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# Enabling regenerative transitions: What can design offer?

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**Abstract:** Transition design first emerged as a provocation to designers to apply design theory and practice to enable societal transitions, including transitions toward sustainability. This raises questions around the roles that transition design can play in sustainability transitions and the specific capabilities that designers can draw on. This paper seeks to answer these questions via a transition design case study project in agricultural sustainability. Specifically, the project focuses on the growing interest in regenerative agriculture in New South Wales, Australia from 2017 through 2023. Within the case study, the researcher as designer-practitioner works as a change agent, taking part in collaborative initiatives. Through semi-structured interviews, ethnographic immersion and involvement in multiple working groups, the researcher-designer-practitioner tests design-based practices, identifies acupuncture points across the agriculture sector, and co-develops initiatives to address these. This research into practice yields a set of capabilities and related methods, as well as key roles for design in transitions.

**Keywords:** transition design, design for transitions, regenerative agriculture, systems change for sustainability transitions, practice-based design research

## 1. Introduction

Transition design is a field of design practice whose ‘object of design’ is ultimately systems change and societal transitions, including transition to sustainability. In transition design approaches, shifts to more sustainable ways of living are achieved by redesigning how we live our lives every day and manage human affairs as expressed and shaped through interactions with social, economic, technical, and ecological systems. Because transition design is a relatively new field, there are many opportunities to explore what transition design looks like in practice (Gaziulusoy and Ryan, 2017; van Selm & Mulder, 2019), including through the kind of case study-oriented participatory action research that is the focus of this paper.



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When transition design was first introduced by Terry Irwin, Gideon Kossoff, and Cameron Tonkinwise in late 2014, it was framed as “a transdisciplinary approach aimed at addressing the many ‘wicked’ problems confronting 21st century societies: climate change, forced migration, political and social polarization, global pandemics, lack of access to affordable housing/healthcare/education and many others” (Irwin et al., 2015a). Since that time, transition design case studies have been explored in a range of contexts, for example:

- Ojai - a workshop-based approach to catalyze a community-led initiative around the challenge of sustainable water use (Irwin et al, 2017)
- Visions and Pathways 2040 – a workshop series aiming to aims develop visions, scenarios and pathways for low-carbon resilient futures in Australian cities (Gaziulusoy & Ryan, 2017)
- Future of Fish – a small team working to facilitate systems change in global fishing by amplifying positive deviance at critical acupuncture points within a Theory of Change (Dahle, 2019)
- Zero Waste Transition – a project in which the locus of transformation was personal praxis and everyday life, which then linked with and guided projects with others (Wallace, 2019)
- SARAS Cycle – a transdisciplinary, participatory and open workshop series and set of projects to create a platform for food systems transformation in Uruguay (Juri et al 2022).

Within each context, designers must seek to understand what role design can play in transitions and what specific capabilities they can contribute as designers. In the transition design framework, Irwin, Kossoff and Tonkinwise (2015a) call for “four mutually reinforcing and co-evolving areas of knowledge, action and self-reflection”: visions for transition, theories of change, posture and mindset, and new ways of designing. In outlining these areas of action, Irwin et al. (2015a) also highlight three broad areas in which designers could contribute: (1) developing narratives and visions of the future, (2) amplifying and connecting grassroots efforts and (3) working in transdisciplinary teams to design innovative place-based solutions that take account of local ecosystems and cultures. This paper sets out how designers can draw on *existing* capabilities to contribute to each of these areas whilst complementing the actions of others, through the empirical example of a case study involving regenerative agriculture in the state of New South Wales, Australia.

## 2. Transitions to regenerative agriculture: A case study

The sustainability case at the centre of this paper is the transition from conventional to regenerative agriculture in the state of New South Wales (NSW), Australia. This was explored through practice-based design research with a goal of researching transition design through practice. The methodology was informed by Vaughan (2017), Tonkinwise (2017), Goldkuhl (2011), and Frayling (1993) and included elements of both researcher introspection and

guided introspection with research participants (Xue and Desmet, 2019). Figure 1 articulates the two processes simultaneously being tracked in this approach: research *through* practice (the case study) to enable research *into* practice (researching transition design practice).

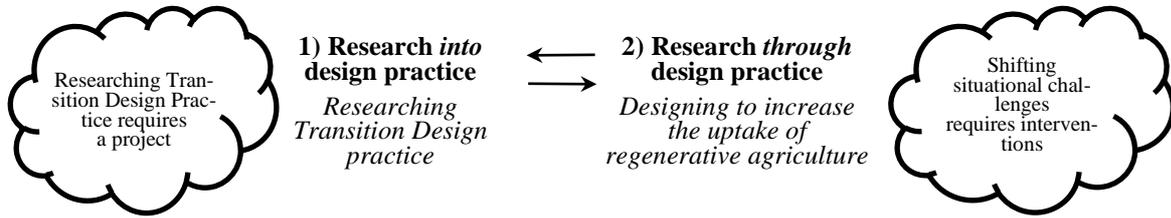


Figure 1 Practice-based design research

Regenerative agriculture has grown in prominence within land management practice and academic research over recent years, driven by “growing dissatisfaction with modern industrial agriculture and its associated environmental and social harms (Campbell et al., 2017). Broadly speaking, regenerative agriculture concerns itself with enhancing and restoring resilient systems supported by functional ecosystem processes and healthy, organic soils capable of producing a full suite of ecosystem services, among them soil carbon sequestration and improved soil water retention (Gosnell et al., 2019; Newton et al., 2020). Individual farmers and communities of practice have sought to adopt and promote this vision of an agroecological transition across the globe, including in the mixed cropping and grazing lands of NSW where this case study was undertaken (Figure 2).

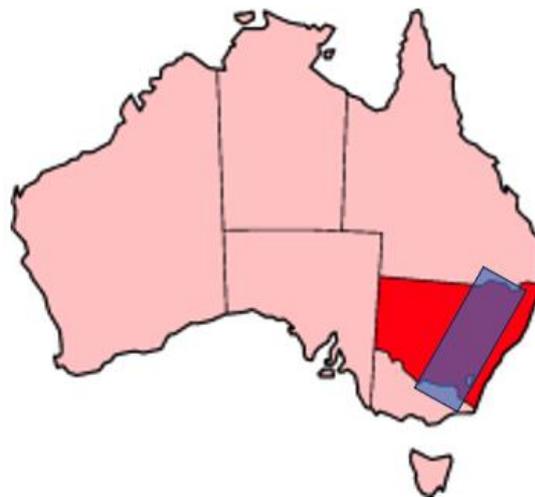


Figure 2 Location of case study. Rough boundaries of the mixed cropping and grazing zone (blue) within the state of NSW (red)

Despite the increasing adoption of regenerative practices in agriculture, it remains a contested concept. At one end of the spectrum, definitions from Giller et al. (2021) and Grelet et al. (2021) detail specific practices aimed at specific outcomes, such as multi-species cover

cropping, zero or limited tillage, high density rotational grazing, natural/biological inputs like compost, increasing biodiversity above and below ground, natural pest control, and repairing hydrological function (for more comprehensive lists see Burgess et al. 2019 or Hawken, ed. 2017). At the other end of the spectrum, regenerative agriculture may be seen as a mindset of openness to alternative thinking (Gordon et al., 2021) that draws upon holistic, ecological, and systems approaches in order to transition not only the agroecosystem to a state of increased health, but also ultimately contribute to the broader regeneration of our environment, society, economy, and spiritual wellbeing (Grelet et al., 2021; Gosnell, 2021). To paraphrase Giller et al. (2021), the debate may be viewed as a question of whether regenerative agriculture represents an end or a means. In this paper, we view it as both a means and an end, based on the views expressed across more than 50 interviews and activities involving more than 300 participants.

The case study project was undertaken as a part of PhD research into Transition Design practice, with case study activities divided into the three project phases shown in Figure 3: (1) Initiate and Situate, (2) Reframe, Envision and Respond, and (3) Harvesting Outcomes. An initial phase involved 31 semi-structured interviews to scope out a regenerative agriculture transition project and discover key barriers and opportunities within the selected context. Phase 2 involved a deeper dive through 8 interviews focused on the journey of transition and engagement with 10 different working groups involved in various change-making efforts related to regenerative agriculture. Based on the insights gained, a field guide that features the case study was developed for transitions practitioners and a further 20 interviews were undertaken with working group members and transitions practitioners to evaluate the field guide. All interviews were analyzed and coded thematically using an inductive coding approach (Gray, 2004; Saldaña, 2009). Interview insights were combined with insights from researcher observations and materials developed for the working groups (e.g. visuals).

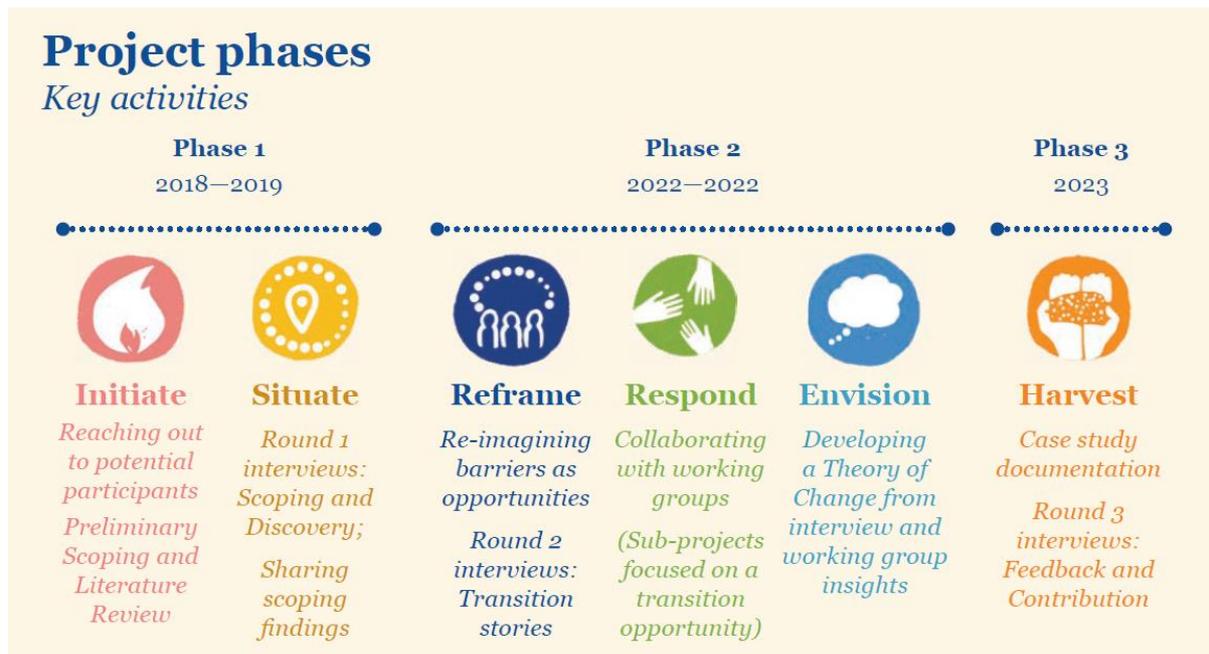


Figure 3 Phases of the regenerative agriculture transition design project

Based on Phase 1 interviews and scoping research, the case study was focused around making it easier for farmers to transition to regenerative agriculture. The emphasis was less on farmer mindset, capability, and on-farm practices, which is the focus of much of the literature and support available, and more on addressing social, financial and technical barriers to create systems conditions that support transition. Some of the barriers identified through scoping interviews included social pressure to maintain conventional farming, financial risks from transitioning to regenerative agriculture, and workable agricultural models that fit with supply chains and farms of different sizes and types. These barriers largely align with the socio-ecological and political-economic “lock-ins” identified by Iles (2021) that prevent the scaling of agroecological approaches in Australia, which include the European agricultural model, settler colonialism, geography, policy-making institutions, neoliberal agricultural policies, industry supply chains, environmental/climate developments, and science and technological visions. Phase 2 involved reimagining these barriers as opportunities and collaborating with working groups to influence shifts.

The development of, and involvement in, a range of working groups is based on the concept of facilitating “ecologies of systems interventions” (Irwin, 2021) by identifying multiple ‘interventions’ aimed at a different ‘acupuncture points’ (Irwin et al, 2015b), which cumulatively impact the micro, meso, and macro levels of system change (Conway et al, 2019; based on Geels, 2002) in order to have an ‘amplifier’ effect (Conway et al, 2019) for change. It also reflects the fact that regenerative agriculture in Australia is not a monolithic movement, but rather is a decentralized, grassroots movement that is beginning to get interest from more powerful systems actors, like retailers, suppliers, and some politicians.

The designer-practitioner sought to collaborate on interventions at different levels of the system, and that is reflected in the choice of 10 very different working groups (Table 1). Each

focused on a different ‘acupuncture point’, these include initiatives like a project to grow the market for source-separated recycled organics, a research and knowledge hub concept, an idea for a course focused on the financial and business side of transition, a group working to scale landscape and hydrology repair, and a class looking at rewilding a 20-hectare section of a city park. While 27 people were involved across the various working groups, some groups also reached an extended network of participants, such as 160 workshop participants for WG8 and 65 workshop participants for WG9.

Starting with an initial set of five working groups, this grew to ten over the course of the project (2019-2022). Some groups progressed, others did not, and some had to pivot due to the Covid-19 pandemic, reflecting the argument of Irwin (2018) that multiple interventions over multiple time horizons and scale are required to seed and catalyse change in complex systems. Key ‘ethnographic’ opportunities to become immersed in the regenerative agriculture sector included participating on the board of an advocacy cooperative, hosting an online event with a regenerative farmer to review post-drought farm recovery, building regional regen-entrepreneurship capacity through learning labs, and supporting as well as initiating the development of businesses.

Table 1 Summary of working groups

WORKING GROUP (WG)	DESCRIPTION	RESEARCHER ROLE	NO. OF COLLABORATORS	
LEVEL 1: FARMER TRANSITIONS AND CAPABILITY				
1	TransitionAg	Lean-style business startup experiment for building transition capacity (business converted to a project)	Owner	2
2	Agroecological Knowledge Commons and Research Network (AKCARN)	An agroecological research network and knowledge commons (concept)	Co-designer	2
3	Business of Transition short course	Financial and business training for farmers focused on transition (concept)	Co-designer	1
4	High Performance Landscapes; Chaos Garden	Landscape repair consultancy and mini-Market Garden (pilots)	Contributor	1

5	Institute of Ecological Agriculture	An advocacy cooperative (established group)	Member	7
6	The Australian Landscape Science (TALS)	An organisation focused on scaling landscape repair capacity (established group)	Contributor	5
7	A year of regeneration	Research culminating in an online seminar featuring a year of post-drought recovery on a regenerative farm (complete)	Co-designer	1
<b>LEVEL 2: SECTOR CAPACITY</b>				
8	Compost as a Catalyst	Two projects to grow the market for source separated recycled organics among farmers (complete)	Contributor Facilitator	2
9	WWF Innovate to Regenerate Local Learning Labs	Learning labs involving capability-building workshops for local regen business ideas (Three labs completed. Materials to design a lab available online)	Contributor	5
<b>LEVEL 3: NARRATIVES, DISCOURSE, AND CULTURES</b>				
10	Rewilding Moore Park	University class project to change public ecological awareness through the redesign of 20 ha of a city park (Class finished. City has announced the park will be redesigned.)	Co-teacher	1

The harvest phase of the case study involved gathering insights from the working groups and bringing those together with interview and survey insights, synthesizing project findings into a field guide, and seeking feedback from agriculture sector participants and transitions practitioners. The field guide was simultaneously a design output (artefact) which collated the threads that emerged through the course of this research—a unique and surprising synthesis of those materials—and a design provocation meant to challenge audiences. It was aimed primarily at designers, with Part 1 presenting a practice framework (e.g. ‘Why Transition Design?’, ‘Elements of Practice’, ‘Skills and capabilities’) and Part 2 presenting the regenerative agriculture case study (e.g. context, barriers, project phases, potential responses). The aim of the field guide was demonstrating how existing design capabilities can be parlayed into non-traditional design disciplines and identifying methods, tools and approaches from other disciplines that might be useful to transition designers.

Following a design process of testing and iterating, a final round of interviews was undertaken with 20 case study participants to evaluate the field guide and overall project. Of those interviewees, 14 were directly involved in increasing the uptake of regenerative approaches to agriculture, and 6 were transitions practitioners. The response to the field guide was predominantly positive and the constructive feedback on how best to communicate complex topics, reach intended audiences, and frame differing perspectives resulted in an improved final version of the guide.

### 3. Case study insights: What can a designer offer to nascent sustainability transitions?

Involvement with the 10 working groups revealed a wide range of actors already facilitating transitions towards regenerative agriculture, including farmers, scientists, agricultural consultants, business advisors, entrepreneurs, environmental groups, educators, and students. The working groups demonstrated diverse ways to make the adoption of regenerative agriculture easier for farmers and to overcome barriers to systemic transition in different ways, and roles design can play in this process. Multiple participants in the final round of interviews found the idea of ‘designing regenerative transitions’ to be a novel and promising way of approaching transition because it brings together regenerative principles, transdisciplinary, participatory, and agency-building methods, systems perspectives for engaging in challenges with complex social, environmental, economic, and technological dimensions, and the generative, creative, and adaptive capacities of design.

Moving into practice, there is ongoing need to translate the skill sets named by Irwin et al (2015a) into specific capabilities. The case study research revealed several capabilities and methods that designers can bring to regenerative transitions (Table 2), which cut across each of the three broad areas of transition design practice identified by Irwin et al. (2015a): developing narratives and visions of the future, amplifying and connecting grassroots efforts and designing solutions within transdisciplinary teams. Figure 4 maps these capabilities to Irwin et al.’s broad areas of transition design practice, noting that other projects would map differ-

ently. Figure 4 is intended to indicate that practices known to designers can be used in transition contexts, but should not constrain the use of other methods, tools, and approaches, or innovations in practice in the future.

*Table 2 Design capabilities and methods with practical application in transition design*

<b>Design capabilities</b>	<b>Description</b>	<b>Case study example</b>
Relational approach	Connecting and forming relationships over time, building bridges	Time required to build relationships and trust designed into project phases
Empathy, care, and respect	Building understanding of diverse perspectives and worldviews through approach, tools, and language	Personas used in the field guide to build awareness of farmer perspectives and transition opportunities
Communication	Communications through various and creative media	Using graphic design and communications skills to support WG8
Discovery	Exploring context, problem-space and opportunity areas through design research and other methods	Semi-structured interviews as part of scoping established barriers and opportunities for regenerative agriculture
(Whole) systems thinking and sense-making	Analysis and synthesis for insight into context, dynamics, behavior, power, and systems, particularly with groups and supported by visualisation	A map of the agrifood system was iterated through scoping interviews and used as a generative tool in WG8. The barriers and opportunities surfaced through these discussions were used to develop a Theory of Change
Amplifying the work of others	Identifying and enabling further development of 'threads of the possible future' present today	Used to identify working groups already acting on opportunity areas identified in the Theory of Change
Transdisciplinary collaboration	Change-making through co-creative work involving diverse disciplines	Each of the working groups involved transdisciplinary collaboration
Facilitation	Convening, hosting, and facilitating participatory and 'co-' approaches to dialogue, deliberation, co-creation, and decision-making	WG6, 8 and 9 involved group facilitation, including a participatory activity in WG8 and a participatory, capacity-building approach in WG9
Imagination, innovation and (re)invention	Using inventiveness, creativity, and ingenuity to solve problems, develop ideas, or explore ways forward	Business model innovation through a Lean Startup approach was used in WG1
Prototyping	Developing, testing, and iterating lightweight, low-fidelity experiments to explore the potential of ideas	The value proposition of the business experiment in WG1, which was iterated several times, was made 'experience-able' and 'test-able' through a website

Framing	Arriving at new ways to conceptualize the problem, future state, and opportunities	Ultimately the opportunity to ‘increase uptake of regenerative agriculture’ was reframed as ‘agriculture can contribute to global regeneration’
Futuring	Developing (a range of) visions and narratives of the future, often based on changed worldviews and paradigms	The idea of envisioning a transformed agriculture was established as an opportunity in the field guide
Provocation	Leveraging radical and/or disruptive stimulus put out to audiences to invite collective imagination and wisdom	The final output of the case study (field guide) as well as the challenge to imagine a regenerative agriculture, were used as a provocation
Translation and integration	Enabling people with diverse perspectives and multiple disciplines to understand one another—and potentially find ways forward together	The term ‘sustainability’ is common in design and transitions to denote a future state that can be sustained, but had to be replaced with ‘long-term viability’ in the field guide to be palatable among farmers
Reflection and Reflexivity	Cultivating a posture of reflection with the self, others, and within society	Reflection was designed into the research, which enabled researcher reflexivity
Ecological thinking	Working from an understanding of and relationship to place, living systems, the interconnectedness of all things, and the life-giving, regenerative properties of nature	Transitioning to regenerative agriculture requires that farmers develop their ecological thinking, which is named as an opportunity in the Theory of Change. Likewise, to design regenerative transitions, designers must build their ecological thinking, which is reflected in principles and protocols in the field guide

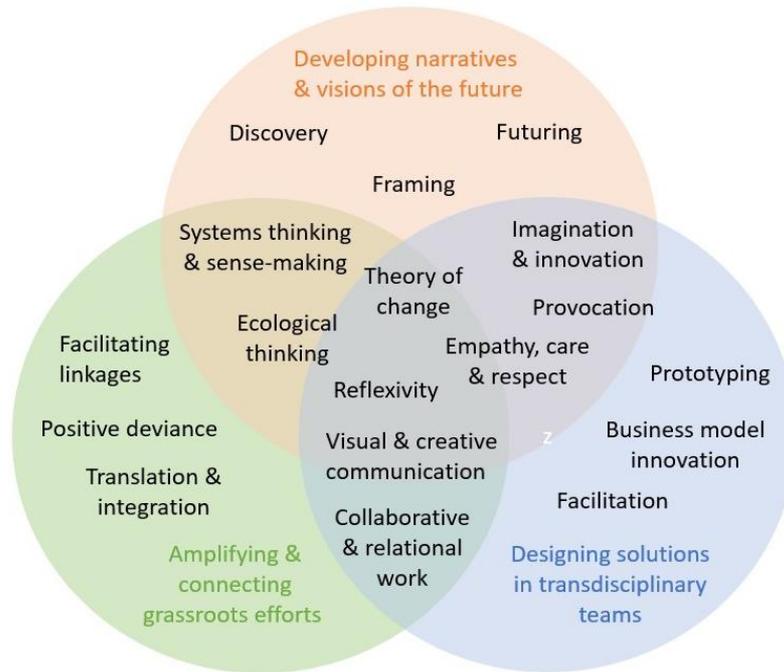


Figure 4 Design capabilities mapped to Irwin et al.'s broad areas of transition design practice

Different combinations of capabilities and methods were needed at each phase of the case study and for different working groups. For example:

- The Compost as a Catalyst working group (WG8) involved 8 full-day workshops, 5 webinars, and an online tool. The workshops concluded with small group discussions using **generative tools** (in this case a systems map) to surface barriers to transition. WG8 required multiple design capabilities related to **group facilitation, visual communication, and empathy generation**. **Theory of Change** played a key role in identifying this working group as a key acupuncture point not only for the multiple benefits of returning organic materials to soils but also because increasing biological inputs on farm can help reduce barriers to transition.
- The business experiment (WG1) was used to develop a business idea around tailored support to help farmers transition. **Discovery capabilities** were critical in identifying the need for such a service, while 'live prototyping' and Lean startup-style business model **innovation** enabled rapid low-cost **testing** of value propositions.
- The learning labs (WG9) featured multiple methods aimed at **building capacity, strengthening and broadening local networks, and generating empathy** and connection. Linkages were facilitated by engaging local Aboriginal elders as advisors and leaders for an immersive Walk on Country with project participants. Doughnut Economics (Raworth 2017) and business model innovation helped build regenerative entrepreneurship capability. **Generative connection** activities helped participants weave their ecosystem through needs and offers. Involvement in this working group also helped to identify a gap in other regenerative agriculture projects that do not explicitly consider social benefits or social justice.

- The field guide feedback highlighted the value of **futuring** approaches in creating hope around “desirable futures”, **visual communication** to cut through complexity, effective **group facilitation** to guide conversations, and structures for **generating new possibilities**. The feedback strengthened the guide, for instance, by highlighting challenges posed by dominant paradigms and alternative perspectives. The field guide itself serves as a design provocation, to stimulate dialogue (e.g. around definitions and principles of regenerative agriculture) and further experimentation for both regenerative agriculture and transition design.

The integrative value of design was also highlighted strongly in the final round of interviews. Transition design was seen a way to “hold the complexity” that stems from working at different layers of the system through collaborative, transdisciplinary efforts. Whilst making sense of “the design angle” on regenerative agriculture was challenging for some, design practices were perceived to enable empathy, establish clarity of purpose, and create a level of comfort around uncertainty and complexity that overall increased the adaptive capacity of actors within local regenerative agriculture ecosystems.

#### 4. Discussion and conclusion

Through an empirical example, a transition design case study project focused on regenerative agriculture transition, this paper has explored two key questions with respect to the developing discipline of transition design: ‘What roles can transition design play in enabling transitions?’ and ‘Which capabilities can designers bring to these roles?’

Firstly, on the question of ‘What roles can transition design play in enabling transitions?’, our case study supports the argument of van der Bijl-Brouwer and Malcolm (2020) that transition design can foster a systemic approach to wicked problems that considers complex interconnections and uncertainties. Following the Irwin et al. (2020) adaptation of Buchanan’s (2001) Four Orders of Design framework, the framing of transition design as a systemic approach necessitates the inclusion of ‘lower order’ practices around communication, construction and strategic planning. This supports the argument made by Lähteenoja et al. (2023) that successful transition design requires the blending of existing design expertise across the ‘lower orders’ of design with new design capabilities around system integration.

In order to be effective, transition design processes should link into multi-level dynamics, with phases/activities occurring at different levels (e.g., grassroots, niche, dominant regime, and landscape) (Geels, 2002; Loorbach, 2007; Irwin, 2018). Irwin (2018) specifies that, “In order to seed and catalyze change in complex systems and resolve wicked problems, multiple interventions, at multiple levels of scale, over multiple time horizons will be required”. Our working groups demonstrated how this can happen across three levels of scale: 1) farmer transitions and capability 2) sector capacity and 3) narratives, discourse, and cultures.

Loorbach et al. (2020) argue that interventions for transition management can be developed across four dimensions – strategic (collective thinking), tactical (collective structures), operational (collective practices), and reflexive (collective understanding). These dimensions also

overlap with the eight strategies for enabling the massification of alternative agroecological approaches proposed by Iles (2021) - recognition of a crisis that motivates, social organization (e.g., scaling movements), constructivist learning practices (farmer-to-farmer networks, like Landcare), effective agroecological practices, mobilizing discourses, external allies, favourable markets, and favourable policies. Insights from the case study demonstrate how design can work to enable transitions in each of these areas, for example:

- The field guide testing (as well as multiple working group activities) demonstrated the role that design can play in facilitating discussion around definitions and principles (e.g. of regenerative agriculture), which aligns with Loorbach et al's strategic level and Iles' mobilizing of discourses.
- The Compost as a Catalyst working group (WG8), in its aim to build sector capacity, speaks to Loorbach et al's tactical level and Iles' social organization.
- The business startup experiment (WG1) showed the value of experimentation within Loorbach et al's operational level to develop and refine effective practices (Iles).
- The role of the designer-practitioner-researcher in evaluating activities and facilitating group learning (Loorbach et al's reflexive level and Iles' constructivist learning) was highlighted through case study interviews and field guide feedback.

An additional lens that can be used to analyze the role of design in societal transitions is the *form of design*. Gaziulusoy and Ryan (2017), in the context of their low-emissions energy case study, reference Manzini (2006), who makes distinctions between 'diffuse design' (everyone designs), 'expert design' (using specific capabilities such as graphic design), and 'co-design' (in which outcomes are produced through "the interaction of a variety of disciplines and stakeholders—final users and design experts included"). In our case study, the designer-practitioner-researcher engaged in all three forms of design. Specifically, expert design was used to amplify ideas and the work of others (e.g. designing communication materials for WG8), co-design was used to engage community members and Indigenous advisors (e.g. developing Local Learning Labs for WG9), and the cumulative result of each of these was used to enable diffuse design for the explicit purpose of helping build transition capacity more broadly (e.g. capacity-building through a business experiment in WG1).

As well as the *levels of transition* and *form of design* it is important to consider the *purpose of design* as an analytical lens. Gaziulusoy and Ryan (2017) build on Mazini's (2006) concept of 'dialogic design' to outline a dialogic role for design in sustainability transitions and systems change and discuss how that applies to their case study. In the regenerative agriculture case study in this paper, this dialogic role emerges in a couple of ways. Firstly, WG8 workshops featured a facilitated discussion of the definition of regenerative agriculture and the barriers and enablers of participants' own transitions. Secondly, the field guide and other project outputs serve as strategic boundary objects for enabling dialogue through design.

This is in keeping with the spirit of “provocation” that underpins the original transition design vision of Irwin, Kossoff and Tonkinwise (2015a). In discussing the field guide, one interviewee summed up this dialogic, provocative role of design as follows: “we can actually do something in that urgent innovation space that doesn’t deny that institutions change at a logarithmic pace but...says, ok...what’s the generative conversation...that we can have...now?” This feedback indicates that the case study and resulting field guide demonstrate a way to deliver on Schön’s (1983) call for professionals to facilitate social problem setting and definition through the “cumulative process of societal inquiry”, “cooperative inquiry” and “reflection” (p. 347-352).

Gaziulusoy and Ryan (2017), using some of the same language as Schön (1983), synthesize the “roles of design observed” in their case study under three headings: in inquiry, in process, and in outputs. However, they do not directly integrate the dialogic role of design into these headings or the framing of the synthesis. We propose to reframe some of these headings for the ‘purpose’ lens (Table 3). Design—working at the strategic, tactical, operational, and reflexive levels of transitions and in diffuse, expert, and co-design modes—can be employed in each of these dimensions for distinctly different purposes: creativity and generativity, experimenting and producing propositions, enabling integration, holding process, and facilitating shared inquiry, dialogue, and sensemaking.

Table 3 Design roles by purpose

Role	Description
Creative / Imaginative / Generative	Facilitating imagination, the reinvention of everyday life, creating (new) visions, establishing viable directionality and generative ways forward
Integrative	Enabling people of different disciplines, cultures, and backgrounds to bridge perspectives and ways of working and engage collectively
Process	Establishing and holding process - for the purpose of supporting others to engage in transition approaches, projects, initiatives
Producing propositions	Experimenting with, developing (making), and implementing systems innovations and other changes for transitions
Shared/societal inquiry, dialogue, and sense making	Stimulating sociopolitical navigation, inquiry, and discussion for the purpose of drawing out perspectives, influencing, and change making; Collective sense making of transition dilemmas and ways forward

Regarding the second research question around specific capabilities that designers can bring, we found that designers can adapt familiar tools and methods to the transition design context, whilst scouring available resources for new options. In the case study, the designer-practitioner-researcher drew upon practices from multiple orders of design, including

graphic design, service design and business model innovation, to contribute to the three areas outlined by Irwin et al (2015a)—building narratives and visions, connecting and amplifying action, and designing transition interventions. We anticipate that many of the capabilities and methods applied during this case study, such as group facilitation, visual and creative communication, empathy generation, systems sensemaking, theory of change and provocations, are transferable to diverse transition design challenges.

Every designer will have their own ‘backpack’ of practices that they can draw from to “bricolage” their own approach (Yee, 2010). For instance, working on agricultural transitions in South America, Juri et al. (2022) combined a range of methodologies, including the transition design framework, into an open-innovation process. This involved some of the methods also seen in our case study, such as visual workshop aids and the collective generation of a Theory of Change, while also employing futuring methods such as backcasting. Gaziulusoy and Ryan (2017) employed related approaches around workshop facilitation and visioning in their case study on low-carbon energy transitions and held “design charettes” after each workshop, where the core research team and commissioned designers would step away from the broader participatory group to expand workshop notes into more detailed visualisations providing “glimpses of the future”.

As designers move into new fields, they must adapt their practice to suit the context rather than simply adopting practices they have used before (van der Bijl-Brouwer & Malcolm, 2020). As discussion with one participant revealed, the methods, practices, and tools for a decentralized sector like agriculture would be different for a more centralized sector such as energy. The capabilities of other stakeholders within these systems will also vary, influencing the added value that a designer can offer. A comparison of transition design projects across various sectors through further empirical research is needed to reveal the diversity of approaches that could be applied.

Starting from existing practices, design brings a disposition toward problem solving and creating new options to the context of transitions challenges—which will never really be “solved.” To parlay design practice for transition contexts, the role we have seen design play in the empirical example presented here offers an optimistic, pragmatic, and action-oriented approach to navigating the complexity and fraught territories of wicked challenges. We have outlined examples of the capabilities that designers can bring to transitions across the Four Orders of Design, as well as ways that design can engage at multiple levels of transitions, in different modes, and for the key purposes of generativity, integration, holding process, producing propositions, and facilitating shared—or even societal—inquiry, dialogue, and sense making. Not only are further empirical examples needed to continue examining and demonstrating the role of design, but there is urgency for designers to turn their attention to the societal project of transition.

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