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Diversifying and de-growing the circular economy: radical social transformation in a resource-scarce world

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Abstract

Programmes and policies for a Circular Economy (CE) are fast becoming key to regional and international plans for creating sustainable futures. Framed as a technologically driven and economically profitable vision of continued growth in a resource-scarce world, the CE has of late been taken up by the European Commission and global business leaders alike. However, within CE debates and documentation, little is said about the social and political implications of such transformative agendas. That is, whilst CE proponents claim their agenda is ‘radical’, this paper outlines its inability to address many deeply embedded challenges around issues of consumption and the consumer, echoing as it does the problematic (and arguably failed) agendas of sustainable consumption / lifestyles. Using the Sharing Economy as an example, we argue here that the ontological and sociological assumptions of the CE must be open to more ‘radical’ critique and reconsideration if this agenda is to deliver the profound transformations that its advocates claim are within our collective reach.

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1. Introduction: The rise of the Circular Economy

The future is circular. At least, that is the message at the heart of the recent European resource efficiency agenda. Here regional prosperity is overtly linked to “keeping valuable materials in circulation through a series of systemic feedback loops between life-cycle stages, powered through resource-efficient industrial processes” (Hobson, 2015: 1). In response, policy makers, corporations, NGOs and academics have, in increasing numbers, been taking up and championing the circular economy (CE) message. For one, the Ellen MacArthur Foundation (EMF) — an organization established with the sole purpose of promoting and facilitating moves towards a CE—has enrolled a plethora of institutions (e.g. Google, Cisco and Phillips) to its ‘CE 100’ programme. This voluntary strategy aims to “enable organisations to develop new opportunities and realise their circular economy ambitions faster” (EMF, 2015b: no page). And in December 2015, the European Commission launched ‘Closing the loop - An EU action plan for the Circular Economy’, which aims to transition the EU towards a

sustainable, low carbon, resource efficient and competitive economy...to transform our economy and generate new and sustainable competitive advantages for Europe (EC, 2015a: 1).

At face value, such programmes and pronouncements are good news given growing concerns about burgeoning resource (in)security, the over-use of virgin materials in production streams, and prevailing linear production-consumption-waste processes. Even with some successes in improving recycling uptake and systems, as well gains in energy efficiency measures (Sioshansi, 2013), demand for resources are set to continue increasing into this century alongside rising global population, increased urbanisation and proliferating consumerism (Lee et al., 2013; Prior et al., 2012). As such, ideas of the CE are both timely and arguably necessary, if we are to circumvent what some see as a looming (and indeed, already commenced) resource and ecological crisis (e.g. García-Olivares & Solé, 2014; WWF et al., 2014).

Invariably, however such large-scale transformative frameworks raise many questions, including what constitutes an optimal (or indeed a workable) CE, and how best to achieve it. For the most part, debates about the aims of, and pathways towards, the CE have fore-grounded the economic gains to be had through the reconfiguration of material life cycles, fostered by the good governance of supply chains, all set within an enabling policy and governance context (e.g. EC, 2015a). For some, the CE is fundamentally a new ‘technological revolution’ (EMF, 2015a) founded upon improved product design, more efficient manufacturing and the recapturing of value from ‘used’ materials. This invariably speaks to the CE’s roots in the sub-field of Industrial Ecology (e.g. see Andersen, 2007). Here, a functional CE is fostered primarily through the facilitation of material symbiosis between diverse companies and production processes often located in eco-industrial parks (Gibbs & Deutz, 2007; Mathews & Tan, 2011) that enable companies to cascade resources between processes and sites.

Yet, more is arguably at stake within the CE than where specific businesses are located and how their manufacturing systems are (re)calibrated. In his opening speech at the recent 2015 UN Stakeholder Conference on the Circular Economy in Brussels, the First Vice-President Frans Timmermans (EC, 2015b: no page) asserted that:

everyone who looks at the structure of our economy, the structure of our society even, will see that the future is not in low-wage production, that the future is not in making things with finite components. The fu-

ture is providing services to our citizens in a long-term process. Services that then materialize in products, instead of the other way around, and products that are used and re-used time and time again, so that you reduce the use of raw materials and don't deplete the earth's natural resources.

In here then are rather tentative hints of the CE as a more transformative reconfiguration: that 'our society even' will have to be reshaped to facilitate this future of use and re-use. However, to date, frameworks for, and analysis of, the CE have arguably sidestepped detailed considerations of its broader socio-economic implications, being all-but silent on what a CE society might look like. What form then could and should circular socio-economic institutions, norms and shared practices take, and what processes, values and actors will get us there?

This paper aims to explore some aspects of these questions, as a means of opening up debate about the broader socio-political implications of a CE agenda. Specifically, it argues that, to date, talk of the CE has presented a curtailed and impoverished view of the role of citizens. That is—and as the Timmerman quote above suggests—within the CE the citizen is fundamentally a consumer of reconfigured and partially dematerialized services i.e. sustainable product service systems (European Commission, 2015; Tukker, 2013). Indeed, the recent European Commission announcements on the CE place the citizen as inseparable from the consumer, whose role is to respond to correct labelling and price signals, produce less household waste, and participate in '[i]nnovative forms of consumption' (ibid.: 7) such as the much-lauded sharing economy and forms of 'collaborative consumption'. Despite research that shows the challenges and limits of sustainable product service systems (e.g. see Piscicelli et al., 2015), the role of the citizen thus appears to be fundamentally one of accepting or rejecting new and diverse business models, in line with re-jigged product and service life cycles.

In response, we argue that such a de-politicized role ascribed to the citizen within the CE is in line with prevailing approaches to fostering sustainable consumption patterns or 'sustainable lifestyles' (Hobson, 2013; Lorek & Fuchs, 2013), strongly echoing an ecological modernist take on the future. Here, the norms of economic growth and sustained material throughputs remain unquestioned in the face of the promises of greater efficiencies and expectations placed on us all i.e. that we are able and willing to become 'green consumers' (Akenji, 2014; Fuchs & Lorek, 2005) via an unquestioned reliance upon, and uptake of, technologically-mediated forms of social engagement. However, as this paper seeks to explore, if the CE does mark out a structural societal shift as Timmermanns and others suggest, then the limited role being ascribed to the citizen requires fresh analysis if we are to truly "avoid the irreversible damages caused by using up resources at a rate that exceeds the Earth's capacity to renew them in terms of climate and biodiversity, air, soil and water pollution" (EC, 2015a: 2). That is, if the CE is indeed going to be "restorative, regenerative, and renewable" (EMF, 2015a: 23), the socio-political meanings of these adjectives need to also be thought through to make them central to CE processes and goals.

In making this argument, this paper is structured as follows. The opening section gives a brief précis of the central tenets of the CE, focusing specifically on the place that consumption and the consumer are given within current framings. We then consider a key concept in the CE's arguments about the transformative potential of current consumption patterns: the sharing economy (SE). The following section then presents a critical discussion of the SE, and in particular focuses on the gap between its proffered benefits

and actual evidence of positive socio-environmental impacts to date. Specifically, we argue that the SE is not an inherently ‘win win’ series of innovations. Rather, such advancements come with costs, which include inconsistencies between the discourses and actual experiences of participating in these forms of sharing, community and ‘for-profit’ exchange. The final substantive section highlights how alternate framings of the economy and the citizen/consumer provide some insight into more ‘radical’ visions of a socially sustainable CE, followed by a brief section of concluding comments.

2. The circular economy: ecological modernization re-booted?

At its core, the CE is an economically and politically palatable response to aspirations for sustainable growth in the context of mounting pressures on global resources. At present, most advanced and developing economies, like those of the EU, operate through fundamentally linear models of resource use. Here, discrete material products reach an (often too brief) ‘end of life’ (Cooper, 2012), with some materials re-captured via recycling and to a lesser extent, re-use. Transitioning to a CE thus aims to proliferate these established norms of reusing, repairing, refurbishing and recycling materials and products, as well as ‘designing in’ greater product longevity and repair-ability from the outset. As such, waste is revalued and turned into a resource, and products are consciously (re)designed to create materials flow that keep the value added for as long as possible (EC, 2014).

Visions of a CE that aim to replace linear economic models with the promise of abundance without (much) waste are arguably “potent and reassuring discourses of a sustainable future” (Hobson, 2015: 3). Circulating from high-level policy settings like the UN and the EU to environmental programmes and NGOs, the global reach of CE thinking has now shifted from the long-standing niche theory of Industrial Ecology to a mainstream political-economic agenda of transformative, structural change (Preston, 2012). For example, within the EU much political concern is leveled at increasing concentrations—as well as decreasing world-wide supplies—of strategic raw materials outside of regional and domestic markets. The Resource Efficient Europe Initiative as part of the Europe 2020 program has thus prioritized the CE as a key policy area, to secure sustainable growth and job development, and promote:

competitiveness, innovation... growth and job creation... and provide consumers with more durable and innovative products that provide monetary savings and an increased quality of life (EC, 2015c: 3).

Outside of Europe, China has implemented its own version of a state-led CE, enshrined as an official national development goal (Mathews & Tan, 2011) that integrates closed-loop policies and industrial symbiosis as a multi-scalar strategy (Su et al., 2013). On the ground, this has reportedly led to a greater uptake of eco-design principles, cleaner production audits, the development of eco-industrial parks (e.g., Suzhou and Tianjin) and larger eco-cities initiatives (Geng et al., 2009; Mathews & Tan, 2011). However, many challenges remain, such as a lack of systematic information, poor enforcement, and lack of public participation in the shifting of consumption practices (Geng & Doberstein, 2008; Su et al., 2013; Wang et al., 2008).

Beyond states and regions, certain organisations have also been advocating the CE as a viable and desirable model of a future socio-economic system. For example, in their recent ‘toolkit’, the Ellen MacArthur Foundation (2014, 2015a) offers a prescription for a European-led CE based on the idea of ‘growth within’ the region. This is to be realized

through a range of actions drawn from their headliner acrostic ‘ReSOLVE’: Regenerate, Share, Optimize, Loop, Virtualize, Exchange (EMF, 2015a). Such actions focus on scientific and technological challenges of CE, e.g. ‘Optimize’ equates with improving efficiency, removing waste and ‘leveraging big data’ (EMF, 2015a: 21). Taken together, translating these verbs into reality is argued to amount to a “radical shift in perspective” constituting nothing less than “the next major European political economy project” (EMF, 2015a: 12).

But how ‘radical’ is the Ellen MacArthur Foundation and European Commission’s vision of the CE, if we take the word ‘radical’ to its etymological foundations of denoting roots, essence and origins? We argue here that, as currently framed as a pathway to large scale transformative change, the prevailing vision of the CE is far from radical, as it fails to address the roots and origins of the issues it claims to remedy. In short, it strongly echoes ecological modernist arguments that economy and ecology—or capitalism and the environment—can be effectively and efficiently combined to produce a form of sustainability (Roberts & Collwell, 2001), one that does not fundamentally disrupt the status quo in terms of power, norms and politics (e.g. see Conca et al., 2002; Dauvergne, 2010; Speth, 2008). In other words, through technological and policy innovation, we can “overcome environmental crisis without leaving the path of modernization” (Gibbs, 2006: 196; Mol & Spaargaren, 1993;): a form of modernization wherein market forces are the central agent in delivering change. Thus we can become “both rich and green” (Monbiot, 2015), in the “conviction that knowledge and technology, applied with wisdom, might allow for a good, or even great, Anthropocene” (Asafu-Adjaye et al., 2015: 6).

Echoing ecological modernists view of the future, extant visions of the CE frame it as realized through the wide-scale adoption of ‘green’ technology and digital infrastructure, created and delivered by global corporations who lead the charge through voluntarily building collaborative networks and alliances. In this vision, local, regional and national governments are fundamentally the ‘support staff’, providing positive stimulus and rewards for firms that adopt circular practices and business models (EMF, 2014: 26). As such, the prevailing framing of the CE is one firmly couched in a form of reboot capitalism or Capitalism 2.0 (Kaletsky, 2010; Townsend, 2012). Although there are many variations on this theme, such frameworks include forms of ‘cooperative capitalism’ (Porritt, 2012), ‘breakthrough capitalism’ (Elkington & Zeitz, 2014) or ‘naturalized capitalism’, which allows ‘global capitalism to co-exist with its natural biospheric limits’ (Hawkin et al., 1999; Mathews, 2011: 869). These approaches thus are “not [about] the end of capitalism as an ideology, but the issue of how capitalism’s technical components — which have come off the rails — can be reformed” (Schwab, 2012: no page). We argue here, however, that this amounts to incremental rather than radical transformations, a ‘weak’ rather than a ‘strong’ form of sustainability: the latter of which has been argued as vital in securing socio-economically and environmentally sustainable futures (e.g. see Fuchs & Lorek, 2005; Hobson, 2013).

In such ‘weak’ approaches to sustainability, citizens primarily feature as consumers, performing their ecological and civic duty in the CE through being willing and able to shift extant consumption practices in response to external signals or ‘nudges’ (primarily labels and pricing), which includes seeing ‘usership’ replace ownership in some (but not all) forms of consumption (Akenji, 2014). This notion, of the uptake of domestic ‘sustainable lifestyles’, has circulated in policy and practitioner circles for decades, fundamentally assuming that civic virtues (e.g. doing one’s bit for the environment) can and

will be translated into private practices (e.g. recycling, buying 'green'), thus fostering the norm of 'green citizenship', performed via consumption and waste practices (Hobson, 2013). However, to date, these discourses and related interventions have failed to make notable in-roads to citizens' resource uses, with continued debate about why this is the case (e.g. Reisch & Thøgersen, 2015; Shove, 2014), and why there is still a notable silence on the key issue of reducing absolute levels of consumption (Princen, 2005). Instead, discourses of sustainable consumption / lifestyles assume that adequate levels of efficiency and sustainability can be designed into, and captured from, goods and services from the outset. This runs contrary to strong evidence that the decrease in the resource intensity of material goods is failing to keep pace with the rise in absolute levels of resource use (see Jackson, 2009).

As such, little is said about the norms and expectations that surround the role of the citizen-consumer in the CE, such as the seemingly sacrosanct place that consumerism has in these versions of collective futures, despite the dire projections of a rapidly climate changing world if we carry on, business-as-usual (see Helm, 2015). In sum, whereas the CE may be radical from a twentieth century technical-industrial and business model perspective, it arguably reinforces the social norms, expectations and roles ascribed to us all within the post-industrial, service and consumption-based capitalist economies of the Global North, and increasingly, the Global South.

But what then of the 'new' forms of consumption argued to be emerging, which some suggest offer ways of fundamentally altering the nature of how and what we all consume, for the better (e.g. Botsman & Rogers, 2011)? Or put more grandiosely, what of the modes and means of consuming that work to "disrupt mainstream economies and consumerism, improve social cohesion, and contribute to the minimization of resource use" (Heinrichs, 2013: 229)? For one, the rise—or one might argue, the re-emergence of—the sharing economy (SE) has garnered much attention of late, as financial downturns and environmental concerns have witnessed more individuals "bartering, sharing, renting, trading, borrowing, lending, leasing and swapping...a range of assets including goods, services, time, capital, experiences and space" (Cooper & Timmer, 2015: 7; for further discussion of forms and variations of sharing, see Belk, 2014). Rather than a unified or centralised movement, the SE represents a disparate collection of practices and institutions, ranging from local tool or labour-sharing schemes to international online platforms such as AirBnB (see Silver, 2013). And despite its diversity in scale, goals and location, some estimates suggest that the SE will be worth up to \$335 billion in revenues by 2025 (Cooper & Timmer, 2015). Thus it is seen as a central plank of current moves towards a CE, both from a consumer and business-to-business perspective (see EMF, 2015a).

However, questions remain about whether the SE can and will live up to the social and environmental expectations being placed upon it by some commentators (e.g. Morozov, 2014) including the need for more critical analysis of actual impacts. In fairness, this is an emergent and evolving field, so undoubtedly (or hopefully) such critical research exploring impacts is taking place as we write. However, the point being made here is the need to question whether the SE can and will bring forth the transformations in the consumption norms and practices so promised and hoped for, making up for the lack of impact in sustainable consumption policies and interventions to date. In short, does the SE re-embed, and indeed encourage, the place of conspicuous consumerism in our society without fundamentally questioning the ways in which citizens are cast as consumers in the CE and SE? Is it thus being assumed that linking the CE with the SE means that the

'consumption issue' is being dealt with, and thus there is no need for CE proponents—such as the EMF—to do more than flag and celebrate the rise SE practices as signaling some public buy-in to the CE? Or does it, through its engagement with social spaces and relations outside of the domestic sphere, foster positive, collective norms and behaviours that can undergird moves towards a CE? These questions are posed here as deliberately provocative and are explored further in the following section, which draws on examples of two of the 'poster boys' of the SE to date, AirBnB and car-sharing clubs, to examine existing evidence around the reported impacts of the SE.

3. Is sharing really caring? Questioning social and environmental gains of the SE

In recent years, the SE has been posited as a set of reconfigured socio-material practices that are becoming pivotal forces in the piecemeal restructuring of post-Global Financial Crisis economies. Product service systems and for-profit peer-to-peer services like Uber, TaskRabbit and Airbnb have been argued as reshaping production and service delivery, thus creating a form of 're-engineered consumption' (Sundararajan, 2013: no page). The benefits of this apparent re-engineering is said to include efficiency gains, the mitigation of greenhouse gas emissions and the fostering of greater social capital (Belk, 2007; Botsman & Rogers, 2010; Leismann et al., 2013). In short, the SE is proposed as no less than "a new model of consumption...in which consumers embrace services that enable them to access products on demand rather than owning them, thus becoming users" (World Economic Forum, 2014: 23).

Such positive claims however are increasingly met by mounting critiques of the gains to be had from the SE. For example, some commentators have argued that the SE is simply new territory for venture capitalists to monetize 'sharing' (Kalamar, 2013): yet another round in the seemingly endless cycle of capitalist Schumpeterian 'creative destruction' that enables the continued accumulation of wealth and capital for a small percentage of the global population (e.g. Piketty, 2014). In doing so, it marks another step on the already-ongoing devolving of legal, fiscal and social responsibilities onto a low paid and unregulated *precariat* class (Standing, 2014), who now must internalize the physical and economic risks associated with sharing personal goods and services. In addition, it solidifies the neoliberal commodification of daily life, potentially undermining "genuine social connections and solidarities" (Henwood, 2015; Schor, 2015: 3) through adding a price tag to acts of sharing that in the past may have been done out of goodwill, or not at all. Or as Morozov (2014: no page) put it:

At its worst, the sharing economy turns us into perpetual hustlers, cementing our connection to the global market. This sharing imperative dictates that everything that we own, from tangible assets to intangible thoughts, be categorised and assigned some kind of a unique identifier like the QR code.

The SE also relies on a constellation of global technology firms and new technologies, which range from access to 'big data' to the availability of an array of 'apps' and sharing platforms. Increasingly, using such technologies is presented as a form of progressive participation or empowerment wherein (primarily) urban(e) citizens are recast as ethical / green consumers. However, this reading of the rise of the online SE hides a number of less-than-positive political and environmental consequences (McNeill, 2015; Viitanen & Kingston, 2014). That is, as well as long-standing concerns about equity of access and use to internet services, under this version of the SE we are all required to be 'smart cit-

izen-consumers', compelled to be technologically literate (Soderstrom et al. 2014) whilst having little control over the nature and content of our online 'sharing' interactions (Vanolo, 2014). And for writers like Nicholas Carr (2011, 2014; see also Roberts, 2014) the growing dependency on computers and apps has resulted in what he calls the 'glass cage'. That is, where automation and computer technology render users isolated, disengaged, and discontented, rather than able to (re) build forms of much-needed social capital. At more fine scales, neuroscientists have questioned how digital technologies remake the cognitive environment in which human brains develop and function (Greenfield, 2015; Loh & Kanai, 2015), potentially increasing distractibility, reducing learning and decreasing empathy (Greenfield 2015).

However, does the actual evidence for the impacts of the SE in any way match the tenor of these critiques? As mentioned above, this is hard to categorically evaluate given a paucity of data on impacts to date, especially for more informal / local / ad hoc modes of sharing that are becoming common, although often concentrated in certain urban areas that already have 'green' credentials (see Du Cann, 2015) e.g. Portland in the USA and Bristol in the UK. However, for 'market leaders', some comments can be made. Take, for example, Airbnb: a tourist accommodation service that is advertised as a 'trusted community marketplace for people to list, discover and book unique accommodation around the world' (Airbnb, 2015). Designed as a peer-to-peer online platform, Airbnb allows 'hosts' to rent out their spaces (e.g. a living room futon, private room, an entire apartment or house) as temporary accommodation. From humble beginnings in 2007 as a set of rented air mattresses in a single San Francisco apartment, by mid-2012 an average of 38,000 people around the world were using Airbnb accommodation every night. By the end of that year the company had recorded over four million users and booked over 10 million stays (Guttentag, 2015: 1198; Lawler, 2012). And according to some estimates, by 2015 Airbnb had acquired two million listings in 34,000 cities across 190 countries, with the majority being located in Europe and North America. Now arguably "synonymous with the sharing economy" (Shor, 2014: 2), Airbnb's total value has been reported to have reached over \$24 billion (USD) (Isaac, 2015).

Given Airbnb's exponential growth in recent years, debates have broken out over whether such an innovation will produce any of the benefits ascribed to the SE. For example, does it foster the inter-cultural sharing of home practices and space, as the advertising suggests: or does it conversely foster "economic self-interest rather than sharing" (Shor, 2014: 1)? Early research on the motivations (see: Guttentag, 2015; Issac, 2015; Schor 2014, 2015) of Airbnb 'hosts' and 'users' suggests that these are indeed dominated by economic and financial interests, with social contact, experiential appeal and access to residential amenities remaining as secondary concerns. Perhaps unsurprisingly, the growth of 'hosts', especially after the 2008 global economic downturn, is connected to the flexibility and earnings potential that Airbnb affords. According to a recent report that outlines New York City's Airbnb market, the company claims that "99 percent of people on Airbnb are using [the service] as an economic lifeline" (Isaac, 2015: no page). And for 'users', the evidence is that the relatively low-costs of (some, not all) Airbnb accommodation makes it a viable and attractive alternative to hotels (Quinby & Gasdia, 2014; Zervas et al., 2013).

Airbnb (2015b) have also claimed that their service contributes to efforts to reduce global greenhouse gas emissions. By 2030, the company claims that 'users' in the EU will likely have emitted 20.9 million tonnes less of GHG emissions when compared to those staying in other forms of 'tourist' accommodation (Airbnb 2015b: 3). However,

this figure does not account for the very real possibilities of services like Airbnb having a notable 'rebound' effect (Schor 2015; Sorrell, 2009). That is, its low cost and current novelty value actually promotes the expansion of tourist-based consumption (Guttentag, 2015; Tussyadiah & Pesonen, 2015; Zervas et al., 2015). Indeed, there is evidence that suggests that, as Airbnb expands the range of lower-cost destination choices, it has increased user travel frequency and length of stay (Airbnb, 2015b), which means that "travels resulting from peer-to-peer accommodation may cause more environmental pressures and lead to resource exploitation and overcrowding in the destinations" (Tussyadiah & Pesonen 2015: 14). In terms of the latter points about the impact of Airbnb on 'destinations', there is also some evidence of social cohesion being undermined within residential neighbourhoods where Airbnb properties exist e.g. due to the behaviours of Airbnb 'users', as well as the longer term impact on local housing affordability (e.g. see Tussyadiah & Pesonen, 2015; Zervas et al., 2015).

Taken together, this evidence does suggest that the socio-environmental benefits of certain forms of the SE needs to be more carefully considered within claims around the CE. However, moving away from Airbnb, other forms of 'collaborative consumption' may offer more positive readings on potential and actual impacts of the SE, particularly those based on more localized, spatially proximate forms of sharing, which could encourage sustained social contact and may side-step some of the apparent rebound effects (e.g. that do not encourage taking short or long haul flights as tourists). For example peer-to-peer car-sharing schemes, like Turo (in the US) or easyCar Club (in the UK) (for a list of global carsharing schemes see: Shaheen et al., 2013), have gained considerable momentum in recent years. In terms of practicalities, similar to Airbnb, members of schemes such as easyCar Club use an internet booking platform to rent out their 'idle' cars to users, receiving hourly payments, with the opportunity to earn "up to £3000 a year" according to the company (easyCar Club, 2015). Interviews with Turo members highlight that many have joined because the "site made it financially viable to buy the vehicle" in the first place, while others use the service to pay bills associated with the vehicle or pay off their car loans or expenses (Schor, 2015: 9).

In terms of their contributions to the CE and SE, much has been made of these schemes contributions to reducing carbon dioxide (CO₂) emissions and curbing demand for private car-ownership (Firkhorn & Muller, 2011). Carsharing studies in the USA, for instance, have reported mixed results. While a majority of households joining such schemes are increasing their emissions by gaining access to automobiles, the remaining households are decreasing their emissions by shedding vehicles and driving less (Martin & Shaheen, 2011). As such, it appears the collective emission reductions outweigh the increases, implying that carsharing reduces GHG emissions as a whole (Martin et al. 2010; Martin & Shaheen, 2011). In terms of curbing car-ownership and use, studies have suggested that each new share car added to existing carsharing fleets removes between 4.6 to 20 private vehicles from the road (Martin et al., 2010). At the same time reductions are being made in vehicle miles traveled (VMT) with some reports showing reductions of up to 67 percent (Hampshire & Gates, 2011; Martin et al., 2010). However, there is less said about the in/direct rebound effects of participating in these schemes e.g. what happens to any income saved within carsharing households, in terms of increasing other forms of consumption, conspicuous or otherwise. As such, the overall contribution of carsharing to the CE remains open to further exploration.

As such, whilst appealing at first glance, such examples of the apparent SE / CE in practice raise questions about the all-important issues of curtailing consumption (Newall,

2012; Schulz & Bailey, 2014: 277). They also beg further exploration of who is participating in these forms of sharing and to what ends. That is, whether these forms of sharing enable already well-off households to fulfill certain 'lifestyle' ambitions rather than creating accessible and equitable forms of sustainable sharing e.g. localized food schemes as middle-class, niche endeavours (e.g. see Franklin et al., 2011). Thus overall, it can be argued that, for some predominant examples at least, the SE re-embeds and potentially encourages a societal commitment to continued, unquestioned economic growth (see Schultz & Bailey, 2014) and unfettered consumer access to non-essential goods and services, such as tourist accommodation. Thus, one could easily conclude we are already heading down the path towards a SE that *will* see the substantive reconfiguration and redistribution of relations of production and consumption, but with questionable outcomes in terms of resource savings, and social equity and cohesion.

But, then, do we have to take such conclusions at face value and accept this as inevitable? We argue here that indeed not. One response might be to take particular cases of SE in practice, and examine how their norms and processes can be recalibrated to better incorporate the hopes and goals of a socially and environmentally just SE. That would indeed be useful, but this arguably requires more than the tweaking of individual institutions or online platforms, one at a time. Rather, it necessitates rethinking the conceptual assumptions at the root of current iterations the both the CE and the SE.

As has been noted elsewhere, prevailing CE framings do little to interrogate implicit assumptions about how, and through what means, change happens (e.g. Hobson, 2015). Although presenting itself as a pragmatic and 'real world' rendition of how to alter the economy, the World Economic Forum/Elle MacArthur Foundation view of the CE, for example, is only one 'story' of how societal transformations can and should take place. For instance, in their frameworks and programmes, business leaders—prompted by 'win win' scenarios and financial / policy incentives—play the lead role in the CE, and thus in the ways our future societies are shaped. This places the quotidian actions of us all in a passive and minor role, responding once again to the vicissitudes of global markets, which operate in places and scales seemingly far removed from our reach. Yet, as many writers and activists have argued, there are other ways of thinking about and conceptualizing truly radical reconfigurations and 'transformation discourses' (Escobar, 2015), such as ones that emphasize the power and potential of everyday actions and "initiatives to change not just the day-to-day lives of a handful of committed activists but contribute to the broader societal transformations" (Cameron & Hicks, 2014: 54). In the next section, we provisionally examine how such frameworks can and do speak to some of the challenges of the CE. In doing so, we aim to make the case that the CE would benefit significantly from greater engagement with more socio-politically challenging theories of change than those that undergird current visions of the CE.

4. What would a post-capitalist AirBnB look like?: shifting ontologies of subjects, markets and social change

Although the search for more socially and environmentally just norms and institutions is as long as human history itself, recent and profound socio-environmental challenges has seen renewed interest in ways of reframing our current ethics and practices. Some philosophers have outlined a renewed but abstract environmental ethics (e.g. Rolston III, 2012), whilst others have emphasized the potential of everyday lives, as currently lived, to be transformed through seemingly minor but actually profound conceptual

shifts (e.g. Loftus, 2012). Examples of the latter, of relevance to discussion of the CE, include Gibson-Graham's (2008, 2010) work on post-capitalist 'diverse economies', and the 'degrowth' agenda (Jackson, 2009; Latouche, 2010): both of which proffer political-economic ontologies that aim to de-centre growth and capitalist accumulation as the *raison d'être* of society. Although differing in details, both approaches question what is assumed as sacrosanct and a naturalized part of current realities i.e. the 'economy' and economic growth. Instead, they argue that these are socially constructed concepts that can be enacted and performed differently, in the process displacing them as the driving force of societies, institutions and indeed, ourselves as socio-political subjects.

To elaborate briefly, the concept of 'degrowth', or 'décroissance' (Letouche, 2010) has emerged from activists' deep concerns about ecological crises and the prevailing pathways of technology and development (Escobar, 2015). In short, this movement and body of work argues for the:

downscaling of production and consumption that increases human well-being and enhances ecological conditions and equity on the planet. It calls for a future where societies live within their ecological means, with open, localized economies and resources more equally distributed through new forms of democratic institutions (<http://www.degrowth.org/definition-2>).

The language of de-growth and down-scaling might suggest to some a rolling back of hard-won twentieth social and economic gains, and loss of a collective quality of life that is now the norm for some and the aspiration for many. But rather than doing without, the goal instead is to make more of, and supportively foster, what we already have or have the potential to have. For example, the 'diverse economy' (Gibson-Graham, 2006) perspective highlights how mainstream approaches to political economy routinely fail to take alternative economic practices and forms of relating seriously (e.g. bartering, exchange, gifting), highlighting that most attempts to intervene in the status quo offer at best incremental change, or at worst, reaffirm capital-centric norms, as we have arguably pointed towards above in mainstream examples of the SE. Thus, a number of 'alternative' or 'diverse' economic practices which often lie outside of the accepted capitalist purview and thus largely hidden in plain sight, represent a critical space with which to re-envision a modern political-economy. This may take the form of Local Exchange Trading System (LETS), which is a not-for-profit, place-based mutual aid network, where for example, one hour of baby-sitting is exchanged directly for one hour of lawn mowing, with no money changing hands (for other examples, see Parker et al., 2014). Or a community currency scheme, which signals a range of community-led localized exchange systems, such as the 'Brixton pound' (see Community Currencies in Action, 2015; also Seyfang & Longhurst, 2013). Whatever the form, the key issue here is the acknowledgment, and indeed direct engagement, with the notion that the economy is "an always already intrinsically heterogeneous space" (Gibson-Graham, 2011: 29). In other words, the economy is inherently a space of 'difference', composed of diverse but significant processes of production, exchange, ownership, work, remuneration, and consumption which lie outside of the conventional growth paradigms and orthodox views of commodity markets, waged and salaried labour, and profit (Healy, 2009). The challenge, and the central agenda, thus remains to reinforce economic alternatives that develop political, ethical, and organizational potential, as a 'normal' part of the economy and society.

At first glance, this framing may seem indistinguishable from the goals of the SE as outlined above. Indeed, some of the examples of SE in practice can sit comfortably under the above frameworks, such as some localized food or energy economies that have social and environmental goals as central (e.g. see Cameron et al., 2014; Cameron & Hicks 2014). What does differ are diverse economies and de-growth's emphasis on time, place and scale. For example, whereas online platforms like Airbnb essentially bring together distant and unacquainted individuals to undertake a monetized exchange, community-based enterprises and exchanges are longer-term, slower and sustained interactions, wherein individuals form an array of collectives to meet mutual needs, with the goal of becoming ongoing institutions and practices. Simply put, these are localized economies that are not based around creating and privatizing financial profit. Indeed, the concept of value differs. Under a CE / SE approach, 'idle goods' (house, car) are put to work, to create and capture economic value, whilst delivering services to others. From a post-capitalist perspective, monetary value is not the guiding metric of evaluation and exchange, with the development of (often incalculable and intangible) human and social capital being key goals and undergirding values.

Although a great deal more could be said about a variety of post-capitalist perspectives, the goal here is to emphasize that a CE which brings in properly 'radical' ontologies of markets, citizens and social change diversifies the ways in which "our society even" (EC, 2015b: no page) may be changed for the better under the CE. As outlined above, the CE rehearses a top-down, business-lead approach to change, under which the consumer has to reject or accept new business models, as well as the shift from a 'consumer' to a 'user'. By contrast, a post-capitalist perspective opens up and experiments with the ways in which citizens can engage with different types of circularity, some of which will eschew market-based interactions for non-monetary exchanges, aiming to deeply embed notions, and diverse forms, of sharing into norms and places.

Undoubtedly these forms of institutions already exist around the world, under the guise of, for example, social enterprises or local non-profit 'swap shops'. Therefore the argument here is not one of re-inventing the wheel. It is rather to emphasize how the types of SE being heralded by proponents of the CE fail to address the real socio-environmental challenges, as well as spaces for positive change that diverse forms of place-based sharing and exchange can foster. This is not the case of simply including food cooperatives or repair cafes into the current list of CE 'poster boys', as discussed above. Rather, the argument is that it requires the conceptual foundations of the CE, as currently framed, be open to ontological critique and theoretical expansion, if positive societal transformations are truly at the heart of the CE agenda.

Does this then mean that ideas like Airbnb are without merit, if we are talking about a CE that is more conceptually inclusive than the visions currently being offered by the likes of the EMF, for example? Indeed, what would a post-capitalist Airbnb look like? For one, it might be based on mutual help and the exchange of skills or knowledge rather than the exchange of money e.g. an hour of English language conversation a day in exchange for accommodation. It could also require that travel to and from the Airbnb 'host' is only undertaken to places that can be reached on public transport or on foot or bike. And it could be founded upon on-going exchanges, where 'partnered' hosts visit each other regularly over time, to build up and sustain the exchanges of skills, culture and knowledge. Unrealistic and/or undesirable? Perhaps, under current norms and practices, but then that is the point. If the CE is to be truly transformative, issues of trust, social capital, power and belonging are integral to any societal step-change (see

Fuchs et al., 2015). This is because ‘the economy’ and the ‘market’ are not distinct and concrete spheres separate from society, culture and politics (Jones, 2014). Instead they are constituted by everyday practices of citizens and institutions, which can be enacted differently if they are first conceptualized differently, as post-capitalist perspectives suggest.

5. Concluding comments

When one is attempting to garner public and political attention, a catchy framework often comes in handy. As mentioned in this paper, the EMF’s acrostic ReSOLVE serves such a purpose, encapsulating as it does verbs that are key in shifts towards the CE: Regenerate, Share, Optimize, Loop, Virtualize and Exchange. The argument of this paper is not that the likes of the EMF have the wrong verbs, or are missing some crucial ones from this list. Rather, that there is now a definite need to consider the non-technological / digital meanings of these words, and their place in the CE. For example, according to the EMF, the ‘Exchange’ component of the CE encapsulates a focus on replacing old with advanced non-renewable materials; applying new technologies (e.g. 3D printing) and choosing new product/services (EMF, 2015a: 21). These, on paper, seem like interesting and cutting-edge material innovations, which are not being critiqued here per se. However, the social implications of these moves need to also be thoroughly considered as central to the CE e.g. the potential for further rebound effects and hyper-consumerism taking hold, if, for example, these material innovations facilitate the increased, real-time throughput of goods.

What is at stake, if the social and political facets of the CE are not given greater consideration? To be clear, suggesting that a post-capitalist framework helps re-conceptualize the prevailing vision of the CE is not proposed here as an exercise in theoretical pedantry. It is proposed herein rather because current narratives of social and political pathways to the CE arguably rehearse and replay failed ecological modernist assumptions and mechanisms of the consumer, markets and indeed, the central means and actors/institutions involved in creating sustainable social and environmental transformation. As this paper aimed to show, prevailing discourse of the CE ascribe to the consumer limited and problematic means of engaging with the issues at the heart of the CE, such as responding to environmental labels or renting rather than buying goods: neither of which have to date been able to bring about the desired widespread adoption of so-called ‘sustainable lifestyles’. And in doing so, current technologically-focused renditions of the CE enable us all to keep side-stepping the actual roots and origins of the ‘resource crunch’. This potential feeds into the rise of absolute levels of resource consumption, which have not and cannot, be off-set by greater efficiencies and de-coupling (Jackson, 2009). Thus, in short, if the CE is indeed the next big political economic project of the EU, then the role, potential and place of the citizen—and indeed the economy as a complex socio-political entity—needs to be open to further debate and consideration, including engagement with more ‘radical’ ideas about the pathways, aims and roles ascribed to us all within a more circular society.

References

- Airbnb (2015). About Us. *Airbnb*. Retrieved December 18, 2015, from Airbnb. <http://www.airbnb.ca/about/about-us>.
- Airbnb (2015b). Press Releases: Airbnb Contribution to global greenhouse gas reduction efforts. *Airbnb*. Retrieved December 20, 2015, from Airbnb. <http://publicpolicy.airbnb.com/wp-content/uploads/>.
- Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production*, 63, 13-23.
- Andersen, M. S. (2007). An introductory note on the environmental economics of the circular economy. *Sustainability Science*, 2(1), 133-140.
- Asafu-Adjaye et al. (2015). *An Ecomodernist Manifesto*. Downloadable from <http://www.ecomodernism.org>.
- Belk, R. (2014) You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, 67: 1595-1600.
- Botsman, R., & Rogers, R. (2011). *What's mine is yours: How Collaborative Consumption is changing the way we live*. London: HarperCollins Publishers.
- Cameron, J., & Hicks, J. (2014). Performative Research for a Climate Politics of Hope: Rethinking Geographic Scale, "Impact" Scale, and Markets. *Antipode*, 46(1), 53-71.
- Cameron, J., Gibson, K., & Hill, A. (2014). Cultivating hybrid collectives: research methods for enacting community food economies in Australia and the Philippines. *Local Environment*, 19(1), 118-132.
- Carr, N. (2014). *The glass cage: automation and us*. London: WW Norton & Company.
- Carr N. (2011). *The shallows: what the Internet is doing to our brains*. London: WW Norton & Company.
- Community Currencies in Action (2015). People powered money: designing, developing and delivering community currencies. *New Economics Foundation*, available at: http://b.3cdn.net/nefoundation/0dba46d13aa81f0fe3_zhm62ipns.pdf.
- Conca, K., Princen, T., & Maniates, M. (Eds.). (2002). *Confronting consumption*. Cambridge: MIT press.
- Cooper, R. and Timmer, V. (2015). *Local government and the sharing economy*. One Earth report, downloadable from <http://www.localgovsharingecon.com>.
- Cooper, T. (Ed.). (2012). *Longer lasting products: alternatives to the throwaway society*. Surrey: Gower Publishing Ltd.
- Dauvergne, P. (2010). *The shadows of consumption: Consequences for the global environment*. Cambridge: MIT press.
- easy CarClub. (2015). About Us. *easyCarClub*. Retrieved January 12, 2016, from easy CarClub. <https://carclub.easycar.com/about>.

- European Commission (EC). (2015a). *Closing the loop: An EU action plan for the circular economy*. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2015) 614/2. doi:10.1017/CBO9781107415324.004.
- European Commission (EC). (2015b). 'Opening speech First Vice-President Frans Timmermans at the Circular Economy Conference, Brussels', available online: http://ec.europa.eu/commission/2014-2019/timmermans/announcements/opening-speech-first-vice-president-frans-timmermans-circular-economy-conference-brussels_en.
- European Commission (EC). (2015c). *Roadmap to Resource Efficient Europe*, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2011) 571, available online: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0571>.
- European Commission (EC). (2014). *The Circular Economy: Connecting, Creating, and Conserving Value*, DOI: 10.2779/80121.
- Elkington, J. & Zeitz, J., (2014). *The Breakthrough Challenge: 10 ways to connect today's profits with tomorrow's bottom line*, San Francisco, California: Jossey-Bass.
- Ellen MacArthur Foundation (EMF). (2013) *Towards the Circular Economy: Economic and Business Rationale for an Accelerated Transition*. Isle of Wight: Ellen MacArthur Foundation.
- Ellen MacArthur Foundation (EMF). (2014). *Towards the Circular Economy : Accelerating the scale-up across global supply chains. World Economic Forum Reports*, January 64. Isle of Wight: Ellen MacArthur Foundation.
- Ellen MacArthur Foundation (EMF). (2015a). *Growth within: a circular economy vision for a competitive Europe*. Isle of Wight: Ellen MacArthur Foundation.
- Ellen MacArthur Foundation (EMF). (2015b). *The Circular Economy 100: The Programme*, available online: <http://www.ellenmacarthurfoundation.org/ce100/the-programme/enabling-collaboration>, last accessed: Jan, 2016.
- Escobar, A. (2015). Degrowth, postdevelopment, and transitions: a preliminary conversation. *Sustainability Science*. doi:10.1007/s11625-015-0297-5.
- Firnkor, J., & Müller, M. (2011). What will be the environmental effects of new free-floating car-sharing systems? The case of car2go in Ulm. *Ecological Economics*, 70(8), 1519-1528.
- Franklin, A., Newton, J., & McEntee, J. C. (2011). Moving beyond the alternative: sustainable communities, rural resilience and the mainstreaming of local food. *Local Environment*, 16(8), 771-788.
- Fuchs, D. A., & Lorek, S. (2005). Sustainable consumption governance: A history of promises and failures. *Journal of Consumer Policy*, 28(3), 261-288.
- Fuchs, D., Di Giulio, A., Glaab, K., Lorek, S., Maniates, M., Princen, T., & Røpke, I. (2015). Power: the missing element in sustainable consumption and absolute reductions research and action. *Journal of Cleaner Production*. doi:10.1016/j.jclepro.2015.02.006.

- García-Olivares, A., & Solé, J. (2014). End of growth and the structural instability of capitalism—From capitalism to a Symbiotic Economy. *Futures*, 68, 31–43.
- Geng, Y., Zhu, Q., Doberstein, B., & Fujita, T. (2009). Implementing China's circular economy concept at the regional level: A review of progress in Dalian, China. *Waste Management*, 29(2), 996–1002.
- Geng, Y., & Doberstein, B. (2008). Developing the circular economy in China: Challenges and opportunities for achieving “leapfrog development.” *Journal of Sustainable Development & World Ecology*, 15(3), 37–41.
- Gibbs, D. (2006). Prospects for an Environmental Economic Geography : Linking Ecological Modernization and Regulationist Approaches. *Economic Geography*, 82(2), 193–215.
- Gibbs, D., & Deutz, P. (2007). Reflections on implementing industrial ecology through eco-industrial park development. *Journal of Cleaner Production*, 15(17), 1683-1695.
- Gibson-Graham, J.K. (2006). *A Postcapitalist Politics*. Minneapolis: University of Minnesota Press.
- Gibson-Graham, J. K. (2008). Diverse economies: performative practices for “other worlds.” *Progress in Human Geography*, 32(5), 613–632.
- Gibson-Graham, J. K., & Roelvink, G. (2011). The Nitty Gritty of Creating Alternative Economies. *Social Alternatives*, 30(1), 29–33.
- Graham, M., Hogan, B., Straumann, R.K., & Medhat, A. (2014). Uneven Geographies of User-Generated Information: Patterns of Increasing Informational Poverty. *Annals of the Association of American Geographers*, 104(4), 746-764.
- Greenfield, S. (2015). *Mind Change: How digital technologies are leaving their mark on our brains*. London: Random House.
- Guttentag, D. (2015). Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector. *Current Issues in Tourism*, 18(12), 1191–1217.
- Hampshire, R., & Gaites, C. (2011). Peer-to-Peer Carsharing: Market analysis and potential growth. *Transportation Research Record: Journal of the Transportation Research Board*, 2217, 119–126.
- Hawken, P., Lovins, A. & Lovins, L., (1999). *Natural Capitalism: Creating the Next Industrial Revolution*, Boston: Little, Brown & Co.
- Healy, S. (2009). Alternative Economies, in Kitchin, R., & Thrift, N. (Eds.). *International Encyclopedia of Human Geography*, London: Elsevier, 338-344.
- Heinrichs, H. (2013). Sharing Economy: a potential new pathway to sustainability. *Gaia* 22(4), 228– 231.
- Helm, D. (2015). *The Carbon Crunch: How We're Getting Climate Change Wrong - and How to Fix it* (2nd edition). Utica: Yale University Press.
- Henwood, D. (2015). What the Sharing Economy Takes. *The Nation*. Retrieved from <http://www.thenation.com/article/196241/what-sharing-economy-takes>.

- Hobson, K. (2015). Closing the loop or squaring the circle? Locating generative spaces for the circular economy. *Progress in Human Geography*, 1-17. DOI: 10.1177/0309132514566342
- Hobson, K. (2013). “Weak” or “strong” sustainable consumption? Efficiency, degrowth, and the 10 year framework of programmes. *Environment and Planning C: Government and Policy*, 31(6), 1082–1098.
- Jackson, T. (2009). *Prosperity without growth: Economics for a finite planet*, London: Earthscan.
- Jones, A. (2014). Geographies of production I: Relationality revisited and the ‘practice shift’ in economic geography. *Progress in Human Geography*, 38(4), 605-615.
- Kalamar, A. (2013). Sharewashing is the New Greenwashing. *OpEdNews*. Retrieved from <http://www.opednews.com/articles/Sharewashing-is-the-New-Gr-by-Anthony-Kalamar-130513-834.html>.
- Kaletsky, A. (2010). *Capitalism 4.0: The Birth of a New Economy*, Bloomsbury: London.
- Latouche, S. (2010). Degrowth. *Journal of Cleaner Production*, 18(6), 519–522.
- Lawler, R. (2012). Airbnb: Our guests stay longer and spend more than hotel guests, contributing \$56m to the San Francisco economy. *TechCrunch*, November. Retrieved from <http://techcrunch.com/2012/11/09/airbnb-research-data-dump/>.
- Lee, B., Preston, F., Kooroshy, J., & Lahn, R. (2013). *Resources Futures. Executive Summary and Recommendations*. A Chatham House Report.
- Leismann, K., Schmitt, M., Rohn, H., & Baedeker, C. (2013). Collaborative Consumption: Towards a Resource-Saving Consumption Culture. *Resources*, 2(3), 184–203.
- Loftus, A. (2012). *Everyday environmentalism: creating an urban political ecology*. University of Minnesota Press.
- Loh, K. K., & Kanai, R. (2015). How has the Internet reshaped human cognition?. *The Neuroscientist*, 1073858415595005.
- Lorek, S., & Fuchs, D. (2013). Strong sustainable consumption governance–precondition for a degrowth path? *Journal of Cleaner Production*, 38, 36-43.
- Martin E., Shaheen S., & Lidicker J. (2010). Impact of carsharing on household vehicle holdings: results from north American shared-Use vehicle survey. *Journal of Transportation Research Board*, 2143, 150–158.
- Martin, E., & Shaheen, S. (2011). Greenhouse gas emissions impacts of carsharing in North America. *IEEE: Transactions on Intelligent Transportation Systems*, 12(4), 1074–1086.
- Mathews, J. (2011). Naturalizing capitalism: The next Great Transformation. *Futures*, 43(8), 868–879.
- Mathews, J., & Tan, H. (2011). Progress toward a circular economy in China: The drivers (and inhibitors) of eco-industrial initiative. *Journal of Industrial Ecology*, 15(3), 435–457.
- McNeill, D. (2015). Global firms and smart technologies: IBM and the reduction of cities, *Transactions of the Institute of British Geographers*, 40(4), 562-574.

- Mol, A., & Spaargaren, G. (1993). Environment, modernity and the risk-society: The apocalyptic horizon of environmental reform. *International Sociology*, 8, 431–59.
- Monbiot, G. (2015). Meet the ecomodernists: ignorant of history and paradoxically old-fashioned. *The Guardian*, Sept. 24. Available online: <http://www.theguardian.com/environment/georgemonbiot/2015/sep/24/meet-the-ecomodernists-ignorant-of-history-and-paradoxically-old-fashioned>.
- Morozov, E. (2014). Don't believe the hype, the 'sharing economy' masks a failing economy. *The Guardian*, September 28, 2014: <http://www.theguardian.com/commentisfree/2014/sep/28/sharing-economy-internet-hype-benefits-overstated-evgeny-morozov>.
- Morozov, E. (2013). *To save everything, click here: the folly of technological solutionism*, London: Nicholson.
- Parker, M., Cheney, G., Fournier, V., & Land, C. (2014). *The Routledge Companion to Alternative Organization*. Abingdon: Taylor and Francis.
- Piketty, T. (2014). *Capital in the 21st Century*. Cambridge: Harvard University.
- Piscicelli, L., Cooper, T., & Fisher, T. (2015). The role of values in collaborative consumption: Insights from a product-service system for lending and borrowing in the UK. *Journal of Cleaner Production*, 97, 21–29.
- Porritt, J. (2012). *Capitalism as if the World Matters*. London: Taylor & Francis.
- Preston, F. (2012). A Global Redesign? Shaping the Circular Economy. *Energy, Environment and Resource Governance*, Chatham House, Report: EERG BP 2012/02.
- Princen, T. (2005). *The logic of sufficiency*. Cambridge, MA: MIT Press.
- Prior, T., Giurco, D., Mudd, G., Mason, L., & Behrisch, J. (2012). Resource depletion, peak minerals and the implications for sustainable resource management. *Global Environmental Change*, 22(3), 577–587.
- Quinby, D., & M. Gasdia. (2014). Share This! Private Accommodation and the Rise of the New Gen Renters. Report: PhoCusWright.
- Reisch, L. & Thøgersen, J. (eds.) (2015). *Handbook of Research on Sustainable Consumption*. Cheltenham, UK: Edward Elgar Publishing.
- Roberts, P. (2014). *The Impulse Society: America in the Age of Instant Gratification*. London: Bloomsbury Publishing.
- Roberts, P., & Colwell, A. (2001). Moving the environment to centre stage: A new approach to planning and development at the European and regional levels. *Local Environment*, 6, 421-37.
- Rolston III, H. (2012). *A new environmental ethics: the next millennium for life on earth*. London, Routledge.
- Ryden C., & Morin E. (2005). Mobility Services for Urban Sustainability: Environmental Assessment. *Report WP6: Trivector Traffic AB*.
- Schor, J. (2015). *The Sharing Economy: Report from Stage One*, Unpublished report, Boston College.

- Schor, J. (2014). Debating the sharing economy. essay published by *the Great Transition Initiative*, Tellus Institute, available at <http://www.greattransition.org>.
- Schulz, C., & Bailey, I. (2014). The Green Economy and Post-Growth Regimes: Opportunities and Challenges for Economic Geography. *Geografiska Annaler: Series B, Human Geography*, 96(3), 277–291.
- Schwab, K. (2012). ‘The End of Capitalism — So what’s next?’, *Huffington Post*, online: http://www.huffingtonpost.com/klaus-schwab/end-of-capitalism----_b_1423311.html.
- Seyfang, G., & Longhurst, N. (2013). Desperately seeking niches: Grassroots innovations and niche development in the community currency field. *Global Environmental Change*, 23(5), 881-891.
- Shaheen, S., & Cohen, A. P. (2013). Carsharing and Personal Vehicle Services: Worldwide Market Developments and Emerging Trends. *International Journal of Sustainable Transportation*, 7(1), 5–34.
- Shove, E. (2014). Putting practice into policy: reconfiguring questions of consumption and climate change. *Contemporary Social Science*, 9(4), 415-429.
- Silver, J. (2013). The sharing economy: a whole new way of living. *The Observer*, Sunday 4th August: <http://www.theguardian.com/technology/2013/aug/04/internet-technology-fon-taskrabbit-blablacar>.
- Sioshansi, F. (Ed.) (2013). *Energy Efficiency: Towards the End of Demand Growth*, Oxford: Academic Press.
- Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling. *City*, 18(3), 307–320.
- Speth, J. G. (2008). *The bridge at the edge of the world: Capitalism, the environment, and crossing from crisis to sustainability*. Yale University Press.
- Standing, G. (2014). *The precariat: the new dangerous class*. London, UK ; New York, NY: Bloomsbury.
- Su, B., Heshmati, A., Geng, Y., & Yu, X. (2013). A review of the circular economy in China: moving from rhetoric to implementation. *Journal of Cleaner Production*, 42, 215–227.
- Sundararajan, A. (2013). From Zipcar to the Sharing Economy. *Harvard Business Review*, (Jan). Available online: http://blogs.hbr.org/cs/2013/01/from_zipcar_to_the_sharing_eco.html.
- Townsend, M. (2012). Capitalism 2.0: Is there a better way?, *Huffington Post*, online: http://www.huffingtonpost.co.uk/michael-townsend/capitalism-is-there-a-better-way_b_2231768.html.
- Tukker, A. (2013). Product services for a resource-efficient and circular economy - a review. *Journal of Cleaner Production*, 97, 76–91.
- Tussyadiah, I., & Pesonen, J. (2015). Impacts of Peer-to-Peer Accommodation Use on Travel Patterns. *Journal of Travel Research*. doi:10.1177/0047287515608505.
- Viitanen, J., & Kingston, R. (2014). Smart cities and green growth: outsourcing democratic and environmental resilience to the global technology sector. *Environment and Planning A*, 46(4), 803–819.

- Wang, G., Wang, Y., & Zhao, T. (2008). Analysis of interactions among the barriers to energy saving in China. *Energy Policy*, 36(6), 1879–1889.
- World Economic Forum (2014) *Towards the Circular Economy: Accelerating the scale-up across global supply chains*. Downloaded from: http://www3.weforum.org/docs/WEF_ENV_TowardsCircularEconomy_Report_2014.pdf.
- WWF, Zoological Society of London, Global Footprint Network and Water Footprint Network (2014) *Living Planet Report*. WWF International.
- Zervas, G., Byers, J., & Proserpio, D. (2015). The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry. *Boston University, School of Management Research Paper No. 2013-16*.