through articulation and option creation, dealing with uncertainty, dealing with complexity of socio-technical systems, transdisciplinarity, iteration and prototyping, facilitation of participatory inquiry, design and deliberation, visual communication of future technologies, city forms, products and services and social practices, formulation of scenario prototypes pre-negotiated by the stakeholders. (Gaziulusoy and Ryan 2017, p. 1305)

The map axes have been configured based on combining two sets of well-known typologies for understanding design. The first is an adaptation of The Social Design Pathways matrix (2013). The scope matrix fits well in use here to demarcate the range of expertise practices bring to bear on a project (the horizontal axis). I have described this range of expertise as ‘individual’ expert-led designing’, to ‘interdisciplinary designing with other experts for people’, to ‘societal designing with experts and communities’, or co-designing. The scope matrix also helps to demarcate the scale of projects that practices work on (the vertical axis). I have described this scale as ‘isolated: thinking linear at isolated local or global / topic scales’, to ‘systemic: thinking at isolated local/ topic scales’, to ‘culturally systemic: thinking at globally complex scales’. The second typology layered into the below matrix is a transition design matrix titled the Continuum of Design Approaches. (Irwin 2015). It articulates a ‘mature discipline of design for service’, to a ‘developing discipline of design for social innovation’, to an ‘emergent discipline of transition design’. Inside each of the isolated, systemic and culturally systemic sections in the matrix I have layered in their conceptions as follows: ‘service design within existing socio-economic & political paradigms’, ‘social innovation design that challenges existing socio-economic & political paradigms’ and ‘transition design within radically new socio-economic & political paradigms’. I then used a simple textual and rhetorical technique to identify, analyse and synthesise key words and terms in each of the practices websites that would determine their coordinates on the matrix. For a final synthesis and layer of insight I colour coded each practice according to whether they predominantly worked on projects best described

Figure 3: Matrix of strategic and systemic design practices
From this analysis what is clear is that the vast majority of practices selected fall within the middle section, ‘thinking systemically at isolated local/topic scales’. Of those, very few were determined to be ‘designing with radically new socio-economic paradigms’. For those practices determined to fall in the top section, in ‘thinking culturally systemically at globally complex scales’, the matrix illustrates practicing in this way seldom fits with a ‘designing within existing socio-economic and political paradigms space’. Understandably, more in the top section lean towards ‘designing within radically new socio-economic and political paradigms’. Very few of the selected practices were determined to sit in the bottom section. This is because this section better fits traditional design practices outside the scope of this experiment.

Of particular note is the Australian context (where my practice is situated) seen in comparison to the international context below in figure 5. Only two practices (and additionally my own) were determined to sit in the top section. Whereas internationally, a large portion sit in the top section.
This insight speaks to a significant gap in Australian practices stepping up to ‘designing within radically new socio-economic and political paradigms’. There are several reasons for this, but clearly a central reason is that European practices have a denser population in longstanding urban environments that foster the start-up of such space. Moreover, the practices can raise extra revenues from a culture familiar with renting out offices, work space and event space. Also, cities, councils, states, nations and other funding bodies are more prevalently financially supporting operations and salaries of employees of these practices since in many cases they reside in socially democratic locales. In contrast, Australia is less familiar with agile workspaces and even less willing, since it is a neo-liberal democracy, in providing state support for radical practices. Where state support is provided in Australia, such as in the case of Melbourne City Lab, pressure is placed on the practice to ‘design within existing political paradigms’. In contrast our practice, Relative Creative, experiments with agile workspaces to provide revenue support and does not rely on any significant state support. These pragmatic measures have political ramifications in that it enables designing within ‘radically new socio-economic and political paradigms’, but it points to a significant challenge in working in these paradigms in Australia too.

![Matrix of Strategic and Systemic Design Practices](image)

Figure 5: Two views of the matrix of strategic and systemic design practices. Left: international practices. Right: Australian practices

The same matrix analysis was applied to the broad spectrum of ‘tools’ these and other design practices design with (figure 6). For an added layer of insight here I colour coded each practice according to whether they predominantly worked on projects best described as: co-designing
kits; card games; forecasts & trends; systemic complexity kits; design fictions and social innovation/ business kits. I situated two Relative Creative ‘tools’ in this matrix: See Change Sand Tracks (case studied in chapter 9) and the Appendix A of this thesis, Critical Mapping as an Articulatory Practice: A Visual Guide as the two seen at the top of the matrix.

**Figure 6: Matrix of strategic and systemic design tools**
This short experimental comparative analysis would require a wider reach of practices and a more granular interrogation of their work to draw a more thorough qualitative insight into the state of professional design practices in Australia and across the globe that are, or are not, pushing boundaries towards culturally systemic transition designing. However, it illustrates the significance of the critical mapping and designing practice in this thesis; of emerging in Australia as vanguard yet connected with a larger global movement.

Setting the Significance

The theoretical locus of this thesis is the relation between three conditions as they relate to the designed and designing of humans and lifeworlds upon which humans depend. 1) According to Mignolo (2011), there is a decolonising event in which the majority of the world’s population who do not align with the universal imperial project of modernity/coloniality are de-linking and relinking decolonial options as plural futures. 2) According to Stiegler (2009), Fry (2017) and Escobar (2018), there is a technocolonising event in which the speed, control and authority over knowledge through technology is set to be the profound dominant colonialism of the coming decades. 3) These two events are occurring inseparably from a third, climate change, in which redress through the first event, decolonial options, might be profound, but through which the second event dominates the seeking of solutions.

The methodological locus of this thesis responds to the above forewarnings through mapping methodologies that designers and non-designers can employ, filling particular gaps in design studies as outlined by design theorist Susan Stewart. Stewart stresses the lack of interest in historicising design by arguing that “the excision of history from design thinking isolates the understanding that informs the design act from any understanding of the temporal trajectories in which it participates” (2015, p. 276). Fredric Jameson (1990) has previously argued designers acquire cognitive mapping skills to address the diabolical future challenges that humans face, and to support world’s becoming intelligible to through a situational understanding of people’s own position in it (Smicek 2011). This is both because excessive rationalism from modern thinking and global social complexities today have made it increasingly difficult to cognitively grasp our psychosocial lived experiences. Jameson’s work critiques and extends on Kevin Lynch’s book Image of the City (1960), stating the need to identify effective aesthetics and representations not only of cognitive mapping as an individual’s relation to the city (psychogeographically) but also as their relation to an entire social system (psychosocially). Even more broadly in critical social theory, Latour called designers to action after noting that designers since the Bauhaus, and even long before that, “have demonstrated great skill in designing objects, drawing architectural sketches, mechanical blueprints, scale models, prototypes—i.e., in making visual languages. Failing to find the controversies and the many
contradicting stakeholders that these objects bring with them” in this design work, he suggested that the “designerly ‘drawing’ skills of designers could be put into play—not just to design objects, but rather to draw things together, by opening up controversial things” (2008, p. 12). Escobar similarly makes the call to action: “in the Global North and the Global South, multiple transition narratives and forms of activism articulate veritable cultural and ecological transitions to different societal models, going beyond strategies that offer Anthropocene conditions as solutions. Mapping this domain is a key task for pluriversal studies” (2015b, p. 15). The practical significance of this thesis is that it offers experimental cases in Aboriginal and other community engagement, arts development, educational, and event-based contexts (often through consultative work), validating a critical design professional field.

Format and Structure of the Thesis

This thesis includes some chapters that have been reworked from papers published during my period of candidature, in accordance with Griffith guidelines: Inclusion of paper within the thesis. There is also a visual guide offered in Appendix A, Critical Mapping as an Articulatory Design Practice: A Visual Guide, which can be returned to and utilised in isolation from the thesis. All studio outcomes are either embedded within the text of this thesis or included in the appendix. By offering a theoretical framework strategic steps, techniques, methods and templates employed, along with studio exemplars, the format of this thesis is aimed to act as a long-form guide for designers, educators, practitioners and community activists.

Decolonising Research through Design

The hermeneutic, phenomenological research-through-design approach I undertake here is concerned with interpreting the way design is complicit in transforming worlds. I consider design as an open-loop interpretive system that shifts habits and behaviours. My aim is to articulate what is hidden and needs to be exposed in colonialism in order to rearticulate an ethical pluriversal future. The diagram (figure 7) below is an adaptation I have designed (Schultz 2015) of a well-known diagram called the hermeneutic circle, or spiral. It visually abstracts the hermeneutic process I have adopted: my research through design is an event that transforms my experiences, which transforms what I do, which transforms what I am, in an ongoing iterative cycle (Laverty 2003). I use this simple diagram in practice too, as it helps participants and I

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4 Paul Ricoeur asserts that ‘the primary sense of the word ‘hermeneutics’ concerns the rules for the interpretation of the written documents of our culture (1984, p. 185). However, as Ricoeur himself identifies when recognising that meaningful action can be read in the same way as a text, hermeneutics currently extends beyond a focus on the interpretation of written texts and towards how we interpret the world. Key figures representing the synthesis that is hermeneutic phenomenology are Martin Heidegger, Hans-Georg Gadamer and Paul Ricoeur (Thompson 1981, p. 36). According to Kafle, phenomenological research is oriented “towards the ontological nature of phenomenon while learning to ‘see’ pre-reflective, taken-for-granted, and essential understandings through the lens of their always already pre-understandings and prejudices” (Kafle 2011, p. 188).
understand that a conscious hermeneutic practice recognises that our interpretation of experiences changes the perceptions of pasts and anticipated futures. People bring experiences, cultural contexts and prejudices to what they interpret. Interpretation is therefore not static; it changes as people experience new things. Because our understanding of the past and the future forms the context in which people interpret experiences, design, or any action as a hermeneutic practice, has the ability to bring about the conditions and possibility of change. For designers, this opens the potential for articulating propositions designing new patterns of thought and paradigms. Phenomenology and pedagogy scholar Max Van Manen calls for hermeneutic practices that can help reveal “in such a fashion that we are now able to grasp the nature and significance of [an] experience in a hitherto unseen way” (2018, p. 39). And Narayan Prasad Kafle extends that in order to explore stories that people tell of their experiences, “the help of some specific hermeneutic or method of interpretation” is important (2011, p. 191). By designers drawing things together hermeneutically, new meanings can emerge about a phenomenon.

**Figure 7: Hermeneutic circle of design as event**

**Decolonising Visual Research Methodologies**

This thesis examines critical mapping as a way to facilitate decolonising interpretation. For example, in Australia, decolonising acts, while not always named as such, have been crucial in healing intergenerational trauma from colonisation and in language restoration. Often, methods have included narrative and talking therapy, through visual narrative building and mental
mapping, but very seldom from an informed critical design perspective. Likewise, Aotearoa decolonising theorist Lynda Tuhiwai Smith names twenty-five decolonising approaches in her famous book in which she defines projects such as storytelling, intervening, enframing, reframing, creating, and discovering the beauty of our knowledge as cartographic acts (1999, p. 145-163). Following Smith, Eve Tuck calls decolonising proponents to action when she states, “our generation of researchers is to take up this cartographic act, to zoom in on parts and overlaps, to do the finely detailed work of marking the dirt roads and the blades of grass, but also the travel ways and impasses, the lines of flight, the tide pulls, the journeys and the erasures” (2013, 1:50). She is also critical of colonial mapping and naming practices that work to dispossess people of land and promote nation states. She promotes Chandra Mohanty’s notion of the cartographies of struggle: there are intersecting lines of simultaneous oppressions. “Cartography is the art and science of making and remaking maps, of creating and being created”, of recognising and conceptualising marginality, struggle, domains, place and sovereignty” (Tuck and McKenzie 2015, p. 36).

Sheehan’s version of a decolonising visual research methodology as a cartographic act is practiced in the form of visual dialogue,

wherein making and sharing images is a deeply productive interaction—with each other and the world—that conveys significance and engages us relationally within the original shared cognizance of all things…In visual dialogue, knowledge often emerges and fits with the actions and intent of groups. This outcome is not magic and special; it is simply inherent to the structure that a visual and relational outcome will emerge from a visual and relational process in a way that reveals a visual and relational world. (2011a)

Increasingly over the years, I have developed an aptitude to facilitating Sheehan’s visual dialogue practice and see it as a scene-setting phase to my mapping practices that follow. In summary, Sheehan’s method takes the form of participants drawing words and images on a card and placing it in the middle of a yarning circle. The overall visual arrangement is then interrogated, negotiated and reflected on. For Sheehan, respecting the natural systems arising in the visual dialogue means to respect “the ‘gravity’ of our biosphere, and creative emergence in its innumerable forms [and] signifies the relational gravitas, the dignity and intelligence, of this systemically alive world” (Sheehan 2011a, p. 74). This deep reflection on the nature of inquiry underpins much of my practice, and I experiment with forms through which this visual dialogue methodology might be supplemented by other decolonising relational mapping and design techniques.
Participatory Action Decolonising Research through Design

Much of the experimentation and methodologies in this practice aligns with notions of participatory action research (PAR) and participatory design (PD). As pointed out by Vines, Clarke, Light and Wright (2015) there has been a surge in the popularity of participation and the amorphous overlays between PAR and PD. They say this has “promoted a wealth of recent special issues and volumes exploring the historical and contemporary concerns of participatory design” (Vines et al. 2015, p. 78). This includes recently in the Design & Culture Journal (Rizvi 2018) following a collection of critiques in the International Handbook of Participatory Design (Simonsen and Robertson 2012). A distinction between PAD and PD is that PAR derives from an academic venture translated into methodologies and practice. While the formalised version of PD derives from a historical movement in the labour force. Another clear distinction between the two can be argued. While PAR is mostly concerned with phases of observation, reflection and planning, it lacks ‘design’ strategies for ‘action’. And while PD has been concerned with design strategies for co-designing ‘action’, it lacks the design strategies for ‘observation, reflection and planning’. Combining the mixed methods of PD and PAR is an ongoing and emerging field.

Australian research analyst Monica Boyle writes that Participatory Action Research (PAR) “encompasses a systematic and cyclical process of observing, reflecting, planning, acting and sharing and [it] has shown to be one of the most effective methods of general problem solving at the local level” (2012). PAR developed out of critical theory with action research as an academic venture in order to address power dynamics while working collaboratively with community. Whereas a dominant history of PD is heavily theorised by and for its political context in a labour movement in Scandinavia. For example, design researchers such as Finn Kensing and Joan Greenbaum’s important work discuss how PD derives from “trade unions and collective bargaining [that] were strong and able to influence power relations in the workplace” through the 1960s and 1970s in Scandinavia (2012, p. 22). The Scandinavian PD narrative is one of a battle between top-down efficiency seeking management strategies of automating tasks and deskilling workers through divide and conquer on one hand, and workers’ rights on the other. The setting is in a Cold War geography at that time in which strong voices fought for socially democratic social equity for those with fewer resources amidst communist pressures. This was compounded by an influx of rapidly emerging technologies in the workplace, particularly industrial machines in the factory, that were threatening people’s jobs. The introduction of these technologies in the workplace gave rise to workers on the factory floor proactively participating in designing new systems and structures between human and machines that sought to retain workers’ rights. A lesson from this narrative is that PD did not arise as a prefigured idea by a set group of people, it arose out of conditions of constraint forcing people to collaborate and have their voices heard. PD as a globally coherent practice today rests on this narrative of social impact and collective protest and action in the face of
adversity, however takes advantage of the strategies developed to prefigure action and mobilise collective voices, by design, before a crisis. Out of this narrative a set of PD guiding principles are often cited as follows: equalizing; power relations; democratic practices; situation based activities; mutual learning; tools and techniques through active human engagement; alternative visions about technology (van der Velden and Mörberg 2015).

A weakness in this version of PD is there can be a tendency to over-estimate the practice’s ability to ‘equalise power relations’ and invoke ‘democratic practices’, and assumes these Western liberal worldviews are universally shared. In other contexts, there are local kinship and Elder power relations in place, and a growing resistance to democracy’s dubious connection with liberalism and humanism naturally delivering viable plural futures. PD can also at times be co-opted and presented as apolitical by actors interested in bolstering a politics of participation in neoliberal economic market gain. Designers can tend to self-aggrandise and ignore evidence and field experiences and tend to ‘reinvent the wheel’ as they go about facilitating participation through visualisation techniques and novel insights from their own hubris without any political awareness of unfamiliar contexts. Gayatri Spivak famously questioned, “can the subaltern speak?” (1994, p. 78) and design scholars Henry Mainsah and Andrew Morrison ask this question in contexts whenever there is a “meeting between the centre and the margins [and] it is always according to terms set down by the centre” (2014, p. 85).

This recognises the considerable debate around what counts as participation, action, and research, and this debate is often clouded by power structures and imbalances present when working with community groups, especially Indigenous community groups. To alleviate these uneven power dynamics, following Paulo Freire’s work on grassroots community-based development, PAR-based researchers Jacques Chevalier and Daniel Buckles focus “on dialogical reflection and action as a means to overcome relations of domination and subordination between oppressors and the oppressed, colonizers and the colonized” (2013). Freire argues for a participation in which “the silenced are not just incidental to the curiosity of the researcher but are the masters of inquiry into the underlying causes of the events in their world” (1970, p. 30). Tuck and Wang argue that decolonising methodologies for working with community are often overlooked for want of more well-known terms PAR and PD. They write that PAR “describes one set of methodological approaches that attempts to accomplish this ground and grassroots knowledge production. That people come to know things through their lived lives and that knowledge matters is often attributed only to PAR” (2019, p. xv). With these caveats in mind, this research adopts a Participatory Action Decolonising Research through Design approach. The key to this approach when used in collaboration with communities is to emphasise mapping and design-led approaches to ‘designing with people’ that retains a lens toward amplifying intelligible genealogies in IK while using decolonising methodologies.
Finally, Light and Akama (2014) have identified calls for PD researchers to become more attuned to inter-subjective nuances and the role they might play in influencing those dynamics. They argue that there is a need for a “re-orientation towards the designer’s participatory…rather than a stand-alone focus on participatory design (PD) methods” (Akama and Light 2014, p. 62). I agree with this need, and the case studies undertaken with myself as designer-facilitator in this research are inescapably as much journeys and reflections of my skills and orientation as they are a set of tools and techniques.

Research Journey
In this section, I outline my research journey and a series of creative insights that were revealed along the way. These are also captured in the table below (figure 13). This narrative-based reflection of my experiences will contextualise the case studies detailed in this thesis. This section also provides a reflection of my designer-facilitator role as discussed above.

Creative Synthesis 1: Gnibi Analogue
As a result of an intense research camp with Indigenous members on 4–6 November 2013 at Gnibi, I was challenged with the task of tracking the patterns of information in the yarns and presenting them back to the group the next day (figure 8). By this point, I was thoroughly familiar with the contexts I was working in. I had experienced many yarns and understood relationally what was arising from them. However, my presence as designer-facilitator was not made clear at the outset because it was a role given to me later. This meant I was a participant-observer merely contributing to the yarns and taking notes. I was no different to others in the room. However, after being prompted by the lead facilitator, I had acquired enough confidence to attempt presenting to the community a mapped version of the yarns, where the patterns were organised in accordance with a self-reflective technique to explicate cognitive thoughts that I had been working on for my own benefit. The method of organising and synthesising that data was used from my transcribed notes along with intuitive and tacit knowledge of the tone of the sessions. I developed a sequence in which I could retell the story to the group. Being in the presence of Elders and in efforts to neutralise any assumed power dynamics I stayed low, crouched in with the map, (figure 8) and slowly explained the map, and listened intently to participants views. I realised I had designed a creative form that, as was validated the next day in the yarn, was a comprehensive expression of the experience we had had that day. I was henceforth named ‘the tracker’ by Elders in the group. I took pride in this role, a name that affirmed I was being accepted by the group as young Aboriginal person fit to track Elders knowledge. I presented the map and it was subsequently used to mediate the yarn the next day. I later came to realise this mode of mapping could be regarded as a creative mediation object for post–group discussions. Importantly, although it now is a tool, it is not divorced from the initial experiences in the yarn. I am told by the Director of GNIBI that each time it is used
participants are reminded by him that they can ‘trust’ the artefact, since it was affirmed by Elders that the ‘tracker’ created it with their consent. This experience led to me reflecting on the profound Indigenous research method of open visual dialogue and how that method can elicit respecting patterns-in-place in yarns, when facilitated respectfully.

Creative Synthesis 2: Gnibi Digital

Following this, I further learned how I could draw on my graphic and communication skills to design a digital version as an artefact, which is still in use at Gnibi today (figure 9). In a different context, psychologist and scholar of heuristics Clark Moustakas (2011) reviewed a mapping experience of a researcher, who stated, “during this time many shifts occurred in my perception of the map, and I began to note themes and relationships between ideas which had not been apparent previously” (Clark in: Moustakas 2011, p. 12). This anecdote fits well with my experience developing early Gnibi maps. I was experimenting with explicating what Sheehan describes as a “deeper situational awareness that generates many divergent spaces where innovation can contribute positively to the well-being of the whole” (2011a, p. 70). I seemed to be innovating a way to synthesise multiple peoples’ knowledge in a way that contributed to a whole experience through a form of narrative coding, layering, concealing and combining, in one particular session, Aboriginal Australian IK, hermeneutic cycles, and First Nations American (First Nations American participants contributed with their IK own spatial arrangement insights) conceptions of respectful design. In this instance, my role as designer-facilitator was clear at the outset and there was an expectation to ‘perform’. As in creative synthesis 1, I first acted as participant-observer while another Elder lead facilitator curated the proceedings of the first day. Then in the evening I produced an analogue version of the map and presented it the next day. I was concerned that I may have over-emphasised how much participants were forming commonalities between cultures and that perhaps I was not attuned to the conversations appropriately. Nevertheless, I proceeded to explain the overlay of three
cultures and all participants agreed it was a useful, respectful and insightful representation of the layered yarn.

Creative Synthesis 3: Egypt
The next creative synthesis came six months later. With a prior understanding of the power of this developing form and of my developing repertoires, skills and respectful attunement as a designer-facilitator, I was faced with urgently finding a way to communicate how a group might draw things together in situ. This time the mediating object, the map, became the object that acted as the live heuristic device during a group design thinking session. This moment occurred in Egypt in June 2014 (Willis and Elbana 2017). Upon reflection, I can pinpoint this as the first manifestation of the cognitive redirective mapping typology in my practice. It was the first time the modes of thinking and mapping I had personally been engaging in were forced to be formalised and communicated to others as a useful means to explicate thinking in the room. In one of the most intense hours of my life, I found a typology that organised my own previously chaotic mapping, and that proved to work for others too (figure 10). As designer-facilitator it was a moment of insight that the lead facilitator was insufficiently motivating the participants. My approach of providing a loose method and working together in an inter-subjective way rather than the autocratic way the lead facilitator assumed, re-motivated the group. Though it did come with consequences as it felt as though the lead facilitator, a role model to me at the time, had identified my strategy in contrast to his and this changed our relationship going forward.
Creative Synthesis 4: Cognitive Redirective Mapping

I began using the loose form of cognitive redirective mapping as a process described above more frequently. I dwelled on it and increasingly introduced it in group sessions to comprehend concerns with others. I began to realise that this methodology was helping me frame, define, and answer theoretical questions I had been pondering. I realised that these creative works—this heuristic methodology of Cognitive Redirective Mapping (CRM)—could form the creative output of my PhD. I proposed this idea in a conference in Philadelphia in which I conducted the first CRM workshop to test and gain feedback from others on the process in an academic setting (figure 11). This was an opportune experimental session where I could receive rigorous academic feedback from the peers both on the method and my skills in facilitating the room.

I began seeing that the creative process supported others efficiently explicate their social concerns. There is a contradiction here: as much as this narrative illustrates how much I did not hurry my own process of illumination, it might be perceived that I have been trying to find ways to support others hurry their insights along. I contest this, since my engagements with people are better understood as a constant ‘holding back’ by encouraging them to slow down and commit to articulating steps in the unfolding CRM process that they might otherwise not include. This contradiction often manifests in facilitation settings. There is a balance I came to learn as designer-facilitator in not over-prescribing the methods, yet not confusing participants by providing minimal direction and scope.
A Theoretical Turn

After Egypt, I realised how these mapping processes directly spoke to, and were implicated in, the perpetuation of my own initial ‘colonising’ concerns. I set about theorising a reconciliation between decolonising contexts and mapping practices. I also set about articulating epistemological traps that manifest in cartography built into the way I might be mapping patterns of information and explored how contending and redirecting these traps needs to be built into a cognitive mapping process. Moreover, I recognised practical conventional design tools that can support the processes, such as sequencing, hierarchy and flow. This was articulated in two papers (see Chapter 5), providing a theoretical position from which the mapping processes continued to be applied.

Creative Synthesis 5: Mapping in Community and Indigenous Contexts

My intuition was that this format was now adequate to share in broader community consultation processes. This came at an opportune time, as I was part of a group of young scholars who were searching for a way to engage the Brisbane community in a rebuttal to a flawed State Government planning report, The Queensland Plan (Queensland Government 2014). We used CRM techniques in two major public hall civic engagement participatory design events, as outlined in Chapter 6. In this setting the goal was what Akama describes as sometimes referred to as the holy grail of participatory work; where a “community of interest rises up and develops its own solutions” (Akama and Light 2014, p. 68). Yet, as she outlines, the role I and others played as designer-facilitator would determine the success as much as the design methods we developed for the event. There is a possibility we were too academic and too removed from the responsibility of ensuring the community understood the complexities of Queensland’s futures we were putting forward. Moreover, the event only lasted three hours, which is too short an amount of time to expect community to buy-in and continue developing their own solutions independently from the event. This is discussed in detail in chapter 6.
Creative Synthesis 6: Design as Event

The creative process reached a maturity in which understanding in what order and in what way people can reach new insights was practised enough that I moved to question how the process can be coupled with artistic and event-based representation. With a maturing creative process in hand, I was commissioned to deploy the practice in broader serious design events. This led to the creation of the Australia Council for the Arts Innovation Labs (Chapter 7). At this event my role as designer-facilitator was extremely difficult. I had not received the logistical and project management support from the hosting organisation and as such I entered the event feeling underprepared and culturally unsafe. Culturally unsafe because I was a young fair-skinned Aboriginal person commanding attention of Australia’s leading Aboriginal and Torres Strait Islander practitioners over five continuous days and there was very little introduction of my role by the project manager. I felt as though participants were not adequately provided with a sense that I was an ally, and this designed back on me an apprehension and chaotic facilitation technique that at times was not efficient in motivating participants. Some participants also expressed they felt unsafe since the methods and information I was providing were unsettling to what little groundedness they had in understanding modernity and coloniality.

In the next setting, FutureBNE (Chapter 8), in which I designed and led the facilitation of three hundred twelve-year-old school children in one day under one roof, the dynamics of my presence were an entirely different experiment. I had little contact with individual children and spent most the time eccentrically performing through the microphone, not dissimilar to a live children’s show host. However, at each of the 20-30 tables in the events, sat a designer-facilitator with 10 children. For these roles we had hired motivated design students and other interested adults. This meant each table experienced a varied level of nuanced engagement and this was certainly reflected in their outcomes. Notwithstanding judgement on individual student abilities, the outcomes and their evidence that they had followed the design methods table facilitators were leading them through, varied dramatically.

The See Change Sand Tracks (figure 12) (Chapter 9), project was an experiment in eliminating the role of facilitation. A website was created with steps that the public are open to either follow or ignore in making futures maps. So too, the workshops with sand tables, sand stamps and knowledge cards were created for children and adults to openly explore and negotiate among themselves. They place the parent or guardian in the role of facilitator of their children’s enquiries. This negotiating processes raises idiosyncratic issues in each case of adult-child, child-child, adult-adult, co-engagement with the workshop tools. This non-face-to-face engagement as designer-facilitator means that as the creator of the project with a political intent, I must give over to a high degree of arbitrariness in what participants receive from the
experience. Peer-to-peer interaction of the mediating tools conjures insights, motivations, conflict, political bias, boredom and excitement in unpremeditated ways.

Figure 12: Festival 2018, Commonwealth Games, See Change Sand Tracks workshop, 2018
Evolution of Insights and Key Studio Projects Related to Mapping Practice

This table indicates the growth of creative syntheses and insights of the mapping practice shown in this visual guide. The horizontal axis reads chronologically with earliest years at right. The vertical axis reads chronologically from top to bottom. Of significance is the growth of coloured squares accumulating towards the bottom left, showing the most creative insights synthesised into projects as the practice matured. For deeper tracking, the colours match the colours of steps throughout the guide. Key steps are indicated with numbers in the vertical axis.

<table>
<thead>
<tr>
<th>Post-PhD Evolution</th>
<th>During PhD Evolution</th>
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<tbody>
<tr>
<td>2013 Nov</td>
<td>Gini Futures</td>
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<tr>
<td>2014 Feb</td>
<td>Gini Digital</td>
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<tr>
<td>Mar</td>
<td>Gini Cultural Competency</td>
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<tr>
<td>Jun</td>
<td>Egypt Hothouse</td>
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<tr>
<td>Nov</td>
<td>PhD Reflective mapping</td>
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<td>2015 Feb</td>
<td>Aus Co. Board Mapping</td>
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<td>Feb</td>
<td>TEDx Talk</td>
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<td>Apr</td>
<td>RP 1 West End Community</td>
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<td>Jun</td>
<td>Plate Workshop</td>
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<td>Jul</td>
<td>Coolum High School RE3 Workshop</td>
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<td>Sep</td>
<td>Derive Decolonial Mapping</td>
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<tr>
<td>Oct</td>
<td>RP 2 Reverse Garbage Workshop</td>
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<tr>
<td>Nov</td>
<td>Gini Problem what Problem</td>
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<tr>
<td>2016 Mar</td>
<td>Future BNE 1 Event</td>
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<tr>
<td>Apr</td>
<td>Aus Co. Innovation Lab 1</td>
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<td>Sep</td>
<td>Jinndi Hub</td>
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<tr>
<td>Nov</td>
<td>Arts Front Summit</td>
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<tr>
<td>2017 Jan</td>
<td>CORD Cultures of Repair Map</td>
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<tr>
<td>Feb</td>
<td>Aus Co. Gold Coast Workshop</td>
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<tr>
<td>Mar</td>
<td>Future BNE 2 Event</td>
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<tr>
<td>May</td>
<td>Aus Co. Innovation Lab 2</td>
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<tr>
<td>Sep</td>
<td>Gini Research Yarning</td>
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<td>Oct</td>
<td>Aus Co. Adelaide Workshop</td>
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<td>Nov</td>
<td>Yirramboi Strategic Vision</td>
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<td>2018 Mar</td>
<td>Future BNE 3 Event</td>
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<td>Apr</td>
<td>See Change Sand Tracks-Games</td>
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<td>Jun</td>
<td>See Change Sand Tracks-OutoftheBox</td>
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<td>Jun</td>
<td>Aus Co. Futures Workshop</td>
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<td>Jun</td>
<td>NTAQ Cooktown Community</td>
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<tr>
<td>Jul</td>
<td>Kids Who Care &amp; Repair</td>
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<td>Jul</td>
<td>Indigenous Business Aus.</td>
</tr>
</tbody>
</table>

Figure 13: Evolution of insights and key studio projects related to critical mapping practice. See Appendix for full size view.
Conclusion

This introduction chapter has set the context for the following chapters, which are briefly outlined here. In Chapter 1, I review the ways that mapping practices are understood in comparison to my practice. Moving to the theoretical section of the thesis, tracking technocolonialism in Indigenous contexts is the focus of Chapter 2. Chapter 3 extends this by focusing on the creation and destruction cultures of repair. In Chapter 4, I enunciate a decolonising wayfinding (psychogeographic mapping) frame focused on case studies of two cities—Brisbane and the Gold Coast, Australia, my home geography. In the coming decades, both these cities will be affected by sea level rises and other challenges, and climate-displaced peoples will arrive. In Chapter 5, I articulate CRM as a theoretical framing of the methodological process and describe the methods employed in the mapping processes. Moving to case studies of my practice, Chapter 6 outlines two community engagement mapping events I co-designed and facilitated under the collective Redirecive Practice. I then outline the case study of the Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab in Chapter 7. I examine my practice in an educational setting, the Brisbane City Council FutureBNE Challenge, in Chapter 8. Finally, in Chapter 9, I conclude my case studies by reviewing the See Change Sand Tracks project, a commissioned work for Festival 2018 at the Gold Coast Commonwealth Games.

In this introduction, I have explained new perspectives on participatory design techniques combined with Indigenous approaches to knowledge production, presented as experiments of decolonising futures though creative critical mapping practices. The theories, methodologies and practice introduce an articulatory design practice that designers, educators, strategists and community activists will find useful.
Chapter 1

Critical Mapping as an Articulatory Practice
Ways of Understanding and Practicing Critical Mapping

A multitude of ways of speaking about mapping have emerged that enunciate the field as having departed from an ‘imperial blaze’ (Hall 2012, p. 157) of mapping practices determined by Enlightenment scientific rationality. This section reviews some of those ways of understanding and practicing critical mapping and their relationship with the way that mapping is presented in this thesis and practiced by me.

For the last few decades, several key cartography commentators spanning geography (Crampton 2010, Harley 2001), history (Corner 1999), cultural theory (Latour 2005, 2008, 2011), art (Kanarinka 2006), and design (Abraham 2006, Hall 2012, 2007, 2014) have been articulating a paradigm shift in both critical visualisation and critical mapping. This is sometimes described as mind mapping or concept mapping, but I reject these terms as simplistic and reductive, and as having no relation to cartographic metaphors of cognitive mapping. Cognitive mapping is firstly the mental mode of arranging ideas, knowledge, and landscapes (either virtual or real) spatially and temporally in one’s mind. It is secondly the practical explication of those thoughts into an expressed, articulated form. As outlined in the introduction, there have been several calls to action for new modes of cognitive mapping that can comprehend the complexities of this world (Jameson 1990, Latour 2008, 2011), and this section posits that the critical cartographic turn is also a robust and legitimate discourse to understand critical cognitive mapping.

Design researcher Peter Hall’s extensive case studies and academic writing culminates in an argument that critical visualisation and mapping require a more interdisciplinary correspondence between artistic, scientific and journalistic approaches (Hall 2011), in other words, to be conceived as a technology, a science, and an art (Hall 2007). Similar to Hall, Jeremy Crampton also highlighted a significant transition from the map-as-object to the map-as-critical-practice when he declared that maps are always inescapably “performative, participatory and political” (Crampton 2009, p. 840). Hall’s and Crampton’s conceptions of critical mapping position mapping as what cartographer James Corner describes as a “collective enabling” device (Corner 1999, p. 89), a productive and liberating instrument, a “world-enriching agent”, in which reality is not delivered as representation, but is rather performed, expressed and articulated collectively along the way. Corner argues this process is particularly useful in critical design and the arts (Corner 1999).

As ways of speaking, understanding and practicing critical mapping, the above outlines a maturity in critical mapping that is able to contribute to critical design practice. Critical mapping can suitably provide artificulatory processes and therefore enable appropriate brief creation, to
inform critical designing action. This maturity of critical mapping as an articulatory design practice can now be conceived.

**Critical Mapping as an Articulatory Design Practice**

Crampton (2010), Kanarinka (2006), Pickles (2011) and Corner (1999) have all previously described critical mapping as an articulatory practice. Crampton recognises that map art “brings to light other people’s worlds; that it produces or articulates a shared understanding of our world; and that it can reconfigure cultures into some-thing else” (2010, p. 174). He follows Detroit map artist Kanarinka’s argument when she writes,

> the accelerated accumulation and circulation of capital, conflict, and people around the globe is a phenomenon that required (and is still requiring) diverse societies to develop visual and cultural mechanisms for articulating their relationship to the “whole” world, a world which, economically and technologically speaking, is already right in their backyard. (2006, p. 174)

Kanarinka goes on to describe three categories of map artists: Symbol Saboteurs, who perform a semiotic bricolage in a method that parallels culture jamming discourses in graphic design; Agents and Actors, who are politically driven to deploy maps to elicit social change; and Invisible Data-Mappers, who use cartographic metaphors in complex information visualisation (2006). The critical design mapping cases presented in this thesis can be seen as akin to one or another of these three categories. For example, See Change Sand Tracks (Chapter 9) relies on iconography and symbols as agents to intervene in participants’ perceptions of changing futures. It deploys symbols cartographically as map elements that metaphorically express complex information people might otherwise find difficult to comprehend. In this way, I am comfortable with being described as a map artist, particularly in the way summarised by geographer Denis Wood: “Map artists do not reject maps. They reject the authority claimed by normative maps uniquely to portray reality as it is” (Wood 2006, n.p). Indeed, my role in See Change Sand Tracks, which was fully funded by City of Gold Coast Arts & Culture Unit and GOLDOC (Commonwealth Games), was described as an artist advocating social change.

For geographer John Pickles, mapping as an articulatory practice is understood as a form of creating images out of an infinite amount of puzzle configurations, where “the cartographer selects, sifts and emphasises this or that aspect of the world under consideration, and articulates an image in the rebus linking graphic and linguistic codes” (2011, p. 404). Linking graphic and language codes is a complex skill that takes years to master, since having an idea of a visual and spatial arrangement in one’s mind is different from possessing the design skills
and critical cultural understanding of visual information’s imperial traps necessary to appropriately lay it out. For Corner, mapping as an articulatory practice is a skillful distillation process “of gathering, working, reworking, assembling, relating, revealing, sifting and speculating. In turn, these activities enable the inclusion of massive amounts of information that, when articulated, allow certain sets of possibility to become actual” (1999, p. 94).

Deleuze and Guattari similarly describe mapping as an articulatory practice. For them, the rhizomatic nature of mapping is a tracking of “open, connectable, experimentations with the real” (1987, p. 6). They contrast this with ‘tracing’, which they describe as “repetitive redundancies that will always come back to the same” (Deleuze & Guattari in: Corner 1999, p. 99). Corner extends this point, saying that the linear nature of mapping, of “tracings [that] belong to hierarchical systems of order…ultimately limit any hope of innovation”. He continues, “the infinitely open, rhizomatic nature of mapping affords many diverse entryways, exits and ‘lines of flight’, each of which allows for a plurality of readings, uses and effects” (1999, p. 99). Corner specifically favours the rhizomatic typology, together with “allied themes of drift, derive, layering, scaling, milieu and game-board structures”, as these form a “useful model for mapping as a creative form of spatio-temporal practice in urban planning and design” (1999, p. 99).

**Barriers to Critical Mapping as an Articulatory Design Practice**

The concerns I have for urgently deploying mapping for articulating redirected socially responsible futures are shared by Corner. He writes, “why not embrace the profound efficacy of mapping in exploring and shaping new realities? Why not embrace the fact that the potentially infinite capacity of mapping to find new conditions might enable more socially engaging modes of exchange within larger milieu?” (1999, p. 99).

Corner’s plea results from the conditions of Western society. In Western systems, we are living and being modern on the basis of a legacy of a reductive way of structuring the world. For visual theorist and cultural critic Johanna Drucker, this legacy is intrinsic to modern systems of management and administration (Drucker 2014), which, she points out, are based on linear hierarchical judgements underpinned by Descartes’ assertion that all knowledge can be represented with a mathematical degree of logical stability: a *mathe\*sis* (2014, p. 109). This faith in logic and statistics—of a scientific rationality and objectivity—pervades the cultural authority of information graphics and maps. This objectivity was exported across the globe as justification for colonising civilisations who were not categorising their worlds in the same way. Information graphics, maps, and ‘quantified’ visualisations of data of both temporal and spatial worlds were indeed central to colonisation, which has had profound, negative consequences across the globe. Anthropologist Arjun Appadurai writes of an example in India in which numbers gradually become an important part of the illusion of “bureaucratic control and key to the colonial
imaginary in which countable extraction of people and resources and every imaginable configuration created a sense of controlling Indigenous reality” (1996, p. 117).

Drucker extends her critique of information design to the rhetoric underpinning it. Information design does not neutrally represent what is already known or, as she describes, a “scientific objectivity”. For Drucker, a critical lens should always be placed on the ‘authority’ of the following structures that claim spurious objectivity because of their historical links:

- a bar chart that comes from statistical analysis
- tree structures from evolutionary biology
- maps from records of explorations (with their territorial imperatives)
- flow charts from management and organisational structures
- tables and grids work by putting discrete cells of information into meaningful tactic relations with each other
- have a paradigmatic relation with the timetable. (Drucker 2011)

However, instead of there being a focus on critiquing the cultural authority of information graphics and maps, there are increasingly actors such as Edward Tufte continuing to promote the objective authority they possess. Tufte writes, “excellence in statistical graphics consists of complex ideas communicated with clarity, precision, and efficiency”, and dictates that graphics should “show the data” and “avoid distorting what the data have to say” (2001, p.13). Crampton illuminates a particularly powerful history that such authors rely on in his review of cartographer Arthur Robinson, who, in 1952, working in a post-war atmosphere rife with skepticism over maps deployed for propaganda, attacked and “reject[ed] anything that was not part of the map’s function or purpose, especially those aspects that seek to “unduly” sway the reader to some point of view about other people or countries” (2010, p. 55). For Crampton, Robinson, one of the most revered and respected commentators of the time, invoked a problematic binary of the positive, scientifically derived ‘proper’ map against its opposite—the negative, lacking, transgressive map. This approach to map making lives on by delegitimating any contemporary efforts at mapping with people that are contra to an objective ‘truth finding’ mission.

Drucker (2011) identifies an emerging visual and graphic anthropology she terms ‘graphesis’, in which practitioners use the tools of the oppressor while maneuvering beyond those colonising traps of graphic knowledge production and rhetorical devices. She writes, “Graphesis is concerned with the creation of methods of interpretation that are generative and iterative, capable of producing new knowledge through the aesthetic provocation of graphical expressions” (2011, p. 33). It is to this end that this thesis argues for mapping as an articulatory design practice. Put another way, the practice I am advocating theorises, uses methods and experiments with the critical articulation and aesthetics of cognitive mapping. In doing so, it
rejects the easy rationalisation and representation claims of mapping and instead embraces the irreducibility that Harvey argues for: “maps are always a part of culture and never outside it” (1989, p. 18).

An appeal was also put forward by Fredric Jameson in 1991 when he contended that the “incapacity of our minds, at least at present, to map the great global multinational and decentred communicational network in which we find ourselves caught as individual subjects” might be resolved through an “aesthetics of cognitive mapping” (1991, p. 44).

While Jameson’s hypothesis has been tested in countless subsequent mapping projects, its emphatic case for an aesthetics of cognitive mapping has recently been interrogated by Hall. His sharp critique is worth citing at length:

cognitive mapping emerged in the 1950s as a field research method for evaluating the ‘legibility’ of urban space, a concept furthered by urban planner Kevin Lynch (1960). By asking residents of a city to sketch a map and respond to questions about the built environment, Kevin Lynch argued that a shared sense could be derived of urban legibility, i.e. “the ease with which [a city’s] parts can be recognized and organized in a coherent pattern” (Lynch 1960, p. 2). Appealingly low-tech and accessible (particularly in the present age of its more high-tech successors), Kevin Lynch’s method nevertheless makes several assumptions. Inherent in the phrase ‘urban legibility’ is the assumption that space can be ‘read’, suggesting a pre-existing text that presents itself for contemplation…the lexical bias encourages a focus in Kevin Lynch’s methods on fixed or written and therefore received representations. (Hall 2014, p. 135)

Likewise, inspired Kevin Lynch’s work, Chris Alexander’s three canonical texts, The Time-less Way of Building (1979), A Pattern Language (1977), and the Oregon Experiment (1975) have been critiqued for proselytizing a universal code of urban legibility. As with Lynch, Alexander was searching for a cognitive cohesion that could explain an inherent and generic beauty; a ‘central quality’ of patterns of space. In A Pattern Language, Alexander details 253 patterns which he declared serve as a generic (yet universal) set of guiding principles for design. He argues that these patterns, from the town level, down to the interior of an environment should be followed objectively when mapping out a space. Since his books were released there have been decades of academic critique of their flaws, summarised recently by Michael Dawes and Michael Ostwald (2017). They found that those critiques centred on Alexander embracing “an ontology that confuses objective and subjective phenomena, rejects pluralistic values and alternate experiences, ignores political and social realities, and accepts only one ‘right’ way of building” (Dawes and Ostwald 2017, p. 12). This is in spite of Alexander’s goals to “replace the
theory and practice of modernism (which he rejects as totalitarian and controlling) with an alternative” (Dawes and Ostwald 2017, p. 10). Dawes and Ostwald’s literature review of critiques found that Alexander’s work actually falls into that very trap of totalitarianism and control in its “equally tyrannical romanticism” (Dawes and Ostwald 2017, p. 10) of universal ‘good design’ drawn almost entirely from either Medieval Europe or his own work.

Jeremy Crampton’s Diagram

Crampton’s diagram (2010, p. 5) (figure 14) has provided a recent typology for understanding critical mapping, critical cartography, and counter-cartography. Although his diagram and research focus mostly on geographic cartography, the schema also neatly pertains to cartographically spatialising cognitive thoughts, what this thesis is focused on. In admitting his diagram is merely “two-dimensional and static” (2010, p. 183), Crampton would like it to be considered as a summary “of the competing directions in which you as a user of maps and GIS [Geographic Information Systems] are likely to find yourself being pulled” (2010, p. 183).

These different directions can be broadly described as a trend toward “securitization” of knowledge in the one direction and “resistances” in the other. Securitization of information refers to the efforts that are made to anchor, control, and discipline geographical knowledges. (Crampton 2010, p. 5)

For Crampton, resistances pertain to a mutability (more open and fluid process) to map making. Using Bruno Latour’s concept of thinking of the map as an “immutable mobile” (1989, p. 7) apparatus, Hall describes how a map achieves a particular translation of power.

Once a territory is framed, surveyed, coded, represented, authorized and fixed in a medium—be it in print or more seemingly fluid interactive forms such as GIS—it becomes both resistant to alteration (“immutable”) and mobile, an instrument for preserving the meaning and truth of a scientific observation as it circulates. (2014, p. 133)
Put another way, the more mutable it is, the less a map is mobile (less form preserved to travel as a commensurable representation) since resolved representational qualities are diminished. In offering an alternative, Hall adopts Latour’s immutable mobile theory to describe how uneasy tensions between securitisation and resistance in Crampton’s diagram arise. For example, he writes

A mapping of least surveilled routes provides material for the next wave of cameras. A mapping that seeks to galvanize networks of hackers, grass roots activists and hacktivists also risks providing valuable information for criminal investigators and prosecutors. A security map of network vulnerabilities by the same token potentially provides a valuable tool for cyber-criminals. (2014, p. 144)

He continues by arguing that communities mapping to explore their local complexities fail in their agendas to have authorship and traction in the process because they fail to mount a
counterargument of a mobilisation of interests; without these, he says, maps are “destined for failure” (2014, p. 146). A map

is successful inasmuch as it can become immutable and mobile, by gathering support and preserving its claim to truth as it mobilizes. This is why formal graphical innovation must always be the product of a groundswell of change to change anything; otherwise it is doomed to remain gestural and faddish. (2014, p. 146)

Thus, herein lies the dialectic of mapping: Maps mobilise effectively the more that they are presented as final truth, but that finality and truth contradicts and undermines truths in other localities where maps are mobilised. For any kind of more mutable process to occur, the price to pay is less mobility. For Escobar, this myth is described as an “impossibly large monster that cannot be changed” (2001, p. 161) and blocks new myths. A flip of myths requires no less than an ontological transformation in which more mutable processes occur. This task is immense, he argues, given that “the very syntax of visualisation and mapping is inscribed with the interests of the dominant forces that mobilized them [which] is a reminder that space must be re-imagined to be re-mapped” (2014, p. 146).

The Dialectic of the Immutable Mobile in Mapping

At the risk of falling into the very trap that has just been described, the diagram (figure 15) offered below provides a way to visually express different ways of understanding modes of practicing mapping based on the dialectic of the immutable mobile. There is no doubt that people who map (as named in the diagram), in whichever order, are making attempts at mobilising their interests. The current world order appears below as the triangle with the obtuse edge at the top in green. The second (pink) triangle is the immutability triangle. As this triangle increases in mutability, less mobilisation travels with it. Mapping practitioners are expressed here among the four quadrants and should be understood as amorphously everywhere in between.
On the vertical axis, when actors push for mutable open styles of mapping, they receive less mobilisation qualities from the system. To the contrary, when actors increasingly make maps immutable, they are rewarded with increased mobility and preservation, so that interest goes on to wield power in its travel. On the horizontal axis is a spectrum going from a status quo to a critical mapping practice that actively explores ways of countering scientific rationality. In the current modern Western capital-centric system, status quo mapping that is most mobile in its packaged form, and therefore wields considerable power for its ideas to travel, involves closed, static, rational typologies. For example, this is evidenced in the case of Chris Alexanders ‘base maps’ as patterns of language (Alexander et al. 1977). They have travelled across the globe as a recipe book to countless architecture and owner-builder hands promising a universal one-stop-shop of mapping space. Alexander offers a hyper-rational typology to follow as a closed, static universal language, packaged in a book that physically resembles a bible. It also encompasses a politics of user-centred mapping and favours business and consumer-oriented rhetoric as if people map to find their way in a market-world. Critical mapping that is least mobile in its packaged form, since it counters rigidness with open, fluid and relational typologies, wields considerably less power for its ideas to travel. It involves a politics of de-centred mapping, favours articulating power relations and a decolonising rhetoric as if people map with an imperative of transforming plural worlds in flux.
Actors purporting to perform critical mapping, such as interactive big data visualisations (top right in diagram), inevitably wield increased mobility since their typology is still fixed inside the glossiness and allure of the authority of big data diagram syntax and typologies. This diagram (inescapably reductive itself) illustrates that the most mobilised and canonised modes of mapping are unsurprisingly the ones seen heralded in TED talks (big data visualisations.) and in business degrees (generic design thinking tools ). This also explains why the ideas that the practice this thesis details are considerably difficult to mobilise.

Practices similar to mine—for example, Transition Design mapping, Yoko Akama’s work, and some forms of strategic design practice, such as the platform ‘Strategic Design Scenarios’—are in a constant state of compromise, needing to find tactics to remain critical and to counter the status quo, while adopting enough familiar typologies and rationality to enable counter status quo agendas to mobilise within the system. For example, Akama, Pink and Sumartojo reflected on how their recent Design + Ethnography + Futures workshops required iteration to find a balance “between structure and an open format”. For them this was an “ethical dilemma regarding the extent to which participants should be unsettled” (Akama, Pink, and Sumartojo 2018, p. 78). In spite of these dilemmas, as with my work, they continue theirs, exploring ways in which they “participate in, articulate and generate alternative ways of sensing and knowing…[that offer]…a means by which to move beyond what is known towards imagining new and emergent futures” (Akama, Pink, and Sumartojo 2018, p. 101). The representation of my practice embroiled in this dilemma is visually located in the diagram as ‘touching’ the green mobility triangle, hanging on a limb. As much as practitioners such as myself are articulating what Drucker terms graphesis, the uneasy tension still remains; as my diagram shows, we are not guaranteed to have any kind of traction.

As Hall notes (2014), this tension explains why Australian Aboriginal maps that predominantly serve community and cultural purposes too often lose out in being more broadly mobilised. This is usually of little consequence when maps are for, with, and by community, but consequences very dramatically escalate when these maps are deployed to wield power in negotiations where the terms of a conversation are part of a system opposed to the community’s worldview, say, in Native Title claims.

Thus, those who practice critical mapping are faced with both operating within the terms of this dialectic of the immutable mobile while nurturing an urgent patience in their practice to nudge the triangles, flip the syntax, and reverse the dominant forces that mobilise. If one re-imagines how things might be re-mapped, as shown in the diagram below (figure 16), one can see, and hopefully projectively speculate about this transformative potential. The question becomes, is there a practice that can unravel and flip the forces so that more mutability drives more mobility-in-place? This thesis makes no claim to provide an answer to this question, but precisely exists
to experiment with it. In this fictional world order, my practice as expounded in this thesis would be clearly performing both the most mobility-in-place and the most open mutable practice (bottom). Closed immutable practices (top), in this fiction, perform poorly. Mutable status quo practices (bottom left) initially appears to have potential, but actually would self-destruct, since sameness would fail mobility-in-place over time.

Figure 16: Immutable mobile matrix illustrating a paradigm shift scenario

Conclusion

Overall, Hall’s main issue with Crampton’s model is that it does little to illustrate that “today control is internalised in the social body, as Michael Hardt and Antonio Negri argued” (2014, p. 145), not out there, external to us in maps. Hall concludes, “it would seem that mapping against globalism first requires identifying where globalism has colonized us, our habitus, or the structuring structures that shape how we navigate the world” (2014, p. 145).

He also mentions the connection with mapping through excessive technology, arguing that “our ambivalent relationship with technology…seems to cleave space itself, rupturing us from our immediate environment and suturing us to remote spaces” (2014, p. 145). What Hall is alluding to here is a seductive tactic of modernity—a techno-colonialism that also pervades the way we perceive resistance, so in turn it becomes a repressive tool hurling us back to the securitisation side of Crampton’s diagram and the immutable mobile edges of the first diagram above (figure 15). This tension is thoroughly explored in Chapter 2.
To Aboriginal Elders I have listened to through my life, life emerges through the slow, messy, open, artistic performance of expressing feelings. Through talking, storytelling and using cartographic metaphors as artistic and designerly arrangements of movements through experience. Herein is an acknowledgement that a mutable mobility conception of cognitively grasping life is an IK relational pattern thinking modality. Expression is movement, as Ingold has observed in his talks with Aboriginal Elders. He subsequently argues that life is a meshworld of entangled lines of life, growth and movement. Ingold is following Elders’ insights that “to regain the currents of life and of sensory awareness, we need to join in the movements that give rise to things, rather than casting our attention back upon their objective and objectified forms” (Ingold 2011a, p. 97). Another cultural anthropologist Roy Wagner draws the intelligible knowledge from Australian Aboriginal Walbiri people’s readings of Country that “the life of a person is the sum of his tracks, the total inscription of his movements, something that can be tracked out along the ground” (1986, p. 21). This thesis therefore aims to contribute to experimenting with the performance of tracking our tracks, while resisting the positivist traditions of information design. Taking on board the idea of fluid graphics that acknowledge the process as you go, I have employed an urgent patience to flip the order upon which ideas travel to provide a mutable mobilising practice; ‘open change’.
Chapter 2

Decolonising Techno-colonising Indigenous Design Futures

Sections included in this chapter contain edited excerpts of a journal article that underwent a double-blind peer-review process and was published in late 2018. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Publication Details:

People all over the world are diversely delinking their bodies from being at the service of culturally destructive modernising and colonising technologies. They are instead relinking their interactions with technology to be at the service of being culturally productive autonomous humans. A familiar example from the last few decades is people who express the decolonising cartographic practices that contest homogenising colonial maps representing territories. Colonial maps have, at least since the Enlightenment, used universalising technical, rationalist imperial epistemologies to demarcate worlds. Today, technologies well supersede twentieth-century colonial cartographic affordances. Colonising cognition, some say, is now a technical capability too. Humans’ enslavement to technology is a well-versed trope both in academic research and popular culture, but these narratives are only recently being addressed from decolonial thinking and ontological design perspectives, contributing to a research gap. Furthermore, this chapter can be understood as a demonstration of my research looping from mapping through thinking, talking and exploring concerns of technology, to mapping those concerns in a theoretical position here, a position which then offers a springboard and place to begin in applying ongoing mapping in practice with people as seen in subsequent chapters. In short, this chapter is a crucial element of my praxis. It outlines how the speed, control and authority over knowledge through technology is set to be a profound and dominant manifestation of colonialism over the coming decades. Furthermore, it discusses how this is challenging notions of being human, particularly for Indigenous groups.

The techno-enslavement trope is often met with rebuttal from authors who reason that technology, or the machine, has no agency and so cannot enslave ‘us’. However, as Human-Computer Interaction (HCI) researchers Pickering et al. (2017, p. 6) conclude, the “extent to which they [machines] are perceived as having agency by human actors” is significant enough to render a definition of machine agency. Our perception of autonomy, agency and ultimately of oppression from machines is significant enough to define this as a techno-colonising event. Furthermore, HCI researchers, following previous work in areas of socio-technical systems and actor-network theory, which all draw from earlier philosophical inquiry from Martin Heidegger (1977) and early Computer Science inquiry from Winograd and Flores (1987) (1987), have previously conceded what Pickering et al. (2017, p. 1) argue:

machines are not just passive participants in such networks, merely mediating communications between humans; they are increasingly adopting an active role, enabled by technological advances that allow greater [machine] autonomy and the performance of increasingly complex tasks [… that...] can both enhance and constrain human agency as well as exhibit agency themselves.
The agency that results from humans’ relations with digital socio-communicative technologies is ontologically designing either an extension of time for humans as a species (what Fry names ‘futuring’) or destroying human futures (what he names ‘defuturing’). The latter is particularly concerning for Indigenous groups, who, I argue, bear this as a double-move of colonialism. The objective of this chapter is to contribute to a critical discourse that can inform groups to delink from colonialism: to think, talk and map their situatedness among this phenomenon and to ultimately mobilise decolonising options for their worlds. Delinking, for Mignolo, and for my own design politics, is a way of enacting an “epistemic disobedience” (2011, p. 143). Many Aboriginal arts-based political activists in Australia practice epistemic disobedience in their own ways too, such as Ryan Presley (2018), whose visual art expresses the connections between colonialism, religion and power.

My interest here lies in the way our relations with technology are inseparable from our coming into being. Fry (2017), following Heidegger (1977) both identify a loss of our comprehension of this fusing. Ahmed Ansari has also recently illuminated this issue: “there is now a complex discourse on technology that talks about how technologies shape and mold our perception and experience” (2016, p. 6, in referring to Don Ihde and Peter Paul Verbeek). Like Ansari (2018, p. 6), I recognise that these acts of making and designing ourselves and our worlds are “constitutive and wilful”, and that it is “the design disciplines, as the formal sphere of activity concerned with the construction of the artificial [that are therefore] always futural and ontologically oriented”. Technologies such as social media applications, virtual reality, and augmented reality are ontologically designing our conditions of being, but this system is not part of natural evolution; it is an intellectual acquisition and therefore an open loop. The first Industrial Revolution ontologically designed the vast population of the world to depend on steam technology; the second on oil; and in this third industrial digital revolution, there is a habitus intrenched in most populations around the world of ontologically designing our dependence on the technological affordance of an internet of things. As with the first and second, the third continues a habitus of cultivating the maximum yield at the minimum expense. Moreover, Mignolo (2013), historian Yuval Noah Harari (2015), Fry (2017) (via Bernard Stiegler), and Escobar (2018) discuss the role that technological revolutions have played in the industrialisation and eradication of plural memory and imagination. For critical philosopher Bernard Stiegler, socio-communicative technologies are homogenising our ontologies (2017). If this is the case, then this latest revolution may well be eliminating people’s ability to advance decolonial political imaginations; a “technological colonisation of imagination” (Fry 2017, p. 100). Furthermore, this is occurring inseparably from another profound event for which redress is urgently needed through decolonial socio-ecological options: climate change and its associated symptoms (Wallace-Wells 2017).

Using the lineage of thinking thus outlined, this technological colonisation of imagination can be summarised as a defuturing ontological elimination design event. This event is defuturing
(eliminating) Indigenous futures and therefore defuturing options for sustainable futures for all humans and the lifeworlds upon which they depend. For Escobar, this is an event that erodes people’s ability to think critically and autonomously outside the bounds of a technodetermined algorithmic one world system (Escobar 2018). It is an event that reduces one’s ability to imagine decolonising options in an increasingly complex, climate-unsettled world. Imagining—having authority and control over knowledge production—was once left to the gods, but since the Enlightenment, it has been transferred from gods to humans: humanism. For Harari, in this third digital industrial revolution, imagining is now being transferred to data: dataism (2015). Vazquez elaborates on how Hannah Arendt captured this event that has been building since Sputnik (the first artificial Earth satellite) : “the emancipation of the modern age from Earth as the Mother… the loss of earth is mirrored in the forgetfulness of our bodies as always already earth” (2017, p. 79). ‘We’ are now ontologically shifting not just from ‘earthlessness’ but ‘bodylessness’ too. Through the shifting proximity of a faith-in-data that now enters our internal bodies—illustrated, for example, in the wearable device (currently in its final stages of market development) called AlterEgo that “can hear your internal voice” (Gibbs 2018)—are ‘we’ genetically changing what ‘we’ physiologically are? Are ‘we’, in a continuation of the dualist Cartesian mind–body tradition, technologically emancipating our physiological bodies from being vessels holding the knowledge we actively call upon? Are ‘we’ instead increasingly placing faith in receiving and transmitting knowledge through algorithmic data input/output channels of augmented devices? I will now map five seductive and repressive ways in which the technological colonising event manifests in Indigenous contexts. The first is discussed in evolutionary terms.

**Place: Ontologically Designing Being?**

The provocations in the projected futures questions above are at odds with Indigenous ontological conceptions worldwide. Australian Aboriginal Koombumerri Elder and renowned academic Mary Graham (2017) posits that there is no Aboriginal equivalent to Kant’s Cartesian notion of ‘I think therefore I am’ but, if there were, it would be, ‘I am located therefore I am’—which is similar to Mignolo’s counter to Kant, “I think where I am and do” (2011, p. 80). For Graham (2007), ‘Place’, being, belonging and connectedness all arise out of a body’s locality in land. She writes that multiple places mean that every place has a law, but the unifying law is land. There are multiple truths emerging from land in each place. As mentioned previously, Ingold (2011a) describes these worlds in general as ‘meshworlds’. Aboriginal people know these as ‘songlines’, through which human movement across the vast geography of the Australian continent has inculcated cultural, economic, genetic and artistic conduit meshwork threads that have, over 65,000-odd years, ontologically designed structures of creation and re-creation between people/bodies in/as/with place (Pascoe 2014). This intelligible Aboriginal philosophy precedes the core condition Fry argues for, of a limitation of freedom within sustaintment, which is perhaps understood in Graham’s Indigenous Philosophy as a limitation of freedom within truth in place.
Graham theorises, “the land is the source of the law, land has us embedded in it, land has thrown us up—with the water we drink we take the characteristics of land up itself, genetically. This is scientific, not just spiritual. We are genetically bound up in country” (2017, p. 1). Graham is articulating something that Western psychology and neuroscience have only caught up to in the last decade: that human evolution has been shaped by gene–culture interactions, or “gene–culture coevolution” (Goldman 2014, Laland, Odling-Smee, and Myles 2010, Sasaki 2013, Creanza, Kolodny, and Feldman 2017). Being genetically bound up in Country establishes symbolic meaning through custodianship kinship laws with land and other lifeworlds, which means those lifeworlds are respected for holding place in the ordered meaning of human autopoesis (autonomy) and are revered for continuing to imbue land with symbolic meaning. This is thus a belief that upholds sustainment. But it is not only a belief. Over time, genetic coevolution biologically enmeshes humans and place in autopoesis, meaning there is an onto-genetic-evolutionary agreement of sustainment. In this system, non-human ecologies are having a say in their futures; gene–culture coevolution renders their existence ensured.

If this approach to being human is considered futuring, then the technological colonisation of the imagination is an ontologically defuturing design event eliminating being biologically human. It defuses (defutures) gene–culture coevolution with the biosphere and re-fuses (futures) gene–culture coevolution with the technosphere. This event changes ‘what’ ‘we’ are, eliminating an evolutionary agreement to uphold with geographic place, its respective ecologies, and their futures. Following Virilio, Escobar equates this to a “massive delocalization fostered by digital technologies and ICTs” (2017, p. 40), where techno-economic intervention is dominating locality. In an Aboriginal relational ontology, judgement comes from place (Graham 2017). In a technological determinist ontology, judgement comes in the test of a system’s ability to produce more universalising truth unbound by place: place-less, nature-less, culture-less, biosphere-less data. Geographers have defined this ‘truth unbound by place ‘environment as ‘code/space’ (Kitchin and Dodge 2011). James Bridle explains that code/space “describe the interweaving of computation with the built environment and daily experience to a very specific extent…such that the environment and the experience of it actually ceases to function in the absence of code” (Bridle 2018, p 37). He outlines how reading books (e-book purchases), listening to music (streaming), researching and learning (Wikipedia) and many other activities are governed by algorithmic logics that amount to code/space, actually becoming culture. In this technological determinist ontology, reality is determined by computational code.

**Place: Virtual Healing or Stealing?**

Since colonisation, Aboriginal groups in Australia have continued to co-opt and liberate the tools and practices of the oppressor. For example, during the colonial invasion of Sydney from 1788 through the 1800s, Aboriginal people resisted by both defending their territory through war and simultaneously enacting art-of-war tactics of offering hunting, fishing, boat tours and tracking
services to invading settlers which dictated access and terms of use of their land (Irish 2017).
Furthermore, there are endless examples of innovative repair cultures constituted by billions of
people across the globe, from Jugaad in India (Birchnell 2013) to Gambiarra in Brazil (Fonseca
2015). By innovating, hacking, re-making and re-framing, these people are contesting productivist
models and liberating tools and technologies for their own decolonising or counter-neoliberalist
means. I map cultures of repair specifically in more detail in Chapter 3. In Australia, some currently
argue that the technological tool of social media can be liberated from the oppressor for the means
of increased intergenerational family connections amid colonial dispossession and disconnection
from land. Advocates argue that social media becomes a safe space to share identity inside a
social filter bubble, away from conflict, and also becomes a tool of galvanising resistance (Carlson
2017). In other words, it purportedly liberates groups from the trauma from the loss of colonisation
of geographies because it provides them with a new connection to virtual geographies and
ecologies that can be held as a sacred ‘place’.

In Australia, this techno-mediation of worlds amplified by Indigenous groups for means of healing
also becomes distinguished as a reconciliation tool, where two worlds can meet in the common
language of the virtual world. This presents a mutually beneficial situation where the colonised co-
opts the techno-mediation on offer as a portal to their world, while the coloniser is provided with a
commensurable view. While this sounds seductive, it can also be repressive. The colonised are
seduced into being co-opted into this bridging tool since what is ready-to-hand, to use Martin
Heidegger’s term, increasingly is only through socio-communicative digital technologies and
increasingly is augmented into our everyday lives. The ‘ready-to-hand’ is Heidegger’s term to
describe our relationship to objects for use (Heidegger 1977). This is precisely what techno-futurist
interaction designers desire: situations where humans are so immersed and augmented with
technologies that are imperceptible and unrepairable that they have no sense of the breakdown
between their distinct relationship to things, which would remind them of their unreadiness—the
presence of that thing. The relationship between the unreadiness and the ready-to-hand forces
people to remember and reflect on being human. It is plausible to suggest then, that designed
imperceptible augmentation with socio-communicative technologies enable a control, authority
and homogenisation of ‘how-to’ remember humanness. This represents a double-movement for
Indigenous groups, as they have been designated non-human through coloniality and are now
being robbed of fostering different socio-communications with or without their own technologies
under their own terms, repressing other modes of expressing, communicating and being-in-their-
worlds. This comes amid a climate change event, which is yet another double-movement, where
this darker side of modernity/coloniality is manifestly robbing Indigenous groups of geographic
territory—places in which they have contributed the least to climate change. In these places, as
Graham articulates, being-human emanates.
Logocentrism: Visual Patterns or Saturations?
The fusion between techno-mediated climate futures and the technological colonisation of imagination has existed at least since the Enlightenment hero Francis Bacon initiated a “separation between human beings and nature that would be further developed by the philosophy accompanying industrial capitalism” (Mignolo 2011, p. 166). Following Jacques Derrida, the technical dimension to knowing nature as separate to ‘us’ is critiqued in ontological terms by Stiegler (2009) when he describes its irreducible link with thought as memory dominated by the Enlightenment’s logocentric hierarchy given to the written word. This logocentrism undermines the visual relational pattern thinking and visual dialogue that exists among indigenous groups around the world, ultimately undercutting the breadth of humans’ knowledge of nature. Ironically compounding this, as Fry (2017) argues, is an over-saturation and recycling of images through the screen. Consequently, what gathers is a tension between the remnants of logocentrism on the one hand and the technologically afforded saturation of image on the other. For decades, Fry has critiqued “the material consequences of the image ecologies that sustain and drive the productivism of the televisual [that] have hardly begun to be recognised” (1999, p. 272). Yet, he has not enunciated that this critique inadvertently fits with yet another twisted double-move of colonialism. Critiquing image ecologies—taking ‘visual dialogue’ as I have outlined also as an image ecology—further de-validates the kind of Indigenous visual relational pattern thinking that long preceded big data viz., the televisual, immersive and augmented screens. Consequently, the image is becoming less trustworthy, indiscriminate of whether or not it derives from Indigenous relational patterns. One can infer then that the modern word and visual forms of cultural production have been so technologically colonised that both undercut Indigenous visual relational pattern thinking—a thinking that holds potential use as a decolonising socio-ecological option for the redress urgently needed for sustainable futures.

Being Human: Yearning for More?
Far from a slow transformation, the ontological elimination design event of our humanness is seen by Virilio as an acceleration, a “parody of Progress of knowledge…humanity’s escape from its incompleteness, from its dissatisfaction with being oneself” (2012, in Escobar, 2018, p. 32). The televisual has been perfecting our attunement to this for decades (1993), via news and current affairs nightly broadcasting an “alchemic fantasy of a world that no longer depends on nature” (Escobar 2018, p. 187). In our yearning for completeness, the technological colonisation of imagination rapidly arrives disguised as hyperreal entertainment, but actually it is a virtual panopticon: a data-capital accumulating machine of surveillance capitalism. As Skeggs and Yuill (2016) describe, cultural production and relation building through social media platforms such as Facebook are actually shaping forms of capital into our daily lives by tracking our rhythms and flows to sell as commodified forms back to us and to hand over those flows to the state, in turn shaping our habits and how we perform subjectivity. We techno-culturally evolve with Facebook as it designs back on us a knowing of ourselves as techno-mediated beings. In this move, our
yearning for having some other ‘progressive’ completeness is quenched by “leaving the body proper behind and investing in industries of the visionic, of telepresence, and of virtual reality” (Stiegler 2009, p. 98) that simulate a proximity to place.

The above describes the ontological designing event that is occurring: being in a constant techno-mediated simulation of being at-one-with/complete-with ‘nature’ and ‘culture’, with territory, with movement, with autonomy, and with a completely simulated notion of sustainment. This raises a daunting question: Might the striking banality of evil inherent in this trajectory manifest in only a few decades as a blind lack of trepidation? Is there a civilisational superfluous mentality occurring concerning what is happening to the untechno-mediated, ‘left-out’ and ‘have-not’ individuals and cultures and the actual biosphere upon which physiological humans and other lifeworlds depend?

Stiegler does not hold reservations in his concern “of problems of a gravity and difficulty that are on an altogether different scale from the already-challenging risks with which humanity has ever before been confronted”. It is no longer just a question of “having to abandon the modifier ‘sapiens’ after ‘Homo’,” he says, “now the title ‘Homo’ itself is in question” (Stiegler 2009, p. 99). This only matters as a concern if one believes that staying biophysically human should be the dominant future. Conversely, for those at the ‘posthuman future’ end of the spectrum, advocated by proponents of the likes of The Singularity—a great transformation that Ray Kurzweil predicts will happen by 2045 (Galeon and Reedy 2017)—the following question is a concern in the reverse: How can ‘man’ eliminate a woman’s ability to give life and accelerate ‘transcending biology’ and transitioning cognitive capacities to “wo/man…wholly created by men through the machine”? (Escobar 2018, p. 27) ‘The Father of All’ modern solutions is not new. Following analysis of Foucault’s earlier work, design researchers Luiza Prado de O. Martins (2016) and Ece Canli (2014) have investigated design’s role in the formation of biopolitical systems, or sexopolitical medications (the term for regulatory regimes used to manage expressions of gender and sexuality), that, to Foucault, are disciplinary technologies of the body, or “regulatory technologies of life” (Martins 2016, p. 1).

Simulating More than Human: Whose More?

The Australian Anglosphere yearning for the loss of being homo sapien, particularly throughout the 19th and 20th centuries, was quenched by locating an evolutionary arc of themselves being a ‘developed human’ beyond the ‘noble savage’ trope they found in Australian Indigenous culture (Lattas 1997). So ‘we all’ may now quench our yearning for being-human by virtually accessing genealogies of cultures that simulate being-in-the-world of any culture for the day. The ontological performative direction of the Welcome to Country iPhone app (2015) may be embroiled in this trap. It states that it “delivers a simple Welcome to Country video introduction to Australian Indigenous culture, including basic cultural protocols that are tribal boundary geo-specific” (Media 2015, p. 1). Users can avoid the geographic and corporeal experience of Country and experience its virtual
presence instead. Returning to consider the ontological designing implications of this from the neuroscientific perspective outlined above, there is hence no genetic coevolution occurring that biologically enmeshes those human app users with that place. Over time, the micro level change of now experiencing a virtual ‘off-country’ Welcome to Country app may well perform a meso-level designing of individual users of the reverse; an increased distance to Country (Country meaning a geographic place with its respective ecologies). If this is to be the case, at a macro-level the Welcome to Country app ontologically de-fuses (defutures) gene–culture coevolution with the biosphere and re-fuses (futures) gene–culture coevolution with the technosphere. This is a future in which the biophysical world upon which ‘biological humans’ once depended may be quenched through a techno-mediated access to a multisensory embodied experience of ‘being-in-nature’ for the day. Another interactive platform, Virtual Songlines (2017) also fits in this conundrum. It aims to immerse users in a landscape and cultural environment that existed before European invasion. Based on historical information, the platform is designed to allow users to learn about the spiritual connection between First Nations people and the land by interacting with locally specific virtual environments. As outlined earlier, this presents a mutually beneficial situation where the colonised co-opts a socio-communicative technology as a portal to their world, while the coloniser is provided with a commensurable view. As a techno-futurist interaction design its intention would be to iterate over time, upgrade after upgrade, higher quality immersive, augmented imperceptible user experiences that eliminate a breakdown between their distinct relationship as users outside the screen, and avatars inside it. In that case, Virtual Songlines may well be ontologically designing a techno-cultural evolution with landscapes and cultural environments, designing back on users a knowing themselves as socio-communicative techno-mediated beings; the opposite of what existed before European invasion. This is not to state that if the app cannot achieve a static purity it should not exist, Indigenous culture is not static, it is dynamic and continues to evolve. To this point, the intention of this critique is to articulate the (notably unintentional) techno-deterministic direction of that evolution.

From a decolonial perspective, it could be also argued that the Welcome to Country app and Virtual Songlines are using the tools of the oppressors for reparative means. However, in line with the extended decolonising provocations laid out here, there is an oppression in the way these socio-communicative technology’s reduce notions of perceiving social relations and hybrid futures. Moreover, these technologies have only very recently graduated from being Speculative Critical Design (SCD) propositions. This is problematic because SCD, as already outlined by Martins and Oliveira, “is made by, for and through the eyes of the Western—and typically northern-European and/or US-American—intellectual middle classes” (2015, p. 63). These technologies’ structuring of knowledge and functioning criteria ultimately originate from modernisation theory, which was developed to “legitimize the neo-colonial foreign policy ambitions of US liberal and conservative regimes” (White 2018, p. 4). Programmers and sponsor-owned data banks are housed in the hubris—the developed ‘service and knowledge economies’ of the Global North, which dispatch the
knowledge (Lyotard 1984 (1979). Furthermore, numerous examples expose the deeply historical racist prejudices, known as encoded biases, in communicative technologies. From cameras refusing to take a picture of people until ‘all eyes are open’, to black faces unable to be recognised, or worse recognised as primates (Bridle 2018), Ali Mustafa makes a point that alludes to the fundamental inescapable flaw in our faith in data-sets; “to what extent can faces—as faces—be conceptualised in race-less terms?” (2016, p. 5). The argument laid out here is that it is futile to simply continue to use these technologies for reparative purposes, because they bring forth with them a shaping and moulding of our ontologies of being human based on the imperial epistemologies that brought them into existence, so they are potentially ontologically designing the reverse of reparation. Being so new, so speculative, so imperceptibly seductive, they must be viewed critically.

Of course, the designers of any designed/ing artefact embroiled in the above five provocations do not necessarily intend for them to be involved in defuturing. As Tlostanova has surmised, “design has always been ontological” (2017, p. 52). Ontological design does not need a designer to explicitly build it into a project; it is innately present. For example, the Australian group IndigiLab has a vision that “Aboriginal and Torres Strait Islander Australians are leading in science, technology and digital innovation” (2017), noting that “Information Communications and Technologies are somehow transforming society, improving our mutual understanding, eliminating power differentials, realizing a truly free and democratic world society, and other benefits” (Lab 2017). Like so many other well-meaning tech organisations, innovators, and start-ups with beneficent explicit intentions, they may be implicitly miscomprehending the progress of knowledge to which they are subscribing, and inadvertently ontologically designing the contrary of their intentions.

The challenge in critical mapping as an articulatory practice is to combine method, process and embodied design-facilitation dynamics with performative, participatory and political sensibilities to support participants to think, talk and map their situatedness amongst concrete examples they may well interact with such as Virtual Songlines, the Welcome to Country app and IndigiLab. The argument below suggests where to begin this challenge; with one’s self.

Decolonising the Self

An Urgent Patience
Redirecting these five provocations starts with decolonising the self. From my learnings with Aboriginal mentors, I interpret this as confronting the instrumental rationalism that inhibits thinking relationally in time. It also involves defying chronophobia, the fear of time that Fry has also spoken of as the defuturing character of capitalism (Martins and Oliveira 2016). Chronophobia, manifested
as myopia, inhibits our abilities to see past the stasis of now and toward defuturing that will occur both in our lifetimes and beyond. For my Decolonising Design Group comrades Martins and Oliveira, being chronophobic is also to see “timelessness as metaphor for control, and as a way to prevent change” (2016, p. 32). This is a futile design sensibility in a world in flux. Alternatively, thinking relationally in time involves resisting accelerating ideas of radically different futures, known as accelerationism. Design researcher Cameron Tonkinwise critiques accelerationism tendencies happening in SCD that are trying to fast-forward near future possibilities when he says their strategy seems to be a “critical hyperbolization of current techno-libertarian tendencies”, with designers incessantly attempting to “use their capacity for ‘creative leaps’ to rush scientific research to a diverse range of marketizable technologies” (2015, p. 184). Put another way, I avoid clinging to the familiar lifeboat while lost at sea, hoping a catastrophe will unfold quickly and I can pick up the pieces on the other side. I also resist prefiguring another utopian new. To me, this sensibility to designing futures is characterised by an urgent patience in which I act (by designing or eliminating designs) swiftly toward the establishment of plural ontological designs of sustainment in slow worldly time (Schultz, Abdulla, Ansari, Canli, Keshavarz, Kiem, Martins, and J.S. Vieira de Oliveira 2018).

A Relinquished Gaze

There is a social wound continually re-opened by the passive and often explicit violence ontologically embedded in Anglo-Australia expressed in the denial of past violent colonial actions and contestation of history (Rose 1996). This is compounded by the pick-and-choose mentality of the Anglosphere culturally appropriating what is of use-value to quench their yearning for a romanticised history. Today, as a five-century cycle of dominant Western civilisation is coming to an end (Mignolo 2011), and with the imperative for ontological transitions to give ‘us’ a future, it is neither acceptable to see but to turn a blind eye to defuturing propositions nor incommensurable to see potentially futuring propositions, such as how Australia’s invaders in the eighteenth century couldn’t through their Eurocentric lens. Therefore, any designing with an urgent patience relationally in time and with respect concurrently destabilises a Eurocentric gazing at Indigenous societies and renders plurality open.

A Reinscripted View of Futures

From where I stand, being urgently patient and relinquishing the gaze puts me in a position to design ways in which others and I can comprehend what remains. Openings remain in an Indigenous Australian context where a decolonising design praxis might redirect a psychological resilience to unsettlement while the work of recouping the fragments of memory scattered from coloniality occurs, so that we may be uncoupled from technology and autonomous territories and cultures might be defended.
For example, in his book *Dark Emu*, Australian Aboriginal (Kulin) man Bruce Pascoe (2014) cites numerous examples in which IK had in the past created mutually enhancing sustainable economies, technologies and sociotechnical systems. His book also debunks the myth of pre-invasion Aboriginal Australians being mere hunter-gatherers. He writes, “explorers’ journals suggest that colonial settlers ignored the Aboriginal methods and contemporary Australians still suffer the result” (Pascoe 2014, p. 26). Jared Diamond (2012), Bill Gammage (2011), and Hamm et al. (2016) illuminate similar cases, albeit through their non-indigenous lens. What many Indigenous Australians already knew as valid, rigorous, academically sound, and useful knowledge is now being rediscovered (Sheehan 2003). For example, Indigenous Australians were able to move themselves around the continent and seas through traditional wayfinding techniques (further discussed in Chapter 4), such as using celestial knowledge (Lin 2014); complex fire control to manage the vastness of the Australian land (Pascoe 2014, Gammage, 2011 #308); and domiciliaries, kinship and co-operative governance structures that were configured to strengthen social bonds with lifeworlds and the land (Memmott 2007). It has also been revealed that responsible economic practice and technological social obligations were sustained across multiple cultures and geographic boundaries (Pascoe 2014, p. 129-136). The list goes on, extending to Aboriginal engineering and architecture, aquaculture, labour practices, watercraft and fishing techniques. An example of a significant lost opportunity to value Indigenous agricultural practices lies in the way invaders introduced environmentally destructive livestock into Australia instead of learning to farm kangaroo, emu and other native animals as Aboriginal people had done, on an agricultural scale, for millennia before. Instead (with the exception of small-scale farming from many Aboriginal groups and a broader local and boutique trade), the Australian animal agriculture narrative is one that is overwhelmingly economically invested, through transnational partnerships, on sheep and methane-spewing, water-intensive, land-clearing cattle (Hamad 2014). Such ignorance as this from colonisers mean that laws of custodianship of land and kinship that coexist with the abovementioned native animal agricultural practice, which for Graham (2007) are needed for a stable society, were not learned by settler colonies. Moreover, economic governance of food based on any kind of ‘commons’ (Ostrom 1990) outlook related to this example is also ignored and concealed and so has not been able to appear as an economic exchange option beyond Australia’s capitalist economy. This example is just one narrative among many that maps coloniality eliminating ontological designs. However, it also illustrates that IK, as countless Indigenous people will assert, has not been totally destroyed (Graham 2007).

Aboriginal social, technical, political and cultural configurations such as these are potential decolonising design activations waiting to be reinscribed as pasts in the present towards the future. To invoke a question to this end (while incongruously adopting the hero term of ‘design thinking’ today), how might we…designers work with Aboriginal people to reinscribe this knowledge towards the creation of ‘urmadic metrofitted cities’ (Fry 2017) that deal with accelerating climate unsettlement in various geographies and resultant mass movement? This might sound
pragmatic—it is—but it is also laden with political agency. As Foucault (2007 (1977) reminds us, central authority splinters as one moves, becomes nimble, and disassociates from the shackles of a centralised colonial matrix of power. However, a settler-colonial grand narrative would conflict with such a proposition. The two events of accelerating climate unsettlement in various geographies (and its resultant mass movement) and the fear of moving beyond a modern Western system of stasis settler colony building would induce new forms of violence. Design researcher Ali Musleh has explained the way that in the Israel/Palestine conflict a settler economy style violence takes a neoliberal approach to the development of new and emerging military and weapons technologies can take advantage of volatility and instability. He writes that this kind of ontological design affordance that shapes the Palestine experience is “a settler-colonial binary of colonizer and colonized…re-instituted in a binary of settlers as weapons designers and the Indigenous as design problems whose solutions are applicable the world over” (2018, p. 129-136)

Decolonising as Praxis

Listening
Rolando Vazquez asks, “can we think of a design that is capable of healing, of enabling relationality, of recovering the possibilities of listening to the communal, to the ancestral, of caring and nurturing earth, of enabling the formation and dignification of other worlds of meaning?” (2017, p. 89). In my practice, while concurrently being reflexive to decolonising myself, I have applied learnings from interactions with Indigenous groups to design decolonising listening strategies that others and I might adopt. I have explored designed/ing processes and events where individuals become aware of their own ontological designed/ing narratives of what was, what remains, and the ontological transition narratives of what could be otherwise. I have looked to design ways in which communities feel safe to speak, are listened to, can comprehend, and are given the tools to articulate and amplify their own uncoupling of technological dependence. I have searched for ways to assist people self-identify their own relational ontologies and worlds.

An Aboriginal Australian IK process called a ‘yarning circle’—in which each person is given the time, space and respect to speak and share their expressions and is respectfully listened to—has shown to be effective deep listening and sharing. In these circles, one not only listens to their human peers but also listens to what is alive in Country, as the knowledge is shared back by their environments, whether that be the vast tundra, forests, valleys or seas, or corporate boardrooms. Yarns engage group cohesion in addressing fundamental issues because every voice has a place. As participants express themselves, questions emerge that address significant deeper issues within their context. Strategies such as “connective art” (Sheehan 2011b) and mapping can be added to yarning sessions to further assist in eliciting rich conversations. For example, Yoko Akama (Akama) incorporates ‘playful triggers’ as mediating objects into yarns with Aboriginal
groups. These mediations can be understood as designing effective modes of gathering and visually communicating those yarns with and back to communities, of facilitating comprehension.

**Comprehending**

Proceeding and alongside yarning circles, I have experimented with variations of what I outline in Chapter 5 as Cognitive Redirecive Mapping (CRM). As a decolonising practice, CRM respectfully provides a visual and relational means for individuals to firstly map ‘things’ brought forth from pasts and presents and gathering in futures, and to secondly consider redirecive options around these futures with individuals. This visual relational pattern thinking process is aimed to “comprehend and engage the relational complexity of unsustainability and the creation of sustainment” (Fry 2009, p. 55). The main objective of this kind of mapping is in line with Juan Carlos Garzon’s call to action: “The objective of design in the Anthropocene (in this new epoch of Un-settlement) should be to facilitate a transition towards the establishment of a harmonious relation between all worldly subjects (human and nonhuman) through the redefinition of human ontology” (2017, p. 75). The decolonising critique of technology in the first part of this chapter, for example, is a topic we might facilitate. CRM has been useful for various groups I have worked with, not just Indigenous communities, because it respects the way that all environments bring with them relational patterns of information that people can be receptive to in their own ways. These patterns can show us why, what, and how to think about repairing wounds and futuring those worlds. When CRM is coupled with yarning circles, each participant explicates emerging contexts on paper, guided by a loose order and technique, and relational patterns emerge that are valued as knowledge production. As a respectful design process, it provides a way to see futural patterns as narratives that speak back to participants (figure 17). The maps also then become mediating objects of comprehension (for example, see figure 18 and 19).

![Figure 17: Gnibi College of College of Indigenous Australian Peoples, Southern Cross University yarning circle, connective art and relational mapping session. Map texts are deliberately blurred to protect sensitive community knowledge, 2013](image)
However, just as there can be good intentions with interacting with emerging technologies, simple hand-rendered CRM can easily fall into traps that serve contrary to its purpose too. When mapping through a modern Western lens, we designers with our designerly tools, methods and techniques, risk un-mapping decolonial options by conversely mapping in rationalist Cartesian and instrumental typologies of convenient commensurability to modern world system minds. Decolonising design crucially requires that designers unlearn defuturing colonial and imperial mapping traps in order to learn mapping relational futuring worlds (Schultz, Abdulla, Ansari, Canli, Keshavarz, Kiem, Martins, and J.S. Vieira de Oliveira 2018).

If listening and comprehending as described above form phase 1 of a relational mapping process, then this puts a designer/facilitator in a position to discuss re-directive action with participating groups. That is, how to navigate oneself through obstacles towards decolonising their futures. Often, using design fiction techniques located and agreed upon in participatory contexts assists in re-valuing and expressing re-directive paths. This might be called ‘cultural expression with agency’, brought into existence as a decolonising practice rather than a spectacle as seen by the West. Design fictions are also beneficial for conceptually testing ideas as if they are already in existence, without wasting the time, money and resources they might consume in reality. They can also test the fusion between people and things without the consequence of bringing that hard-to-separate
fusion into actual material existence. Furthermore, as Kate Heartfield (2016) writes, they can recode colonial tropes in interplanetary science fiction writing, such as “down to the very words of ‘colonisation’ of other planets, or the ‘final frontier’ [which are] […] rooted in colonial notions of how humans interact with peoples and with territory”. Heartfield, following Daniel Justice, goes on to comment design fictions can offer options for survival developed in Indigenous storytelling “that may very well help humans navigate the coming decades of climate change, violence and tyranny” (2016, p. 4). Most importantly, collective and creative story-telling is an age-old common and beneficial practice in Aboriginal community settings because the process respects and includes everyone contributing and allows for dialogue to flow in safe ways.

Designing the event of comprehension with strategies such as yarning, mapping and design fictions develops a psychological resilience because, through the illumination of open-loop affordances in these kinds of narrative-based hermeneutic cycles, it becomes clear that ontological designing is not a closed (and often destructive) loop. Communities can see why, how and where to begin transforming their worlds. Importantly, they are processes with the hand (sometimes with post-event digital production for legibility) (see figure 20 for an example of a transition from analogue to digital), with human cognition, and with visual relational pattern thinking and knowledge production. This process enables ideas (minds) to intersect in the way Gregory Bateson outlines thoughts on ecologies of mind. Through a visual “multitude of interacting factors” (1972, p. 505), the process also reinscribes that image ecologies have been present long before the crisis of the saturation of image ecologies (Lopes 2009, Fry 2009) arrived deriving from modernity/coloniality. These processes are experiments of human’s transcending singular human minds, contrary to the posthumanist argument that algorithmic techno-mediations are the only networked cognitive future that can achieve as such.

![Figure 20: Gnibi College of College of Indigenous Australian Peoples, Southern Cross University yarning circle, Indigenous futures relational mapping session. Map texts are deliberately blurred to protect sensitive community knowledge, 2016](image-url)
Conclusion
In this chapter I have argued that there is a profound defuturing ontological elimination design event underway: the technological colonisation of imagination. Enabled by a technodeterminism eroding people’s ability to manifest decolonial political imaginations, it is contributing to a global decolonising event also underway. These two events are occurring inseparably from a third event for which redress is urgently needed: climate change. It has been argued that because of the seductive and repressive nature of modernity/coloniality, groups can fall into antagonistic situations of ongoing oppression that steer them to more developmentalism and technodeterminism. For example, they can be co-opted into depending on socio-communicative digital technologies that industrialise, homogenise and commodify memory, territory, autonomy and human sustainment, a catastrophic situation for ‘us’ all. I have demonstrated five ways in which the technological colonisation of the imagination is occurring.

Firstly, it was argued that our relations with technology eroding being-in-place ontologically designs eroding being human. Secondly, it was shown how Indigenous groups’ ability to see the defuturing affordances in relating to techno-mediated virtual ‘place’ is concealed. Thirdly, the degradation of visual relational pattern thinking because of the technological saturation of the screen was discussed. Fourthly, I interrogated how this event exacerbates a yearning to be human and therefore propels posthuman futures. Finally, I put forward how all this gathers as a homogenised simulation of that posthuman future. It has been contended that Australian Indigenous ontologies can provide options for plural designed futures of sustainment beyond these vices, if a decolonising design praxis can be established. Such a practice requires strategies of listening, comprehending and amplifying autonomous imagination of plural futures that facilitates respectfully recouping the fragments of memory scattered from coloniality; designing effective modes of gathering and communicating back to community those fragments of memory; and enabling decolonising options of redirective designed/ing action.
Chapter 3

Critically Mapping Cultures of Repair

Sections included in this chapter contain edited excerpts of a conference paper and subsequent book chapter that underwent a double-blind peer-review process and was published in 2017. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Publication Details:

Cultures of Repair

There is a new space opening up for discussion around the word ‘repair’ and its role in transitioning to sustainable futures. This space is raising important questions concerning the role that modernity and colonialism have played in both destroying and inculcating cultures of repair. Many of the stories and orders of modernity are in process of coming apart, perhaps to be replaced by new and better stories and orders, but perhaps not. At the same time, the aftermath of modernity arrives at our feet, such as in the form of climate change. Among these tensions and in the face of future challenges indiscriminately reaching all geographies, neither the complexity of the trace nor the imperative of understanding sustainable, futuring, designed/ing affordances present in informal resourcefulness, resilience, bricolage and repair is adequately reaching designers and policy makers more broadly. In order to assist closing this gap, this chapter maps a terrain where one might begin.

Questions asked and articulated below are: What is being said about repair and its role in transitioning to sustainable futures? In particular, what role has modernity and colonialism played in both destroying and inculcating cultures of repair? In the face of climate change and global unsettlement, what kind of praxis is emerging in amplifying decolonial design afforded by cultures of repair? And are there visualisations assisting designers to this end?

At any given time anywhere in the world, two remarkably disparate repair cultures exist. The first are entrepreneurial maker cultures, somewhere between naively and blatantly bound up in what Brazilian maker culture activist Filipe Fonseca (2015) argues are capitalist vocabularies stemming from the Industrial Age. These repair cultures, Fonseca argues, have been seduced by industrial economies and productivist imaginations, making prototypes (usually of plastic that end up in waste) and striving towards industrial standards and mass production. This mode has the backing of governments worldwide. For example, ex–US President Barack Obama’s manufacturing innovation hubs (2014) and ex–Australian Prime Minister Malcolm Turnbull’s innovation nation (2015) are policies touted for supporting ‘maker cultures’ as the engine of a third industrial revolution.

The second are innovative repair cultures constituted by billions of people across the globe making do with what is at hand through necessity, voluntarily reducing wastefulfulness, or practicing an ethics of care and cognitive satisfaction in repairing things. These contest the former’s productivist models. The former appropriate and reclassify the latter’s political position for their own capitalist means. As Fonseca (2015) suggests in his discussion of Gambiarra, the Brazilian culture of repair, there is a world of difference between an attitude of hacking to
repurpose and a techno-evangelism that makes without any thought for what it destroys. Similarly, French anthropologist Claude Levi-Strauss (1966) defined the *bricoleur* as one who is adept at performing a large number of diverse tasks, but, he says, unlike the engineer, their rules of engagement are to make do with whatever is at hand. In India, *Indovation* or *Jugaad*, according to Thomas Birtchnell, has become representative of the Gandhian ethic of localised empowerment (2013). However, he also cautions that corporatised co-option of local practices to entice Indians to consume is also occurring. In Japan, the *Wabisabi* worldview deriving from Buddhism instills a kind of sacred design mentality, of transience and imperfection, practiced in one’s relationship to things, most notably through *kintsugi*, or ‘golden repair’ of ceramics (Meade 2015). Other examples illustrate how famine, conflict and oppressive regimes have ontologically designed conditions of cultures of repair, from the American Great Depression (Strasser 2000) to Cold War Russia (Arkhipov 2006) to, more recently, mining in Papua New Guinea (Coles-Janess 1998).

In the maelstrom between these two disparate repair cultures exist open source digital culture movements, fablabs, hacklabs, repair cafes, maker fairs, DIY and craft communities. Furthermore, contemporary movements such as ‘slow design’ (Carolyn F. Strauss 2008) and the steampunk movement (Guffey 2014) share commonalities with repair cultures, including breaking, re-shaping, tinkering, DIY and craft. Regardless of which mode, cultures of repair sit in the borders between the residue and gathering, the seduction and repression, of modernity/coloniality. These relationally connected traces need to become part of a designer’s vocabulary, beyond the current more simplistic narrative of cultures of repair, which is along the lines of ‘the world has a limited amount of resources to use, so we need things to last longer before we have to use any more resources, so we might repair things instead of throwing them out’.

**Concealment, Newness, Techne, and Care**

Through an analysis of sources, I have identified four key threads in relation to cultures of repair, which are discussed below as *concealment, newness, techne, and care*. As I recognised a lack of a visualisation that can be read in conjunction with these threads, I have also designed the Cultures of Repair Relational Map (figure 21). The aim of the map is to assist designers in comprehending the gathering of modernity/coloniality and its arrival in futures (figure 21. part A) in order to be in a position to amplify sustainable activities in repair cultures through decolonising design action (figure 21. part B).
Concealment

The phenomenon of concealment has grown incrementally over thousands of years, and best appears in the present in the term ‘out of sight, out of mind’. The secret lives of objects are concealed in globalised distribution processes and glossy designed packages. Tracing back to agrarian societies, objects were seldom technologically advanced enough to conceal components. Up until the Industrial Age, the level of advanced technological capacity to conceal things was minimal; component parts were seldom out of sight, hence not out of mind. To the contrary, parts were seen, honoured, understood and respected for their inherent craftsmanship. Due to the Enlightenment’s productivist imaginations fuelling the first Industrial Revolution, accelerated technologies developed enough for objects to become much more complex, efficient, and smaller, with component parts concealed and hence unconsidered. As a surplus of objects accumulated from an acceleration of mass production, advertisers and designers of commodity culture began concealing parts for reasons beyond technological means. The image of the modern—clean surfaces made desirable—meant consumers no longer cared for hidden parts, nor could they identify which parts might be in need of repair, laying the conditions for systematic planned obsolescence and built-in redundancy, decreasing the desire to repair and increasing the desire to consume. That we are emotionally detached through this concealment adds to ontologically enforce our techno-evangelist support for more technical things to suit our fast-paced, consumer-driven lives.
Newness

The culture of newness has grown rapidly with the rise of consumerism since the mid-twentieth century, directed by the West’s imperialist development parameters. Traditional and/or non-Western images were recoded as not as advanced, civilised or wealthy as the seductive image of the modern and, subsequently, not as desirable. Sociologist Elizabeth Shove argues that modernist designers designed a modern aesthetic style according to a symbolic significance of the status of wealth (2003). Increasingly, what propels design is the speed of change of styles; for Situationist and philosopher Guy Debord, this is a spectacle inherently needed for the perpetuation of the market in a capitalist economic system (1970). Fry argues that things made according to newness parameters work against the time those things predominantly have as operative existence (2011). Propounding this is a concealment of parts, meaning the life of the thing is dependent on the shortest life of a single hidden component. If a culture is not prepared to balance the price of destruction with giving operative enduring time to the things it creates, then it is a culture of newness. If it offsets the operative enduring time of a thing with repair, it is contesting the spectacle of newness.

Techne

‘Techne’ is described here from the perspective of Heidegger’s conception of the phenomenon of craftsmanship—of the craftsman engaging with conceiving a tool, tool-use, and tool-repair—which constitutes being-human (1977). Heidegger (2012) argues that over time, particularly since the Enlightenment, the present-at-hand dominates our everyday experience in that we are only concerned with observing things when they lose their usefulness and fail to operate the way we expect. Disassociated from the thing, we look at it and observe its broken properties. To the contrary, when a tool or thing is useful, it is ready-to-hand, appropriate for a task, not broken nor demanding our concern. Cultural geographers Stephen Graham and Nigel Thrift argue that it is in this space between the visibly ‘broken’ and concealed ‘tool’ that “repair and maintenance makes its bid for significance” (2007, p. 3). The present-at-hand enables a visibility of the order of things, which we are concerned with getting back to a ready-to-handiness, so the world can go on. This phenomenological approach suggests that breakdown and decay are central necessities to a life purpose. With the human hand as tool bearer, the relationship between the present-at-hand and the ready-to-hand forces a reflection on being human; repair reminds us we are human. To value remaining human is to contest against the mechanisation of man by working with the hand to curb a world rendered meaningless by the hand’s dissociation from reflective action. Concealment and newness, explored above, produce non-repairable things, which, coupled with the discussion of the hand here, reinforces the designing out (ontologically) of the associative meaning we make with our everyday experiences in the world through hand actions of bricolage, maintenance, and repair.
Care
An ethics of care has diminished considerably as a consequence of modernity. Prior to this moment, care for repair had typically been inextricable from life-affirming cosmologies and ontologies, inculcating reciprocal exchange with the biosphere upon which people depend. However, over the course of modernity, attention has been redirected away from this bind. The spectacle, Debord (1970) argues, now colonises our attention. Similarly, Stiegler writes, our attention is captured by “the psycho-technologies that have developed with the radio (1920), with television (1950), and with digital technologies (1990), spreading all over the planet through various forms of networks” (2012, p. 104), a vicious circle of the destruction of attention for anything or anyone beyond subjects of a spectacle. For sociologist Zygmunt Bauman (2013), this lost proximity to the Other further manifests through the colonisation of privacy, sensitivities and dignity, eroded through the proliferation of social media demands, as an insensitivity to human suffering, a moral blindness.

A proliferation of concealed, new, consumer-driven objects and things coupled with a disassociation from reflective action has brought forth a deterioration of repair practices, a fissure where social technologies now further compound an erosion of attention and care for repair. Added to this is our short-term attention span, where we only have ‘time to care’ for very few things and not for a very many other efficient, convenient, durable, reliable, distant and imperceptible others in ‘no need of repair’.

Transferability, Reclassification, Amplification

Some designers are moving to counterbalance all this with designs that require more laborious material interactions, built-in regimes of maintenance and repair, disassembly and transparency. Some are following the path of Japanese *kintsugi* by increasing the sign-value of wear and tear, such as ‘emotional design’ (Turkle 2007), which insists on deep and meaningful relations between humans and ‘evocative objects’. An issue with some of these movements, however, is that many cultures are still dealing with the wastelands of the modern world. Moreover, as people of the world increasingly accumulate waste, migrate, and generally feel the effects of global unsettlement, so these piles will indiscriminately permeate previously sanctioned geographies and city streets. Therefore, as has been drawn together above, searching for sustainable futures might focus on a more poignant framing of the trace of the decay that already exists, and the ways cultures are creatively innovating with this decay.

Escobar contends that communication strategies are required “to construct narratives that persuade people to think about why the One-World story no longer quite makes sense; and to contribute to make visible the projects by which other practices attempt to persevere and
perform themselves into worlds” (2015a, p. 15). The mapping and map template above begin serving the first purpose. A designer can then enfold the second of Escobar's call to action through three successive modes: transferability, reclassification, and amplification.

**Transferability**
As populations increasingly move, both the trace of barriers and the trace of perseverance move with them. As Foucault (2007) reminds us, central authority fragments as one moves unshackled from centres of power. Moreover, as one moves, one carries less, enforcing objects and things to become multi-use, and whatever is unready-to-hand appears. Conspicuous, obtrusive and obstinate things (Heidegger 1977) enter perceptual experience and concern, and are bricolaged or repaired. For people on the move this suggests a three-fold act occurring, of a) moving with repair skills from their geography; b) unshackling power through moving from their geography; and c) elevating perceptual aptitude to exploring for new innovative bricolage and repair while on the move. These three knowledge acquisitions are not present in a host geography in stasis. At the same time, in any host geography, there might already be present situated cultures of repair. They may be a) a non-sedentary culture existing for many thousands of years, whose localised movements are bound with an ethics of care and repair; b) frivolously persevering where modernity/coloniality has inculcated a culture of repair; and c) coming to terms with the precarity of their stasis and in early stages of movement and flux, bringing forth new perceptual aptitudes to exploring innovative bricolage and repair. These three knowledge acquisitions may or may not be present in other geographies in stasis, nor in the cultures of those arriving. This illustrates six ‘transfer gaps’ in research in which a designer might focus their exploration.

**Reclassification**
As transfer gaps turn to praxis, an inescapable reclassification of the symbolic value of any repair activity occurs, which has happened to repair before. Disruptive technologies, distributed manufacture, and fablabs have been reclassifying the word ‘repair’ for their own productivist means for some time. The question is what reclassification might create sustaining qualities and what might destroy them? The argument here is that as long as reclassification is within the terms of contesting concealment, newness and the disassociation from reflective action with the hands while elevating care, reclassification will retain and possibly amplify pluriversal sustaining worlds. From this perspective, it is not the fablabs and maker spaces that are the problem, it's their deliberate reclassification away from repair as a decolonising act and toward repair as a universalising productivist act. In transferring repair affordances, a designer would first identify what is presently classified; is it a decolonising act? If so, how does it reclassify while retaining those same qualities in the same geography; or how does it transfer to another geography? Then, what is the appearance; is the repair activity an image of decolonising
design, an explicit strategic plan for decolonising design, and/or an implicit pragmatic instruction assisting the repair of objects and things?

Amplification

Once designers have identified a transfer gap and reclassification opportunity, exercises in recoding might occur that amplify aptitudes and affordances of climate and conflict migrants, contra-productivist movements, informal resourcefulness, resilience, bricolage and repair. Design researcher Ezio Manzini talks about amplification when he discusses design intervention as “weak signal amplification [which] calls for the designing of communicative artefacts to make initiatives visible that would otherwise remain hidden” (2015, p. 123). This might take the form of a website, films and documentaries, festivals, exhibitions and events as well as maps, instruction and repair manuals, information graphics and how-to guides. Regardless, as Manzini notes, it is a politically value-laden judgement: A designer is “choosing the criteria by which to look at social dynamics, and on the basis of which to ‘extract’ the promising cases” (2015, p. 123). A designer would be amplifying either a) the defuturing qualities in the cultural value of repair and taking steps to recode those qualities as destructive; or b) identifying sign values in repair that are futuring and seek to dramatically increase their value in society. The field of Transition Design also refers to amplification as a key area that transition designers work in, “amplify[ing] and connect[ing] grassroots efforts undertaken by local communities and organizations” (Terry Irwin 2015, p. 10). Designers might employ amplification methods from these emerging fields while working through the Cultures of Repair Relational Map. In design education settings, the Cultures of Repair Relational Map has been experimented with as a workshop activity on numerous occasions (figure 22 next page).
This chapter has tracked the role that modernity and colonialism have played in both destroying and inculcating cultures of repair. Four key threads mapping implications associated with repair cultures have been brought to focus here: concealment, newness, techne, and care. A further three key threads have been drawn together through which designers might move toward praxis: transferability, reclassification, and amplification. The Cultures of Repair Relational Map has also been presented, suggesting it can act as an aid to assist designers see and speak of repair in a decolonising context and for this to become praxis. This has been done in an effort to contribute to a field concerned with ontologically redirecting toward decolonising and sustainable futures.
Chapter 4

Decolonising Wayfinding

Sections included in this chapter contain edited excerpts of a conference paper that underwent a double-blind peer review process and was published in 2016. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Publication Details:

Wayfinding and Futures

There are varying prefigurative design actions being taken in cities across the world to retreat, avoid, and defend against disaster. Some cities are preparing to perish, others are engineering defences, and some might soon go further and search for ontological shifts to become resilient in this future unsettled world. With the latter as a central focus, this chapter explores how designers might use the mapping practice of wayfinding to ontologically shift public perceptions of what the future will bring. My aim is that this will contribute to crucial psychological adaptation that enormous numbers of people will have to undergo as citizens transition toward resilient and adaptable cities. Brisbane and the Gold Coast—two cities in South East Queensland (SEQ), Australia—are interesting cases of which to ask these questions, as they are representative of many other Western neoliberal colonised geographies worldwide. If one agrees that modernity, colonialism, and globalisation underpin much of the structural unsustainability reaching our city streets, then there is an imperative to interrogate wayfinding from a decolonising lens. To do so, in this chapter eleven planning documents from either Brisbane and the Gold Coast are critically analysed.

At a first glance, the aspirations outlined by these cities’ planning documents seem to speak to an imperative of broadly grappling with transitioning to more sustainable futures. The Brisbane City Centre Master Plan 2014 hopes for Brisbane to be a “more resilient city—a city that is safe, confident and prepared for natural disasters” (2014, p. 29). The Gold Coast Rapid Transit: Repositioning the City document has a key goal of the Gold Coast being a “sustainable and resilient city, capable of addressing the complex environmental challenges of the future” (2011, p. 269). These documents outline action points for traditional conceptions of wayfinding: signs such as stronger navigation around precincts and campuses; better navigational networks around roads, open space and built environments; and building signage that helps people seek refuge in case of disaster events. Less evident is where these action points draw relationships with numerous other concerns present and arriving on city streets, such as cultural commodification and homogenisation evidenced in politics of gentrification; multiple contentious cultural histories and consumer-driven digital interfaces colonising our attention; severe climatic conditions appearing as heat islanding and rapid sea level rise; or rapid unpredictable demographic changes, such as climate migrants seeking refuge. Yet, it is these documents, along with their deficiencies, that are to inform upcoming master wayfinding strategies that Brisbane and the Gold Coast are soon due to release and to implement well into the 2020s. The abovementioned concerns may well saturate our everyday experience by that time. This in spite of Fry’s (2017) argument that proactive adaptive measures need to be made visible and to prefigure the events they anticipate by many decades. I argue that to sufficiently and proactively respond to these future challenges, wayfinding discourse broadly—and these
cities’ guiding documents in particular—needs to expand significantly to incorporate a comprehension of decolonising wayfinding. To analyse these documents through a critical context, I first offer a theoretical framing of three layers that decolonising wayfinding might incorporate: critical mapping, world-picture, and movement. I then provide a critical discourse analysis of current planning documents from Brisbane and the Gold Coast. Finally, I discuss a case study highlighting design students’ responses to thinking of decolonising wayfinding in this way.

Defining Concerns Arriving on City Streets
The SEQ region has experienced one of the fastest population growth rates in Australia (Byrnes 2010), and has been singled out by the Intergovernmental Panel on Climate Change (IPCC) as one of the most vulnerable Australasian regions owing to its geography and settlement patterns (Reisinger 2014, p. 1377). Queensland’s population is predicted to grow from 4 million to 8 million by 2044 (Queensland Government 2014). Climate-displaced people from around the world as well as inside Queensland and Australia are also moving to the area. Australian Government mapping forecasts sea level rises by 2100 to be a low scenario of 50cm and a high scenario of 110cm, dramatically affecting Australia’s densely populated coastal urban sprawls, notably the Gold Coast. These rises will also affect the Brisbane River, which runs directly through its city centre (Australian Government 2015). Climate shifts will dramatically shift geographic distribution of vector-borne diseases (Steffen 2012), while human movement will rapidly increase potential transmission of communicable diseases (Steffen 2012). All of this will undermine our current sense of psychological and geographical stability. Service design and provisions will have to change dramatically to accommodate a resilience to all this. In short, new knowledge will need to be produced to survive, and wayfinding will need to play a crucial role in this.

Current Disaster-Management Wayfinding
Some examples of disaster-management and inclusive wayfinding do address the above concerns. They include safety information (such as evacuation directional signage) in case of, during, or, in the wake of “emergency situations, in a range of accessible formats, modes and technologies that are appropriate to the diverse communication needs of people” (Brisbane City Council 2012, p. 24), including those with disabilities. For example, in the USA, FEMA teamed up with leading global design studio Frog Design to create a toolkit that contains recommendations and materials for wayfinding, along with information flow management structures to guide communities through disaster recovery processes (2013). This is a commendable initiative but nonetheless remains a reactive design response. Worldwide, there are proactive strategies for wayfinding in the event of disaster too, such as the Up and Out: Oregon Tsunami Evacuation Wayfinding Project (2014). However, in cases like these, the focus remains on literal and practical signage approaches to help people get out of the way. In 2012,
Hurricane Sandy forced New Jersey residents to form a collective and to initiate guerrilla Occupy Sandy Wayfinding: “in the absence of proper city or state support this crisis-wayfinding project installs temporary signs to help all residents know about relief centers” (2013). There is much to learn from their initiative in relation to what kind of state support might also prefiguratively do this hard work, rather than the affected residents. Moreover, questions are raised about the effectiveness of disaster wayfinding. A recent study on Melbourne train stations found that the majority of the 1,127 passengers surveyed were not aware of the stations’ emergency evacuation wayfinding tools. The authors cited the role–rule model that “states that how a specific person responds to a threat (e.g., fire) will depend highly on the role of the person (e.g., if he or she is a staff member or a passenger)” (Nirajan Shiwakoti 2016, p. 180). Passengers were being both compliant to delegate orders and complacent to their responsibility to take charge of their awareness and perceptions of evacuation cues. In these cases, as with the guidance in the documents analysed below, Universal Design philosophy is continuously present as best practice for disaster-management wayfinding. One document advocates that Universal Design is for everyone, to the greatest extent possible and regardless of age or disability, to use buildings, transport, products and services without the need for specialised or adapted features (Brisbane City Council 2012). Yet, Universal Design has been criticised as perpetuating an image that disabilities and their limitless variations can be reduced to a universal generalisation, resulting in differences concealed (Erkiliç 2011). Moreover, the field’s rigid opposition to specialised or adaptive design formations prohibits bricolage, repair and localised solutions and so conspicuously appears to align with Western economic rationalism. Although these cases display admirable prefigurative design actions, they are minimal and non-relational, falling short of complex future-thinking service provisions needed to address the future challenges discussed above.

**Critical Mapping**

The planning process of mapping for the purposes of wayfinding insights is most often called a circulation analysis. Muhlhausen (2000) and Apelt (2007) cite four criteria for this analysis: architectural cues, graphic communication cues, audible communication cues, and tactile communication cues. These mapping typologies tend to be shackled to classifications common in urban planners’ rationalistic perspectives, such as the approach taken in the urban planning canonised book by Kevin Lynch, *The Image of the City* (1960). In contrast, Denis Wood (2010) argues that contemporary critical psychogeographic mapping, less articulated in wayfinding mapping guidelines, tends towards a messier hermeneutic approach. He notes this approach has its roots in the mid-twentieth-century Situationist movement of dériving Paris city streets (Debord 1955), where actors were free to think about city navigation problems outside the rationalist planning profession. Dealing with the complexity of twenty-first-century city streets requires rigorous mapping and planning action from both the traditionally disparate practices of the Situationists’ mapping methods and of planners and geographers (2010).
Additionally, tracking the role that modernity and colonialism have played in destroying indigenous mapping methods would be considered in decolonising wayfinding. For example, Inuit people continue a practice of carving portable maps out of driftwood for navigating coastal waters (Decolonial Atlas 2016). Polynesians and Pacific Islanders mastered navigating without any instruments thousands of years ago to explore the widespread islands of the Pacific (Lin 2014). And Chad Kalepa Baybayan describes wayfinding as a “natural orientation process that uses surrounding environmental clues—sun, moon, stars, waves, and animals—to help set direction” (Lin 2014, p. 1). In Australian Aboriginal culture, mapping is imbued with symbolic significance and relational pattern thinking that binds custodians to reciprocal relationships with environments and lifeworlds (Sheehan 2011b). Moreover, homogenous cartographic methods such as the world’s faith in the mono-typology of Google maps perpetuates the destruction of other ways of mapping, providing different cultures little option other than to consume a universal reading of worlds.

World Picture
From the rationalistic mapping out of Le Corbusier’s gigantic boulevards searching for a totalising view to examples in Brisbane and Gold Coast in digital interface orientation maps, where one can zoom in like Certeau’s gazing atop the Empire State Building from the high skies while missing the detail down below (1984), the world as picture is our modern condition, Heidegger (Heidegger 1977) argues. This kind of ‘enframing’, in the way Heidegger describes it, harks back to our Enlightenment rational ideals of controlling technology with an appetite for the quantitative; that is, the ceaseless counting and categorising of things. Heidegger’s ‘gigantic’ theory, in planning and calculating and adjusting and making secure, is gigantic because cities can seemingly always be calculated completely, encapsulated, yet at the same time always have quantitative potential to ‘go bigger’. Turning the world into a picture is seen at every interactive wayfinding orientation kiosk promising dreams of a zooming in of the totality of the city, while the reality of the situated experience of being-in-the-world, outside the bounds of the screen, passes by unnoticed. For Virilio (1991), ‘the world as picture’ reaches new heights with the crisis of the conceptualisation of dimensions of reality, where all that remains is a hyperreality. In Virilio’s hyperreality, speed and time are subject to technological advancement that both controls and takes over a stable physicality of geometrical narratives of reality. He argues that we have lost touch with ‘authentic’ perception; we experience the world increasingly through simulated perceptions. I have discussed this in detail in Chapter 2. This crisis can be seen played out in the dominant discourse in wayfinding for disaster management and resilience, where the technological advancements of interactive digital immersive wayfinding are unquestioningly celebrated. Naming the twenty-first-century city ‘the digital city’ and ‘the smart city’ signifies this. This rhetoric leans toward a technological determinism, as if digitally looking from above and outside of the world and into it is a natural evolution rather than for
what it is—an intellectual acquisition of the Enlightenment. Furthermore, in the spectacle that is digitally immersive and interactive advertising colonising city streets as the new frontier of capitalist agendas, our attention is subsequently colonised and farmed as a resource for private commercial interests (Stiegler 2012, Zygmunt Bauman 2013, Crawford 2015). This same capitalist attention-grabbing technique is now permeating digitally immersive wayfinding too, competing for our attention from the primary task at hand—finding our way—which surely deserves complete attention in extreme cases of disaster. Consequently, to create a world within the world in wayfinding, to place a screen of reality between humans and the biophysical world, is inseparable from the creation of a simulated perceptual experience at distance from the physicality of geometrical narratives of reality. Once in place, the screen enables sociotechnical systems to grab our attention, degrading a citizen’s ability to both read signs to seek refuge, and to psychologically become resilient to future events. A decolonising wayfinding would be watchful of the seductive interactivity of digitally immersive wayfinding.

Movement
Through Heidegger’s world-picture, wayfinding can be seen as a designation of one point to another; we ‘enframe’ (Heidegger 1977). Ingold (2011a) calls enframing an inversion of movement, which is contrary to an embodied experience of navigating through place. He contends that life is not unfolding inside places (place-bound), but place-binding: “along paths preceding along the way, leaving a trail, meeting and entwining in their trails, making knots, the more entwined (more social relations), the greater density of the knot” (Ingold 2011a, p. 148). Ingold uses the term ‘wayfaring’ to describe this, noting Indigenous cultures around the world still actively conceive the world in this way. Conversely, a Western logic of inversion enacts a modern rational epistemology that designs one’s mental response towards compliance, bound by regulations of place. Ingold argues that what has been lost is a perceptual aptitude of one’s mental response to a place emerging as they author and express place in flight. Indigenous cultures might talk, sing, write, paint, touch, walk respectively, of life, light, sound and weather and so on. To move is to actively express, to read place (Stephan Muecke 1996), which is contrary to passively receiving through an enframed screen. This is noteworthy to think in relation to the physical movement of climate migrants performing an act of breaking down barriers as one becomes nimble and disassociated from power. Decolonising wayfinding might explore what it means to provide services that inculcate social relations through and with these paths of movement, that give citizens authorship over expressing resilience and adaptation through and beyond borders of place.

Redirected Wayfinding
Designers might facilitate a means to project and communicate sociocultural, sociotechnical and geopolitical future challenges arriving on city streets through wayfinding that either contests or activates ontological affordances in the above layers. In this, ‘metrofitting’, as conceptualised
by Fry (2017), offers a method of praxis of ontological design/ing inquiry that decolonising wayfinding might adopt. The term ‘metrofitting’ etymologically is a derivative of ‘retrofit’, yet ‘retrofit’ tends to only describe the technical adaptation of material structures—houses, built environments, and urban spaces. Metrofitting, as Fry describes,

goesto the very fabric of everyday life in every respect. In this, picturing the risks of the city is not just a pragmatic exercise but a process of continuous and fundamental transformation of perceptions of both risks and the capacity of a city to deal with them…a comprehensive practice of urban adaptation. (Fry 2015, 64)

Fry supports transformative wayfinding, such as “safe houses and low-budget sacrificial structures that can be abandoned in extreme weather events, designed to collapse and not break up” (2015, p. 64). He also calls to action communication designers to tackle massive prefigurative practical wayfinding communication challenges that are central to significant adaptive design action, such as code-building risk and protection levels, wayfinding signs to protection shelters, evacuation routes and evacuation centres, the location of rescue equipment, emergency food, water and medical supplies and centres (Fry 2015). He adds that rolling out this adaptive action over time is not only practical and potentially fiscally responsible, but also indivisible from designing an ecology of images of resilience, adaptability and preparedness into city streets.

Current South-East Queensland Wayfinding Discourses

I undertook a critical discourse analysis (CDA) to interrogate the drivers of several Brisbane and Gold Coast city government documents (figure 23) and, consequently, the design implementation of wayfinding in those cities. CDA is appropriate because wayfinding on these city streets is guided by these documents; any change in the discourse in these documents wields power; and the discourse performs with intention to encourage or discourage preparedness to the complexity of future challenges. CDA has been used increasingly in the last decade to analyse environmental policy so as to understand how “language is used to shape opinions and views of environmental politics within the policy making process” (Oliver 2012, p. 10). In this instance, I analysed the language used in the documents, starting with a set of keywords chosen because they cover a broad enough area to illuminate discussion related to wayfinding, among other unrelated content, and they provide a manageable scope for the purposes of this study. The context in which these keywords are evoked was considered and coded using parameters below. The words are as follows: wayfind(ing), retrofit(ting), design(ing), information (design), signage, image(s), adapt(ation), resilience, map(ping), future, transform(ing), disaster, perception, history(ical), communication, Indigenous, Aboriginal,
*Figure redacted for digital publication copy

Figure 23: Front pages of Brisbane and Gold Coast city government planning documents

**Results**

The following five areas were identified in the documents: practical wayfinding; inclusive wayfinding; disaster-management wayfinding; wayfinding and other ways-of-knowing wayfinding; and ontological metrofitting. The first category, practical wayfinding, was most prominent, directly related to practical and functional wayfinding information systems and explicit guides. The second most prominent was inclusive wayfinding. Thirdly, much less explicit and frequent was disaster-management wayfinding. However, the terms ‘wayfinding’ or ‘signage’ are seldom used in the documents; rather, the documents ambiguously allude to putting these systems in place with information, education and communication strategies. Furthermore, causalities of disaster almost entirely are reduced to storms and flooding without providing the context of climate change. Fourth, wayfinding and other ways of knowing are essentially absent from the documents. The closest relationship to this category is the four times across all documents where a mention of other ways of knowing in relation to ‘being inclusive’, or having an Indigenous historical narrative, is present. And finally, ontological metrofitting, as described above, is also absent. The following is a discussion of these results.
Discussion
The manifestation of the practical wayfinding category is as follows: bikeway navigation and improvement, a network of wayfinding signs, and sophisticated, user-friendly, digital information hubs along with city-wide wayfinding strategies. The predominant assumption here is that all citizens are in agreement with the seductive interactivity of digitally immersive wayfinding described in the world-picture layer earlier. Actors seem motivated by the economic rationalism that comes with technocratic efficiency in the face of increasing populations. The following key rhetorical device illustrates this:

With more pedestrians on the streets, getting around the city centre easily and safely will become an even greater priority. A network of wayfinding signs and sophisticated, user-friendly, digital information hubs will provide users with maps, transport information and even language services. (Brisbane City Council 2014, p. 28)

The basic appearance of the inclusive wayfinding category is as follows: Universal Design and hazard/risk mitigation by standardisation and compliance. Two key assumptions are a) that Universal Design gives the most amount of people the broadest accessibility, and b) that the natural world is a hazard to be commanded. A scientific rationalist conception of nature and a standardisation of difference for the sake of efficiency and a standardisation of compliance seem to motivate actors. The following key rhetorical device illustrates this:

Universal design allows everyone, to the greatest extent possible and regardless of age or disability, to use buildings, transport, products and services without the need for specialised or adapted features. (Brisbane City Council 2012, p. 4)

The manifestation of the disaster-management wayfinding category is as follows: management and recovery, public information and announcements, raising of awareness, mitigation strategies, communication strategies, and early warning flood strategies. Key assumptions being made are that disaster response is generally a short-term, technical, and practical concern, and that using wayfinding to raise the symbolic value of preparedness and resilience is beyond its scope. Actors seem motivated to maintain a complacency to long-term transformational adaptive measures that disrupt progress and development. The following key rhetorical device illustrates this:

The Local Disaster Management Group maintains a coordinated approach to community awareness and education, by way of: increasing community awareness about disaster preparation and disaster warning systems through effective communication strategies and education programs. (City of Gold Coast 2013, p. 40)
The wayfinding and other-ways-of-knowing category only appears four times either as a reference to Inclusive Design or valuing traditional stories of Indigenous occupation. Key assumptions being made in this discourse is that IK has no role to play except in a historical or a storytelling context where those colonial narratives enfold into an assumed agreed history of the site. This suggests actors and their motives are Eurocentric. The following key rhetorical devices illustrates this:

Our Indigenous and Multicultural team also build networks with grassroots community groups across the city to ensure that our services and projects are inclusive of all people from Aboriginal and Torres Strait Islander and culturally and linguistically diverse backgrounds. (Brisbane City Council 2012, p. 70)

…[We aim to] highlight the diverse character of our river’s edge through a series of walking and cycling trails exploring key themes of our river including: Indigenous stories of the river’s significant natural features and colonial history. (Brisbane City Council 2013, p. 14)

In relation to ontological metrofitting, the analysis produced some promising results. There is some general discourse that one could argue fits into the layers of framing above. The problem is it is not matched with specific wayfinding action points, and it seldom specifically defines the kind of wayfinding concerns that will arrive on city streets over the coming decades, as outlined above. As such, one can only deduce that the basic appearance and the key assumptions bear little difference to the disaster-management wayfinding assumptions above. Interestingly, on many occasions, when a portion of text comes close to ontological metrofitting, it simultaneously contradicts Universal Design principles outlined in other portions of text. For example, texts below use terms such as ‘retrofit’ and ‘adaptable to change’. Key rhetorical devices that illustrate this are as follows:

We will constantly adopt new energy technologies to maintain our competitive edge as global energy costs rise. We will continue to seek the latest sustainable energy and construction technology and waste management systems and find innovative ways to retrofit existing buildings. We will always be one step ahead of the future. (Brisbane City Council 2014, p. 24)

The influence of climate change and sea level rise must also be factored into planning and design. Guidance should ensure floor levels and car parking respond to the risks of climate change, storm surge and flooding. (City of Gold Coast 2011, p. 74)
In summary, the discourse across all eleven documents promotes and drives inclusiveness; however, Universal Design goes unchallenged. Disaster-management wayfinding remains reticent to long-term transformational adaptive measures that disrupt progress and development. Systems that purport to elevate other ways of knowing predominantly remain trapped in a Eurocentric discourse. There is also a dominant technocratic tone across all documents and an almost complete lack of ontological metrofitting. Practical and functional wayfinding information systems that enhance navigation and interaction are adequately present; however, the guidelines do little to enable the kind of decolonial wayfinding and ontological metrofitting outlined in the layers above that are arguably needed for citizens to be prepared and resilient in the face of future challenges. It is acknowledged that the results reflect the limitation of not analysing the wayfinding strategies currently under development in both cities. However, guided by the documents analysed here, a similar conclusion seems fated.

Kangaroo Point Wayfinding Experiments

Two case studies in Brisbane and the Gold Coast will now be briefly discussed. These early explorations draw connections with the documents analysed but intend to go beyond their discourse toward decolonial wayfinding and ontological metrofitting. They are of a critical and speculative nature, offering visionary concepts unshackled from the bounds of planning schemes and feasibility studies. As such, they are far from resolved, but rather register a platform from which to begin.

Over an eight-week period in 2016, final-year undergraduate visual communication design students, under my supervision, were tasked with developing wayfinding concepts for a park area in the inner-city Brisbane suburb of Kangaroo Point. Ironically, a forward-thinking Brisbane City Council planner was involved in developing elements of the brief, which asked the students to design functional wayfinding information systems to enhance citizens’ navigation and interaction at the site, as well as to prepare them for potential disaster events (such as river flooding). Beyond this, the brief required students develop concepts that interact with histories and conflicting interests at the place. Most importantly, the brief required the students to design wayfinding systems that redirect the symbolic value of the city, creating an image of a future-prepared, resilient, and adaptable city. The theoretical framing outlined in this paper had been made familiar to the students during briefings and more broadly over their preceding years at university with me as their supervisor.

Evidence from their outcomes suggests that the kind of framing outlined in this paper can produce radically different ways to think about wayfinding. For example, one group wrote in
their design statement:

The goal of this project is to make Kangaroo Point feel more alive and accessible, while also highlighting its personality in recognition of it being an ‘ending space’ that will, in the not too distant future, no longer be inhabitable as a public space when sea levels rise.

Notably, while this group successfully designed functional traditional signage systems, they also conceptualised a bike path suspended to the rock wall indicating the level of 1893 floodwaters. The rock wall is an iconic Brisbane landmark, so the image of this line made by the path is provocative. It intervenes in the picturesque natural view that citizens have of the wall (a myth in itself considering the wall is actually an artificial environment, created with remains of an old quarry), forcing an alternative narrative onto the wall for participants to be reminded about sea level rise. This group also designed a flood-warning system to be landscaped into the site. As certain terraces filled, citizens would become aware of the expected arrival, velocity, and height of a flood (figure 24).

Figure 24: Brisbane Kangaroo Point concept sketches by third-year undergraduate Bachelor of Design-Visual Communication Design students. Permission to reproduce work given by students

There is an increasing urgency for designers to use their skills to address mounting future challenges. Wayfinding presents a platform on which this can happen, because it can shift public perceptions of what the future will bring and contribute to the crucial psychological adaptation that enormous numbers of people will have to undergo as citizens transition toward resilient and adaptable cities. It has been argued in this chapter that in order for wayfinding to contribute in this way, the discourse broadly, and the guiding documents of Brisbane and Gold Coast cities analysed here particularly, needs to expand significantly to incorporate a
comprehension of decolonising wayfinding. Through three framing layers—critical mapping, world-picture, and movement—results of an analysis show that these cities’ guidelines only minimally address a discourse that prepares citizens for surmounting future challenges. Instead, the current discourse predominantly remains trapped in Eurocentrism, technocentrism, and economic rationalism. The Kangaroo Point decolonising wayfinding case study with design students discussed here made attempts to close the gap between necessary planning systems in the documents analysed and decolonial wayfinding outlined here. However, since it was of a critical and speculative nature, it was far from resolved and aimed only to offer a platform from which to begin. In summary, if modernity, colonialism and globalisation indeed underpin much of the structural unsustainability reaching our city streets, then much work needs to be done to create radically alternative systems for citizens to transition toward sustainable futures through the political agency of decolonising wayfinding.
Chapter 5

Cognitive Redirective Mapping

Sections included in this chapter contain edited excerpts of two conference papers that underwent double-blind peer-review processes. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Co-authorship acknowledgements are also provided in next section. Publication Details:


A Respectful, Relational Futures Mapping Typology

In the maelstrom of the Enlightenment’s legacy—namely modernity, which is cited to justify coloniality—there have been continued attempts at representing everyday human lived experiences in places, and the conditions of local and global existence in those experiences, through maps. Psychosocial cognitive mapping is what Colin McCabe describes as “the metaphor for the processes of the political unconscious…and the model for how we might begin to articulate the local and the global” (McCabe in Jameson 1995, p. xivv). However, as outlined in the introduction and Chapter 1 of this thesis, today’s global social complexity has made it increasingly difficult to cognitively grasp our psychosocial lived experiences.

Recognising this led me to explore ways to navigate paths through a problem beyond a linear, logocentric, textual form, by combining cognitive thought processing with visual forms and drawing things together—causalities, concerns, appearances and gatherings—in a useful order to redirect destructive futures and produce knowledge. I have outlined elements of Cognitive Redirective Mapping throughout the earlier chapter. In this chapter, I fully describe the theories
I brought together in CRM with the aim to approach mapping future challenges from perspectives that are potentially less anthropocentric and more sensitive to ecological and social complexity.

While psychogeographic mapping maps human interactions and experiences with geographic spaces (see previous Chapter for a description of how in the 1960s, cognitive mapping was applied to psychogeographic mapping), psychosocial mapping maps patterns of thought relating to social phenomena. An example of psychosocial mapping today, which has good intentions yet is different to what is being proposed in CRM, is Robert Horn’s ‘Mess Mapping’ (2007). Horn’s maps of wicked problems (a term used to describe a difficult and complex problem) are representative of a common failure to recognise dominant Western narratives of assumed neutrality as mapmaker, as described in Chapter 1. Using default suites of clip art icons, colours and pictograms in multiple contexts fails to recognise that those elements design back on the reader of the map, therefore influencing their perception of the content and context. Just as there is no universal truth or finality in a wicked problem, so there is no universal visual language in which to map diverse cross-cultural complexities. To design with neutrality is to neglect the presence of the ontological agency of the visual language being employed.

Examples like Horn’s illustrate good intentions tarnished by the traps of Eurocentric modes of map-making. In this vein, CRM has been developed with the aim to contribute to visual forms of knowledge production through a praxis that avoids aesthetic fetishisation, totality and objectivity. Moreover, the practice acknowledges the inescapable politics in the process and incorporates a way to map a political objective of redirection to cognitive mapping: a cognitive redirecive map is aimed to articulate colonial designs impacting people and to redirect (rearticulate) them towards decolonising futures.

CRM is designed as a tracking device, not as a reductive ‘tracing’ or a reproduction of what is already known. The process tracks connections and relations, previously unseen realities, and realities previously unimagined. CRM is not conducted in order to merely identify what is known but to imagine, through informed knowledge, what is brought forth and gathers into future circumstances. Mapping in this way enables the potential for complex challenges to be articulated, remaking the way those engaged in the map are able to see the world and therefore unfolding a variety of previously unrecognised possibilities. What follows is an attempt to develop guides of praxis when mapping, while moving beyond previously mentioned traps. In order to envision and therefore design for a future with a future, CRM takes the following five areas in particular into consideration: sustainment; the ‘thinging’ of the ‘thing’; intercultural understandings; recognising design as a hermeneutic practice; and working alongside the method of design fictions.
**Sustainment**

While recognising that people view the world from multiple and varied perspectives, the CRM practice focuses on future scenarios, such as climate change and the effects of technology, aiming to redirect our trajectories away from that which takes time away: defutures. This process of redirection is informed by sustainment, which is understood as an alternative response to sustainability. It counters the defutured futures facing humanity by recognising that unsustainability and our anthropocentric way of being-in-the-world is not a choice but a structure of our habitus (Fry 2009). When mapping from this perspective, a cognitive redirective map would aim to confront anything that negates a future for humans and the biophysical world on which ‘we’ depend.

**Thinging**

In 1924, Heidegger wrote “time is that within which events take place” (1927). This is to say that ‘things’ live in time, as they are an event as well as an object, and therefore all things come and go. This understanding recognises that things are performative, indivisible from conditions of the everyday that they populate and in which they function. Therefore, how they function changes over time. As such, CRM is a particular method of visual manifestation that considers ‘far’ pasts, brought forth into presents as ‘things’ that gather into futures well beyond their often-short-term operative existence. Heidegger’s modes of causality are helpful in this understanding (1977, p. 7-10). Heidegger describes four causes of things: *causa materialis*, the material or matter; *causa formalis*, the form or shape the material or matter enters; *causa finalis*, the end; and *causa efficiens*, the effect that brings about the finished result (1977, p. 289-290). For Heidegger, each of these is equally ‘bringing forth’ the thing and lives with it in its whole existence.

Our human-centred way of being-in-the-world and bringing into existence things of human fabrication and prefiguration are taking away time, as evidenced by climate change. To rectify this, we, particularly modern subjects need to have a new relationship with things and to use more exploratory approaches to tracking relational impacts of things with regard to their indivisible relation to the creation and destruction of a future for our species. Implicated in an investigation of things is realising that there is no universal time, nor a universal truth embodied in a thing other than what we humans have invented for it (Kuhn 1962). This anti-foundationalist position is taken as a direct contestation that knowledge might be ‘founded’ in CRM upon a basis of traditional, absolute certainty; there is no certainty in maps, no universal truth or universal time in interrogating things. Everything has its own time. CRM interrogates things and the time/s that embody it, which human and non-human actors are implicated in it, and with what agendas in mind. From this interrogation, it becomes possible to see how this web of relations is or has been integral in the creation or destruction of time.
Intercultural Understandings

Anti-foundationalist perspectives inevitably allude to an intercultural perspective of making cognitive maps. A rejection of foundational, neutral, objective or homogenous ideas in the map-making process allows for a fecundation of other cultural contexts which one is dealing with in mapping. There should also be an opportunity to learn from others’ philosophical and ontological modes of inquiry that can then be integrated into a map. This was the case when I found commonalities-in-difference between a Canadian First Peoples’ knowledge map that explains respectful knowledge production with that of the ‘hermeneutic circle’, and was able to map patterns in a conversation that integrated both bodies of knowledge, considering alternative scales in conceptions of time and space. This is discussed in more detail below. Adopting this sensibility of intercultural understanding through decolonial thinking when producing a map allows borders to be transgressed between Western and indigenous explanations of being-in-the-world.

Hermeneutic Process

Recognising CRM as a hermeneutic practice is important. Firstly, thinking hermeneutically makes it possible to see how the past is brought forth and gathers in the future; in other words, to see the historic roots of defutured futures. Secondly, CRM engages the map maker in a hermeneutic process of making marks (lines, nodes, blobs, scribbles and words) because marks are made in conjunction with cognitive mapping in the mind. Where minds track lived experiences spatially, the hand draws it out. Thirdly, a hermeneutic interpretation provides the potential for change: for new paradigms, new patterns of thought, and ways of being-in-the-world to emerge. If designers recognise this, they will be able to bring into existence otherwise incommensurable visions of futures based on multiple cosmologies and ontologies. Mignolo describes this kind of border thinking as “pluri-topic” hermeneutic thinking, which articulates the experience of power differentials of “imperial and colonial differences” (2011, p. 61). This kind of thinking opens previously incommensurable futures and design opportunities.

Design Fictions

Design fictions, also referred to as design scenarios, are utilised in conjunction with CRM to bring into existence and make believable alternative visions of the future. Scenario building through fictions illuminates options that can no longer be ignored. They provide realities to work towards, offering identifiable, humanised, emotional, character-loaded narratives. Using design fictions is a powerful transformative design method frequently employed today by companies such as Intel “to create narratives based on their advanced research” (Willis 2014, p. 154). While using fictional futures for design has a history that can be traced back to Plato, in their modern form they have been used to display desirable future visions that were adopted by many wealthy nations in the early twentieth century such as Tony Garnier’s Cite Industrielle, Norman Bel Geddes’ Futurama, and Henry Dreyfuss’ Democracity (White 2015).
utopian visions of the urban dream have turned into realities, they have proved to be highly unsustainable.

The intention of using design fictions in the CRM context is to contest the imagining of a utopian universal future informed by the logic of coloniality and obscured by the rhetorical fiction of modernity. Adopting CRM praxis is to think pluritopically, to dwell in the border, scenario-building plural futures in a world entangled through and by the colonial matrix of power. As such, design fictions need to be able to work with the dialectic of Sustainment—that to create, we must destroy and vice versa, and so must imagine what has to be prevented or avoided while at the same time imagining what has to be created in the aftermath of modernity (Fry 2012, p. 191). Design is a prefigurative process and design fictions are useful to begin creating a new narrative about the sort of futures we want as well as some of the means to achieve them. Ezio Manzini and Francois Jegou have spent decades arguing that they provide the ability to ‘put on stage’ possible futures, stimulating democratic and productive discussion between various social actors (Francois Jegou 2003). They offer a way to think about the future in a situated way and provide tangible scenarios that consider what everyday life might look like. These fictions offer the potential to be designed back from. Anne-Marie Willis describes “designing back from the future” as “a prompt for designing now—for designing processes and things that could contribute to the arrival of preferred futures” (2014, p. 159).

While design fictions—written, spoken, mapped or otherwise—provide glimpses of possible futures, like all stories, constructions of knowledge and unfolding of potentials, they are always appropriated from previous interpretations and perceptions of the world. They are always a causation of the past brought forth into the present into appearance and gathering into the future; they are always informed by a worldview. Design fictions suit being drawn out through all stages of a CRM. A rigorously populated CRM with future design scenarios based on past scenarios places one in a position to begin a process of directive design (Willis 2007).

### Drawing Together Knowledge Production

Extending on these theoretical considerations, the act of drawing Cognitive Redirecive Maps in practice begs four further considerations: drawing together with the hand; drawing together assemblages and mess; drawing together information design techniques; and performing drawing together.

**Drawing Together with the Hand**

For Heidegger, the work of the hand and of the tool in the hand—for example, the pen, pencil and other drawing tools—is an instrument of world forming (1992, p. 80). Following Heidegger,
for Ingold, the hand “delivers an engagement that is both thoughtful and reflexive” (Ingold 2011a, p. 82) and thus unlike the work performed by animals’ paws, claws and talons. Leaving aside Heidegger’s ‘hand’ being critiqued as anthropocentric (Ingold 2011a, p. 82) (Agamben 2004, p. 49-56), (Derrida 1987, p. 173), Cognitive Redirective Maps associate with his work in two ways. Firstly, they value handwork, recognising drawing with the hand as ‘the path of thinking’, as forging a cognitive redirection. Secondly, they value a protest against the mechanisation of man, advocating drawing with the hand to curb a world rendered meaningless by the hand’s dissociation from action (whether a human hand renders meaning more uniquely than a non-human animal or machine is of course subject to debate) (Ingold 2011a, p. 81) (figure 25).

In designing technological tools that produce maps autonomously, actors are designing out associative meanings made with the world through the action of drawing. We are separating thought from action. Lucy Kimbell discusses how this dualism between thinking and knowing and acting in the world is a major problem in claims surrounding the efficacy of ‘Design Thinking’ as a term (2011a). CRM counters this by placing the designer/s and participants’ cognitive thinking squarely in the hand. This performative process of cognitive-hand-action encourages a drawing out of concerns directly related to one’s situatedness (at hand), rather than outside their world (at the machine). This forces a reflexive process in the map-maker. In this way, it shifts the focus on human–machine interaction away from what Bridle argues is ‘computational thinking’ (Bridle 2018) saturating our everyday lives, to the power in what Bateson famously articulates as ecologies of human minds (1972, p. 505), or what participatory design scholar Pelle Ehn describes as more engagement with communities through acts of drawing together (2014).
Drawing Together Assemblages and Mess

Johanna Drucker calls for humanist approaches to mapping that contest Cartesian logics of time and space and scientific rationality all too present in contemporary information visualisations (2014). Aside from the argument that any ‘humanist’ approach is anthropocentric, therefore receiving a similar critique to Heidegger’s hand, how one configures ‘assemblages’ in a ‘messy’ fashion on a page is important to CRM. Cognitive Redirective Maps should not be bordered or framed by grids, lines, or edges of paper. This aligns with Ingold’s reflection on Norman Bryson’s perception of distinctions between the blankness of the surface when painting and drawing (2011a, p. 220). To draw is not to follow ‘the law-of the all-over’ like painting, but rather to see the page as an endless messy reserve of localised space and time. This fits well with CRM in that there should be no enframing, no fit boundary in which one locates a finality of social worlds; drawing should be a constant tangle of life’s thread and paths, as Ingold puts it: “ever raveling here and unravelling there, within which the task is to improvise a way through and to keep on going” (2011a, p. 220). In this, one is nomadically letting the hand manifest “lines of flight” (Deleuze and Guattari 1987, p. 325) among “matters of concern” (Latour 2008, p. 2) (Figure 26).
Figure 26: Unfinished Making an Age of Repair Cognitive Redirective Map emphasising messiness and lines of flight, 2015

**Drawing Together Information Design Techniques**

As much as one might treat their page as an endless messy reserve, adopting information design techniques such as hierarchy, sequencing, and flow is also important to the CRM process. An anarchic visual mess is completely non-productive to producing knowledge, which is the central aim of CRM. Manuel Lima (2011, p. 159) argues that visual complexity has always adhered to some kind of syntax and typology, and this language can be appropriated for post-rationalistic means so long as the type of content expressed and the ways meaning is structured are reflected upon using a historical framework and an interpretive lens. For example, Stephan Muecke (1996, p. 81) reflected on the tree and the root metaphor as giving us anti-nomadic understandings. In contrast, CRM should aim to be nomadic; it should have no beginning, no origins, only turbulent multiplicities of concerns flowing in all directions between lines of flight. Those practicing CRM should keep this in mind while adopting a syntax in the ‘timeline’, but without Cartesian and Babylonian measurements of evenly spaced time; or with the ‘flowchart’, but without rigid categorisations; or with ‘radial convergence’, but without aesthetic fetishising
of circular symmetry. The messy ‘rhizome’ might be the most appropriate name for a typology (Deleuze and Guattari 1987, p. 1-28).

Interestingly, the simple, linear timeline Westerners are used to today was not a dominant typology for knowledge visualisation until modernity (Rosenberg and Grafton 2012). To utilise a visual chronology in CRM is to balance between a pre-modern non-linear timeline, which was often more relational, and that which is embedded in the modern Western episteme today. CRM maps contest master narratives of modernity in a poststructuralist way in that they encourage branched narrative building and alternative histories and futures. This follows a history of contesting linear narratives. One of the first branching time maps recorded by Charles Renouvières in 1876 named *Uchronie* (Utopia in Time) depicted both the actual course of history and alternative paths that might have been if other historical choices and actions had been taken in seventeenth-century European civilisation (Rosenberg and Grafton 2012).

When drawing CRM maps, traditional universal conventions and rules that pertain to information design are also strongly avoided as traps, such as an assertion of neutrality, aesthetic fetishisation and scientific authority. As argued by Drucker (2014), humanistic forms of representation push at the limits of formal means where ambiguity and contradiction are more important to be expressed. She notes, “when graphical languages engage with poetics and rhetoric, we will have arrived at a fully humanistic system for visualizing interpretation” (Drucker 2014, p. 55). Taking this into account, there are some obvious forms employed by CRM, such as gestalt techniques to indicate movement and spatial orientation, and colour hues and values to indicate hierarchy and differences. However, the main concern when drawing CRM is to focus on cognitive thought processing and redirecting, rather than formalist graphical language making.

**Performing Drawing Together**

Producing Cognitive Redirective Maps is a performance at the ‘drawing together’ map-making event and afterwards as produced knowledge to draw upon for further research and practice. This performative aspect has shown to be key to mobilising participation in community capacity-building contexts. CRM is consistent with Participatory Design in the way that the field is outlined by Manzini as a complex, interconnected, and often contradictory performative process where the designer’s role includes “the role of mediator (between different interests) and facilitator (of other participants’ ideas and initiatives)” (Manzini 2013, p. 65) (Figure 27). CRM is also congruent with growing critical design movements such as Transition Design, which advocates the “reconception of entire lifestyles, with the aim of making them more place-based, convivial and participatory and harmonizing them with the natural environment” (Irwin et al. 2015, p. 2).
Gnibi Maps

The Cognitive Redirective Map pictured in Figure 28 is the result of my ‘tracking’ of mental patterns of information in yarning sessions with a group of Australia’s leading Aboriginal & Torres Strait Islander academics, held at Gnibi College of Australian Indigenous Peoples, Southern Cross University, Lismore, in 2014. This visual tracking of non-linear conversations was performed while I was immersing myself within and listening to insights of the workshop discussions.

Participants discussed what ‘cultural competency’ looks like from Indigenous perspectives, and how it might be activated as an event in process across a university. The map overlays commonalities-in-difference between a Canadian First Peoples’ knowledge, Australian Indigenous Knowledge, and a Western conception of a hermeneutic circle. In this, the map becomes a ‘mediating object’ for future intercultural conversations.

The culturally sensitive parts of the information mapped have been concealed here (figure 28, 29, 30), which is the way these maps are exhibited in the public sphere (figure 31). This concealment is itself a commentary on what actors and networks are deliberately left out of maps. Maps are always a reductive selection of what one decides to include in and leave out, therefore they are inescapably bound in wielding power. This subjectivity in maps is itself concealed by an ongoing perpetuation of grand colonial cartographies and assumed neutrality in information design. Colonialism has destroyed, taken and concealed enough without giving in return, and participants feel that some knowledge begs to be kept private. In order to conceal the knowledge in relational patterns, it was also decided we produce a repeat version for public viewing (figure 30).
Figure 28: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of three-day yarning circle workshop. *Deliberately pixelated to conceal sensitive cultural knowledge, 2014

Figure 29: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of three-day yarning circle workshop. Close-up of digital artefact *Deliberately out of focus to conceal sensitive cultural knowledge, 2014
Figure 30: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of three-day yarning circle workshop. Repeat pattern that conceals layers of information, 2014

Figure 31: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of three-day yarning circle workshop. Photo of map at Experimental Thinking/Design Practices Exhibition, QCA, Southbank, 2015
This project required the me (the designer of the map) to produce the map with my own single hand (participants in this particular setting did not assist making the marks on the paper). The inherent bias in this version of producing knowledge is important to acknowledge as unavoidable, yet when keeping account for the sensibilities outlined thus far can be minimised.

The paper used in this process was large-format brown paper and the visual syntax was a mixture of a radial convergence, a (hermeneutic) spiral, and a messy rhizome. As a design expert, I had the skills to codify the map simultaneously to the cognitive thought processing, adding colour hues and values in situ to indicate hierarchy and differences.

The act of drawing in a rhizomatic spiral afforded a non-linear spatial and temporal mental orientation. A spiral suggests an endless three-dimensional axis of becoming in space and time, rather than the timelines two-dimensional plane. In drawing this rhizomatic spiral, I was attempting a performance of a tracking of the landscape hermeneutically—locating how experiences might be transformed, how this might transform who one is, which might transform what one does, which opens worlds of new perceptions for new experiences, which transform who one is, and so on. For example, I found that this fit well with the Canadian First Peoples participants’ conception of knowledge production. This was not a forcing of a narrative, but rather the result of being receptive to relational patterns in the map. The act of drawing the map in this way affected the outcome in that the inherent order in a spiral and the locking against its compass quadrants meant the pattern that manifested was aesthetically inviting. This was an unintended outcome of the performance of working with two theories, which happened to be in these shapes. These relational patterns were then ‘read’ as containing information in and of themselves. This is the kind of Indigenous Knowledge relational pattern thinking all participants were receptive to during the event.

Following the event, the map was reconstructed digitally to assist legibility when using the maps as an ongoing mediating object (Figure 32). Neutrality was further compromised by this process, along with the absence of the value of hand-work touched on above. However, as one participant noted when viewing the digital viewing, it seems as though the pattern of a human face has emerged, and in respect of relational pattern thinking, this is something we all reflected upon too.

In this case, the map can be regarded as having less directional and consequential force in situ at the ‘drawing together’ map-making event, since I made the map alone. But as has been outlined, reading into the patterns arising worked as a mediating object to open discussions. The digital version continues to be a mediator of produced knowledge from that workshop to draw upon for further research and practice. This case sought to respect the ‘yarning circle’ collaborative experiences while using the map as a supplementary repository; a kind of drawing
of the spilling forth, of the visible action and the patterns of information of the workshop event. The map case studied here is representative of numerous Gnibi maps I have created between 2014-2018, as shown below (figure 32, 33, 34 and 35).

Figure 32: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of three-day yarning circle workshop. Final Digital Artefact, *Deliberately pixelated to conceal sensitive cultural knowledge, 2014

Figure 33: Gnibi College of Indigenous Australian Peoples, Elders and community, academics, and students Cognitive Redirective Mapping of Indigenous Futures workshop. Original hand-drawn artefact, *Deliberately pixelated to conceal sensitive cultural knowledge, 2013
Conclusion

The pressures of today direct an imperative to explore problems and to organise knowledge beyond a linear, textual form by combining cognitive thought processing with visual knowledge production. This chapter has described CRM as informed by five theoretical considerations: sustainment; the ‘thinging’ of the ‘thing’; intercultural understandings; recognising design as a hermeneutic practice; and working alongside the method of design fictions. It then explains the four considerations regarding drawing that Cognitive Redirective Maps consider: drawing together with the hand; drawing together assemblages and mess; drawing together information design techniques; and performing drawing together. Other CRM sessions, including the
community engagement events discussed in the next chapter, have also effectively acted as a site of drawing together knowledge production through the hand.

CRM assists in challenging existing, dominant, and often destructive modes of thinking about the world, which opens possibilities to approach future challenges. However, as with all maps, there are traps in drawing Cognitive Redirective Maps. They run the risk of being perceived as a spectacle where the referent disappears, and they all too often display an assertion of the aesthetic conception of a social totality. The remaining chapters explore experiments with CRM as the practice matured, remaining cognisant of the considerations outlined thus far.

**Critical Mapping as an Articulatory Design Practice: Steps**

Cognitive Redirective Mapping as a term was used throughout much of this research and practice and continues to appear in legacy publications, toolkits and artefacts. As much as there have been many iterations in articulating common steps, the above theoretical foundations have always remained the same and the decision was made to honour that terminology above to retain the integrity of that published work. The terminology has shifted though, where I now term the work as Critical Mapping as an Articulatory Design Practice, as is used in earlier chapters and in the namesake Appendix A. This fits better with the broader and more thorough theoretical and methodological background outlined thus far in this thesis. So instead of providing a previous version of ways to describe CRM steps below (which can be found in the publication named in the preamble of this chapter), I have decided it is more useful to provide the most up-to-date way of articulating steps in alignment with figure 2 diagram in the introduction chapter and Appendix A. This articulation will surely change again in future since there is no set and static process and typology. This change can be seen in figure 36 and 37, showing previous iterations and experimental map template layouts. It has been, and will continue to be, a hermeneutic experiment nuanced by each context and site it is used in. You will also notice that experiments fluctuate between making steps easy and more ambiguous to follow, a deliberate process of finding a balance of supporting people to embrace complexity yet retaining a visual legibility.
Figure 36: Previous iterations and experimental map template layouts, analogue
Figure 37: Previous iterations and experimental map template layouts, digital
In the more comprehensive *Critical Mapping as an Articulatory Design Practice: Visual Guide*, (Appendix A), there are over 34 steps. Below I summarise this to seven and in some steps expand on the discussion provided in the Visual Guide (figures 38). I begin below assuming that respectful yarning and visual dialogue have occurred and that the map space is appropriate, and equipment is set.

![Figure 38: Critical Mapping as an Articulatory Practice: Present Step](image)

In Figure 38, a participant is asked to name the present first. At least three narratives might be explored. The narratives named in the present depend on what the map is trying to explore. Participants are asked to focus on the idea of how things ‘appear’, as nouns, rather than getting too focused on how they act. They’re encouraged to add some more names of things that connect to it, as they appear in the present, close to the three main things. If participants need to be able to understand contexts more, and quickly engage at an individual and group level, and if they need to be able to see how they might use sourced information to support their cognitive insights, then knowledge cards can help to prompt designerly or alternative ways of approaching knowledge. For example, knowledge cards might set a rapid challenge to help elevate the criticality and scope of concerns. To take steps towards curbing a logocentric emphasis on the written word, the knowledge cards might instead emphasise a relevant picture or diagram. They might have a symbolic physical form that is also tactile and interactive, and they might have ‘layered conversations’ and triggers for different kinds of participant engagement. Incorporating characters and images at this stage is also useful for three reasons. Firstly, it begins the design fiction process, thereby introducing subjectivity and relative contexts. Secondly, it introduces a meshwork of messiness, thereby evading over-rationalising
the process. Thirdly, it introduces visual pattern thinking as a visual research method, an alternative mode of knowledge production. At the outset, a designer-facilitator might also encourage giving the map some temporal scale by layering in timescales according to contexts and concerns.

In Figure 39, presents are encouraged to be thought as brought forth from pasts. Participants might be asked to write the names of the ‘thing/s’ in the past, focusing on the idea of how they ‘appear’, as nouns, rather than getting too focused on how they act. Again, they might add some more names of things that connect to pasts, close to the three main things. Participants might be asked to reflect on the ‘landscape’ of their map; for example, to think of the pasts and presents as ‘islands’ still needing land bridges to represent how and why the past has brought forth connections with presents. This step is about tracking back in time to name what in the past might have caused their appearance in the present. This part can look as far into the past as is necessary. For example, in Australia beyond the arrival of the boats to naming what came with the boats; as far back as Western Enlightenment; or even further to the formation of homo sapiens as technological beings. By this point, a trap is starting to appear. The map might be looking more like points, rather than a meshwork. Cultural anthropologist Tim Ingold (2011a) identified this trap as the distinction between Western thinking and forms of IK. He argues that the organism (animal or human) should be understood with a relational view as many Aboriginal cultures always have; not as a bounded entity surrounded by an environment but as an unbounded entanglement of lines in fluid space. This was also observed and introduced in the
philosophy of Gilles Deleuze (1987). The living organism, for Deleuze, is a bundle of lines, of becoming. The key to this part of the mapping process, is to know that naming the pasts can only be thought as a mid-step towards the sum of tracks, not a destination.

In figure 40, participants connect the past and present with lines. They’re encouraged to draw, sketch or write characters and images and fictions already introduced for pasts and presents on their map. When Tim Ingold had a conversation with Roy Wagner, a Walbiri Elder of the Australian Central Desert, Wagner said “the life of a person is the sum of his tracks, the total inscription of his movements, something that can be traced out along the ground” (1986, p. 21).

For Ingold, “the logic of inversion (a western construction), however, converts every track or trail into the equivalent of a dotted line, first by dividing it into stages, and then by rolling and packing each stage into the confines of a destination” (1986, p. 21). At this stage it is also useful to describe, on those lines, the cross-over concerns: causalities, ideologies, perceptions, tensions, power relations and affiliations, that brought forth the pasts into presents. If a participant has not already, they may be encouraged in particular to think about climate, technology and demographics and how they also cross between the meshwork tracks. To do this, it is useful to turn to a way Bruno Latour discusses locating matters of concern, rather than matters of fact. Latour writes:

“To think of artefacts in terms of design means conceiving of them less and less as modernist objects, and conceiving of them more and more as “things”. To use my language, artefacts are becoming conceivable as complex assemblies of
contradictory issues (I remind you that this is the etymological meaning of the word “thing” in English as well as in other European languages). When things are taken as having been well or badly designed, then they no longer appear as matters of fact. So as their appearance as matters of fact weakens, their place among the many matters of concern that are at issue is strengthened” (Latour 2008, p. 4).

Also, at this stage, if mapping on paper, participants are encouraged to pick up a highlighter and highlight key narratives that have brought forth pasts into presents. They might consider this decision based on what is most important to them, while letting the rest of the mesh of information not highlighted find its home in layers under their new graphically represented dominant narrative. When digitally creating a map, this step can be utilised as an interactive layer that can be switched on and off. Highlighting key narratives helps with hierarchy, sequencing and flow and is important for legibility; however, there is a fine line between over organisation and rationalisation, and making the map start to ‘speak back’ to participants. An anarchic visual mess is of course completely non-productive to producing knowledge, the central aim of the mapping process. As argued by Johanna Drucker (2014), it is better to push at the limits of legibility, where ambiguity and contradiction are more important to be expressed. From a relational systems view, this sub-step of highlighting is about starting to identify the parts in whole relationships by utilising gestalt techniques to indicate movement, spatial orientation, along with colour hues and values to indicate hierarchy and differences.

Figure 41: Critical Mapping as an Articulatory Practice: Current Future Directions Step
Figure 41 shows the map filling towards current future directions. A designer-facilitator might ask a participant to map forward the current direction gathering in the future, if nothing changes, and repeat connecting with lines describing causalities and concerns such as climate, technology and demographics. As the map unfolds, it becomes possible to develop an understanding of how causations and concerns are bringing forth appearances, which inevitably become current future directions at both a local and global level. Participants might consider that if nothing were to change, no interjections or redirections, there is a current direction that their futures are heading towards. This future is drawn from an understanding of the already mapped past and present. It might help to consider topics for current directions, such as human movement, health, climate, human, technology, food and water. These cut through everything that might be of concern (such as if employment opportunities are being mapped) and provide a means to be sure as many relational systems are respected as possible, making the meshwork closer and closer to human experiences of being in the world.

Figure 42: Critical Mapping as an Articulatory Practice: Futures Arriving Step

Figure 42 is also about futures. Participants might be asked to consider what the future is already full of and reverse map these concerns toward the current future direction. It might work to draw arrows pointed back towards the concerns already mapped for this. This step is based on the premise that the future is full (not empty) of current directions in place that are immovable (sea level rise is an easy example to express to participants). These directions can be drawn onto the map by pointing back towards the present.
Figure 43 highlights a moment in which participants are encouraged to articulate the ‘clash’ in space and time between current directions (if nothing changes) and futures arriving. This marks a crucial moment in the intention of the mapping process, which is to embrace one’s own inescapable values and politics inherent in the mapping process and ask the question, “am I happy with this clash?” It is here where designing futures begins. Participants can be encouraged to make marks on their map that distinguishes these clashes. They might draw together the current direction with the futures arriving and draw a dominant blob where they meet. They might highlight this blob so it stands out, at a glance, as their illuminated concern. In this important and often sensitive and jolting moment, the designer-facilitator should respectfully encourage reflection on the significance of the identification of this clash and ask participants to consider now being prepared to see it as a springboard from which one can begin designing alternative futures, redirecting this clash. The mapper is reflecting on departing from the current direction and its clash with futures arriving (if they deem the clash destructive) and instead putting in place alternative futures to counter this clash. This is a politically laden design decision participants are making. People, with emotions, commitments, financial worries and obligations are deciding redirecive pathways that inherently comes with a political statement of what futures they’d like to leave in, and what futures they’d like to leave out. This speaks to the dialectic of sustainment (Fry 2003); in whatever is created, something is always destroyed and is why design is inescapably political.
Figure 44: Critical Mapping as an Articulatory Practice: Design Fiction Step

Figure 44 shows the next step. Participants are asked to write or express a future scenario (design fiction) that navigates around the clash identified earlier. They are prompted to sketch it out at the end of their map, or somewhere else where there is room to fill in the gap between the fiction and the present. The designer-facilitator might ask participants to decide on a timescale for the design fiction, remembering the further in the future one speculates, the less one is able to predict plausible propositions. But also remembering if one only speculates in near futures, there is only so much transformative change capable in that timescale. This is the step to be divergent and ambitious, in the next steps convergent ways to design back from the viability of the future are explored. Participants might write design fictions in long time-scales, and then focus on short time-scales that cover what can be done in a lifetime. Design fictions are beneficial for conceptually testing ideas as if they are already in existence, without wasting the time, money and resources they might consume in reality. They can also test the fusion between people and things without the consequence of bringing that hard-to-separate fusion into actual material existence. They can put options on the table that can no longer be ignored and provide realities to work towards, offering relatable, human scale, emotional, character-loaded narratives. Design fictions are a powerful transformative design method frequently employed today by companies and organisations in a spectrum ranging from neoliberal colonising means to decolonising contexts. Contrary to utopian or dystopian sci-fi futures writing, design fictions in this step should aim to responsibly contest utopian futures and consider the pasts, presents, current future direction and futures arriving and to what extent the fiction articulates what is unable to change, what can be mitigated, adapted and redirected around.
Figure 45: Critical Mapping as an Articulatory Practice: Redirctive Actions Step

At the point of figure 45 the focus of the designer-facilitator and the participant is to collaborate on exploring the viability of iterative steps toward their design fiction. This is to fill the gap between the futures imagined in the design fiction and where the map is in the present; to speculative ontological design. Redirective actions might be negotiated with prompts, individually or in groups, and in a myriad of ways to explore and experiment designed events, systems, visual communications and other forms of design activity that might be put in place to get to the preferred futures. This part of the process might be supplemented by other tools, such as the ‘possibility cone’ (Dunne and Raby 2013) to tease out the possible, plausible and probable future scenarios the design fiction exists within. This step might also draw on hermeneutic thinking and consider design as an open-loop interpretive system that shifts habits and behaviours; as an event that transforms experiences, which transforms what one does, which transforms what one is—and then—to deliberately continue in this process one would inculcate another design as event, which would transform experience, transforming what one does, transform what one is…and so on. Related to a hermeneutic perspective, this step might be considered in terms of an ontological design perspective. Participants might be encouraged to consider that ontologies are ever-changing, according to our evolving mental perceptions and interactions with ‘things’. Colonialism is a ‘thing’, but so too is the car, alcohol, sugar, writing, western perceptions of producing knowledge, housing, etc. The point being made is that in every facet of life, from the mundane to profound, ‘we’ (all humans and to some extent animals and other lifeworlds too) are ontological beings; a direct result of being ontologically designed by ‘things’. ‘We’ are stories gathering; designing-in-time. There are numerous directions to take the mapping after this. In appendix A there are some suggestions to explore.
Chapter 6

Mapping Futures with Community

Sections included in this chapter contain edited excerpts of a book chapter that underwent a double-blind peer-review process. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Co-authorship acknowledgements are also provided in next section. Publication Details:

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Redirective Practice: Repairing Queensland Workshops

Designed and facilitated under the collective Redirective Practice\(^5\) (comprising five design colleagues and myself), the Making an Age of Repair: Queensland series was the first public-facing experiment using the CRM processes discussed in Chapter 5. This chapter reviews this series of events, detailing the specific strategies, settings, and experiences people had in the mapping process. The events were conceived as a three-step and three-event process aimed to understand and identify key matters of concern surrounding Queensland futures, to ideate potential means of addressing these areas of concern, and to develop a plan to implement ideas. This was an interesting context given that Queensland’s Liberal National Government of the time (2012–2015) had already embarked on a community consultation process in developing *The Queensland Plan* (2014), a policy planning document intended to guide government decision making. However, it was a document that community leader Brian Feeney (2014) identified as being severely flawed because it largely ignored feedback provided by the Queensland community. Likewise, upon critically analysing the document, our practice concurred that the Plan largely overdetermined a one-sided view. We took this as an opportunity to experiment with an alternative Queensland plan through experimenting with CRM and other techniques we had been exploring at the time to engage the community in public forum settings.

The events were intended to be hosted over the course of a year, with four months of planning and development between each. Event 1 was held in a community hall in West End, Brisbane, on 17 April 2015, and attendees varied widely in age (ranging from fourteen through to mid-sixties) and professions (designers, teachers, students, town planners, engineers, and lawyers) (figure 46, 47). Event 2 was also held in West End, this time in a workshop space at a resource, recycling and recovery retailer (figure 48). The attendees were closer in age (ranging from early twenties to mid-fifties) and were predominantly made up of design students. Event 3, as will be detailed in this chapter, was not held due to community not autonomously taking up the design action decided on, therefore we decided to cease facilitating the conversations to mitigate excessive authorship of the community process.

Both Event 1 and 2 were communicated back to communities as ‘Event Books’ (see front page references in figure 49 and 50 and see full Event Books in appendix B and C), with background information, processes and outcomes made available as a visual communication designed document report, openly able to be sourced as a PDF link.

\(^5\) This collective operated from 2014-2016.
Figure 46: Redirective Practice event 1 *Making an Age of Repair*. Participant engagement, 2015

Figure 47: Redirective Practice event 1 *Making an Age of Repair*. Cognitive redirective mapping session. I am seen at middle table in grey shirt. Team member Bec Barnett is seen at front of image in green top with pen in hand, 2015

Figure 48: Redirective Practice event 2, *Designing the Now*. Overview image of workshop room at resource recovery centre in Brisbane, 2016

Figure 50: Front Page graphic of Event book 2: Redirective Practice Repairing the Future of Queensland, *Designing the Now*, 2016 For full Event book see appendix C.
Event 1: Making an Age of Repair

Event 1 (Repairing the Future of Queensland) was dedicated to the first step in the process, which involved understanding the existing matters of concern for Queensland community members. Focused on CRM, the event concluded by facilitating a means for participants to develop design fictions to better understand the relational complexity of the challenges that Queensland faces and to understand how they may affect individuals in the community. Participants were asked to use their own knowledge of Queensland and connect their multiple perspectives, including rural issues, global concerns, technological factors, human influences, and more. Participants were also asked to consider arriving future challenges such as climate change, changing demographics, and technological advancement.

Fifty-three attendees created six collaborative maps across six tables, with the facilitation team of Redirective Practice acting in the role of mediator between different interests and providing critical design guidance. Participants mapped their present concerns, pasts that brought forth those concerns, and concerns gathering in the future. They then focused on navigating future challenges by drawing lines of redirected futures onto the maps (figure 51).

Figure 51: Redirective Practice event 1 Making an Age of Repair. Cognitive redirective mapping session close-up of table 5 drawing together, 2015
Large-format paper with a loosely guided directive mapping template was sprawled across the tables, along with an ample selection of coloured pens. The paper provided was deliberately much larger than participants needed, and not bordered or framed by grids or lines. Groups were forced to negotiate with each other and improvise ways through future obstacles to keep developing desired future scenarios. Interestingly, some groups chose to give animals, tractors and other kinds of non-human actors their ‘thinking-drawing hands’ too. This performance occurred on the paper, as participants literally struggled to draw lines that justifiably connected their desired futures to past concerns. The paper template graphic was set out in a way that encouraged a messy rhizomatic timeline. They were also advised not to dwell too much on colour hues and values to indicate hierarchy and differences unless it aided their conversation. Following the event, these languages were graphically imposed on the map to assist in post-event legibility (figure 52). Six design fictions were created, which acted as starting points for Event 2.

Figure 52: Redirective Practice event 1 Making an Age of Repair. Cognitive directive map of table 5 as a combination of original hand-drawn marks and digital overlay for increased key narrative legibility, 2015

To provide an extended indication of the process unfolding, the following quotes detail the feedback given by those sitting at table 5 in Event 1. The people at this table had decided on the overall theme of ‘environment’ and ‘economy’ as narratives to map. More specifically, they discussed machino-facture and the associated economic risk in developing a no-emissions, ecologically sound agricultural industry. The map narrative was analysed and synthesised collectively by Redirective Practice following the event, and the text below, along with the map, became artefacts in the Event Book 1 (2015a).

Where has it been (Past)?
Machino-facture is a direct reflection of the industrial revolution and man’s appetite to build automated mega machines to increase production, lower human labour required and decrease costs; it comes from our dependence to achieve this on the extraction and reserve of vast amounts of fossil fuels; it is the modern
world. In this production, as with most things brought into existence during Industrial societies reign, it neglected to recognise what is produced (created) also destroys.

How is it appearing (Present)?
The technologies of global agricultural trade that our everyday existence depends upon still bind us today. Unsustainable farming practices continue to neglect confronting future challenges relationally. In Lockyer Valley, SE QLD, the focus of Beetroot crops is on the bottom line only, relying on private capital investment at whatever price to their relational connection to fossil fuel emissions and degradation of arable land in a changing climate.

How is it gathering into the future?
Beetroot farming in Lockyer Valley is scheduled to take on a new life as a farmer’s collective have invested in a new state of the art cannery in the region that competes at an international scale. This will economically sure up farmer families struggling under harsh conditions, but it is a band aid solution focused on harvest work only, rather than larger relational long-term solutions for the towns that are less dependent on seasonal yields.

What is known and what is not known?
Is there a possibility that larger, relational, long-term solutions for the Lockyer Valley exist that are less dependent on seasonal yields? Can there be a different form of industry where agricultural knowledge and associated industries invest in sharing knowledge of renewable technologies? Is there an economic future with a Solar Valley Knowledge Hub?

Table 2 Design Fiction:
It’s 2044.
For the last decade a beetroot farming cooperative in Lockyer Valley have been using a new kind of solar powered tractor technology, which in turn, has generated knowledge and skills in the community that translate across many areas of the solar energy industry. The valley is now recognised as Australia’s ‘Solar Valley’; a pun on ‘Silicon Valley’ entrepreneurship so famous from the early 21st century. Gradually, as fossil fuels depleted through the 2030’s, machinofacture was forced to take on a new form, but the global oil tycoons of industrial society have not faded away without a fight. There are still vast reserves for those willing to locate the black gold, which means there is still a robust competing industry of petrol-powered machines, including farming equipment such as
tractors. In Lockyer Valley this tension manifests as a divide between the ‘red tractors’ (petrol powered) and the ‘blue tractors’ (solar powered tractors). Once upon a time, red tractors harvested GM beetroots in high yield pesticide and herbicide ridden synthetic acres of fields, as far as the eye could see across Lockyer’s ‘Solar Valley’. However back in 2015 there were increasing local and global concerns about the finitude of fossil fuels, climate change, the harm done to human health, and monopolisation of markets by GM foods and the viability of ancillary industries still based in these practices. Lockyer valley decided to invest in an international feasibility study into the long-term efficacy of building alternative industries centred around one simple move; the purchase of blue tractors to mitigate and adapt to these concerns. The results of the study were promising, the investment was made and ‘Solar Valley’ was born.

In 2030, there were generally two types of people in Solar Valley, your blue tractor type, and your red tractor type. Blue tractor types grow non-GM organic beetroot in smaller yields, sacrificing farm land to plant trees on their property to cool their smaller fields. They can’t compete in the ‘Australia for Food Abroad Surplus Program (AFASP), their per-unit cost is still too high. Red tractor types still grow GM beetroot in high yields, using elaborate technology in soil cooling systems to retain large swathes of open fields, competing strongly in the AFASP. The stats show Red still trumps blue with 50% higher yields based on equal production costs.

That said, the investment in ‘Solar Valley’ is beginning to take effect. Photovoltaic panel costs are already incredibly low, and a service and tech industry in the valley is established to a point where mechanics and engineers are more attracted to acquiring knowledge and skills in the solar industry. This has resulted in service, repair and maintenance for Blue tractors becoming increasingly high and unviable. Put simply, it’s becoming cheaper to own and maintain a blue tractor in the valley, therefore GM organic beetroots per-unit costs are dropping incredibly quickly. Furthermore, the community is increasingly agitated by the pollution from Red tractors in the face of an increasingly attractive alternative that produces no pollution, to the earth or in the sky by the Blue tractors.

Jenny, a Blue tractor owners daughter, grew up through this community divide of the 2030’s and now in the 2040’s proudly combines her situated knowledge of Lockyer Valley with her in-field university degree attained through the ‘Solar Valley’ program to run the in-field Solar Valley Master’s Degree, whereby farmers from all over Australia come to learn in-situ how to develop models of economic
transition with solar powered equipment for their own farming communities with their own crops and fields. Solar Valley now has two thriving industries; GM Organic beetroots shipped nationally and under the AFASP, and the Solar Valley Knowledge Hub, where businesses skilled in repair, service and maintenance of solar-agricultural practices act as appropriative models exported worldwide.

Points to design back from:

• How can we begin to integrate other ways of using machine technologies to harvest food into the current agricultural system?
• How can the symbolic value of this begin to be coded in Lockyer Valley as desirable; as outweighing other modes of production in the long term?

The above outlines in prose what was in fact an extremely participatory and messy mapping session. Thinking about these concerns raised questions among the participants about what to put where on the map. They were asked to start drawing the appearances in the present. As can be seen, one participant wrote ‘Environment’ and ‘Economy’ in large letters in a prominent position on the map. Unaware to other participants, this simple act gestured toward an anarchic visual mess, intervening in information design techniques such as hierarchy, sequencing and flow. As the facilitator on this table, I had to find a balance between being too prescriptive with the CRM technique and eliciting an effective production of knowledge. I suggested we should start by naming the appearances of things in the present. For example, at this point, ‘drought’, ‘water security’, ‘Lockyer Valley’, and ‘Gladstone’ were written onto the map. This provided workable places from which to begin. I then asked participants to draw the naming of the past that connected to the present on the far right of the page. In this action, participants visually saw ‘the gap’ between pasts and presents. Connecting pasts and presents by drawing lines filled this visual gap but did little to draw together the concerns. Participants were asked to articulate their concerns by writing them along the lines, which subsequently drew out further concerns. In this map, as in most others, the act of drawing this way effects a spatial and temporal mental orientation. People see the surface as a landscape to draw on. It is important to provide ample space on the paper for participants to feel their landscape has no borders but rather to see the page as an endless messy reserve of localised space and time in which they might nomadically let the hand manifest, literally through ‘lines of flight’. The ambition is that participants draw these lines out and visually demarcate a landscape in which destructive future directions are hard to visually ignore.

Positive feedback from participants on this event suggested CRM was an effective way of allowing people to meet new people; to have interesting discussions; to learn a new design thinking process; to hear about other people’s experiences and perspectives; and to creatively develop stories. One participant said, “the narrative sharing is a brilliant way to put issues into
a realistic context” (Tristan Schultz 2015a). Negative feedback suggested tables of any more than six people is too many for everyone to participate in the drawing together, and that groups wanted longer to work on their ideas. This might be seen as room for improvement or a central performative quality of the process. As the event had time limits, it was rapid, contesting stakeholders and personalities had to negotiate; therefore, it had many game-like qualities. In Chapters 8 and 9, I describe how I extended integrating this gamification quality into the critical practice, in what Pablo Saurez describes as a form of ‘serious fun’ (Suarez et al. 2014).

Figure 53 (next full-page spread): Redirective Practice event 1 Making an Age of Repair. Event Montage, 2015
Event 2: Designing the Now

Held six months after the first, Event 2 (Designing the Now) aimed to bridge the gap between the design fictions created by the community in Event 1 and the implementation of the actions required to move towards realisation. Using the concept of a repair bench, the event focused on creating one-page repair briefs that translated key themes from the design fictions into ideas for tangible projects with indicative tasks, audiences, contributors, budgets, and timescales (see appendix D for pre-event guide and other event material).

Again, CRM was the method used to initially assist participants to identify concerns. However, as Event 2 drew inspiration from Ingold’s theoretical conception of life as meshworlds (2011a, p. 63-97), participants were asked to investigate their areas of concern and ideated possible actions in a visual, tactile, and time-sensitive way. Cut-out images, string, and time-cards were introduced as “playful triggers” (Akama and Ivanka 2010) to progress the mapping. Groups worked collaboratively to articulate connections between twenty provided images that represented a ‘picture’ of the area they were to negotiate. They were asked to create a meshwork using those images and coloured string to discuss and visualise power dynamics at play in the Event 1 design fictions. Participants politicised each of the twenty images through reading the images and negotiating meaning with their peers. Through participatory consensus, each image was assigned a meaning, becoming a representation of practices and epistemologies that could contribute to and/or prevent desired changes. By deliberately situating the images in relation to one another and highlighting significant power dynamics between them, participants were able to identify links between disparate concepts and new understandings emerged. Participants realised they were creating a visual representation of the problem and its potential for repair. As gaps between clusters of images appeared, participants began to ask what they meant, whether they indicated power vacuums, highlighted room for action or hinted at missing narratives. Participants then added words to the meshwork on their developing ‘repair bench’. They then located these ideas in time by layering in timescales according to how long they thought it would take to change the power structures they uncovered. In doing so, each group designed their short, mid-, and long-term timescales for potential future projects (figure 54).
Finally, each group had a meshwork on their repair bench that indicated power relations, identified changes that needed to occur, and positioned each change in relation to others. From here, participants used repair brief templates to outline the dominant design opportunity present in the meshwork ‘landscape’ they had created. The templates and guides encouraged participants to use the landscape to identify stakeholders, outline a series of specific actions, and allocate them in appropriate timeframes. In this way, the insights from the repair bench were translated into clear frameworks for projects ready for implementation (see final repair briefs overlaid with digital graphics for legibility inside Event Book 2 in appendix C). The briefs outlined events, objects, campaigns, actions, and toolkits, and were the tangible outcomes of Event 2, which were again documented and shared back to community in the Event Book 2 (Tristan Schultz 2015b). Feedback reflected positively on the open and deliberate discussion of issues encouraged by the repair bench and the opportunity it provided for collaboration. The repair brief was acknowledged as an effective tool for consolidating the information generated by the repair bench. As in Event 1, the general consensus was that groups needed to be smaller in order for individuals to feel they had participated in the process.
Event 3: Implementing in Time

Unfortunately, Event 3 (Implementing in Time) was not held. While collaboration is vital for projects of this nature to succeed, a considerable hurdle that the series could not overcome was maintaining the ongoing commitment of participants. It did not appear useful to force the final event when its objective was for it be initiated by the community and for us as facilitators to withdraw to a role of providing a design-led scaffold through which the participants could realise their ideas. The community never took that self-initiated step.

The aim, if they had requested our assistance, was to focus on how we move from ideation to the implementation of the projects conceptualised and synthesised as design briefs from Event 1 and 2. This process would include three key elements: rapid prototyping of a concept for a more defined audience and location; the aid of a ‘design mentor’ for each project who helps participants towards an outcome; and a presentation to a unique ‘client’ who is a relevant industry professional.

The scaffolded design process was to be as follows: Each group would receive a design brief that accurately reflects the projects created in the previous events. Using visual prompts, each group would develop ten key points that respond to the design brief to include in their design. The groups would then work collaboratively to create physical models that represent their design either literally or figuratively. During this session, each group would be provided with a sketch pad style workspace template for key points, questions, sketching and notes. The notes and prototypes would act as a catalyst that facilitates discussion between participants and their client. Groups would also be provided with a template to support them structure their presentation to the ‘client’. After the presentation to the industry professional, each group would be given the opportunity to gather feedback, ask questions, and converse with their client to draw on their knowledge of the industry in which the project would be implemented. Groups would then continue working on their projects, making changes and solidifying the details of their design. By the end of the Event 3, each group would have created a project implementation document for the first six-month roll-out of the project. This might include a list of actions, a timeframe for actions, a list of any grants that could be applied for, and a list of additional businesses and individuals to contact. Of the three events, this final workshop would be integral to the process of turning ideas into ‘real, tangible outcomes’, as originally intended.

Limitations of Community Engagement

The process of designing and implementing this series highlighted a number of successes and challenges. It is clear that Event 1 and 2 were successful in providing the opportunity to
experiment with participatory design practices for localised communities. Event 1 was the first time that the process of CRM had been used as a way to engage a large public community group in participatory design, which provided insights into how the process could be further refined. Event 2 proved similarly useful in that we were able to design and implement a new method, the meshwork and repair benches, as a way to facilitate design activity and to reflect on their efficiency in practice. While the series demonstrated that these methods are able to provide a framework to guide participants through planning processes, there remained an absence of ongoing action or design projects from participants. Although the design processes ensured participants remained mindful of the future conditions outlined in Event 1, understanding the socially transformative efficacy of the project concepts required them to reflect on their impact should they perform them in the world in reality. As such, the event series did not fulfill its overall primary intentions in enabling participants to contribute to public planning in a proactive and meaningful way that has long-term efficacy.

Throughout the event series, one of the hardest aspects was maintaining ongoing engagement and momentum in the projects outside of the events themselves. In the lead up to Event 1, there appeared to be a high level of community interest in the series, with fifty-three individuals in attendance. Pre-registration for Event 2 indicated a similar level of interest as Event 1. However, of the forty-one initial registrations, only seventeen participants attended on the day, with only five attendees from the first event attending the second. While participants demonstrated a high level of engagement with the projects on the day of both events, it was difficult to find people who would commit to implementing the projects or to take ownership of them. This is an issue that impacts significantly on the long-term efficacy of any project developed. It highlights an opportunity for further research and experimentation to develop new practices that address the difficulty of maintaining dedication to projects that require long-term commitment if they are to succeed in having socially transformative agency. In order to secure this kind of ongoing involvement, participatory designers Emilson, Hillgren and Seravalli (2014, p. 35) argue that the presence of supporting structures—including social structures (such as community groups), infrastructure (such as a regularly used space), and technical structures (such as access to an online support network)—is crucial. In our context at the time in Brisbane, access to these kinds of structures proved to be limited. The most significant successes of the project were related to learning to improve our collective skills in facilitating design-led public planning processes and to encourage participants to come to new understandings through new ways of thinking and doing. In summary, it is clear that some components of the Making an Age of Repair: Queensland series of events were successful and were subsequently adopted into ongoing work with public participants in my critical practice. In particular, CRM, design fictions, and the repair bench concept performed well in the participatory setting. They acted as a creative and visual conduit for uncovering new information when working with multiple collaborators.
Chapter 7

Mapping Futures with Aboriginal & Torres Strait Islander Arts Practitioners

Sections included in this chapter were first presented as a conference proceeding in 2016. The review process was a double-blind peer-reviewed abstract. Publication Details:

Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab

The Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Labs were four-day intensive design workshops held with twenty of Australia’s leading First Peoples arts practitioners, once in April 2016 and again in April 2017. I designed and facilitated these workshops, a major creative work that drew together previously discussed design and mapping techniques and applied them in an Indigenous artists professional engagement setting. The broader aim of the four-day labs was for people from disciplines of music, dance, theatre, literature, visual arts and digital media to come together and co-design and pitch for Australia Council seed funding for large-scale signature works. In fitting with my research, my specific aim was to explore decolonising mapping processes in the workshop. The ambition was that the processes provide a way for participants to creatively ideate and identify the potential for their arts contributions to create works that respond to decolonising options for sustainable futures, in light of future challenges all of humanity will face (figure 56, 57).

Figure 56: Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab. Close-up image of participant negotiating Transformative Triangle and Concept Articulation tools, 2016
Prompts in the form of a pre-event kit (see appendix E), an event workbook (see appendix F), and a lecture on the first event day set a context that aimed to re-orient the participants’ perspectives toward decolonising cultural consumption by focussing on positive cultural production. According to decolonial theorist Nelson Maldonado-Torres, coloniality is maintained alive in books, in the criteria for academic performance, in cultural patterns, in common sense, in the self-image of peoples, in aspirations of self, and so many other aspects of our modern experience. In a way, as modern subjects we breathe coloniality all the time and every day. (2007, p. 243)

Key here is that the patterns of coloniality do not only affect First Peoples. One of those patterns, according to Debord, is “cultural consumption” (1970, p. 59-72). Debord along with French sociologist Pierre Bourdieu (1986, p. 241-258) have critiqued capitalism for commodifying culture. Arts practitioners and designers produce artworks and designs that are embroiled in the spectrum between cultural consumption and cultural production as a decolonising act that contests the logic of capitalism.

Wherever First Nations arts practitioners feel they stand, in Western neoliberal culture-capital environments in Australia, a colonial gaze often stands looking back at their work. As has been outlined in earlier chapters, audiences ‘see’ through a Western framework of a scientific rationality that emerged from the Enlightenment project, which propelled modernity/coloniality. In turn, many producers, artworkers and designers have come to have little option but to tailor to the system—the gaze—and are inadvertently embroiled in the power of coloniality. Furthermore, destructive cultural appropriation, as connected to a Western modern-to-postmodern ‘free-for-all’ mentality of taking cultural signification out of context and commodifying it as spectacle, has created a lack of interest by many First Nations practitioners to pursue their arts practice under what Quijano (2000, p. 533-580) and Mignolo (2011, p. 8) describe as a seemingly inescapable “colonial matrix of power”. First Peoples practitioners are becoming ever more disillusioned with engaging in sharing their works under these systems and seek new relationships, stimulus and support structures, including funding in line with a global momentum toward decoloniality. The Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab aimed to provide one potential brokerage avenue.

With this theoretical foundation, participants were prompted to explore not only creative expressions coined as ‘traditional Indigenous Knowledge’ (such as pertaining to land, heritage, sea, law), but also Indigenous Knowledge on the margins today, for skills of adaptation, mitigation and redirection among dispossession, disconnection from land, destruction of environments from climate change and from colonisation of minds and bodies. They were asked to consider support, through their arts, for struggles of resilience, resourcefulness,
bricolage and repair that sustain communities ‘in place’ and importantly for skills and knowledge needed for all of humanity to have increased ‘options’ to face future challenges in the coming decades. What was suggested to participants, and what the Innovation Lab processes and mediating objects invoke, is that Indigenous, design and arts discourses consider being concerned with rapidly arriving threats to being human since those same threats inherently undermine being an Indigenous human practicing Indigenous culture. Chapter 2 thoroughly maps the presence and imperative of comprehending these concerns.

**The Innovation Lab**

Over the four days, participants were exposed to mapping, design fictions, design briefs and speculative design techniques. Three phases occurred at both the Innovation Labs:

1. **Yarning:** Talking stories to build trust and confidence
2. **Ideating:** Working through techniques to support participants articulate what it is they would like to express
3. **Implementation:** Designing desired future scenarios and designing back from these futures to create innovative arts concepts that can start now.

These phases loosely align with divergent and convergent thinking commonly adopted in design processes. That is, participants divergently problematised concerns, then worked to converge and synthesise concerns and knowledge production, performing the process again and again through to final video pitch outcomes.

**Yarning:**

In the yarning session, all participants listened deeply to each other in a safe, respectful circle space. Everyone had a chance to speak about their views around decolonising their arts practice. During the yarning, participants also engaged in identifying relational patterns in the conversation through a shortened version of the Connective Art visual dialogue, an Indigenous Knowledge methodology shared with me by Professor Norm Sheehan (2011b). In my iteration of this method, each participant wrote a word on a card when asked the question, ‘what does innovation mean to you?’ On the other side of the card, they drew a simple icon. They then put the card face down in the middle of the circle closest to where they thought their answer fitted, which might be a mental, physical, spiritual, emotional answer to them. As an overall gestalt image appeared on the floor, a pattern, dialogue and reflection between participants regarding the pattern took place. Participants interrogated the image, asking it to guide an overall atmosphere, metaphor or concept emerging from the pattern. The participants, as an ecology of minds, made decisions about which cards to turn over (for example, a face pattern emerged and hence participants chose to turn over the card/s that seemed to be located at the ‘mouth’).
Ideating: Cognitive Redirective Mapping (CRM)

After reflecting various provocations about futures, participants undertook the CRM process. In summary, participants began by mapping the present and their associated concerns. Then participants mapped back to pasts, thinking about causations over time. Then participants looked to futures—futures if nothing changes and futures out there such as climate change, shifting demographics, and technologies. At this stage of the process, participants were encouraged to locate on their mapping landscape the clash or opportunity between current directions and futures out there.

Design Fictions

Participants were then prompted to track paths for alternative futures that navigate around this clash. They explored rapid and radical design fictions to conceptualise filling the gaps between their alternative futures and the present. The question was then put, what can be put in place to get to those futures? How does one use their arts practice to design back from those desired futures? How does one bring those worlds into existence through designed events that ontologically shift habits and behaviours along the way?

Plausibility Futures

In this session, all participants were given a ‘plausibility futures and ‘concept articulation’ tool one-pager to assist them in problematising their design fictions (updated tools can be found in Appendix A. Original Lab tools are in Appendix E archive material). They were encouraged to consider possible, plausible, or probable options for their design fictions via the Plausibility Futures tool. The tool provided prompts around ‘what-if’ options, including external transformations out of one’s control (such as war or a radically different governance); or internal transformations in one’s control (such as new organisational alliances). Participants spatialised their options and considered how the possibilities affected the viability of their developing ideas. The concept articulation template encouraged them to find ways of articulating their developing concept, starting with words ‘re-imagine’, ‘re-think’, ‘re-activate’, ‘re-accent’, ‘re-align’ or ‘re-pair’. They linked these words with themes, such as climate, technology, and human movement. They then tracked their articulation through the articulation table, reflecting on the redirection needed, current perception of the concern, method for redirection, sector to talk to, and redirecive output. Finally, the concept articulation tool encouraged them to assess their ideas for their relationality, what their eliminating, what their directionality is, what their reclassifying and efficacy is. By this point, most participants were negotiating these prompts in groups and transferring the activity to larger pieces of paper or discussing as much as drawing connections. In this way, the templates were serving as mediating objects and not overprescribing how they were used.
Implementation: Idea Pitch and Creative Output

In the final provocation, participants converged three iterations of their design fictions from their ‘plausibility futures’ into one idea pitch, explaining how it might branch to possible, plausible, and probable scenarios. They then turned their design fiction into a creative output based on their creative skills and expertise. The creative output was not the idea itself, but rather how the idea unfolds over time. Artists spent a half-day choreographing, making, rehearsing, drawing, painting, and writing, ready to creatively film their expressions the next morning.

There was a strong consensus that these processes provided a way to support participants creatively ideate decolonising options for their arts practices. However, it has not been my intention in this thesis to gather evidence of exactly what concepts were developed as a result of these processes, or how their concepts are performing in their realisation. Many of their concepts are private, sensitive topics to them, and it is beyond the scope of this research to talk about them here. My reflections of the events have been focussed on the facilitating processes. In that light, the events provided an insight into iterating approaches to presenting the processes, which I was mindful of in subsequent engagements with other groups and students. Most importantly, by this point in my creative practice, the dominant recurring creative insight was that the processes are better received when imbued with theatrics, metaphor and other game-based techniques. Unlike in the Redirective Practice events, in these Innovation Labs, I avoided these added layers to the processes. I came to realise the balance between worksheet systems and strategic thinking banality and serious systemic design thinking fun. If the event discussed in this chapter has been an indication of testing the spectrum closer to the former, the following chapter is a neat illustration of the far end of the spectrum of the latter.

Figure 57 (next full-page spread): Australia Council for the Arts Aboriginal & Torres Strait Islander Innovation Lab. Photo montage, 2016
Chapter 8

Mapping Futures with Children

Sections included in this chapter contain edited excerpts of a conference paper that underwent a double-blind peer-review process. Copyright has been obtained from the publishers to include this paper in this thesis and provided in the appendix. Co-authorship acknowledgements are also provided in next section. Publication Details:

STATEMENT OF CONTRIBUTION TO CO-AUTHORED PUBLISHED PAPER

This chapter includes a co-authored paper. The bibliographic details of the co-authored paper, including all authors, are:


My contribution to the paper involved: The conceptualisation of the research and 55% of the co-writing and editing of the paper.

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FutureBNE Water Security Challenge

The FutureBNE Water Security Challenge is a one-day critical future-oriented design thinking event for eleven- to twelve-year-old’s that has been held since 2016. Our practice, Relative Creative, was invited by Brisbane City Council (BCC) to design and facilitate the city's largest ever one-day educational event, as part of Brisbane’s hosting of the World Science Festival 2016–18. Children were prompted to design ideas to secure Brisbane’s water supply amid mounting future challenges. Our engagement with the event continues through 2019–2021, with a focus on ‘sustainable cities’. This chapter reviews the 2016–2017 events.

The events were held in Brisbane, a sub-tropical city of approximately 2.3 million people. The event sites were in high traffic public areas: in 2016, at King George Square, a busy city square; and in 2017 and 2018 at a major piazza in the city (figure 58). Stakeholders and media flanked the edges of the main ‘challenge’ area. The challenge was two hours long, with four hundred students participating in 2016, increasing in 2017 and 2018 to six hundred students face-to-face and three hundred through livestreaming.
Working with these children gave my practice the chance to further experiment with a culmination of the many critical mapping and design techniques discussed so far in this thesis. It also gave us a chance to respond and reconstitute ways to interpret benchmarking these processes against the Australian Curriculum (2015).

As discussed in Chapter 4, Brisbane, while appearing politically and socially stable, is positioned in a volatile and threatened region of the Asia Pacific. The ability for children to psychologically and incrementally deal with these kinds of unsettling challenges and to embrace an economic, environmental, social and technological future in flux motivated our interest in this project. This was a contentious place to begin, since the political tension between the neoliberal and politically ‘safe’ perspective of BCC, which hosted and paid for the event, is vastly different from the agenda of our practice, the designers of the event, regarding what constitutes futuring and defuturing challenges and opportunities amid this flux.

**Critical Education through Design**

**Education**

FutureBNE is an educational event. Our practice’s educational approach acts to raise critical consciousness (Freire 1985, p. 68) (Illich 1972, p. 108) in participants. This is in contrast to the dominating productivist form of education exported around the world; for education scholar Ken Robinson (2011, p. 53-59), the national system of education in Great Britain was established in response to the demands of the Industrial Revolution and focused on subjects most relevant to the economic growth paradigm. Australia’s national curriculum has been critiqued for
following this narrative too. Geraldine Ditchburn argues, “education, and curriculum in particular, is carrying the weight of national realignment to global economic imperatives” (2012, p. 349). Notwithstanding the historic and contemporary critique of this paradigm, today’s circumstances—such as the Global Financial Crisis, youth unemployment, and automation, which all create precarity—illustrate the need to educate children in skills beyond what the economic status quo requires. For example, they need to be critically conscious, reflexive and agile enough to survive the complex future challenges we are facing. This requires engagement in situated and experiential learning, described by critical education researchers Lave and Wegner as an “emphasis on a comprehensive understanding involving the whole person” (1991, p. 39). Learning in this way provides the student with the ability to develop, as Freire writes, “their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality, but as a reality in process, in transformation” (1998, p. 77). Freire contrasts this to the banking concept of education, which he believes acts to “minimise or annul the student’s creative power” (1998, p. 69).

**Eventing**

FutureBNE is a designing event: an experience that is focused on experimenting with transformative processes of designing-in-time, rather than dwelling on static realities such as final objects, artefacts, images and products. It is a historically situated event, since the students are prompted to focus on the gathering of pasts in the present, directing our perception of what are possible futures. Because the focus is on redirecting futures, not making things, the FutureBNE challenge provocations are aimed at eliminating present or potential designs as creating them. Fitting with the description of CRM provided in Chapter 5, the focus of design events for my practice aligns with the concept of ‘thinging’ (Heidegger 1977, p. 7). In this case, ‘the thing’—the event, its processes and mapping insights created by the students—is brought into existence, which when seen and engaged with by the students triggers a ‘thinging’: a hermeneutic designing event of the way their habits and behaviours change. Designed ‘playful triggers’ (Yoko Akama 2007) are particularly utilised to challenge the children’s engagement with thinking about water security both during the event and in their future encounters of water security (and other wicked problems).

**Decolonising Education through Design**

Decolonising the minds of the FutureBNE participants was approached by designing into the event a feeling of unlearning as much as learning. This can be discomforting to children who are predominantly educated, as discussed, under the neo-liberal context of the Australian Curriculum. The event mediated unlearning in the following ways: a) shifting emphasis and interest from a neo-liberal Western context towards amplifying marginalised and oppressed voices, as seen in the knowledge cards, discussed below; b) within these knowledge cards, the
darker side of technological and industrial advancements arising from Western modernity and neo-liberalist agendas was incorporated; and c) disrupting modern conceptions of short time-scales through incorporating a 2100 theme (see The Challenge opening video, below) and in the emphasis on Step 2 Design Fiction, below, rather than the final artefact. The intention was that through these examples, the children would unlearn social norms and orders of the Other, of techno-determinism, and of myopia. Finally, children were given the opportunity to see that any perceived privilege they might embody in relation to their physical, technological and infrastructural security can be exposed by amplifying the actual geographic unsettlement due to climate change and technocratic dogma driving colonial and industrial advancements in the region.

After unlearning, the next phase was to provide a means for the children to learn otherwise. In this case, that geographical unsettlement due to moving with climatic conditions offers affordances in creating conditions of contra-Western colonial norms; of non-striated, non-centralised power relations, which in turn have potential to empower local agency, authority and subsequently, water security. To do this, the students were encouraged to think beyond current geopolitics, borders and nation states, beyond striated cities and infrastructure and towards thinking between these conditions in a future fragmented and pluriversal world.

Design Tools
In providing a means to learn otherwise, we then offered the students a third phase of a decolonising design process we adopt: praxis, via CRM and design fiction processes. These stages were not explicit to the children; rather, they were implicit in the conceptual and critical development of the triggers in the designed event. For FutureBNE, we adapted the CRM process to include more theatrical and game-based prompts. The mapping led to design fictions, which helped the students explore tangible scenarios that considered what everyday life might look like in ten, twenty, fifty, or one hundred–odd years. Our engagement with the students also drew on the practice of participatory design, while recognising the criticisms that it “has over the years developed into a key actor in user driven innovation and other neo-liberal pursuits” (Ehn 2014, p. 8). Our work at FutureBNE introduced the children to a decolonising approach to designing ideas and designing collaboratively; they experienced the role that participatory design can play in decolonising futures as described in the Introduction.

Design Stages
There were six stages in the development of FutureBNE: conceptual development; critical development; strategic pitch to council; strategic pitch to participants; collateral; the challenge.
Conceptual Development

Because FutureBNE was a large participatory event in a space in Brisbane where the public passed by, it posed practical challenges in the development stage. To manage four hundred–odd students, we created a morning event and an identical afternoon event. Each event had a table for each team of ten students, pre-selected by their schools. Each table had a facilitator—design students and trainee teachers—while we were roaming lead facilitators. The facilitators were provided with pre-event toolkits that grounded the theoretical parameters and practical steps as well as face-to-face training and rehearsal of the workshop activities (see figure 59 for event set up view and Appendix G for event kits).

Critical Development

This stage was grounded in two imperatives: a) We avoided merely instructing the students to design fanciful, gestural solutions and instead established a sequential workshop that took them on a journey, a design event; and b) given the two-hour time-span of the event, it was vital to re-interpret the approach we typically take with the intensive workshops designed for adults and develop an age-appropriate suite of triggers and themes that would set the tone and tempo to both excite and engage children to work at an intense cognitive pace.

Strategic Pitch to Council

Our communications with the Council had to be carried out in a way that ‘sold’ them on the event. However, we faced challenges in our ability to use certain terminology; for example, in 2016, the Council prohibited us from using the term ‘climate change’. In 2017, at our insistence, its use was allowed. This displays some of the political tension between BCC and us. While as the client they held the balance of power, we hoped to circumvent conflict through relying on
the power inherent in the ontological process unfolding in the event to build discourse surrounding climate change. This tactic meant that we acted as an active agent in the perception of what is possible for BCC to openly discuss. Their exposure to this experience of potentiality transformed the 2017 event.

**Strategic Pitch to Participants**

The event had to be ‘sellable’ to local schools and teachers—to be fun, engaging, empowering and different from an in-classroom experience, which matched many of our own expectations. However, it also tested the boundaries of what is possible without the event being reduced to gestural pluralism. Again, our strategy was to let the power inherent in the ontological designing qualities of the event uphold our critical position, while ensuring that touchpoints in the Australian Curriculum were clearly illustrated when pitching the event to stakeholders. Present here was political tension between the education system and our practice. Yet, leading by example with a re-interpretation of what is possible using the Curriculum allowed the teachers to perceive transforming what they might justify as aligning with the Australian Curriculum.

**Collateral**

Before, during, and after the actual challenge, participants engaged in designed collateral. For example, a pre-attendance kit was sent to the teachers prior to the event day; an ‘on arrival’ activity was carried out to encourage the students to start thinking about water as they waited for the challenge to begin; and a take-home kit was given to students (figure 61; see a full material archive in appendix G). This aligns with our intentions of creating an eventing process that prepared the students to encounter another way of thinking. In keeping with setting the right tone for the event that made the students—who had newly begun high school—feel as though they were being treated as young adults, not as young children, the design collateral took on a mature sophisticated aesthetic (figure 61). This added gravity to the seriousness of the concern: water security and future challenges. Engaging the students in this way legitimises the power they have to design ideas and have their voices seriously heard. As designers, we had to make assumptions around their perception of aesthetics. Nonetheless, our intention was to create an ecology of imagery contrary to the dominant techno-utopian image of futures and instead take not an equally dominant dystopian theme, but a messy and complex borderland aesthetic approach. An area for further investigation is how a decolonial aesthesis might be adopted that “delivers a radical critique to modern aesthetics” (Walter Mignolo 2013).
Figure 60: FutureBNE home water use challenge

Figure 61: Montage of FutureBNE 2017 collateral including a set of knowledge cards, pages from the student take home kit and a screengrab from the opening video
A major collateral component that helped the students design process was the knowledge cards (figure 62), used during Step 1 of the Challenge, ‘Evidence Gathering’. Students needed to be able to understand the information presented on these cards, and to engage with it at an individual and group level; they needed to be able to see how they could use the information in the design process. The knowledge cards met these requirements in several ways. Firstly, the cards were designed in sets of ten, numbered accordingly to correspond with a groups table. The students gathered the cards by racing about the venue searching for their number and coming back with all ten cards, an exciting physical and team-building activity. Secondly, by pairing the knowledge cards into binaries—human and technology; city and tap; global and local; clean and dirty; flood and drought—students were encouraged to look at a broader picture. The technology card might, for example, be contradicted by alternative views or methods identified on the human card. Each card contained a rapid challenge for the students to undertake, often pairing them with their binary card to work together to sketch, list, or respond to a question drawing on the knowledge from both cards. In 2016, the sets of ten were loosely focused on overarching topic such as oceans, flooding, or thinking about water differently. This was a design decision made to encourage different outcomes from the student groups. In 2017, we redesigned the sets of ten to respond to a series of possible future scenarios. This provided more of a design focus for each table and further differentiated the outcomes.

Figure 62: The ‘Clean’ card, front and back, for Set 1. This card highlights Indigenous Knowledge regarding keeping water clean encourages the students to think about how they could put this knowledge to use.
To take further explicit steps towards decolonising design, many of the cards included information about water practices from indigenous cultures around the world. Further, to take steps towards curbing a logocentric emphasis on the written word, the knowledge cards made use of a relevant picture or diagram and had a symbolic physical form that was also tactile and interactive. The knowledge cards were designed in the shape of diatoms. Diatoms are a major group of algae that indicate the water health and type of water body. Students could engage on another level with the cards with this ‘microscopic conversation’ that provided further details about the diatom in question and build sculptural forms with them by clicking them together (figure 63).

Finally, we approached the design of collateral from an understanding that information design techniques play an important role as mediating and scaffolding tools. The hierarchy of information on the knowledge cards wielded power as it directed the way that participants engaged with the design process, how they interpreted importance, consumed or neglected information, and re-produced new insights.

Figure 63: Diatom sculpture built with knowledge cards and students creating their design fiction

**The Design Challenge**

The Design Challenge was presented by an opening video (figure 64), four countdown videos (figure 65), and a closing video, which were designed to create a multisensory, spatial and
temporal experience. The videos were designed in a similar way to those that begin many theme park rides. This was to engage, excite and inform the students of what was to come in the challenge while keeping with our tone of serious entertainment in a sophisticated aesthetic to match a serious concern. The design fiction created drama and realism around the design task to encourage the students to embody the same kind of intensity and performative imperative to make a water-secure Brisbane in 2100.

Figure 64: Screengrab of FutureBNE Closing video

Figure 65: Countdown on screen at FutureBNE 2017
Narrated by Atticus, a fictional time traveller speaking from Brisbane in 2100, the opening video called the students to action, assigning them the role of the ‘2100 Future BNE water security response team’. The video explained that the citizens of 2100 had spoken of the transformations that occurred to overcome water security, with the message, that “actions need to start now in order for theirs to be the future we know”. The narrator made it clear that due to designs implemented from the FutureBNE Water Security Challenge—that considered shifting geopolitics, technologies, demographics and climate change—Brisbane’s water supply is safe and clean. An excerpt of the video script is included here:

They said in the 2020s water riots were averted, and in the 2030s countries closely avoided a ‘Great Water War!...because, by 2020 rainwater harvesting systems were commonplace. By the 2030s, greywater recycling, waterless toilets and aquaponic farming were everywhere. By 2040, the way we thought about water really changed. It was better shaped by knowledge and caretaking in each localised place. Local Indigenous knowledge became a massive inspiration for designers and city builders too!

These design fictions were strategies to illustrate to the children ontological designing-in-time, empowering them to both deal with unsettlement psychologically and enter the next steps of the challenge with a vision of how one might incrementally design steps to achieve more viable futures. The specific Design Challenge Steps from the day are detailed below.

**Design Challenge Steps**

*Step 1—Investigation:* Evidence Gathering was a fast-paced activity where students collected the knowledge cards (figure 66) and completed a quick mini-challenge on returning to their table. The students’ responses to the mini challenge (figure 67) helped lay the ground for writing their own design fictions (figure 55).

![Figure 66: Knowledge cards ready for student retrieval at FutureBNE 2017](image-url)
Step 2—Ideation: Design fiction asked the students to share commonalities in their different ideas, thoughts and sketches from the evidence-gathering step and to work together to create scenarios about life unfolding up to 2100. The students were provided with a props-kit (including human figure cut-outs and time cards) to create playful triggers (figure 68) that help them scaffold the narrative. Creating these design fictions was a vital step in the challenge, because it acted as a futuring activity that remained focused on the processes of designing-in-time while giving students a chance to converge the knowledge they had gathered and to convert it to speculative ideas. This is in the same way that Crampton describes critical mapping as a “performative, political and participatory” (2009) act that encourages reflective design practice in the students as they negotiate possible scenarios (figure 68).
Step 3—Implementation Model Making: This step tasked the students with using their design fiction and knowledge cards to fabricate models (using e-waste, cardboard and other recycled junk pieces) that illustrated their response to Brisbane’s water security (figure 69). Importantly, they were prompted to think of the model beyond stereotypical hi-tech or lo-fi gadget products, such as extravagant pumps or LifeStraws. As important as these devices may be, they do little to address systemic issues related to water security and are seldom designing redirected behaviours in society. Instead, the students were asked to think about whether their design was an artefact, an experience, an art installation, or an event. This communicates the breadth of design, to be thought of as a transdisciplinary practice where the medium or output is based not on ‘users’ but on its ability to effect ontological agency.

\(^6\) The LifeStraw was designed to provide safe drinking water in parts of the world without it; it is now sold to hikers and adventurers too.
Step 4—Communication: The Video Pitch stage required the students to create a two-minute video pitch to articulate their response and justify its design. Creating the video script challenged the students to confidently and persuasively communicate their ideas, empowering them to exercise their will on the world by having their visions voiced in the public sphere and to those in positions of power.

The Closing Video concluded the event. The fictional Atticus returned to thank the students for their work and to congratulate them on their ideas. Finishing in this way ensured that the event ended on a positive note and reinforced the sense of empowerment the children had developed over the course of the event.

The 2016 event was well received by BCC, teachers and students. As with all the experiments across this thesis, identifying the long-term efficacy of the event and its ontological designing qualities was not the objective, therefore no data was requested from the participants at any point to determine if their behaviours had changed or if they felt more empowered due to their experience. However, it is clear from our reviews of the Australian Curriculum that we were providing students and teachers with new and empowering ways to talk about water and to engage with design. As social change agents, we had the power to go beyond the Curriculum and use design as a powerful means to overcome the political tensions between the education system and our practice.
Through our own reflection on FutureBNE, we have identified that the layout of the knowledge cards lends itself towards a scientific rationality; an assertion of authority is present in the visual language employed and the enframing of concerns that has the opportunity to perform a reductive compartmentalisation of issues, rather than invoking relationality. This is a point of tension we hope to remedy in our practice more broadly. Overall, the student outcomes of the Challenge—the models and the video pitches—demonstrate that the event supported the children in leading them towards new insights and critical, creative design responses unfolding in long term time-scales. As such, we are confident in the ontological designing qualities of the event having a significant impact on the children. The event, we anticipate, sets them on a course to acknowledge the complexity of future challenges while giving them design techniques not just to provide a service, but to imagine designed/ing options beyond the suite of knowledge acquired through their education under the rubric of the modern/colonial world-system. So too, the project provided us with the opportunity to iterate our practice and create new knowledge which continues to inform our overall ambition: to mobilise design techniques to empower people to navigate toward more viable futures.

Figure 70 (next full-page spread): FutureBNE montage
Chapter 9

Mapping Futures as an Interactive Arts Event
See Change Sand Tracks

This chapter reflects on the final and major creative work of this thesis, See Change Sand Tracks (SCST) (figure 71). From the perspective of continuing my creative journey, the design objective of SCST was to culminate the evolution of creative insights and design process developments learned through the research described in this thesis into one cohesive, professional major event. SCST was an all-ages public arts event featured in the program of Festival 2018, the Arts and Culture program of the Gold Coast 2018 Commonwealth Games. Along with Relative Creative co-director Bec Barnett, I directed the conceptualisation, design, facilitation, and project management of this commissioned work. Production support was provided by GOLDOC, the organisation formed by the Queensland Government to oversee the delivery of the Games.

There were six SCST components active from 9 to 14 April during the Festival: 1) A 3km long artwork pressed into the sand on the beach between Surfers Paradise and Broadbeach; 2) a digital platform that takes audiences through five relational steps to create ‘Futures Maps’; 3) workshops in the Broadbeach Festival zone, where audiences interacted in 1m² sand trays and stamped out Futures Maps; 4) documentary filming; 5) augmented reality annotated maps; and 6) a visual system for the entire project.

SCST explored the question, how might the Commonwealth Games mega-event be an opportune catalyst to design a cultural activation that leaves an alternative legacy for the city, one that radically raises the stakes of conversation about other mega-events, of decolonising minds, and transitioning toward sustainable futures?

In approaching this work, we adopted the same reflective and decolonising lens taken with all the creative works described throughout this thesis. Moreover, this chapter provides a space to also frame SCST in the context of systemic design. Systems thinking and systemic design have been informally present in much of the creative work, so the theoretical application here can be applied to reflections against the culmination of work that precedes this chapter too. But because SCST was such a complex multifaceted project, thinking of it in relation to systems is most appropriate. After contextualising the site of the work, I will outline the theoretical context, describe the SCST project, and discuss the multilayered interaction approach located in the work. Finally, I will discuss limitations and future opportunities.
Event Setting

See Gold Coast Change
In 2009, the Gold Coast won the bid to host the 2018 Commonwealth Games. The Commonwealth Games is best understood as a mini Olympics for Commonwealth countries. The Gold Coast, a city in a region particularly vulnerable to climate change impacts and development from rapid population growth, is on the east coast of Australia, 100km south of Brisbane. The Gold Coast City Council Climate Change Strategy, which officially informed the Gold Coast’s *Bid Book*, acknowledges that characteristics such as the Gold Coast’s “55 kilometres of coastline and 260 kilometres of navigable waterways, present many challenges and opportunities for Council when planning and preparing for the city’s response to climate change” (2009b, p. 5). These kinds of caveats provided the impetus for creating SCST. Moreover, any response to climate change should critically coincide with discussions of the relationships between climate and other complex systemic problems. This position is common in community-based climate change adaptation communication (McNamara and Buggy 2017).

The project title See Change Sand Tracks was a thoroughly considered name that draws attention to asking a viewer to ‘see change’ and to be inspired to be social change agents when they interact with visual (climate and systemic problems) communication in the work. The rhetorical double is that it also alludes to sea level rises that will occur on the Gold Coast. It also asks readers to consider ‘tracks’ since they will walk along the work as a track on the beach, but also as a way to consider Indigenous Knowledge ‘tracking’ as outlined repeatedly through this thesis. Finally, the name deliberately sounds active, in movement, to help readers consider the rapid urban change that occurs along our coastline, the naturally occurring environmental coastal changes that are inhibited by this urban sprawl, the rapidly arriving human-induced environmental climate changes along the coastline, and the work as a social change action they are participating in.

The Winner Is a Mega-Event!
As with the Olympics, the Commonwealth Games is a world-shaping, designed mega-event. John Horne argues that mega-events are “short-life events with long-life pre- and post-event social dimensions”, thus their legacies have “become the battlefield on which boosters and skeptics engage in semiotic struggle” (2010, p. 863). He argues that “the overestimation of benefits and the underestimation of costs underpin the rhetoric of sports and other cultural mega-events” (2010, p. 863). It was with this disjuncture in mind that I became interested in intervening in a way that might contribute a critical discussion to counterbalance economic and environmental costs and negative legacies. A legacy can also be seen as an agent of social change. Cashman and Hughes posed the question in the context of the Sydney 2000 Olympics:
“Could the green games be the change agent that persuades society to make better choices on environmental and sustainable criteria, and not on strictly economic efficiency grounds?” (1999, p. 101).

In writing about the Olympics, Tony Fry, whose design agency at the time, Eco Design Foundation, was a sustainability consultant for the 2000 Olympics, raises the stakes. He states “the Olympic Games [is] an absolute icon of the unsustainable”, He stated:

First we have to realise that any notion of greening the Olympics fundamentally and instantly falls in the face of the complete unsustainability of the modern games concept. Consider, for instance the picture the Olympics as an endless cycle of building basically the same facilities. There is no ecological gain from this continual arrival of stadiums, sports fields, halls and so on, [of which] somewhere on the face on the Earth are always being built. To this can be added the Games as an ecologically dammed model of national and individual aggression, its nature as a media monstrosity and above all, the Games as gross commodity/consumption machine, driven by its big-time sponsors and a rather nasty politics. (Fry 1998)

Gratton poses a formidable explanation that resonates with Fry’s provocation and fits well with the Gold Coast’s thirst for economic growth when he writes:

 today cities are in global competition to attract economic activity. Where the event legacy in these terms is significant, the host city is in a better position to face this global competition. The possibility of this happening is enhanced by strategically embedding the event in the broader processes of development. (Gratton and Preuss 2008, p. 5)

The Commonwealth Games was largely informed by the City of Gold Coast’s ‘Green GC’ event planning programme (2009a, p. 43), which distances itself from confronting the kinds of urgent climate change adaptation measures mentioned above. Instead, it rests on the classic paradigm of claiming minimal environmental impact, while maintaining the current status quo of maximum growth for the city.

Platforming
Instead of avoiding engagement with the Games, I decided to regard it as platform. The Commonwealth Games as mega-event presented itself as a significantly rare opportunity to speak about other mega-events impacting the Gold Coast. Similarly, in 1982, Aboriginal and
Torres Strait Islander people, along with thousands of other comrades, protested for social justice at the Brisbane Commonwealth Games. Thirty-four years later, at a macro level, it is clear to see that those interventions have not achieved the radical transformations surrounding issues of colonialism they were demanding. However, the long tradition of struggles (Latimore 2018) set a momentum from which SCST was launched. Indebted to these struggles, SCST aimed to provide a change platform inside the Commonwealth Games that might contribute to redirecting from the spectacle of commodified entertainment to serious fun. For Suarez et al. (2014), serious entertainment through design is described as a game-based activity that enables one to inhabit complex systems, from which meaning emerges: emergent complexity. One reason that we decided for SCST to adopt a serious fun platform inside the mega-event system is because the City of Gold Coast has experienced little to no uprisings of protest and dissent and so this intervention style is not a part of the cultural sphere. Instead, taking an approach like SCST strategically platforms from within an existing cultural sphere—of spectacle and mega-event—by creating a learning environment of a futuring culture that might spill over to the defuturing mega-event.

Protest and dissent are often as a result of a city’s social, environmental, economic or cultural clear and present fragmentation. The Gold Coast has been immune to these threats, though as cited above, wicked systemic problems—not least from climate change—are rapidly arriving on the city’s feet. One might speculate then, that the populace will arrive in a political moment in which protest and dissent arrives too. These contexts are also foster critical cultural arts interventions. SCST aspired to be among those prefiguring and catalysing on this fertile ground, preparing ‘us’ to emotionally and psychologically feel, and to see connections between climate change, rising sea levels, over-densification, mass human movement, technodeterminism, colonialism, and more. Profound behavioural changes need to occur at the Gold Coast over the next decade. For example, the general Gold Coasters perception of privilege as a car culture and how we might recode behaviours towards public transport. For designers, this would include developing infrastructural projects to facilitate good public transport. All this needs creative and cultural practitioners to activate communities to desire changing their behaviours and habits. SCST platformed, by design, the Commonwealth Games to nudge audiences to be redirective change agents.

**Systemic Design and Thinking**

In contesting five hundred years of dualist thinking that has inhibited the ability of so many to comprehend contemporary phenomena such as climate change, colonialism, and resultant climate activism and decolonising movements, design scholars are noting that systemic design ((Kimbell 2011b, Doyle and Magor-Blatch 2017) from systems thinking (Fritjof Capra) is
emerging as a way to ‘see’ these issues relationally. As such, recent work has articulated relationality as the key to critically theorising designs world-shaping complicity in the creation and destruction of modern and other worlds (see: Schultz, Abdulla, Ansari, Canlı, Keshavarz, Kiem, Martins, and J.S. Vieira de Oliveira 2018, Fry 2012, Escobar 2018).

The project adopted a systemic design and thinking approach to participants engaging with a suite of seven interconnected themes—food, conflict, society, human movement, climate, health, and water—all with a lens towards valuing IK systems as futural options. Participants were encouraged to see the world as a network of patterns and relationships. As systems theorist Fritjof Capra has argued, “we now live in a time in which we’re beginning to recognise that systemic problems are all ‘interconnected and interdependent’” (2015, p. 248). For him, there is an imperative to deploy creative means that foster a “fundamental shift from seeing the world as a machine to understanding it as a network” (2015, p. 242). Capra’s lessons learned from ecosystems, sustainable communities of plants, animals, and microorganisms, are similarly shared with scholars of complexity discussing systems in autopoiesis. For Maturana and Varela, who first applied the concept, autopoiesis refers to “what takes place in the dynamics of the autonomy proper to living systems” (Maturana and Varela 1980, p. 16). Following their concept of autopoiesis, Escobar has most recently turned to thinking of autopoiesis in relation to systemic and decolonising design. For him, decolonising designing with groups “considers the community’s engagement with heteronomous social actors and technologies (including markets, digital technologies, extractive operations, and so forth) from the perspective of the preservation and enhancement of the community’s autopoiesis (Escobar 2018, p. 161). SCST deliberately amplified Indigenous Knowledge as futuring options to communicate what has been, is, and will increasingly be autonomous modes of living and being in Indigenous worlds. Participants were exposed to the destructive systemic problems that threaten the dynamics of the autonomous living systems of Indigenous worlds. They were prompted to understand how these worlds offer potentially sustainable, futuring options in the face of systemic problems faced.

This approach to IK was not just communicated to participants in SCST, it was experienced by them through adopting a visual and relational Indigenous Knowledge dialogue. Norm Sheehan (2011a) describes this as one where natural and represented visual systems reveal layers of information in their repeat patterns, respected as generative of pattern origins. From the micro view of one symbol in SCST to the macro view of underlying symmetries and forms in the overall structure and relations between symbols across kilometres of imprinted pattern along the beach, all this was alive to see and listen to. For Sheehan, respect in IK is the recognition of the livingness between these systems, and participants are visually guided toward seeing this betweenness. Moreover, carefully considered in the design of the SCST event was that this kind of visual form of knowledge production evades such traps as objectivity, scientific
rationalism and other power-knowledge structures that exist in colonial map-making processes, specifically outlined in Chapters 1 and 5.

**Project Components**

The idea for SCST developed in the first phase of an initiative set up by the City of the Gold Coast titled the Generate program, where participants were brought together to ideate and design large-scale projects. As a Gold Coast local, I identified that the fastest and most pleasant way to move people between the two celebration zones was to have people walk along the beach. We began to work on ideas for how we could make this an engaging, meaningful, and designed experience. From this, ‘See Change Sand Tracks’ was born. SCST was henceforth designed for a wide audience attending the Festival. The event was pitched as emerging, experimental, speculative, critical and future oriented, with the underlying theories above embedded implicitly in the practice. Futures Maps were promoted as ‘how-to’ options to reach viable futures—those in which an emphasis on Indigenous Knowledge offers options for sustainable futures. Unique and unfamiliar iconographic signs, images and typography interacted with prompted reflection on options surrounding where ‘we’ have been, where ‘we’ are at, and where ‘we’ are going.

As can be seen in figure 13, (Evolution of Insights and Key Studio Project related to Mapping Practice) in the introduction, the project drew on almost every creative insight experimented with throughout the various creative practice of this thesis. For example, SCST was participatory; it aimed to amplify Indigenous Knowledge; it incorporated both digital and analogue mapping methods; it included narrative coding, layered meanings and design fiction creation; it spatially arranged futures arriving and adopted the underlying CRM methodology; it incorporated ‘serious fun’, knowledge cards, theatrics and metaphors in a highly immersive design event with a visual language; it incorporated yarning circle, visual dialogue techniques, and artistic representations. Through describing each component of the project below, many of these creative insights will be made clear. Appendix H, *See Change Sand Tracks Development Archive* also includes a comprehensive visual package of key development documentation that illustrates the breadth of process and iteration that went into the SCST three year project.

**Beach Roller**

The signature component of SCST was a giant sand art print that featured the Futures Maps artwork. It was rolled onto the beach as large-scale impressions in the sand by a tractor along the 3km stretch between Surfers Paradise and Broadbeach (figure 72-75). The intention was for the art to act as both visual interest and a wayfinding device as audiences walked along the beach. One continuous length was rolled out, with four 500m widths on each end. This occurred
four mornings in a row starting at around 6:30am. The timing was based on optimum tide times so the art remained on the sand for six hours before being washed away. The tractor roller was made by adapting the design of an agricultural roller that was 3-point linkage hitched to the back of a tractor. Industrial-grade hook and loop tape (Velcro) was used to adhere 1m² EVA foam artwork blocks to the roller. Walking rollers adapted from 60cm lawn rollers purchased at a hardware store also featured Future Maps, which individuals could roll out along the sand themselves. The walking rollers encouraged participants to reflect on the metaphor of it being hard manual work rolling out sustainable futures. Moreover, because the rollers were lawn rollers, participants were reminded of the great Australian dream of a clean, freshly mown and freshly watered lawn, a defuturing urban ritual that can be critiqued for being nothing more than a modern invention to bolster consumption, urban development and capital growth (Age 2003).

Since the sand viscosity and flatness changed over the course of the rollout, the seamless repeat pattern of nine separately themed 1m² Futures Maps continually looked different at different points along the path, adding visual intrigue and forcing a speculation of interconnected relationships between themes for audiences looking to decipher the work. This meant the repeat pattern included generative layers of information. One symbol or small area represented parts of a story, while, when viewed as a whole, underlying symmetries and relations between symbols added to a respect for reading the livingness between the systemic problems in the maps. Importantly, this viewing of the Futures Maps was not occurring independent from people’s everyday phenomenological experience of being at the beach—the heat, the wet, the bare feet. Rather, the work was enmeshed with it. Directed by the tide, local winds, footprints and other utility vehicles accessing the beach, the ephemerality of the Futures Maps impressions worked to remind viewers of the messiness and subjectiveness of the maps. This aligns with the argument developed in Chapter 1, of embedding my practice in a critical mapping that “reject[s] authority claimed by normative maps uniquely to portray reality as it is” (Wood 2006, n.p).
Figure 72: See Change Sand Tracks tractor roller along the high tide mark at Festival 2018

Figure 73: Artwork tracks along the sand viewed from Broadbeach looking back at Surfers Paradise
Figure 74: Artwork tracks along the sand at Broadbeach

Figure 75: Close-up image of artwork tracks in the sand
Pre-Games Workshops

The beach roller did not exist independently. Communities were tasked in participating in the co-creation of the Futures maps that were attached to the roller. Workshops were held in Silkwood School and across multiple Gold Coast City libraries between April 2017 and April 2018 (figures 76-81). Following briefings and an exploration of themes, workshop participants used stamps (instead of rollers) to stamp Futures Maps into 1m² sand trays. These workshops also acted as a way to talk to people through the steps on the digital platform in an extended, fun and interactive way.

Figure 76: See Change Sand Tracks workshop at Silkwood School. Image 1
Figure 77: See Change Sand Tracks workshop at Silkwood School. Image 2

Figure 78: See Change Sand Tracks workshop at Helensvale Library showing detail of stamps in sand
Figure 79: See Change Sand Tracks workshop at Helensvale Library pre-event set up

Figure 80: See Change Sand Tracks workshop at Helensvale Library. Participant stamping an icon into sand
Festival 2018 Workshops

The pre-games workshops doubled as pilot testing for the main workshop events in the Kurrawa Park festival zone, directly adjacent to the tractor roller imprints on the beach during Festival 2018 (figures 72-75). At Festival 2018, over the duration of five full days, an average of sixty people were inside the workshops at any given time, with each individual or family staying between twenty and forty-five minutes.

Participants were asked to choose a topic from the seechange.tv website or from a poster on the wall. After deciding on a topic, audiences located sand stamps from a jumbled pile, read knowledge cards adhered to the backs of the stamps, and made decisions about laying out their futures maps. Participants were then guided to either remain exploring the sand stamps or to additionally utilise the five steps on the website to guide the creation of a digital Futures Map they could copy into the sand. They were welcome to smooth the sand out and start over any time. They were also encouraged to take a photo and share their Futures Map on their social media and share to us, so it could be uploaded to the project site. I documented ‘top shots’ of dozens and also uploaded to the site (see figures 88-90 for some examples). Participants could interact with the workshops autonomously or be guided by myself as facilitator. With my guidance, participants were encouraged to think about how the experience made them feel and about any future action they might take.
The workshop material consisted of eight 1m² sand trays constructed from wood, each filled with a 4cm depth of sand. Over two hundred symbols and words were digitally designed, and a CNC machine routed from EVA foam. Hand rollers were also fabricated from repurposed bent paint rollers. As all materials were reused each workshop, there was nil workshop material waste. The paint rollers and hazard tape–decorated sand trays acted to remind participants of the context of renovating, beautifying, and cleaning such as that found in the Australian Dream of house renovations and painting. In this way, the materials were objects exploited as ‘symbol saboteurs’ (Kanarinka 2006) in the map art making process referencing the banality of evil of modern Australian suburban living. My practice as map art is defined in Chapter 1.

As much as these layers of meaning underpinned the workshops, participants were foremost experimenting with ‘serious fun’ in that the workshops were a game-based activity that enabled participants to experiment and negotiate with relationships between complex systems while narrativising their own emergent complexity (Suarez et al. 2014). The cultural tool as mediator (Wertsch and Rupert 1993) used to facilitate this fun was sand and stamps. Sand play therapy has been used for decades in psychotherapy and trauma healing (Doyle and Magor-Blatch 2017). In the case of SCST, the sand interaction technique was utilised to assist participants grapple with systemic problems at a societal scale. In the sand, participants literally drew together relational patterns and so the sand became a tactile conduit to ‘seeing’ underlying systemic problems. Sand play therapist Kirsten Doyle (2017) notes that Sand play therapy facilitates a safe space for participants to explore narratives in playful ways. Similarly, designer Yoko Akama (2012) employed toy farm animals as ‘playful triggers’ to support participants to explore disaster resilience. An 8m² sand circle was also constructed beside the workshops to host yarns and to enable participants to interact with extra walking rollers (figures 91-93).

Finally, SCST workshops were deliberately designed to experiment with critical map-making being “performative, participatory and political” (Crampton 2009). Participants collectively performed the political negotiation, by hand, of “drawing ‘things’ together” (Ingold 2011b). This performance fits with the neurological concept that “the brain and hand vitalize one another” (Wilson 1999, p. 276). For Wilson, following anthropological observations by Ingold, this entire organism way of understanding cognitive perception and intelligence is in direct contestation with a non-relational Western mind–body separating ontology.
Figure 82: See Change Sand Tracks signage surrounding the geodome housing the workshop at Festival 2018 celebration zone Broadbeach

Figure 83: Inside the geodome housing the See Change Sand Tracks workshop at Festival 2018 celebration zone Broadbeach
Figure 84: Participants stamping Futures Maps at the See Change Sand Tracks workshop at Festival 2018. Image 1

Figure 85: Participants stamping Futures Maps at the See Change Sand Tracks workshop at Festival 2018. Image 2
Figure 86: Commonwealth Games volunteer assisting a family interact with the See Change Sand Tracks website at the Festival 2018 workshop

Figure 87: See Change Sand Tracks workshop at Festival 2018 at full capacity
Figure 88: Futures Map completed by a participant. Image 1

Figure 89: Futures Map being prepared for stamping
Figure 90: Futures Map being stamped out by a participant’s hand

Figure 91: See Change Sand Tracks Yarning Circle at Festival 2018. Children working hard to roll out Futures Maps onto the sand in preparation for discussions. Image 1
Figure 92: See Change Sand Tracks Yarning Circle at Festival 2018. Children working hard to roll out Futures Maps onto the sand in preparation for discussions. Image 2

Figure 93: See Change Sand Tracks Yarning Circle at Festival 2018. Children working hard to roll out Futures Maps onto the sand in preparation for discussions. Image 3
Digital Platform

Key to SCST was the development of the seechange.tv website (2018a) (figures 94-97). This tailor-made interactive online digital platform allowed participants to create their own Futures Maps, out of which eighteen were selected to be routed into 1m² Futures Map blocks and rolled out on the sand along the beach during Festival 2018. Participants created Futures Maps from thousands of variable configurations, learning about past, present and futures along the way. All Futures Maps created in the digital platform are displayed on the ‘view Futures Maps’ page of the site alongside sand versions created in the workshops.

The digital platform took participants through five steps to create a Futures Map. First, a participant chose a topic, prompted by the question, Which futures could be otherwise? After they chose a topic, they were asked to select one of three scenarios. After they had selected one, the Futures Map began to appear at right of the screen. Second, participants chose a map typology, prompted by the question, which map base layer best fits how you see time? Three options were given to encourage, at the outset, a flexibility with temporal and spatial arrangements rather than risking an overly rationalist traditional timeline model. Third, participants chose icons of pasts, presents and futures to populate their Futures Maps, prompted by the question, which icons will you place in the past, present and future area of your map? As they searched through over one hundred icons, they were also presented with a short summary of knowledge pertaining to each, along with a reference to locate the source of that knowledge. Fourth, participants explored dates and other ancillary icons to finalise their Futures Map, prompted by the questions, which date is your future? Which icons will you use? This gave participants a chance to further fictionalise their futures according to their conceptions of time, and according to icons that author their own atmospheric tone. Finally, participants were prompted by the question, where will you share your futures map? This allowed them to share their work onto the ‘view Futures Maps’ page and to download their map and knowledge contents. Since the site is open and live, there are continuously increasing submitted Futures Maps on the site, currently over two hundred. The digital platform, an iframe plug-in to a Wordpress content management platform, can be used autonomously by the general public at any time, mediated by teachers and mentors or myself.
Figure 94: Screengrab of See Change Sand Tracks website (seechange.tv). ‘Contribute a Futures Map’ page with all steps completed

Figure 95: Screengrab of See Change Sand Tracks website (seechange.tv). ‘View Futures Map’ page
Documentary

All of this process, thinking, making, and rolling out of sand tracks was captured in five films and photography. The content was then featured on screens at the workshops on site during the games and also exists on a YouTube channel (2018b) (figure 98). Five films were produced by Salvador Cantellano: Test Launch, Design Process, Sand Tray Workshops, Tractor Roller Testing, Collab with City Libraries, and Festival 2018. The auditory experience was un-narrated, with simple sounds such as sea shells crashing on rocks and waves and children
murmuring as they play. Glass Media also produced a feature summary film commissioned by City of Gold Coast. I took the photographs.

Figure 98: Screen grab of See Change Sand Tracks You Tube playlist

**Augmented Reality**

As audiences walked along the SCST art on the beach, they came across volunteers with iPads at the south end and the north end. On the iPads, the Layar app was used to superimpose an augmented reality (AR) typographic layer of relevant knowledge over the top of 3D printed 10 cm² Futures Maps. Audiences could also use their own phones with the app and explore in their own time (figures 94-96). Including this digital technology–centred component to SCST was a critical decision I made to experiment with technologies, as I have usually remained reticent to do so. As discussed in Chapter 2, both 3D printing and AR technology are part of a suite of emerging, seductive technologies that have been critiqued for their role in colonising our imagination. However, I was interested in exploring if there was a utilitarian way in which they might be included in SCST, to be at the service of the project's advocacy for human autonomy, rather than humans being at the service of the technology. Keeping this political stance in the interaction with the technology often proved challenging, as technical collaborators were eager to advocate the most vanguard ways in which their hardware and software might create dazzlingly new techno-oriented extensions to the work.
Figure 99: See Change Sand Tracks augmented reality overlay of Futures Maps information at Festival 2018 celebration zone, Broadbeach. Image 1

Figure 100: See Change Sand Tracks augmented reality overlay of Futures Maps information at Festival 2018 celebration zone, Broadbeach. Image 2
Figure 101: See Change Sand Tracks augmented reality overlay of information on Futures Maps 3d printed tactile block at Festival 2018 celebration zone, Broadbeach. Four volunteers were stationed along the beach roller tracks each with 4 blocks and a smart phone with the LayAR App ready to help beachgoers explore the work

Visual System

The visual system—heavily featuring a hazard, reflective, and quarantine tape aesthetic—intended to place the work and the participants’ engagement in it, through the concept that there are options for ‘making’/designing futures; we don’t need to accept futures resolved and provided to us. As a by-product of this aesthetic, a secondary appeal was afforded in the bright multi-colours, as it was inviting to younger audiences (figures 102-104). Furthermore, since participants on the digital platform may choose from an infinite colour wheel to finalise and submit their maps, a plethora of colour is seen in the ‘view Futures Maps’ page and so fits well with the multi-coloured visual system. The form of the typography and icons was largely determined by making sure they functioned in sand and by the 3mm minimum tolerance of the router cutting into the EVA foam to make the stamps
Figure 102: See Change Sand Tracks graphic was printed as a 200x150cm banner as a steps guide for participants at the workshops.

Figure 103: See Change Sand Tracks graphic was printed as a 200x90cm banner as a wayfinding sign for participants at the workshops.
Layers of Interaction

Summarising the multi-scaled SCST components, below is a list of layers designed into the project that demonstrate ways in which it performed across broad demographic, spatial, and temporal scales.

- At its most basic level, young children could simply play in sand.
- On the beach, walkers could simply pass by and notice random difference to landscapes on the sand.
• People walking along the beach could be drawn to words and icons on the sand, mediating a conversation.
• People playing with the sand stamps and sand trays in the workshops could also start a conversation based on the words and icons.
• People could also commit to follow the colour-coded themed stamps and reflect on the associated knowledge as they played in the sand.
• People could also pay attention to the spatial arrangement of what they were stamping and reflect on mapping typologies.
• People could do the above and incorporate the layer of discovering and experimenting with the knowledge in relation to pasts, presents and futures, which they could find as (past, present, future) words on the knowledge stamps.
• People could do all of above while mediated by the digital platform through each step.
• People could reject the sand and only interact with the digital platform.
• People could develop a full picture on the digital platform then reassemble it on the sand.
• People could see a means to capture their work and upload it with others on the digital platform.
• People could download the Layar app on their own smartphone and reflect on the layer of textual knowledge attributed to the symbols as they walked along the beach or at the workshops.
• All of the above could be mediated by a facilitator who used the themes as a means for further reflection.
• That facilitator could also use SCST to have designerly discussions with participants about how knowledge is spatially arranged; how maps are made; how expressing differently with the hand and mediating objects creates new and novel insights; how this experience is altered by the site of being on the beach or in a school; how this kind of systems thinking makes one feel and is present or absent in their everyday lives; how triggers of hard work and of ephemerality are built into the beach rolling process and more.
• Most importantly, facilitators could also prompt reflection on the dominant presence of Indigenous Knowledge in the work, and how this fits or misfits with how they see Aboriginal culture commonly represented.
Never Work with Sand

Fabrication limitations
Several practical limitations were faced throughout SCST. While the entire design process was fluid, iterative and adaptive—a highly effective strategy—it presented unavoidable setbacks. For example, fabricating the tractor roller was the most technically challenging product design process I have experienced. Rather than sending a CAD file to an engineer, I arrived at the idea of using the banal object of an agricultural roller in an unfamiliar way after taking a bricolage approach to paring back ideas to incorporate pre-existing objects and including a set of simple modifications. Attaching the artwork to the roller was, after various experiments, simply done with hook and loop fastener strips (Velcro) (Figure 105). In another setback, the EVA foam had to be shipped from China due to its specific high density and block size. The foam was routed locally, however the extraordinary testing and calibrating processes (figures 105-113) proved taxing for a local supplier and subsequently our long-term supplier–designer relationship broke down. This was because the supplier had to cope with the iterative process as I undertook numerous live pilot tests with stakeholders and participants, including typography and graphic experiments to achieve viable type counters, gaps and depth appropriate to legibly imprint in the desired sand viscosity (figure 106). When on the beach, the tractor tyre imprints remained deeper than the roller impressions, so, at this point in the project with a third engineer, urgent modifications were made in the form of a scraper and extra weight bars (figures 110-113). This meant that a constant roll was not achievable in the end. The roller had to lift and drop consistently to release sand build up from in front of the spreader bar. Even though the workshops were reactivated in the Out of the Box festival in May 2018, the excessive wasted off-cut foam in the fabrication of the stamps is most unfortunate. A 1m² Futures Map block was approximately 30% discarded (routed away) negative space in the art. Furthermore, the large steel roller currently lies obsolete in my design studio yard, since having the roller programmed in future festivals requires significant investment in transport and logistics.
Figure 105: Close-up view of the hook and loop fastener system used to apply the Futures Maps onto the tractor roller

Figure 106: See Change Sand Tracks prototype stamps and rollers being tested at the first public pilot event in April 2017 at Burleigh Heads. Image 1
Figure 107: See Change Sand Tracks prototype stamps and rollers being tested at the first public pilot event in April 2017 at Burleigh Heads. Image 2

Figure 108: See Change Sand Tracks prototype stamps and rollers being tested at the first public pilot event in April 2017 at Burleigh Heads. Image 3
Figure 109: See Change Sand Tracks prototype walking roller. Image shows fabrication issues with the routing method. Counter spaces and gaps between icons were too small causing the router to tear through the art and sand to become wedged.

Figure 110: See Change Sand Tracks first public pilot event of tractor roller. The Production managers and I are assessing the flaw in the roll. The tractor tyres were still dominating the imprint.
Figure 111: See Change Sand Tracks first public pilot event of tractor roller. I am explaining how we will retrofit engineer more weight to the back of the tractor roller by placing four full walking rollers (lawn rollers) on the back to place more pressure on the Futures Maps prints and illuminate the tyre tracks.

Figure 112: See Change Sand Tracks first public pilot event of tractor roller. I am measuring the height between the sand and the roller frame and hitch in order to rapidly retrofit engineer a sand spreader bar to eliminate tyre tracks.
Conceptual Limitations

Even more restricting than the technical limitations were the significant conceptual issues at play. SCST was a place-based design event. It utilised Gold Coast environments—the sun and sand—but it also experimented with understanding what kinds of critical discourse Gold Coasters are prepared to participate in in community settings. The intention was to use the platform of the Gold Coast 2018 Commonwealth Games to do so. This was an ambitious conceptual mission from the outset, since opening these conversations to a Gold Coast audience involves nuanced site-specific limitations. The Gold Coast has had minimal exposure to politically activated cultural engagement; for example, through creative protest and dissent. This is most likely due to the Gold Coast being a comparatively safe, somewhat homogenous, high socio-demographic neoliberal city. Citizens are not generally confronted by systemic problems such as the topics I introduced in SCST, but they will be in the coming decades. The Gold Coast is young. Only post-war has the Gold Coast (the Western version of it) developed into anything beyond camp sites and the disparate hotel and fibro shacks for holiday-makers from Brisbane and beyond. To the contrary, many international cities foster and are the result of multi-generational creative activity arising from revolutions and movements throughout the nineteenth and twentieth centuries. Their cultural identities are organically grown from political activation, not manufactured. And so, it is often put to us by
our arts and cultural peers that the Gold Coast is not yet ready for the critical engagement our practice offers. This is problematic and highlights a significant limitation we faced with conceptualising and presenting SCST, but at the same time it represented an opportunity to prepare the City for future socio-environmental conditions.

The Gold Coast exemplifies a neoliberal Western status quo city. As I discussed in Chapter 1, this kind of environment fosters a relationship to maps that are presented in closed, static, rational typologies. SCST was an experiment encompassing the overall practice documented in this thesis, demonstrating how I am interested in mapping in subjective, participatory and messy ways through an open mutable practice driving 'open change', but with enough mobility so that change agendas travel with participants. The change that SCST fostered was to deliver ways to provoke reflection regarding the unsettling psychologies communities are and will be facing as a result of climate change, rising sea levels, over-densification, mass human movement, and other wicked systemic problems facing the Gold Coast.

However, there were limitations to how much any kind of event inside the Commonwealth Games could enable transformational social change, or even if it could, the question remained, would it offset the price paid for being involved in such a compromised global phenomenon? The Games, as has been mentioned above, is fundamentally an unsustainable mega-event: it is a juggernaut event of hyper-consumption, excessive use of resources and subsequent waste. It is a hyper-reality consumed through the screen, in which the marker of greatness is the ever-increasing yearning for ‘gigantic’ (Heidegger 1977, p. 134) stadiums. The number of spectators and athletes flying in quite plausibly far outweigh any CO₂ emissions reductions achieved on site. It is a symbol of ultra-nationalism in which athletes bolstered by unequal national economic support and corporate sponsorship deals are presented as equally universal human achievers. And it is also literally the coming together of nations, including Australia, that were conquered or settled by the British. This last point of colonial tension was made clear in protest during the 1982 Brisbane Commonwealth Games when Aboriginal protesters made headlines protesting the irony that the social injustices faced by Aboriginal Australians are the price paid for a ‘Modern Liberal Democratic Australia’. Perhaps design could offer nothing to alleviate all this, perhaps the energy put into SCST was better placed on something entirely unrelated, or on raw protest. It is clear that SCST has not become the next Matilda legacy to be memorialised for generations to come. All Gold Coasters are not now perceiving sustainable futures differently. But it marked a place from which to begin.

SCST should be understood as a creative experiment in articulatory practice, a learning event that practice can springboard from. This is exciting since SCST marks the culmination of years

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Matilda was the kangaroo stylised mascot in the 1982 Brisbane Commonwealth Games. The ten-metre-high rolling model of the mascot stole centre stage in the opening ceremony.
of PhD-related creative practice and ends with revealing insights for new beginnings. In this chapter, through a lens of systemic design and thinking, I have reviewed SCST as a complex multifaceted project with six components: the tractor roller, workshops, the digital platform, documentary filming, augmented reality, and a visual system. I have discussed the potential power and limitations to the project catalysing on the mega-event that is the Commonwealth Games in the interests of decolonising minds and transitioning toward sustainable futures.
Final Remarks
Mapping Options
Throughout this thesis, I have attempted to theorise decolonising design experiments that can contribute to support groups think, talk and map their situatedness among modernity/coloniality and to mobilise decolonising options. This argument has been focused on the designed and designing worlds of humans and the biosphere upon which humans depend. I have argued that the vital challenges we face require options beyond the current one-world system that is homogenising human and post-human futures. I have responded to theoretical concerns with decolonial mapping and thinking techniques and methodologies that designers and non-designers can employ. Furthermore, I have experimented with employing these methodologies in creative practice by developing a mapping praxis that, I argued throughout this thesis, elicits an ability for people to grapple with wicked systemic problems they experience. In order to explore stories that people tell of their experiences, Kafle writes, “the help of some specific hermeneutic or method of interpretation” is important (2011, p. 191). This thesis has documented the development of a method in the form of design as a critical decolonising articulatory practice. Specifically, I have maintained a critical lens on modernity’s darker side—colonialism—arguing that it debilitates humans’ ability to confront the immense, complex, unsustainable and oppressive issues of today or transition humans to any kind of viable future. Importantly, I have highlighted that coloniality is but one option, and decoloniality but another. In exploring options through mapping, pasts, presents and futures can be conceived as hermeneutic open-loop events in which disarticulation, articulation, and rearticulations can occur. Articulating tools developed throughout this thesis take this open-loop understanding as a central strategy in the mapping processes developed, since helping people map this way in an age of unsettlement reminds them of ways out of conditions otherwise rendered both determined and futile. My research has attempted to provide a series of creative examples and loose guides that offer ways in which others might explore the following questions of thinking of design as a critical articulatory practice. What is known of how conditions will impact communities and can mapping practices with people assist them to know? How does one create a design practice that collaborates with people intent on navigating decolonial options, and with those people complicit in defuturing yet open to transform their trajectory to decolonial options? In this conclusion, I recap these creative insights, reiterate their significance, discuss limitations, and propose openings for future research.

Unfolding Theory to Practice
In the introduction chapter, I set out to define ways in which I have embarked on a hermeneutic journey that, over time, has led to a series of practice-led theoretical arguments and creative insights into decolonising, design, mapping and futures. This creative work sought a form for my practice that might also contest my creative practice being designed by, and complicit in, colonialism. Cognitive mapping and cartography as products of modernity and colonialism
prescribe realities in a determinist sense and so this study was equally concerned with rearticulating these modes of practice towards decolonising mapping practices. In Chapter 1, I described ways of understanding and practicing critical mapping and their relationship with the way mapping is practiced by my associates and me: *mapping the hard way*. I have explained theorising, making methods, and experimenting in practice as the critical articulation and aesthetics of cognitive mapping, which rejects easy rationalisation and representation claims of mapping and instead embraces the irreducibility that Harvey identifies: “maps are always a part of culture and never outside it” (1989, p. 18). The concerns for urgently deploying mapping for articulating redirected socially responsible futures as outlined in this thesis are shared by Corner. He writes “why not embrace the profound efficacy of mapping in exploring and shaping new realities? Why not embrace the fact that the potentially infinite capacity of mapping to find new conditions might enable more socially engaging modes of exchange within larger milieu?” (1999, p. 99).

In Chapter 2, I laid the theoretical groundwork for the significance of Australian Indigenous ontologies that might provide options for plural designed futures of sustainment. My research argued that there is a profound ontologically defuturing design event underway—the technological colonisation of imagination—enabled by a technodeterminism that is eroding people’s ability to manifest decolonial political imaginations and contribute to a global decolonising event that is also underway. These two events are occurring inseparably from a third event, climate change, which urgently requires redress from decolonial socio-ecological options. This necessitates the establishment of decolonising design praxis, one that includes strategies of listening, comprehending and amplifying autonomous imagination of plural futures; respectfully recouping the fragments of memory scattered from coloniality; designing effective modes of gathering and communicating back to community those fragments of memory; and enabling decolonising options of redirective designed/ing action. This provided a theoretical opening that was extended in Chapter 3, where I presented a map template, a visual aid that can act as a mediating tool to understand the role that modernity and colonialism have played in both destroying and inculcating cultures of repair. The Cultures of Repair Relational Map assists designers and non-designers see and speak of repair in a decolonising context and to see and speak of transferring and amplifying opportunities afforded by cultures of repair aimed at transitioning toward sustainable futures. Four key threads tracing implications associated with repair cultures were focused on: concealment, newness, techne, and care. A further three key threads were discussed for moving toward praxis: transferability, reclassification, and amplification.

In Chapter 4, I argued that the design field of wayfinding, which is closely connected with cognitive mapping as a psychogeographic practice, needs to include decolonising strategies. This is significant when thought of in the context of the theoretical argument outlined thus far; that modernity, colonialism and globalisation underpin much of the structural unsustainability
reaching our city streets. Wayfinding plays a leading role in helping people understand their worlds and maintain a conviviality with their surroundings. I developed this argument through three framing layers—critical mapping, world-picture, and movement—and went on to articulate praxis of decolonial wayfinding.

Chapter 5 drew together these theoretical arguments and presented Cognitive Redirective Mapping (CRM) as a methodological process that can support people understand both the problems they are facing and potential alternatives that may have been lost or ignored in the maelstrom of modernity. The chapter articulated how the CRM method takes the following into consideration: sustainable futuring modes of human habitation, or sustainment; ontological notions of things; intercultural understandings; design as a hermeneutic practice; and work alongside the method of design fictions. I then discussed considerations in the act of drawing Cognitive Redirective Maps: Drawing together with the hand; drawing together assemblages and mess; drawing together information design techniques; and performing drawing together.

In the remaining chapters, I reviewed how the methodology and other designerly techniques thoroughly outlined in Appendix A: Critical Mapping as an Articulatory Design Practice, Visual Guide were practiced in a series of creative experiments. In these experiments, I was exploring ways of mapping where the practice retains a mutability (openness, fluidity) while still driving a mobility (a way for the ideas to travel and spread), as I had outlined in Chapter 1. It is not claimed that these practices can achieve this, but they seek to experiment with achieving it. I was experimenting with the performance of tracking tracks, while resisting the positivist traditions of information design, and instead adopting fluid graphics that acknowledge the process as you go, with an urgent patience to flip orders upon which ideas travel towards an open, mutable practice that mobilises 'open change'. The first setting was in the form of the Redictrive Practice work, discussed in Chapter 6. Some components of the event were successful and were adopted into ongoing work reviewed in subsequent chapters. In particular, the fundamentals of the CRM methodology, design fictions, and a repair bench concept demonstrated some level of value in the project. Overall, this project provided a loose model to continue understanding mapping with people in community-based contexts. Chapter 7 discussed an opportunity we had to extend on lessons learned through the Australia Council for Arts 2015 and 2016 Innovation Labs. In these spaces, each with approximately thirty of Australia’s leading Aboriginal & Torres Strait Islander arts practitioners, mapping, design fictions, and design briefs for clear implementation were created over four intense days. These labs provided invaluable understandings for mapping with people in arts-based organisational contexts and in Indigenous contexts. Many components of the labs continue to be fundamental processes in my practice, such as the yarning and visual pattern thinking as opening steps. In Chapter 8, I reviewed the major educational-based context of the creative work, FutureBNE. This work built on the previous creative insights to achieve the delivery of Australia’s largest
educational design experience, with over six hundred Year 9 children under one roof in a highly theatrical intense design thinking event. I discussed how the student outcomes of the Challenge—the models and the video pitches—demonstrated that the event supported the children in leading them towards new insights and critical, creative design responses unfolding in long-term time-scales.

Finally, I ended with a critical review of the largest creative work in this thesis, See Change Sand Tracks. This project marked the culmination of most of the creative insights from all previous practices and coalesced them in a major arts event at Festival 2018 at the Gold Coast Commonwealth Games. Mapping and thinking techniques were enmeshed in a multifaceted program including a tractor roller rolling out 3km of Future Maps on the beach, workshops, digital platform, documentary filming, and augmented reality experiences. I reviewed this project through the lens of systems design and thinking, and invited readers of this thesis to return to the previous creative works to interpret them through this lens.

Contributing to Critical Design Research through Design Practice

This thesis has set out to challenge the simplistic notion of the application of design. It has shown that before any kind of designing of products, services and images might occur, there is a full and rich critical professional area of design as an articulatory practice. To understand how to perform this articulatory practice, I have shown what kinds of design histories and philosophies based on coloniality need to be abandoned so maps can be thought of in new ways. The work contributes to scholarship in a number of areas, including design and design education, design thinking, but also more broadly in strategic foresight thinking for communities, organisations and other groups. The implications from this research are that design practice requires an articulatory practice to be more formally incorporated into strategic settings before making design decisions about what to bring into existence. I also argue that design practitioners need not consider a design practice as only a service provision activity. Rather, this thesis demonstrates a new, unique and fully occupational body of work of design as an articulatory practice that one can be involved in, demonstrating a relevance to a rapidly emerging critical design industry.

The thesis has design academia implications too. While writing this thesis, I have also been a design educator at Griffith University in the Design program, teaching both undergraduate and postgraduate students. I have continuously incorporated the techniques advocated by this thesis into these pedagogical settings. In the introductory chapter, I summarised these learnings by framing what might constitute a decolonising education and throughout other
chapters I have returned to this topic in practice. This topic is relevant to design research and studies, in that it illustrates ways that research and knowledge gathering can be done. Additionally, it is relevant to actors beyond the broad design community: policymakers, government, organisational management and community groups looking to support people think, talk and mobilise their futures. The creative practice shown here contributes to the establishment of a new, experimental and emerging field of practice that is highly beneficial to society: strategic design as an articulatory practice. In every setting, I reflected on my practice and iterated methodologies and techniques. In most cases, this work has occurred in communities in real settings that are a part of my own cultural sphere. This has meant that time spent in engagement has been maximised because I have not travelled elsewhere and returned. Rather, I have iteratively and hermeneutically grown the research, theories and creative insights in and with my own everyday practice and settings.

As this research has illustrated, the practice is alive, active and continuously validated by the increasing requests I receive to facilitate at conferences, organisations, forums and other settings. FutureBNE has been renewed for another three-year contract, moving from water security to a Sustainable Cities Challenge. In March 2019, I will keynote at the IFACCA (International Federation of Arts Councils and Culture Agencies) conference in Malaysia and host a major workshop that reflects this practice. Not discussed in this thesis but worth noting is the ongoing engagement I have had with Australia Council for the Arts. In June 2018, I facilitated a major one-day workshop for leading future thinkers. As a direct recognition of the validity and relevance of this research and proof in practice, I will facilitate a ground-breaking set of national events for Indigenous Business Australia (IBA) from March to June 2019, titled the Futures Forum. The product of twelve months of strategic designing, it engages techniques developed via the processes outlined throughout this thesis. Finally, in a clear recognition of this work being applicable to the future of cities, our practice has been awarded City of Gold Coast 'Arts Organisations Triennial Grants Program’ funding over 2019–2021. We have been recognised as a key Gold Coast arts and design organisation crucial to the city (City of Gold Coast 2018). An associated program of events will include an annual City Futures Forum, facilitating meaningful civic engagement towards future-proofing the City of Gold Coast. The Forum will bring together design professionals, community advocates, scientists, policymakers, planners, the business sector and universities to connect and co-design social, environmental, economic and culturally sustainable and innovative futures for the City of Gold Coast.

Openings

There are several openings for future research. In community-based settings, there is room to provide ways in which community leaders might co-facilitate, then adopt and adapt some of
these techniques, independent from me. This might be facilitated through academic projects of
transfer working and learning with communities. In educational settings, as mentioned, I have
been exploring many of these processes, particularly in an undergraduate design set of courses
at Griffith University titled Design Lab. They have proven to be extremely useful for some, while
ostracising for others. A study of students’ perceptions and experiences engaging with these
processes might illuminate iterations specific to pedagogy. However, any future research in this
area would require educators, faculties and whole universities to provide safe and encouraging
spaces in which this can occur. At the very least, pragmatic charters of decolonising design
would need to be adopted. Beyond this, a politics of design would need to be the cultural hubris
of design departments, one in which the imperative for the kinds of thinking outlined here are
taken as essential, critical beginnings to any design education. Piecemeal inclusion in courses
alone might at first seem a good start, but in my experience can also generate conflictual
spaces in which students are increasingly closed to this thinking when exposed to starkly
contrasting modes of thinking and being a designer in adjacent courses. Any future research
openings for these mapping practices in pedagogical settings seem futile if these limitations
are not overcome.

In organisational settings, there is space to develop these techniques into events in which
professional development can occur. In indirect ways, this has been happening, such as with
Australia Council for the Arts. However, there is space to develop this more and share these
techniques with other strategic designers in other localities similarly seeking ways to support
groups think, talk and map their situatedness among modernity/coloniality and mobilise
decolonising options for their own worlds. These sites may present their own limitations because,
as with educational settings, they are laden with a politics often aligning with assumptions of
starting from the premise of everyone agreeing on at best a liberal democratic future, at worst a
neoliberal hyper-capitalist regime. The kinds of mapping outlined in this thesis elicit interrogation
of these kinds of assumptions and therefore participants can, at times, fall into irreconcilable
disjuncture’s of politics. Indeed, as unpacked in Chapter 1, mapping the hard way is not the status
quo.

In arts and major event settings, See Change Sand Tracks marked the beginning of many
exciting directions this practice might take. A strange phenomenon exists in the arts community
in which many of these topics of concern are viewed as simply artistic expressions and
aesthetisation. This is a tactic that can be built upon. As with See Change, future projects can
continue to find ways to support people think, talk and mobilise radically different futures under
the guise of map art.

The processes I have put forward in my thesis are; a theoretical context of decolonising design;
a methodological innovation of mapping futures and a practice-led validation of both the former
through case studies in community-based settings, in educational settings, in organisational settings and in arts and major events settings. The contexts in which those processes can be productively applied relate to mapping for social innovation, social enterprise, strategic design, systemic design, design anthropology and an emerging context of decolonising design. In particular, emerging transdisciplinary practices that intersect with business, government, organisations and academic institutes to leverage the best of industry, community and research are where processes developed in this thesis might be most usefully applied. These professional settings facilitate design-led conversations about social complexities and rapid change and their common aims are to be futures-facing in order to future-proof societies in their contexts. In the face of decolonising contexts, technologies colonising and climate creating unsettlement on unprecedented scales, this thesis and the processes herein are a contribution to productive applications participants and designer-facilitators in these settings might critically advance in their own ways.

Throughout this research, border thinking has enabled me to situate myself at intersections between my Aboriginal and European genealogy and epistemologies and between design as a productivist making act and design as a critical articulatory practice. I have joined with comrades and embarked on a radical rethinking of design with my own contribution towards design as a decolonising cartographic act. In a world of futures of climate change and resultant human movement, continual global inequity in a myriad of ways and other wicked systemic problems, attempts have been made by me to lead by example a creative practice that approaches inquiry into grappling with such issues in a relational way. This thesis has revealed a practice of urgent patience in which I balance patience with the imperative of acting (designing or eliminating designs). I have advocated for the establishment of ontological designs that perform directionally toward viable human futures before “we” (humans) accelerate our demise. Theories, methodologies and practice have been provided for others to do the same: A critical, articulatory, design and mapping practice that elicits ways for people to think, talk and map their situatedness among modernity/coloniality and mobilise decolonising options for their own worlds.
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Appendix A: Critical Mapping as an Articulatory Design Practice: A Visual Guide

(Front page shown here. See separate file name >Appendix A_Critical Mapping as an Articulatory Design Practice.pdf< in thesis package for complete matter). This Visual Guide forms a central component of this thesis. It is designed to be practical and useful in isolation from the full thesis. While there are over 30 steps featured, these do not all need to be undertaken. Some can be skipped or amalgamated for shorter engagements. For example, a few steps are repeated to placeholder the greatest iterative process possible, but some of these repetitive steps might be considered as one. The visual growth of the map template on each page is deliberately messy and relational to encourage the same engagement. Theories, practical steps and more information is included in each step. A Visual Templates Appendix is also provided to explore, follow and hack loosely and liberally. These experimental methodologies have worked for me, in my contexts with my own bodily and identity politics inevitably at play. I will continue to iterate and explore their efficacy. I offer this guide simply as a gesture in solidarity with other socially engaged politically active individuals in the hope that, autonomous from my presence as facilitator, they might find ways of reconceiving these steps usefully in their worlds too.
Appendix B: Event book 1: Redirecive Practice Repairing the Future of Queensland Making an Age of Repair

(Front page shown here. See separate file name >Appendix B_Event book 1_Redirective Practice Repairing the Future of Queensland Making an Age of Repair.pdf< in thesis package for complete matter).

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix C: Event book 2: Rediractive Practice Repairing the Future of Queensland Designing the Now

(Front page shown here. See separate file name >Appendix C_Event book 2_Rediractive Practice Repairing the Future of Queensland Designing the Now.pdf< in thesis package for complete matter).

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix D: Event Material: Redirective Practice Repairing the Future of Queensland Designing the Now

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix E: Australia Council for the Arts Aboriginal and Torres Strait Islander Innovation Lab 2017 Pre-Event Kit

(Front page shown here. See separate file name >Appendix E_Aus Co ATSI_Innovation Lab 2017_Pre-Event Kit.pdf< in thesis package for complete matter).

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix F: Australia Council for the Arts Aboriginal and Torres Strait Islander Innovation Lab 2017 Workbook

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix G: FutureBNE 2018 Material Archive

(Front page shown here. See separate file name >Appendix G_FutureBNE2018_Material Archive.pdf< in thesis package for complete matter).

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.

FutureBNE 2018 Material Archive

Student Reflections Book

graphics and content in collaboration with Bec Barrett and Chenoa Pettrop
Appendix H: See Change Sand Tracks Development Archive

(Front page shown here. See separate file name > Appendix H_SCST Development Archive.pdf< in thesis package for complete matter).

To retain its authenticity as an experimental creative artefact of the particular project at that time, this appendix item has been deliberately unedited from its original final version. It may not necessarily follow the same formatting and precision of the chapters that form the body of this thesis and thus should be viewed as such.
Appendix I: Ethical Clearance Statement

As these creative syntheses unfolded in practice, they moved beyond personal experiments towards designerly commissioned experiments for organisations. Therefore, I have sought permission from those groups to return to reflect on those works for the purposes of this thesis. Since I am not concerned with the data itself, no data is being used from individual responses by participants. I did not conduct, nor am I purporting to analyse, primary data or research. I did not conduct planned interviews or questionnaires, audio/video record participants. I did not pre-plan participant numbers nor frame what we are doing as ‘research’. The practice was there, for them, not me, to use to assist creatively comprehending their worlds. See below for all signed creative outputs consent forms. Griffith University Office for Research, Human Research Ethics committee approved this research. The ethics code is: 2016/640.
Australia Council for the Arts: Innovation Labs Creative Works Consent

Redacted for digital publication copy
Southern Cross University Gnibi College of Australian Indigenous Peoples: All Gnibi Maps Consent

Redacted for digital publication copy
Festival 2018, Gold Coast 2018 Commonwealth Games GOLDOC: See Change Sand Tracks Creative Work Consent

Redacted for digital publication copy
Brisbane City Council Green Hearts Schools, FutureBNE Creative Work Consent
Appendix J: Copyright Permission for Published Articles in the Thesis

Redacted for digital publication copy