



Commoning by Design: making room for life in the designed world

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ABSTRACT

How can design (re)enter the picture as a practice of care in worlds both built and damaged by design? Our response is to direct its materialising agency toward ‘commoning’. Commoning is a collective process of convening, repairing, regenerating and defending commons that can only be enacted with a community of commoners. This paper explores an interdisciplinary action research project that uses a workshop-based methodology to redirect organic waste from landfill to regenerative farms by designing with a group of actors including institutions, universities, social enterprises, and farmers. We introduce the ‘Commons Identi-kit’ to aid “thinking like a commoner” and cultivating a commoner subjectivity through a participatory design workshop, in which the diverse knowledges, capacities and collective agency of participants was enacted. In doing this work we learn to expand our capacities by prefiguring “new” commons and exploring the redistribution of responsibilities in relation to commons that already exist.

CCS CONCEPTS

• **Human-centered computing** → Interaction design; Interaction design process and methods; Participatory design.

KEYWORDS

commoning, participatory design workshop, participatory action research, circular economy

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1 INTRODUCTION

In a recent podcast, systems-thinker and warm data researcher Nora Bateson made a comment that struck us as deeply aligned with our perspective on design as a practice of care in a climate-changing world. She said: “we don’t have time to be in a hurry. . . we need to make room to let relationships make relationships.” This

opens to a different kind of designing – not the technocentric solutionism we seem so willing to hand the reins of change over to (particularly when driven by a sense of urgency). Instead, a kind that proceeds care-fully and that recognises the complexity of the already-designed world we must design into. Design as a practice of care relinquishes the logic of control that design so often mobilises, and instead turns toward the knowledges, capacities, and collective agency of everyday actors to discern what is needed to sustain life and livelihoods within the messy contexts that we have created for ourselves. The world in which we need to exercise care is swamped by design. As Elhacham et al. [1], tell us, at the beginning of the 20th century anthropogenic material weighed 3% of global biomass. By 2020 it outweighed living biomass, a trajectory that follows the birth and maturing of western industrial design. How can design as a practice of care (re)enter the picture in worlds both built and damaged by design? Our response is to direct its materialising agency toward ‘commoning’, the social practice of convening, repairing, regenerating and defending commons. In this exploratory paper, we introduce the Commons Identi-kit [2] and explore how it helps to shape dimensions of a new commons in the context of a participatory action research project addressing the pressing sociomaterial problem of urban organic waste.

2 A COMMONS IDENTI-KIT

Positioning design as a care-led (re)invention of the social, resonates with commons scholarship. Elinor Ostrom’s [3] pioneering work focused attention on how communities of commoners can work to maintain a shared resource for centuries. Extending this, diverse economies scholarship emerging from the work of JK Gibson-Graham, has elaborated the process of “commoning”, regarding it as a key ethical and political coordinate of transformation [2, 4]. In our view this scholarship accords both in spirit and methodology to participatory design scholarship focused on commons [5, 6]. Simplifying Ostrom’s formulation, diverse economies scholars have provided an Identi-kit that defines commoning (see Figure 1) as a process that ensures the widespread accessibility and use of a physical space, resource, knowledge or practice for common benefit. Correspondingly, it requires the widespread delegation of custodial care and responsibility for that common [2]. Commoning is a process of negotiation and boundary setting; commons are open but not wide open: they also work to exclude some people as well as practices that might destroy their continuity.

It is important to note in this formulation that private ownership does not preclude a property from being commoned. Commoning can be done in whole or in part: privately held property can be partially commoned, just as unmanaged resources, places, knowledges



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COMMONS IDENTI-KIT					
ACCESS	USE	BENEFIT	CARE	RESPONSIBILITY	PROPERTY
Shared and wide	Negotiated by a community	Widely distributed to community members (and beyond)	Performed by community members	Assumed by community members	Any form of ownership (private, state, or open access)

Figure 1: Commons Identi-kit [2]

and practices can be brought into a commons. Nor are commoning and market exchange mutually exclusive. Indeed, from 20th century patent pools to 21st century open-source software, commoning processes are integral to exchange. What the gerund commoning underscores, is the way in which shared resources, knowledges, and practices underwrite or indeed, to use Marres et al.'s [7] term "invent" alternative forms of coherent sociality.

Diverse economies scholars have researched how people have commoned knowledge, practices, spaces and resources to look after themselves, one another and the more-than-human world. Much of this research is participatory, working with others in "action research that engages people (including ourselves) in a process of re-subjectivation, that is, becoming subjects of an emerging and experimental community economy." [8]. Commoning is only one part of a larger community economy, but numerous diverse economies scholars have used action research approaches; a partial list would include work on fisheries [9], housing [10], solidarity economy spaces and institutions [11, 12], adaptation to urban heat [13] and waste [14, 15]. Ostrom documented commons that have lasted for hundreds of years; their durability being a function of how the rules of use (explicit or tacit) can be renegotiated. In the process of rule setting, the commoner speaks and in so doing coheres as a subject [6]. Commoning is a pragmatic concern in the context of an entity like a repair hub or community garden, but it also points to a broader process of political transformation in which commoning can only be enacted by a community of commoners. For Massimo deAngelis and Harvie [16] commoning constitutes an alternative political trajectory that has both a history, and, more hopefully a future.

We explore commoning by design in an interdisciplinary Australian Research Council (ARC) funded project that utilised an action-oriented, workshop-based methodology to explore the diversion and re-valuation of organic wastes by organisations, social enterprises and communities. The project Investigating Innovative Waste Economies: Redrawing the Circular Economy, claims that current Circular Economy policy in Australia characterises waste primarily as a missed economic opportunity. This narrow framing promotes a technical response to resource recovery that overlooks the innovative contributions of such actors in re-valuing waste

materials. Participatory action research, and in particular the participatory design workshop, allowed us to practise "thinking like a commoner" and cultivating a commoner subjectivity by caring for the world and "the fullness of our interdependencies with it" [12, 17–19]. In doing this work we learn to expand our capacities by prefiguring "new" commons or by exploring the redistribution of responsibilities in relation to commons that already exist.

In this project we worked alongside a diverse array of actors in an in vivo design experiment with organic waste. Our key interlocutor in this research (and co-author of this paper) Michelle Zeibots, is a committed regenerative farmer, who had enrolled the operations staff of a Sydney-based university (where she also works), coffee roasters and her family into a trial practice of using urban dehydrated food waste and in particular spent coffee grounds (SCG), as a compost medium for commercial garlic farming. Our research afforded an opportunity to enrol social enterprise waste haulers, other cafes and roasters, and council staff into a broader conversation about how to further develop this relationship. Here, the design workshop became a crucible of experimentation in which different institutions, commercial and non-commercial relationships, data tracking, logistics, legal and regulatory requirements, contending metrics and values were added to the mix and what emerged, by design, was the possibility of an initiative that worked to remake the circular economy as a commons.

In their book *Inventing the Social*, Marres et al. [7] foreground the experimentality of social life "... not just (performed by) artists and activists, but also everyday actors themselves continuously engage in experimentation on (with) our forms of living, behaviours and habitats." (28) This experimental impulse comes with a need to carefully consider what worlds we build and with whom. While this aligns with our own commitments, the phrase "inventing the social" works to obscure an important truth that is elsewhere evident in their argument – that the shared social world already exists. Writing in a similar vein, Sacks [6] positions the commons as a complex adaptive system where what's commoned, who is involved and the governing rules of use, are open to renegotiation. The objective of commoning by design is therefore to participate in the reinvention of something already underway and with the everyday actors who



Figure 2: Composting SCG: hard physical work

are expert knowers of their own places and practices. In the section that follows we recount how our workshop mobilised insights from diverse economies and techniques of participatory design, to explore a commons-based solution to the vexatious problem of organic waste in urban communities. The workshop is a powerful format for the collaborative work of commoning by design. It shifts ‘off the shelf’ design tools and methods into the realm of the performative, ‘making room’ for emergent social processes to come to the fore and dislodging the logic of control often associated with design [20]. Consonant with the “rule setting” work of commoning, the workshop format represents a fundamental political shift in the design process from the expert designer working for people to orchestrating processes of co-creation [21, 22]. In this process, in addition to who is involved and how, determinations of biophysical value are also loosened and opened for renegotiation.

3 EXPERIMENTING WITH “WASTE”

Waste is a persistent issue in urban communities across Australia, where waste management consumes a significant proportion of municipal budgets. City, state and federal officials have set ambitious targets to achieve 80% diversion of waste from landfill by 2030. Given that 50% of municipal waste streams are composed of organic matter and that organic waste can emit potent greenhouse gases when left to rot in landfill, there is a pressing need to create innovative responses to it.

We sat down for an extended conversation with Michelle to talk through her efforts to turn food waste into a regenerative soil conditioner for her commercial garlic farm. She also works as a transport planner at a local university that had recently purchased two commercial scale food dehydrators to reduce the expense of dealing with putrescible waste on campus. Michelle began hauling the dehydrated output up to her mountain farm for windrow composting, eventually also picking up SCG from a local coffee roaster. This waste when composted dramatically improved her soils, but the SCG had additional properties that she also noticed – initially, the material repelled vermin, but as it broke down it attracted earthworms in their millions, whose vital work transformed the tilth of the resulting compost and improved its water retention. This is a critical benefit in a land that swings increasingly between drowning and drying.

Michelle’s ‘in-the-wild’ circular economy attracted the attention of neighbouring farmers who were also interested in receiving this organic waste from the city, as well as coffee roasters wanting to avoid landfill. While she had a wide network of potential collaborators interested in expanding on her efforts, many of these relationships were fragmented during the COVID-19 pandemic, and still others were waiting to be reactivated. The farm and this “reverse” supply chain was operational, but the pain points were clear enough: the farmer, her family and friends were stretched to their physical limits, exhausted and with sore backs (see Figure 2). During our conversation, Michelle sketched out a diagram of her



Figure 3: The farmer's diagram shared existing and hoped-for relationships

version of a circular economy in which the lines and nodes were relationships: those existing, those in need of attention and those hoped-for, but yet to be. (see Figure 3).

To respond to this situation, we proposed a participatory design workshop that would bring together the broader circle of participants proposed in the diagram who might be able to strengthen and contribute to what Michelle and her small group of friends and family had started.

In December 2022, we convened this workshop in the design lab of the university to 'invent the circular supply chain with organics'. We brought together representatives from three of the larger coffee roasters operating in Sydney and elsewhere, two cafe owners, representatives from local councils and university operations, one representative from a waste hauling enterprise providing employment opportunities for ex-offenders, three farmers and a vermiculturist located in Sydney's west.

We worked with strategic designer Dom Svejkar to design the workshop building on Michelle's *in vivo* experiment. We prepared participants by asking them to bring to the workshop an artefact or material that represented the circular economy to them, as a way to introduce themselves. In the room, participants sat in the round and took turns introducing themselves and their material or object, placing them onto a canvas in the centre. These material 'triggers' [23] helped participants to externalise complex interactions embedded in the 'problem universe' under investigation, for example, a toy truck represented transport logistics. Working with the provocative force of materials and artefacts excised from everyday life sparked

conversation about alternative forms of "economisation" [24] and allowed participants to sit with the indeterminacy of waste [25]. A container of chaff – a by-product of the coffee roasting process and a 'new' material to many in the room – was introduced by a participant who said it was currently going straight to landfill. Passing the container with a clean dry 'biscuit' of chaff around, the participant explained that they had come to the workshop in the hope of finding a use for this material, particularly given how much chaff was being produced and discarded by urban coffee roasters. This led two other participants in the room to immediately offer to take the material, as they recognised its value as a bulking agent in regenerative farming. The introductory exercise also prompted a discussion about the properties of SCG as a soil amendment, its purity (as it is free from weeds or pathogens), abundance and relative light weight, and the potential for it to be separated at source by participating baristas. This conversation addressed several of the barriers to the reuse of putrescible, often highly contaminated food waste, creating the space for a reverse logistics supply chain centred on the amenable material qualities of SCG and chaff, to be collectively imagined.

In a second activity, the diverse knowledges, practices and collective agency of participants was orchestrated via a four-metre-long map that Dom and the researchers had co-designed. This map represented in skeletal form the imagined stages in the reverse journey of organics from the sites of 'production' in inner city cafes and institutions, to regional farms where it does life affirming work. Participants were invited to populate the map with suggestions



Figure 4: Inventing the circular supply chain with organics

and questions, and, following Michelle’s approach, to articulate what existing and hoped-for resources and relationships might be enrolled to bring this ‘chain’ to life. The map functioned as a “thinking-making-aid” for participants [26], a scaffold to elicit and to orchestrate their input (see Figure 4). As they gathered around and interacted with the map, participants engaged in further collaborative conversations, taking advantage of the people in the room to ask and answer questions up and down stream of their place in the chain, and innovating ways to resolve dilemmas. These conversations continued over a convivial lunch. After the workshop, the rich data set composed of notes, drawings, photographs, written comments and recordings, was synthesised in a collaborative meaning-making exchange between Dom, the researchers and participants. The result was an illustrated report which included a nascent proposal for a reimagined circular supply chain (see Figure 5).

4 FINDINGS: COMMONING BY DESIGN

There were several valuable outcomes from this workshop that went well beyond what was originally anticipated in getting help to build out Michelle’s enterprise. These outcomes, enumerated below, helped us to delineate next steps in shaping the dimension of a new commons.

Firstly, the workshop helped to identify the value of chaff as a new material – more a by-product than a waste stream – which could form a ‘clean backbone’ for a pilot study of the circular supply

chain. This was deemed important to release the living experiment of the need to deal with volatile and risky putrescible food waste in its initial stages. As Michelle later remarked: “if people get used to the idea that this is what’s possible within a circular economy, then I think suddenly, it’s much easier to then throw [in] other parts of the putrescible waste.”

The workshop also identified several practical issues and “matters of concern” [27] shared by the participants that need further research investigation including: how much material can be collected; who will collect it and how often; how existing infrastructures like truck backfill journeys and disused council land might be leveraged, and, crucially, the importance of gathering data to inform reporting on waste diversion targets as well as to form other strategic stories. As one participant engaged in waste hauling remarked: “we do not collect waste without collecting data.” The social enterprises, universities, farmers and coffee roasters already gather information about “waste” to meet their environmental reporting requirements and those of their customers. In shaping what comes next this same data will provide crucial information about volume, weight, collection and delivery frequency to support circular economic activity.

Bringing participants from across the imagined supply chain together was itself identified as novel, as acknowledged by one participant: “I’ve never been with coffee people, farming people and university people all together in the same room. It hasn’t been done before.” The workshop also revived and replenished those

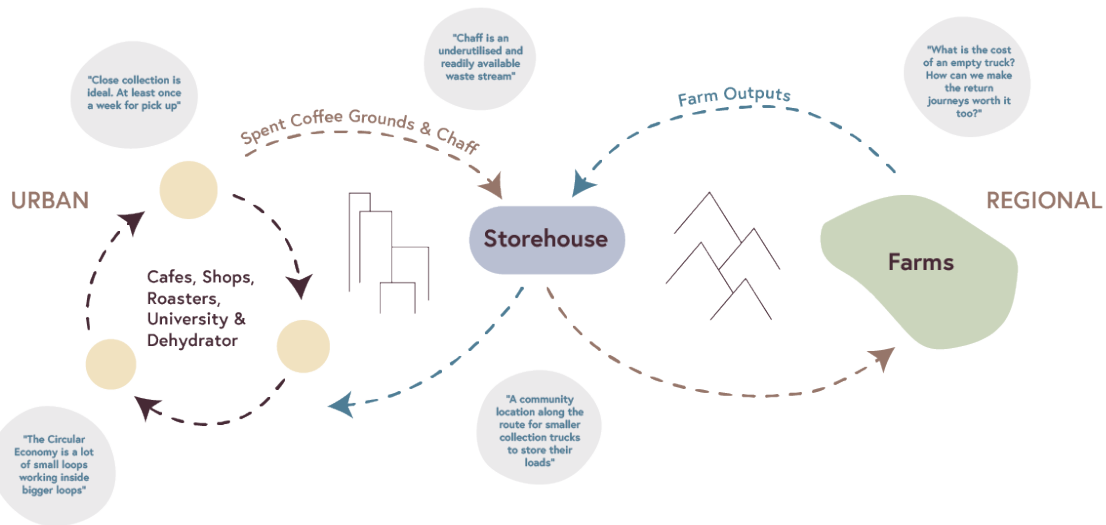


Figure 5: The circular economy redrawn

Table 1: A supply-chain knowledge commons

Access	Use	Benefit	Care	Responsibility	Ownership
Access to information collected by each participant ensures coordinated actions and capacity for accurate reporting.	Participation in the supply chain involves the consistent collection of data and the sharing of information.	All users: Benefits are diverse including reduced waste management costs, improved environmental and ecological outcomes such as increased soil fertility, governance performance, and employment opportunities.	All users: Everyone takes care in measuring quantities of SCG and other material collected including wet and dry weight of material hauled, volumes of waste received, and how much area composted material covers on the farm.	All users: Compliance with existing laws around the handling, safe transport, and composting of this waste stream require being accountable to multiple authorities. Care-ful separation at source to ensure materials remain uncontaminated is a crucial responsibility.	Alliance members are currently exploring the formation of a NFP that would assume responsibilities for coordinating relations, collating data, and insuring against risk.

who had been labouring in isolation. As our key interlocutor remarked: “Some of the new connections made today were invaluable. Renewing old connections will enable what we have achieved so far to be reimagined and renewed in a really positive way.”

Probably the most novel and exciting outcome of the workshop is what has happened since: the formation of a social alliance that will enable the emergence of commoner-subjects to speak and act. This formation recognises that any new material commons must be preceded by a knowledge commons [2] and make room for the ongoing commoning of knowledge production. The role of the university and research enterprise is critical in this formation,

providing ‘safe-fail’ spaces in the culture that can offset some of the risks of experimentation and make room for ongoing social learning [28]. As diverse economies scholars have argued: “the proper expression of academic autonomy in the twenty-first century is the preservation, defence and expansion of knowledge commons” [29].

In table 1 we explore the dimensions of this emerging knowledge commons using the Commons Identi-kit.

The formation of a not-for-profit (NFP) entity to coordinate activities from collecting data, to managing actors, planning and mitigating risks, is currently being explored. In Ostrom’s terms the

NFP would play a crucial role in acting on behalf of all the actors to ensure this novel chain of relationships remains intact. In her work she emphasised the need for commoner-communities that can apply ‘sanctions’ to those who violate the rules of use. Without discounting the need for such a role, what we think our participatory design workshop enabled is the creation of a nascent institution that helps to do the work of establishing a commons, in this case one that stretches along a “supply chain.” Following Botero and colleagues [30] we might see this as a moment where workshop participants were beginning to identify some of the infrastructures, material and immaterial, that are necessary for commons. Accounting for this crucial role carries us to the limits of what can be represented with the Identi-kit, coordinating and data gathering are the dynamic processes of commoning, enacted by a community of commoners in time. More broadly the NFP could provide the impetus for an alternate trajectory, aligning the interests of commercial actors, non-profits, waste haulers and regenerative farmers in building relationships where “waste” plays a crucial role in realising common-benefits: improved soil fertility and tilth, regional and regenerative futures, livelihoods, and food security.

5 CONCLUSION: MAKING ROOM FOR LIFE

In this paper we have started to discern design as a care-based practice of commoning. In the project we’ve explored we sought to intervene in the ecological harm of waste generation by co-creating a form of circularity based on collective action rather than the disparate commitments of individual actors. We see our action research as a critical provision of room for experimentation and “inventing the social” in the face of significant ecological challenges and a world in which we have fewer and fewer opportunities to slow down: to be, think, sit with indeterminacy, and experiment with one another to co-create shared forms of life. The “participatory moment” we have explored in this paper afforded an opportunity to expand civic capacities, broaden a shared understanding and support connections between people, redistributing the burden of care and bringing life back to the land. It enabled the commoner-subject to articulate new civic demands as well as new forms of mutual support, coordination, and information sharing, establishing a commoning trajectory. In essence what our intervention underscores is the different ways that commoning works: where renegotiating what Ostrom calls the “rules of use” become practically relevant. The Commons Identi-kit, in foregrounding questions of access, use, benefit, care and responsibility, creates a context for identifying shared interests amongst actors with competing values. In identifying what is to be commoned (“waste”, data, know-how) it also convenes a community of commoners. In this way commoning by design can offer a powerful corrective to Circular Economy, Transition Management or Sustainability policies that despite stated ambitions, all too often focus on purely technical questions that reproduce business-as-usual.

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