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The Circular Economy Transition in Australia: Nuanced Circular Intermediary Accounts of Mainstream Green Growth Claims

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Abstract: Australia has recently declared its commitment to a Circular Economy. Policy and initiatives to date have focused on recycling and waste management and research to date has highlighted the need for more ambitious policy, clearer definitions, collaboration, and consensus on goals. There are also calls from some government and non-business sectors for more inclusive, circular models, including Doughnut Economics. In the context of a competing mainstream Circular Economy and inclusive circular society discourses, circular intermediary organizations and their representatives are key to achieving change. Compared to the green growth business narrative of policy and industry media, intermediary representatives are aware of the diversity of challenges and solutions for Australia. Based on semi-structured interviews with twenty representatives of circular intermediaries in Australia and thematic discourse analysis, this study finds Circular Economy, circular society, and de-growth discourses informing themes about government, business, growth, consumers, society, and policy present and future. Arguing for a more nuanced view of the discursive and practice-based complexities of the circular transition, the study concludes with recommendations for a more holistic policy and practice beyond the current circularity for circularity's sake.

Keywords: Circular Economy; circular society; Australia; intermediary

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1. Introduction

Driven by external and internal pressures on the waste management and recycling system, Australia has embarked on the implementation of a Circular Economy (CE). Largely as a result of export bans on waste being sent to China, an increasing waste and landfill crisis, and other factors [1], Australia responded to circularity with a National Waste Policy [2,3], which alluded to waste and recycling as the basis of a Circular Economy. With a material footprint reported as double the OECD average [4], Australia faces a considerable challenge to achieving change through such end-of-pipe strategies. The following sections discuss three dimensions of circularity in Australia and the role of intermediation.

1.1. Policy, Media, and Scholarly Views

National efforts have been accompanied by state-level policy statements around waste management, circularity, and recycling [5–8]. These policies were followed by funding initiatives for circular business and industry, innovation hubs [9], a recent national circular roadmap project to 2030 in response to calls for such targets [10] aimed at business and green growth, work on standards [11], symposia and conferences [12], and other initiatives [13]. National circular platforms have also appeared, publishing regular briefings on progress [14]. These and related developments have been accompanied by the media, e.g., [15] to promote the idea of circular growth based on innovation from waste streams. These initiatives have been accompanied by aspirational predictions made by finance and investment consultants, including KPMG [16] and PWC [17], about the future economic benefits of a circular shift.

However, while a recent industry-focused report concludes on progress in Australia [18], others see circular maturity in Australia as comparatively limited in legislative, policy, and regulatory terms [19], and fragmented in terms of existing policy [20]. The enthusiasm for CE in government, business, and media rhetoric [21] contrasts with a more measured account in the limited scholarship on the topic. Levitzke [22] notes that elements of circular policy, e.g., product stewardship, had been on the agenda in Australia prior to the recent circular focus and had limited success. Describing Australia as one of the worst performers on resource efficiency in the G20, Worrall et al. [10] see multiple areas for improvement towards a decarbonised circular industrial transformation.

A circular policy, wherein there is a limited disjunct between holistic policy and business transformation versus narrow waste and recycling implementation, has been central to the modest success of circular initiatives in other countries [23,24]. While an altered view of waste as a resource is essential to the Circular Economy movement [25], recycling and waste are low-level strategies on the road to a Circular Economy transformation [26]. For some scholars, in fact, recycling is excluded as a circular mechanism, given its end-of-pipe focus and implication in global waste trade [27], while for others it is a rite of passage to deeper change [28].

1.2. Business and Sectoral Changes

In Australia, policies and guidelines need to better encourage synergies and collaboration among businesses across the whole range of resource and management strategies [21]. Encouraging new circular business models is also critical to success for Circular Economy advocates and many barriers must be overcome, including changes to consumer habits and routines [29–34]. There is a clear need for the development of consistent, sectoral, industry-, and location-specific policies by the federal and state governments to stimulate Australian SME CE adoption [35]. The particular circumstances of the Australian context mean that business, market, and other barriers identified elsewhere [36] are not always relevant to the same degree [37]. Hence, there is a need for case study exemplars, as others have noted [22].

There have been a small number of such studies to date. Sohal & De Vass [38] investigate the uptake of CE in 16 SMEs in Australia. Collaboration was identified as key for most firms as well as for a range of leadership elements, e.g., daring, passion, etc. Interestingly, work prior to the new circular movement in Australia had already pointed to the need for such collaboration [39]. Gajanayake et al. [40] analyse business motivations for circularity in Victoria, finding that morally and socially conscious issues have driven developments in the small sample of SMEs they included. However, innovation, leadership, financial return, and other benefits were not as significant. In addition to the SME focus, there has been some work on specific sectors.

For Architecture, Engineering, and Construction, awareness of circular building potential in terms of added value, stakeholder interest, and technologies correlates with moves to adopt these ideas in Australia [41]. Shooshtarian et al. [42] find the lack of a supportive organizational culture and concern about the quality of recycled materials are the two biggest obstacles; more regulations, transparency, and good governance are identified as important. In the same sector, energy recovery from demolition waste is a new area for circular implementation, although it is low on the circular r-strategy hierarchy [43]. Although there are some encouraging early signs, such a development of state-level circular design principles [44], without a radical change in building and construction practices, will not allow Australia to meet its net zero commitments for 2050 [45].

The agri-food industry in Australia continues to operate largely in a linear fashion, including large inefficiencies in food production [46]. Scattered niche experiments with circular towns and regional networks have shown promise but have yet to scale [47]. Another area of interest with limited progress is lithium battery mining and recycling [48,49], an area of growing importance for the solar and automotive sectors [50], while the role of additive 3D manufacturing in integrating decreasing mined and increasing recycled

metals is also a key topic for research [51]; a challenge that was flagged as a key area for a circular Australia almost a decade ago [52]. Finally, despite studies identifying relevant processes [53], plastic is another significant material, for which current reintegration of recycled material into products and sectors in Australia is extremely low [54].

These and studies in other sectors, including e-waste and minerals [55–57], point to the need for new policy, regulation, and tax levers [58,59], as well as better governance models [60] at multiple levels and in multiple sectors to improve circular uptake in business and industry sectors in Australia. An exception to an exclusive technical focus is a recent study by Horne et al. [61] on strategy and policy principles for Circular Economy housing in Australia. The value of this study is that it goes beyond the standard focus on closed loop material flows to include market creation and other institutional innovations relating to affordable social housing. The authors identify new governance approaches and collaboration as key levers for change.

Overall, a focus on recycling and waste management has contributed little to upstream designing out of waste, reduced consumption, and societal transformation. Sufficiency strategies focused on upstream designing out of waste through reduced consumption, sharing business models, product longevity, and other r-strategies of refuse, rethink, and reuse suggest reduced consumption and profits. More substantially, without a focus on a meaningful measure, such as GHG emissions and material footprint, a technical and material focus on resource and waste management suggests a logic of circularity for circularity's sake [62] rather than a sustainability transition.

1.3. From the Mainstream towards a More Inclusive Circular Society

There has been a growing critique of the semantic vagueness [63] and practical limits of the mainstream circular narrative [64–66]. In addition, earlier reviews of Circular Economy initiatives have pointed to a focus on eco-efficiency and business growth to the exclusion of social equity and ecological boundaries [67]. Thus, there is a real danger that mainstream CE has disengaged from sustainable development [68–70] and follows the same rules and outcomes as the linear economy it purports to replace [71]. The absence of a social and ecological focus in mainstream CE has led not only to critique, but to the emergence of narratives of a sustainable Circular Economy and circular society [72–75] as a complement or contrast to the mainstream CE narrative [76,77].

Policies and practice reflect discourses, and circularity is no exception. Discourses are explicit or implicit taken-for-granted assumptions about how the world works relative to an issue, e.g., circularity or sustainability [78,79]. The idea of high-level competing discourses (conversations) about circularity is not new. Friant et al. [69] have identified four competing 'circular discourses', including: a techno-centric (mainstream) Circular Economy; a reformist circular society discourse, e.g., Doughnut Economics; a transformational degrowth circular discourse; and a 'fortress' circular model. The latter adopts a defensive territorial approach to resisting migration and other incursions on domestic stability and security in a Circular Economy.

Although representatives and protagonists of these different positions might challenge the label 'circular', there are contrasting narratives similar to these four about current sustainable and Circular Economies, with diverse approaches to growth and inclusive economics [80]. DE has had some public impact in Australia [81], including among those who hitherto have promoted the business and eco-efficiency CE agenda, and see it as a complementary focus [82]. The recent media on Amsterdam's city strategy for 2020–2025 [83] are one example that have lent some strength to this claim, presenting a Circular Economy leader [84] that adopts Doughnut Economics as the socially inclusive framework for city strategy within which circular building and business might work.

There have been some initial efforts to promote such a strategy in Australia [85]. To help interviewees explicitly contrast the mainstream narrative with other circular discourses, interviewees were asked to contrast Circular with Doughnut Economics. In the interview data set, three of these four discourses appeared, while the fortress model was ab-

sent. While this study focuses particularly on the contrast between the first two discourses, de-growth models are also being discussed in some circles as transformative solutions [86]. New forms of collaboration, governance, and networking are universally recommended to promote an industrial transformation that is not only focused on recycling and waste management. For collaboration to succeed, intermediaries are required in business, government, and civil society who can promote collaboration and networking.

1.4. Intermediation for a Sustainable Circular Transition

A wide range of intermediate organizations and actors in all sectors who are committed to promoting a sustainable circular transition are required to implement current and future policy and influence or disrupt the existing socio-technical status quo [87]. Intermediaries are organizations, individuals, platforms, or other actors facilitating, brokering [88], and catalyzing niche experiments towards regime change [89]. The nature and scope of the action of these different actors for transition has been typified as user-oriented, process, niche, regime, and system-wide levels of intervention [90].

While some studies of intermediation in sustainability attempt to set objective boundaries on who these actors are, this study adopts a view from participants who describe themselves, implicitly and explicitly, as intermediaries because they have knowledge of and an overall commitment to a socio-economic transformation for sustainability, network and connect with multi-sector actors to promote the overall transformation and consider themselves to be promoting such change. These participants therefore share what the philosopher Wittgenstein called a 'family resemblance' in the semantic continuum of the term intermediary [91].

A feature of intermediaries is their 'in-betweenness', in being embedded in and connecting between 'spaces' of interaction [92], which both enable and limit their capacity. The government and non-government organizations and the individuals representing them in such spaces are typified by diverse even oppositional politics. Thus, circular policy formulations form part of the context for systemic transitions and are suffused with political agendas that enable and limit action [93]. Recently, van Weelen [94] has observed that existing studies of intermediation in sustainability pay insufficient attention to this relational and political nature of intermediary spaces, i.e., within and across organizations ideological and practical differences exist about circular agendas.

1.5. Research Objective

In terms of the literature review, there is skepticism about the nature and effectiveness of circular policy in Australia and there are calls for improvement. In comparison with enthusiastic media reports, circular business and sectoral change have been modest and still face obstacles, which could partly be resolved by better policy and implementation. An over-emphasis on technical and material efficiencies relative to waste and resource streams has not convinced all stakeholders that such solutions will lead to a sustainable circular society. These facts and tensions are particularly apparent to circular intermediaries whose role it is to enable the collaborations that will lead to change. The overall lack of a more nuanced picture of the circular transition in Australia and the missing perspective of circular intermediaries lead to the focus in this qualitative study.

2. Materials and Methods

This study employs thematic discourse analysis of semi-structured interviews with circular interviewees. What this means for the study is outlined below.

2.1. Thematic Analysis

Thematic analysis of semi-structured interviews is a widely employed approach in qualitative analysis and is compatible with a range of approaches, including discourse analysis [95,96]. Thematic analysis aims to identify prevalent [95] narratives about topics of concern with instances spread across the data analyzed. A constructivist approach to

the interview treats the themes as the collaborative achievement [97] between interviewer and interviewee [98]. Reflexive thematic analysis adds to the constructed and interactional nature of the interview. There is a focus on the politics of organizational life [99] consistent with the relational nature of intermediation noted above. The politics of organizational life is in part captured by the competing discourses on the matter for discussion, which underlie the themes articulated in the interaction [100].

The process of coding is an initial step in identifying substantive issues in interview transcripts. Subsequently, reflexive thematic analysis relies on the interpretive skills of the analyst to identify overarching themes [101]. Hence, reflexive thematic analysis is part of the central enterprise of sociology to explain the particular in relation to general structural and discursive patterns. As Gee [102] suggests, discourses may at the macro level represent competing 'conversations' in society about particular topics, e.g., technological innovation as a solution to sustainable growth. Gee uses 'big D' Discourse to refer to practices that are consistent with these conversations. Thus, circular policy formulations, funding initiatives, and circular business models are the practical outcome of Discourses in the relevant sense.

2.2. Interview Cohort

The interviewee cohort, consisting of a purposive sample of 20 representatives of circular intermediary organizations across Australia, was recruited in 2021 (from a larger potential cohort of 30 representatives). Interviews were conducted on Skype, recorded, and transcribed, and lasted from 20 to 45 min. Purposive sampling aims to match the sample to the purpose and nature of the research [103]. Hence, a sample from different states and sectors who considered themselves intermediaries was recruited. The final number (n = 20) has been recommended as a figure that achieves data saturation relative to thematic analysis in similar studies [104]. The final cohort (n = 20) is similar to or larger in scope and number than other recent published studies on circularity employing interviews [38,40,58,105–107].

The recruitment pool was identified from LinkedIn™ network profiles, which identified circular advocates, advisors, officers across business, local and regional government and networks, research agencies, industry, business consultants, not for profit organizations, and others. Many individuals had primary roles in one organization but secondary roles in others; many were also known to each other and to the study author. Interviewees were located in Victoria, South Australia, New South Wales, Queensland, and West Australia, but state location was mainly relevant to LGA representatives. Others were often members of a range of national networks and platforms, and in many cases known to each other to varying degrees.

For most interviewees, their current role in Circular Economy or society initiatives was preceded by business, educational, organizational, and personal experiences in sustainability and circularity, which they reported as significant for their current thinking. Personal and professional biographies provide a more nuanced and complex picture of experiences and commitments, which play out in interview responses. In this paper, I do not focus on these nuances, given space and objectives.

2.3. Discourses and Themes

In the table below, the principal discourse of the interviewee is noted: CE (Circular Economy), CE + DE (Circular Economy and Society), or DG (Degrowth). Those marked as CE + DE agree that both Discourses and related practices matter. For CE(+DE), this means that the organization and individual acknowledge the significance of the DE focus but tend to see implementation of CE as the current challenge. Those with only CE or DG largely reject the relevance of other Discourses. The table shows how the interview narratives do not typically reflect one dominant discourse, although it should be noted that the interview protocol invited a direct comparison and influenced this outcome.

In addition to Discourses, Gee and others suggest that in discursive events like interviews one finds small 'd' discourse models [108–110]. These are narratives about aspects of competing circular Discourses, such as resources, society, consumption, etc. Intervie-

wees may share views on themes even if their dominant hybrid, e.g., CE(+DE), or unitary, e.g., CE, Discourse differs (see Table 1 below). Thus, in contrast to prevailing studies of Circular Economics, thematic headings reflect prevalent 'shared' ideas about Circular Economics in a context of discursive plurality. In comparison with a largely conventional Circular Economy narrative in policy and business sectors about green growth, intermediaries across government, research, consultancy, business, and non-profit sectors are more careful in their claims.

Table 1. Interviewee role and Discourses.

	Role	
1	Economic Development & Placemaking Senior Officer in LGA, VIC	CE(+DE)
2	Senior Officer City Economy & Innovation LGA, VIC	CE(+DE)
3	Circular Economy Lead LGA, NSW	CE + DE
4	Co-founder Strategy Consulting Agency, Perth WA	CE + DE
5	Sustainability Consultant & Circular Standards Committee, NSW	CE + DE
6	Circular Economy Consultant & Expert Advisor, SA	CE
7	Head of Strategy Agency & Member of Regen Melbourne, VIC	CE + DE
8	Industry and Government Circular Advisor, NSW	CE(+DE)
9	Government Circular Business Innovation Engagement Lead, VIC	CE(+DE)
10	National Circular Economy Platform Manager, NSW	CE(+DE)
11	Manager in Regional Waste & Resource Recovery, VIC	CE
12	Business Strategy Mentor & Consultant, NSW	CE(+DE)
13	Brisbane Tool Library Founder and PhD Candidate, QLD	DG
14	Senior Circular Economy Research Consultant, VIC	CE(+DE)
15	Circular Economy Coordinator LGA, VIC	CE(+DE)
16	Circular Economy Not for Profit Platform CEO, VIC	CE + DE
17	Program Manager for Charitable Foundation, VIC	CE + DE(+DG)
18	Circular Economy Partnership Coordinator LGA, VIC	CE + (DE)
19	CEO Circular Economy Social Business & Impact Entrepreneur, QLD	CE(+DE)
20	Regional Program Manager for NSW Region	CE(+DE)

3. Themes and Discourses: Results

Discourses are taken-for-granted assumptions, implicit or explicit, about how things are or normatively should be, e.g., business and technology innovation is the key to sustainability transition or growth and consumption needs to be challenged as given. Themes are context-dependent claims about aspects of the topic under discussion, such as circular policy, recycling in a Circular Economy, society, and cultural norms. A personal position may also differ from an organizational one among respondents, and organizations themselves may embody competing Discourses, e.g., in different departments.

Meanings and interpretation of circular attitudes to recycling, policy, and social change (addressed below) differ between a mainstream, reformist, and transformational position. For example, a mainstream Circular Economy view takes a definition as relatively determined, while reformist and other perspectives recognize the vagueness or diversity in definitions.

In the themes addressed below under the domain headings, I attempt on the one hand to summarize the scope and meanings of themes and how prevalent they were across the transcripts, while also illustrating with a quotation from the data an example of these summaries. Transcripts have been normalized to exclude hesitations, repetitions, and other

conversational features, and in quotations (. . .) indicates a shortening of the quotation for overall word length purposes.

3.1. Circular Economy Interpretations: Mainstream Meaning and Limits

Research highlights diverse meanings under the umbrella term of Circular Economy [111]. The Circular Economy discourse treats definitions as relatively unproblematic and comprehensive, while circular society accounts identify limitations relative to society and environment, as well as other inconsistencies. De-growth (mentioned by only 2 respondents) meanwhile rejects both.

All interviewees cited or paraphrased mainstream definitions, while nuancing these definitions with caveats and elaborations

> So designing waste out. And I talk about keeping things at their highest value. So I try to get across the you know, we're trying to keep products as products and then get the components back and then get them to be recycled as much as they can. (6)

Widely known circular mottos, such as 'designing out waste' or 'keeping things at their highest value', formed part of these definitions, as well as other concepts in the CE discourse, such as decoupling growth from material use, product as service, the circular and linear contrast, dematerialization, and regenerative design.

> And what I know about it is that it is a process to make use of materials and products but also that you know products and services are created and designed in a regenerative way. So we're leaving the world in a better place to what we found it. (10)

The origins of circularity and its relationship to sustainability also arose in the interviews, sometimes positive and other times negative.

> It's soft and cuddly for the commercial and Industrial sector to jump on the bandwagon. For me, in my understanding, it's a mix of the more general life cycle industrial ecology discussions and research coming out of the 80s and 90s. And at the same time, it's almost metamorphosed into its current strain. (15)

While there were comments about the vagueness in the term sustainability and sustainable development and debate about whether Circular Economy is the new sustainability paradigm [112], most interviewees saw a relationship between the two terms.

> So, when we define sustainability what we're really talking about is this closed loop system. So that's where I bridge it into circular economy. Is that at the very big point of a very big objective of creating a sustainable Australia is we need to create this kind of closed system. (16)

Those with longer professional journeys referred to the history of circular ideas, such as cradle to cradle and decarbonization, as predating the current enthusiasm for the new umbrella term. Although explicit in circular society models such as DE (discussed below), many interviewees saw the scope of Circular Economy as embracing social and ecological transformations and impacts; this was particularly true for those who more recently began Circular Economy roles.

> Yeah, we know what it isn't. It's like we know we know it's formed by its negative space, [correct], but I think also what's challenging about it is that it's hard to articulate it because you're almost trying to describe an incredibly natural and harmonizing system. (18)

Such an expansion of circular economy may be a product of an existing diversity of meanings and increasing moves to define circularity in relation to sustainable development and growth-agnostic models [113,114].

The Circular Economy is often portrayed as a systems-level change, although the scope and boundaries of the system vary from business and industry transformation

in a mainstream green growth economics, through to social, economic, and ecological transformation in reformist and transformational models of reformed or rejected capitalism.

> It's more about a complex system approach of solving things where we need to include ways, ways that materials flow and this: the way that people interact with those materials at different levels. (16)

Thus, the circular society discourse (and post-growth, albeit more radically) alludes to a major reform and transformation of the economic and social system in response to ecological boundaries.

> Yeah, and a GDP growth for the state and profit maximization for business [mm] and shifting away from those goals that are very narrow and very singular towards a more regenerative system that takes us into that space between the environmental ceiling and social foundation. (7)

Most interviewees suggested that normalizing Circular Economy or circular society entailed highlighting principles rather than labels.

> I tend to explain to people that our program's focused on working with businesses to help them ultimately reduce their environmental impact and reduce their waste generation while also increasing their profitability and providing new types of products and services to customers, whether that's consumers or to other businesses. So, I don't usually use the term circular economy. (9)

All interviewees noted that promoting and eventually normalizing Circular Economy required clarification, especially with businesses on the meaning and scope of the term.

> Yeah, I just think education is key in keeping it really simple. I work with businesses day to day and I'm constantly reminded of how complex we can make things and how complex everything is, but we've just got to keep it really simple. (1)

As representatives of intermediating organizations, they also reflect on the extent to which these meanings and related concepts are shared with business, consumer, and other stakeholders. Thus, across the interviews, positions varied along a circular continuum that ranked from skepticism about and even rejection of the term, to valuing of the idea as a response to the waste and recycling dilemma faced by Australia.

> This kind of dream that ooh maybe we can have our cake and eat it too. I think the attractivity of doughnut economics is to say well actually there's these bounds that we need to live within. I'm a bit on the fence with that. I don't I don't know where I sit yet. (6)

However, no interviewee was entirely convinced that the mainstream Circular Economy narrative alone could achieve the transformation required for Australia. Thus, in contrast to the prevailing green growth discourse of current circular policy, respondents overall had a more nuanced view of such claims.

3.2. Competing and Complementary Comparison of Circular Narratives?

In considering Doughnut Economics, most interviewees saw the potential for complementarity, whereby DE provided the more encompassing and holistic framework for CE strategies in business and industry. One respondent with a commitment to degrowth (13) considered both inadequate, while another saw limited value in a contrast between the terms (6). Mainstream CE was generally viewed as a big enough challenge for business and industry. For the majority, DE set the wide-ranging ecological and social boundaries for Circular Economy as a mechanism of material and resource efficiency.

> So Kate's trying to tell it a different economic paradigm story and she's challenging the very shaky foundations on which our mainstream orthodox economic thinking is based and the way that it's been being used and manipulated by the powerful to get what they want. (17)

In response to my question about the contrast of the two narratives, those who professed sufficient knowledge of both emphasized their complementarity or suggested that DE was an all-encompassing strategy.

> I think that they both have strengths and weaknesses. But I think together they could be more than the sum of their parts. (3)

Those strongly committed to CE and engaging business suggested that the difference of terms was not significant or even confusing, and that the question of planetary boundaries and social justice in DE were not of immediate concern to a prosperous Australia at this early stage.

> And I think it's just it's the same arguments presented in a different way. And I think we are in terms of our transition to a circular economy way behind countries that are now implementing doughnut economics. (8)

Doughnut Economics was, by comparison, viewed as an actual economic account of transformation of embedding the market in society and the environment. By comparison with CE, DE had limited appeal to businesses, who were currently already burdened with grasping the meaning of CE, and of more interest to community and non-government organizations. Overall, alternatives such as DE spoke to issues of limited current relevance to Australia.

3.3. Recycling, Waste Management, and Circularity

Recent media on failures of plastic recycling in Australia show how distinguishing collection, processing of materials, and their re-use in products and markets are essential to avoid further failures [53,54]. A closed-loop system that could largely re-process materials at product end of life for re-use with minimal or no loss would clearly be a major achievement. Designing out waste would inter alia mean designing products in a material environment, e.g., with traceability and material passports, such that such a process was possible; we are distant from that goal.

In interviews, recycling and waste were defined as both essential to CE and a diversion from real systemic change.

> All the state policies are a bit tricky right? Because they say circular economy. They sort of flip between yeah we're really thinking circular and then all their implementation is waste, all the money goes towards waste . . . they're trying hard but they're kind of going back to what they know (6)

This recognition of the shallow circularity but necessary engagement with recycling and waste management in Australia echoed discussions about the origins and scope of circular policy in Australia discussed below. The failure of recycling and waste management in Australia was a major driver of the circular movement in government circles.

3.4. Consumers, Societal Change, and the Australian Way

The sociocultural, political, and geographical particulars of any country where new economic thinking and industrial transformation are taking place influence what is possible. This is certainly true also for Australia, and respondents alluded to the special qualities of regional Australia, state differences, consumer mindset, waste and landfill crises, and other factors.

> And in terms of regional activity, we have seen a fair amount of shift in terms of economic—both bringing manufacturing back into Australia or because of supply chain issues . . . Yeah, but also people have actually moved from Melbourne to the Regions because I realized that they can live and work remotely. (11)

> Although the mainstream circular economy focus is business and industry transformation, consumers and consumption are an essential part of the market change required but at the same time if you have a value system embedded in that and

> you are true to that and your customers are demanding that then you know you do everything you can within your power to be able to adapt and change. (2)

> Consumers can drive change or create barriers through their consumption choices. They are influenced and enabled by the norms which they take to be a given in society. I think a lot of it comes back to the yeah, economic goal as well, you know, where growth focus–growth driven, you know growing population, lots of land, lots of resources, like not too worried, you know and short-termism. That's where we need (change). (4)

To achieve this, however, there was a need for a change from a 'no worries' short-term high-consumption attitude to one focused on better human–nature relationships and reduced consumption. According to interviewees, there are several ways to encourage consumers to promote this change, including education about meanings and benefits.

> I think education for consumers around certainly the evidence of you know, where does your product come from but not in a negative again, I'm not an activist. I'm an activator. I'm not a protester, I'm a producer. (19)

Success also depended on utilizing community networks and groups as aggregate forces for change.

> Yes so I really think that communities are the change agents needed to actually implement something useful. (15)

This was particularly important for those promoting a more holistic circular 'regenerative' society agenda, such as Doughnut Economics.

Generational differences and pressures also emerged as significant, since it was millennials and the next generations from whom activism and the desire for change was arising, due to the existential dangers of climate change impacts. Recent climate-related events in Australia, including fires and economic downturn, were also having a general impact on society's call for change and the material efficiencies of Circular Economy were hardly sufficient to meet this call.

3.5. Politics and Circular Policy to Date: Genesis, Scope, and Limitations

Respondents were unanimous in acknowledging that a politics of hitherto vague commitments to sustainability and weak policy formulations centered on waste and recycling, rather than up-stream r-strategies aimed at designing out waste, had characterised Circular Economy to date at federal and state levels.

> And so I think in framing it that way we put we continue to put a lot of emphasis on recycling and on end-of-pipe solutions rather than looking at that this kind of fundamental redesign systems approach designing out waste and pollution avoiding waste. So actually, I think a lot of the fundamental kind of underpinnings of a circular economy approach are sort of watered down greatly by taking that approach. (9)

More recent initiatives, such as a working group and roadmap project for a circular Australia by 2030, have modified this initial weak response. Simultaneously, the early responses to the waste and recycling crisis in policy and initiatives were seen as an essential first step for a nation at the start of a long process. Whether the initial responses would lead to a national policy and integration of more holistic dimensions was unclear to most respondents.

> Like we could get a lot achieved in five years, couldn't we? But I think you know we might have some more recycling infrastructure in place. I think we'll still be battling with this transition that needs to occur and trying to understand how we do that. I think will be a lot further along in terms of having some more implemented examples that show us how it can be achieved. (14)

The current development of a 2030 circular roadmap, as noted above, may for some be an answer to this question. It was also clear that the individual states were on different pathways to circularity and that local government and regional networks, although in many cases the level at which circular action is best situated, had limited autonomy to drive change.

3.6. Exogenous and Endogenous Forces and the Global Context for Change

Socio-technical transitions are driven by external (exogenous) global processes, such as climate change, pandemics, and geo-political events. These have consequences for and disrupt existing supply chains, markets, and trade relations.

> I think that it COVID's had a big impact because it's broken a lot of the local supply chains. And so, I think yeah I think that there's a big change coming because I think we've got climate, we've got consumption and we've got the biodiversity crisis and broken supply chains and we need local jobs. (8)

Responses to these pressures will be incremental or more disruptive and therefore transformational. Evidence to date from a poor Circular Economy transition shows that incremental change has been the typical choice. In addition to global impacts and drivers, impacts can also be scaled to the national or even local scale. As already noted, the genesis of circular policy in Australia was a waste management, landfill, and recycling crisis exacerbated by a ban on exporting waste to China. Prior to this, the significant availability of land for landfill had helped defer moves to more circular strategies.

> But I think what we need to do is really see actually, you know, the export bans are going to support it, but actually really actually being more responsible for our own waste moving away from the recycling side rather than, and landfilling side rather than just the thinking we've got empty, you know vast land that we can just expand, expand, expand. (5)

There has also been a growing awareness of the consequences of climate change for Australia, punctuated by specific events such as major bushfires. Interview respondents refer to these processes and events as important while also linking this to pressure from a younger generation of millennials and climate activists looking for political leadership and sustainable change.

Although there is debate about the significance of these effects [115], pandemic-driven supply chain issues have raised perceptions of the vulnerability of the Australian economy. Interviewee respondents note that the stakeholder groups they engage perceive these as an issue, and this is an argument for change and shifts to domestic production. Such shifts would be consistent with a more closed loop Circular Economy approach.

3.7. Business and Manufacturing Engagement and Transformation Challenges

The mainstream discourse on Circular Economy sees business and industry transformation as the key force for change with financial, employment, and other benefits. As noted above, in research to date with this sector, barriers are numerous, and progress limited. This Discourse sees technical and business innovation as ensuring green growth into the future [116]. Many in the interview cohort acknowledge or promote the idea that ways must be found to re-engage business in sustainability, and Circular Economy is seen as the answer.

Across the interview cohort there was a clear belief in the significance of business innovation with an acknowledgement that to date there had been modest progress. This was partly due to the limited imagination of circular business around waste and recycling versus more ambitious models.

> So we haven't just looked at circular economy from take make dispose. We're intercepting and activating and reigniting and redesigning products from idle assets, which then become new products. (20)

Changes to existing short-term and risk-averse business culture supported by government, education, new markets, and collaboration were also identified as important to overcome barriers. Most of the organizations and consultancies represented in the cohort were engaged not only in producing strategy and reports, but also in developing funding, consultancy, and workshop programs to connect with industry players, regions, and governments.

> And we have a classic example, you know in the program that we ran there was a business that completely was at the starting point and was fairly dogmatic about trying to accept the principles, and over a period of six months has completely changed their perception of how they're going to run their business. (2)

In a number of cases, the transition was about creating the conditions for change, such as an energy transition.

> And I am engaged with some work happening in some of the northern regions of New South Wales as well that are quite—areas that are dependent on coal mining for you know decades and our entire economy is reliant on it. They are already trying to deliver a strategy of transition out of that and into renewable energy. (12)

New networks such as the Regional Innovation for a Circular Economy (RICE) were also included.

> So we've got together a group of interested folk Deakin University, CSIRO, RDP, the city of Greater Geelong Council, Geelong manufacturing Council, us, probably missing someone from industry as well—federal government and sort of say well, what do we want to do in Geelong or for the region? (11)

A particular challenge was the status of manufacturing in Australia, which some viewed as no longer a sector of significance while others disagreed, in particular relative to future supply chain security. Moreover, the dependence on global trade versus domestic production for reliable supply chains has been thrown into relief by recent events.

> And what are we doing about that and isn't that a great opportunity for jobs creation and all sorts of things and if you tie that back to design and production, then you start to secure supply chains for these materials. (18)

3.8. Intermediation and Circularity as a Collaborative Enterprise

As outlined above, the interview cohort was selected as a purposive sample of representatives of organizations who see themselves as intermediating circular change across multiple sectors. Intermediation is essential for sustainability transitions and underlines the collaborative nature of circular change.

Throughout their interviews, respondents referred to the networks and organizations with whom they worked or who they wished to collaborate with more. Challenges to progress on circularity in Australia depend on greater sectoral collaboration and networking between local government, regional networks, state and federal government, universities, research consultancies, businesses, consumer sectors, and other sectors.

4. Discussion

The multi-sector interview cohort for this study is promoting a Circular Economy in Australia and is aware of the strengths and limitations of current policy and practice. There is an overwhelming perception that Australia is still very much at beginning of its circular journey, and most recent initiatives continue to focus on waste and recycling as the source of business innovation. On the one hand, this limited focus is viewed as a necessary transition for the country, while on the other, the lack of progress towards such change and the resistance of business, government, and society to taking risks are noted as potential dangers.

Despite the umbrella term Circular Economy being used as a cover term for a range of sometimes conflicting ideas [111], the central focus of the approach is to encourage green growth based on a new appreciation of materials and waste. Competing 'circular' Discourses exist, including the mainstream technical narrative, which are not aligned on the importance of growth. Circular society models such as Doughnut Economics are agnostic on the importance of growth and champion a reform of capitalism towards inclusivity, while de-growth explicitly rejects a growth focus, preferring a strong commitment to well-being and ecological limits. These alternative discourses have less appeal to business and government, although globally hybrid combinations are being formulated.

Attempts to combine the more holistic reform agenda of Doughnut Economics with Circular Economy exist, including in the recent city strategy of Amsterdam [77,82,117]. Several of the interviewees and their organizations promote both models as implicitly compatible, e.g., Circular Economy Victoria, Planet Ark ACE Hub, and Regen Melbourne, albeit with circular society vs. economy as the more holistic of the two. Other organizations suggest that inclusive models might play a future role in Australia. Only one respondent suggested that the Circular Economy umbrella term can cover everything, and it is confusing to introduce a new narrative for current stakeholders.

Local government and city strategy based around DE would be a significant innovation for Australia, and DE offers a new economics consistent with the uncertainties of a post-COVID era [118]. However, there is little evidence of its impact on current policy and action. Admittedly, the weak implementation of a waste and recycling economy in Australia still requires further work on upstream r-strategies of designing out waste rather than end-of-pipe solutions. Stronger regulatory, economic, and efficiency signals to markets and consumers could also drive change, much as the previous carbon tax reduced CO_2 emissions in Australia [119].

5. Conclusions

Despite an overall positive take on CE as a strategy for system change, limitations in its scope and impact in Australia were noted. Overall, the CE narrative was valued for its contribution to waste management, resource use, and sustainability in Australia. The idea of recycling as a weak but necessary circular strategy, especially for Australia, was regularly mentioned. Although there was uncertainty about its mid- or long-term success as a strategy, political leadership, growing environmental and economic pressures, and global moves towards circularity were suggested as potential levers.

Circular intermediaries provide a unique perspective on progress towards a Circular Economy and society, as they network a range of stakeholders and hence understand the multi-level processes that influence a sustainability transition for Australia. Obviously, a sample of twenty interviewees has limitations in terms of coverage of the views of intermediaries in general across Australia. However, as the aim was to identify the influence of existing circular discourses and the thematic areas regarding key concepts in this discourse, the sample size is consistent with standards in qualitative studies and previous work cited above.

Compared to other recent work on Circular Economy in Australia, this paper presents a far more nuanced and complex picture of policy and practice interactions and discourses. As noted above, the most successful examples of a just circular transition have been in jurisdictions where the technical requirements of Circular Economy have been matched to new economic thinking, such as Doughnut Economics, in a hierarchical relationship. Hopefully, further research can explore and articulate the multiple factors which together create institutional reform in a country sorely in need of a focus on sustainable development.

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