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Toward circular governance in the Culture and Creative Economy: learning the lessons from the Circular Economy and Environment

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Abstract

This paper considers the two concepts: the cultural and creative ecosystem, and the circular economy. It explores superficial commonalities and differences, as well as what can be learned from this 'cyclical' thinking (which we later frame as relational and contextual thinking). We lay out the common narratives of circularity in the representation of environmental and cultural sustainability. The aim is to move beyond superficial comparisons and understand the conceptual shifts that underlie them. The paper then seeks to explore what lessons can be learned from this understanding for the creative economy, about which there has been recent debate about its environmental impact. The final section turns to the governance of the (proto-) circular economy, and explores what sort of a 'fit' these new ideas have with existing institutions, and what changes are likely to be needed to current institutions and governance.

0. Introduction

Discussions of the environment, the circular economy and sustainability have often by-passed culture altogether; or, they have viewed culture as simply an instrumental means of achieving environmental objectives. At first sight this may seem logical: we might assume that if anything 'walks lightly upon the planet', surely it is culture. However, a little reflection leads us to consider, for example, the by-products of a music festival in terms of litter and waste. Pushed further we might also consider the transportation that that both audience and the performers used to get to the venue; we could go further and examine the exotic hardwoods used in instruments, and so on. This type of extension of the argument is allied to the conception of all resources as being on a journey from being used to re-used, or to waste. The aim of the notion circular economy is not only to reduce this latter factor waste, but also to increase our awareness of the 'incomplete circuits' of re-use which produce waste and lead to the inefficient use of limited planetary resources: circular economy

arguments stress logistical solutions. However, the circular economy concept is also a powerful communications tool; and one that links abstract ideas to concrete practices (this applies to culture as well as the environment).

This paper argues that simply taking the environment into account, adding it as an additional factor, or new item an existing agenda is not enough. The problem of a 'bolt on' notion of environment to culture, and vice versa, is one that it undermines the holistic notion that the circular economy concept propagates[1]. Interestingly, a parallel debate about culture and the creative industries has moved away from linear to circular and network concepts: the exemplar being the creative economy ecosystem. The aim here being to capture the processes by which new ideas become cultural artefacts and processes; which themselves are the foundation for new cycle. This re-conceptualisation, from a linear to a circular understanding, has caused both policy makers and creatives to re-consider their processes of creativity in a holistic manner. It has also led to a re-consideration of the very definition of culture and the creative industries, one that can no longer be just limited to, or concerned with, the artist, but must include the processes and activities of making, distribution, exchange and archiving.

Moreover, taking into account the expanded production system of culture has at least two major implications. First, it means following its strands through time and space, as the circular economy urges us to do, and seeking to 'close those circles'. Some questions that we may ponder regarding the waste generated by cultural activities, assuming that they do not go straight to 'land fill' but are 'recycled: what happens when you dispose of your computer or phone, where do your discarded clothes end up, and how much energy do we use when we play music via a streaming platform? Second, we are encouraged to review the creative or cultural process beyond the artefact: backwards to its making and distribution, exchange, and conception, and forward to its archiving.

The aim of this paper is to consider the two concepts: the cultural and creative ecosystem and the circular economy and to discuss the commonalities and differences, as well as what can be learned from this 'cyclical' thinking as well as its limitations especially by comparison with linear systems, or a restricted focus on the cultural object, or the artist. We sketch out the parallel narratives of circularity in the representation of environmental and cultural sustainability. This paper is inspired by the valuable work as represented by the incorporation of adaption and reuse, and the cycle of raw materials usage in heritage projects that has been showcased by the CLIC[2] project (Girard, Nocca, and Gravagnuolo 2019; Girard and Gravagnuolo 2017; Foster 2020). We seek to go a step further here and consider lessons for the whole cultural ecosystem, not just heritage.

Our objective is to move beyond superficial comparisons and understand the conceptual shifts that underlie them. The paper then seeks to explore what lessons can be learned

[1] In this sense more 'magical thinking' than 'circular thinking'.
[2] CLIC: Circular models Leveraging Investments in Cultural heritage adaptive reuse

from this new understanding for the creative economy, about which there has been recent debate about its environmental impact. The final section turns to the governance of the (proto-) circular economy, and explores what sort of a 'fit' these new ideas have with existing institutions, and what 'accommodation' is likely to need to be made in the institutions and governance (above and beyond specific targets and objectives which is not dealt with here). We aim to expand and enrich the conversation between the creative economy and the environment; a timely task in this 2021 UN year of Creative economy and sustainable development.

1. Visualising the widening circuits of relationships

As is detailed in the other papers in this Special Issue on Forerunner Practices emerging from the CLIC initiative, we can readily appreciate the case of cultural heritage which is usually about conservation and sustaining artefacts for the appreciation of future generations; this is, in a sense, a paradigmatic example 'respectful' use of resources. The work being done on active heritage management illustrates the point that viewing the act of conservation through a circular economy lens has practical consequences: exploring the sourcing a materials, tools and processes; as well as their disposal and re-use is but a first step. Beyond this, the material chain of wastes, is the problematic case of the visitors and tourists: on one hand, we have the energy budgets of long-distance travel by plane, the impact of new infrastructure (hotels and roads) in delicate environments, and the inevitable damage of the footfall of visitors[3]. On the other hand, there is the social and economic livelihood of people dependent on heritage tourism for jobs [4]. A circular economy perspective does not remove such dilemmas, but it can make them more visible, and open up potential routeways to their amelioration. The objective here is not to delve into the specificities in a systematic review (Foster and Saleh 2021), this would clearly be impossible given both the range of domains of the cultural ecosystem, as well as the four other moments of cultural production beyond heritage. What we seek to do is to provide an insight into the framing of the challenge of understanding and policy making following in the spirit of Fratini et al. (2019), namely the 'socio-technical imagination' this circular economy lens has created. As we will point out a key challenge is the conflict between the different socio-technical imaginations of some policy communities and those of the cultural community.

An important point regarding the inclusion of this paper in a collection primarily concerned with cultural heritage is to highlight the permeability, or inappropriateness, of the boundaries between commercial culture, patrimony and heritage. Expanding beyond such a narrow definition of culture and heritage we can examine the expanded cultural economy ecosystem. From a 'cultural ecosystem' perspective (Pratt 1997), we cannot only appreciate

[3] This extends the core dilemma of sustainable cultural tourism (Russo 2002) to include the environmental dimensions.
[4] A clear illustration of this dilemma is that of the cruise ship business in Europe, and the pollution it causes. (Transport_and_Environment 2019)

how culture is re/made, but we also can illuminate the 'open circuits' that lead to waste[5]. Perhaps the most obvious is that of the fashion industry, the worst exemplar being 'fast fashion' which has used logistics to source cheap labour and materials, as well as narrowing the gap between a new style and its availability to consumers (Tokatli 2008). Critically, this has led to a shortening of the 'fashion' cycle from 4 seasons, to a couple of weeks. The cheap price has led to reduce the number of times we wear clothes in our ownership, and the encouragement of the increasingly rapid disposal and change of clothing, which is clearly wasteful: but is intrinsic to the notion of ever-changing fashions. There are even difficult questions about what happens to recycled clothing, and the energy used in its journey[6], and in its remediation (Brooks 2019). Interestingly enough, it has been researchers on clothing that have pioneered work on Global Production Networks (GPN) - mapping the thousands of miles that a piece of clothing may travel from its sources to use, reuse and waste (Blair and Gereffi 2001). Whilst the main focus of GPN research has been the control of production chains, and who benefits from the added value, it clearly lends itself to a circular economy approach that examines resource use and reuse (Bair 2009); moreover, it alerts us to questions of power and control. Examples of this can be found in the work on electronic waste: the material environmental impact of our digital lives, where the toxic materials in printed circuit boards inside consumer electronic devices are shipped around the world for deconstruction, disposal and reuse, often with minimal control over labour conditions and leaching into the local environment (Pickren 2014; Widmer et al. 2005). To this, again, we can add the increasing energy usage that both these machines, and their 'cloud storage', impose on the planet.

As with traditional notions of culture and patronage, we have, as yet, a limited conception of how the circular economy challenges cultural production: currently cultural production is more or less rendered invisible. By only focusing on cultural heritage we are missing the larger impact of the '(im)+material' processes of cultural production in the cultural ecosystem. For example: the cases of tourism and heritage sites, and the carbon footprint of bands touring the world, and audiences travelling long distances to witness ever increasing stadium, or festival venues is significant the wider burden or cultural production is only just being recognised, let alone measured (Garrett 2012; Bottrill, Liverman, and Boykoff 2010). Although venues commonly have become aware of waste collection the recycling, and the contribution of travel is seldom accounted for (Dodds and Walsh 2019; McKay and Webster 2016).

In the recent pandemic when most live performance has been on hold, there have been many attempts to innovate with virtual events. Indeed, the process of digitisation seems to be the brightest hope for a low environmental impact cultural future. The potential for smaller gatherings, and limited travel provide one scenario (albeit missing a significant conviviality of the 'live' event). However, even these technologies have been shown to be a chimera. Music has played a leading role in digitisation from Vinyl, to CDs and MP3s the material consumption has (apparently) disappeared. However, as noted above, our

[5] Whilst Heritage has been highlighted, it is but one domain, and one aspect of the cultural ecosystem.
[6] It's carbon footprint

playback devices are not environmentally benign (especially as most are non-repairable, and 'upgraded' and disposed of with increasing regularity). 'The cloud' which is the essential digital infrastructure that enables 'streaming' has a surprising heavy carbon footprint, and is all too material. Cloud storage is enabled via vast server farms where the data is held; like individual computers (multiplied a million times) they get hot and need huge amounts of energy to cool them. The latest shift to locating server farms in colder climes, and the increase use of solar energy is responding to the problem. In a shocking calculation, Devine (2015) estimates that cloud music delivery consumes more energy that the old vinyl disc. Immediate solutions are not so simple; but our focus here is the possibility at least of comprehending the scale of the problem.

The critical lesson from this brief perspective of the 'event horizon' of digitisation, culture and the environment is that there is still a growing problem with regard to the relationship between the environment and culture, one that is for the most part (apparently) "invisible" (that is not counted, nor fully considered). Moreover, as cultural consumption in firmly increasing (despite economic decline), and driven on by the emergent middle-class growth in China, and India (Kharas 2010), the indications are that the challenge of cultural consumption and environmental impact will become more acute, and more apparent, in the near future.

Circular economy perspectives do have a great potential in the visualisation and communication of resource use. They have the potential to 'reveal' hidden waste (that is either conceptually ignored, or physically displaced/hidden by relocation in space and time)[7]. Insights from GPN research, when added to that of both the cultural economy and the environment, highlights the parallel impact on human life in terms of pollution, poisoning, injury and unsafe work conditions (Maxwell and Miller 2008; Pratt 2008). We can recognise that a similar conceptual logic is having a parallel impact on culture: establishing the notion of a cultural ecosystem which has made visible the wider processes of re-making culture. It has alerted us to the policy and strategic need to focus on such cultural capacity building (UNESCO 2013); understanding who gains and losses from cultural production, as well as emergent threats to local cultural systems that contribute to the world's resource of cultural diversity(Unctad 2010). Nowhere has this been more keenly felt than in cities, the locus of much cultural production: the waste products are hidden and dispersed in the urban and regional system (often travelling half way around the earth). Weaving together the above ideas we can begin to debate ways to make the environmental consequences of culture more visible. Visibility can potentially lead to a more 'creative' response to close the circles, as we have seen in relation to debates about digital streaming services, and touring performances; as well as increasing the awareness of threats to the sustainability of local cultural practices.

The notion of the conceptual tools of cyclical systems that are extensive in space and time that can help to 'make apparent' the open loops, waste, and over exploitation or extinction

[7] Or, off the balance sheet.

is another way of expressing a new policy agenda. Visibility is one thing, but decision making requires decisions of allocation and trade-offs, and this brings us back to economics as a default 'scientific' decision maker. Clearly, advances in environmental economics have sought to recalibrate our tools of valuation with respect to the environment (Pearce, Markandya, and Barbier 1989): generally, they still undervalue the environment . Moreover, they cannot compute an infinite value; a value which logically must be added to our earth. Similar efforts have been expended in relation to culture (Throsby 2010); however, again we run up against the valuation problem of extinction[8]: of cultures, heritage or careers. It is worth noting that even measures such as GDP are now being called into question by many economists as failing to reflect the 'real' economy (Coyle 2014)[9], but more so, unable to guide us in the future use of resources in 'multi-value' environments. This task must, of course, be beyond the scope of this paper, but it is nevertheless critical to acknowledge the limited role that many key indicators that constitute the 'dashboard' of global economics have played in exacerbating rather than mitigating our problems. The following two sections explore the notions of circularity applied to both the Environment and Culture. The aim is to move beyond superficial comparisons and examine the underlying principles of connection.

2. A sympathetic critique of the Circular Economy and the Environment

The circular economy is in essence a simple idea that seeks to promote awareness of the environmentally efficient use of finite raw materials, and the minimisation of waste that is intrinsic to linear models (Webster 2015; Stahel 2016). The model seeks to conceptualise the life cycle of resources and products as an idealised cycle of use and reuse; recognising also that, strategically, an incomplete cycle results in redundancy and potential waste (Whicher et al. 2018).The notion weaves together objectives regarding sustainability, life-cycle analysis, multiple reuse under the label of efficiency . Design, logistics and pragmatism characterise the tools that mobilise debates about the circular economy. In no small part the focus on empirical processes rather than abstract aims and goals has added to its popularity and the relatively smooth adaptation into many fields. However, this strength is also a potential weakness: the following discussion elaborates this point.

The argument about cybernetic feedback loops in the environment, and their intended and unintended consequences has been a staple of the global environmental movement since the Club of Rome report (Meadows 1972). Consequentially, the notion of recycling and reuse has gained popularity as a way to mitigate against the 'Limits to Growth' scenario that the original report identified. The 'Bruntland Report' (World_Commission_on_Environment_and_Development 1987) added the awareness to a

[8] Simply stated, that extinction of an object, being or process that has an in-(or non-)finite value can never be operationalised in mathematics. But reducing such cultural values to prices (finite values) a 'slight of hand' is achieved that under-values culture. To be sure, the only way to make it tractable within a mathematical calculation: this is a problem with all proxy-pricing techniques.

[9] Notably in environmental terms, see (Dasgupta 2021)

need to consider intergenerational equity expressed in terms of a sustainable planet that can be handed to the next generation in no worse condition than it was received in.

Both reports, and the local, regional and international movements that followed them have re-framed (or created a novel socio-technical imaginary) the need to conserve resources through efficient use as well as the challenge of responding in transversal modes (across previously separate domains of culture, environment and economy. However, in a fast-developing consumer society waste has become endemic, moreover a it has created a focus on novelty. Waste is under-priced, if at all and, it is hidden from view: either literally in land fill, or it is shipped away to another country, to be dealt with 'later' by somebody else: literally 'out of sight, out of mind'[10]. Economic pricing exercises can propose 'full costing', but the question is who can be 'forced/required' to pay. Commonly, it is the weakest participant: for example, the sweatshop labour producing (some of) our tee-shirts and training shoes. Whilst not a fundamental critique of the Circular Economy, in practice the lack of data and full accounting of the content, origins and destinations of products does undermine its potential effectiveness, and make it impractical to regulate (as the data is lacking). Moreover, a circular economy perspective needs to be expanded to a global scale to be effective, and would necessitate the effective tracking and tracing of raw materials; moreover, whilst circular economy principles are being legislated for in some countries, export of waste to other economies too often removes it from oversight[11]. Such questions lie in the field of complex multi-lateral trade relations which are beyond the scope of this paper.

The landmark report by the Intergovernmental Panel on Climate Change (1990), and the subject of a series of reports, focused our attention on the clear and present danger of global heating and its diverse consequences in terms of sea level rise, desertification and population migrations. The focus has been shifted to the limitation of emissions that produce 'greenhouse gases' and that this is not amenable to a one state solution, but requires global action. In short, it has raised the severe limitations of a fossil fuel energy source, and led to a focus on the potential of renewables. Which brings us back to the core idea of the circular economy as a practical tool both in managing limited resources and governance focused on developing sustainable renewable alternatives. Whilst the circular economy can help, it is clearly limited.

At its core the circular economy is a design solution: creating the system of good practices that promote efficient resource decisions. Clearly, as behavioural changes of users and producers are required, this is important. Reducing packaging, replaceable module design of products that can be switched out with new features, developing repairability, making components that are separable for efficient recycling that reduces disposal and 'empty

[10] Waste is framed as 'of no use', or valueless. It is not true, and the fact that there is a market in waste means that there remains an economic incentive for it continue to exist as it is traded.
[11] A parochial example is that in the UK taxes on landfill disposal have led to a rise in unregulated 'fly tipping' https://www.theguardian.com/environment/2021/feb/12/uk-landfill-tax-seems-to-have-incentivised-fly-tipping-says-watchdog

loops' that end in land fill sites (Murray, Demos, and Ecologika 1999; Keiller and Charter 2014). In this sense perhaps the most powerful aspect of the notion of the circular economy is a communications strategy that enables users and producers to visualise and identify opportunities for reuse rather than waste. With a little extension, awareness of the global production chains that ferry our waste around the world might be a powerful tool in applying political pressure to reduce the production of waste in the first place (Herod et al. 2013; Alexander and Reno 2019); but, as yet, this is a minor voice in the debate.

Arguably, another strength of the notion of the circular economy is one that expands our view of the product as an atomistic lump of material into one where it is perceived as part of a flow that touches parts of the world via its 'tentacles' either of sourced materials (such as the rare earth Coltan in a mobile phone mined in war zones by underage, or unprotected workers), or waste material that has to be separated by hand, and eventually dumped in toxic land fill sites (well away from the original user)(Moran et al. 2015; Hayes and Burge 2003). Such an awareness is the first step to taking responsibility for the whole life cycle of materials in products: usually responsibility has been actualised via legislation, or pricing. But this has on the whole been ineffective so far. Again, an area of action beyond the scope of this paper.

As noted above, the recent work on adaptation and reuse in the case of the historic environment has created a useful focus on the use of material resources in heritage maintenance. However, we can be critical that it does not go far enough in embracing a full circular cultural economy. In fact, its roots are in a linear and truncated object-based model of culture which has been challenged in recent years that embrace the whole process of making and re-making culture[12]. What is missing are the other domains of culture, and the immaterial dimensions of culture, its formations and transformations: the sustainability of the skills, craft, practices and techniques (their teaching and training) that also animate all making.

At a conceptual level the key weakness of the circular economy is its foundation on a cybernetic systems model which places stress on control points that resolve inputs and outputs from sub-systems. Despite their focus on motion, such models stress mostly control, and not flow. Network models that have been popularised in recent years have challenged this unitary control system model of atomistic nodes with one based on, and defined by, flows and the diversities of such communications (Castells 1996). For example, the foundational model for the internet packet switching system was designed to navigate and avoid control points and divert flows around blockages in wartime. Such multivalent network concepts remove the weaknesses of control systems as hierarchical and functional models (Benkler 2006). They also open up the opportunity to consider a multiplicity of flows; this is how context can be critical in the 'making' of the dis/advantage of space and time, and social and cultural dimensions as constitutive of things (not detached or

[12] It is understandable that a focus on heritage would fall into this 'trap' as it has both been the dominant conception of culture in the last century, and the concern has not been with 'making heritage' but 'conserving heritage'. However, today's cultural artefacts are tomorrow's heritage.

separated). Moreover, alternative network concepts embraced notions of multiple values (political, economic, social and cultural) that are based on experience or relational terms (Latour 2018), rather than functional ones determined by the system designer (usually price) (Zwiers, Jaeger-Erben, and Hofmann 2020). Such a network perspective has the potential to change the balance of power from a hierarchical to heterarchical model of activity: tactics of governance, as we will argue in the final section of this paper.

It is the questions of the multi-value system; of the old as well as the new, the material and intangible, the economic and its other that confront us today, as the UNESCO (2005) 'Convention on the protection and promotion of the diversity of cultural expressions' reminds us. The challenge is one that Frantini et al. (2019) identify as the socio-technical imaginary; critically, imaginaries can get 'out of sync' with both the infrastructure of governance (and policy), and the conceptual objects (culture, or the cultural ecosystem). This is why recent debates about the definition of the cultural and creative industries are so important.

The aim of the current section was not only to learn what the circular economy is, but also to explore some of its underpinning ideas. As a pragmatic model of logistic and of communication is has been effective. However, this effectivity has been undermined by the lack of data to document flows, and the capability of regulation to 'follow the flows' across borders. The following section explores the parallel narrative that has occurred in the field of the creative economy.

3. Circular conceptions and the Cultural and Creative Industries

In order to appreciate the relationship between the cultural and creative industries and the circular economy and the environment more generally we need to spool back to earlier conceptions of culture as we currently use the term[13]. The exceptionalism of a particular category of human expression was popularised in the Renaissance in Europe, and achieved its most significant conception via humanism and Romanticism, culture 1.0. The significant shift was to shift perfectibility from the deity to humans[14], and the embodiment of genius in the figure of the artist. All art produced by artists was not sanctioned as 'culture', nor were all artists; the development of institutions that legitimated particular art forms and practices, and the 'history' of art were established in the 18th and 19th Centuries (White and White 1993). Coincident with this cultural conception was the role of the ruling elites, and later the nation state, in providing patronage and support for particular versions of culture. This became institutionalised as national support for particular cultural forms in the 20th century; these forms echoed the prejudices of social elites.

[13] Earliest conceptions of culture relate to humans' relation to their environments; so, perhaps we have come full circle here.

[14] Of course, this continued/s to be a contested view in non-Christian traditions such as Buddhism and Islam.

State support was based both on what we would know call the 'soft power' of culture, as well as the rising popularity of neo-classical economic theory that determined 'high culture' as liable to market failure. Later social welfare economics provided the classic legitimation of funding of 'public goods' such as culture 2.0. Whilst a more expansive model of culture is offered here, it is still based upon a traditional artist-centred model, expressed as concentric circles where 'production and distribution' are peripheral, or 'non-creative' (Bakhshi, McVittie, and Simmie 2008; Throsby 2008). However, the emergence of the cultural industries in the latter half of the 20th C has cast this rationale into disarray both but countering the market failure argument, and technology undermining Balmols' law, and the rise of popular cultural forms (the latter of which represented a critical cleavage in the conception of culture since Adorno (Pratt 2009a)).

The notion of what we might term cultural industries 3.0 was first elaborated by Girard (1982), who presented the first shift away from the artist-centred model; this was later elaborated in an economic linear model by French communications scholars (Menger 1999), and this approach was latter allied to institutional economics and policy approaches (Garnham 1987, 2005). Concepts of the cultural industries thus developed into more holistic approaches referred to as a 'production system' (Pratt 1997); later iterations used the terminology ecosystem to capture the circular, recursive and feedback character of cultural (re) production (Pratt 1997; Unctad 2008, 2010; UNESCO 2013; Unesco_Institute_for_Statistics 2009). Simply put, this model conceives the creative process as an iterative and heuristic one that encompasses a creative idea, its making as an (im)material object, its reproduction, distribution, exchange and archiving; which feeds into new ideas and so on (Kloosterman et al. 2019).

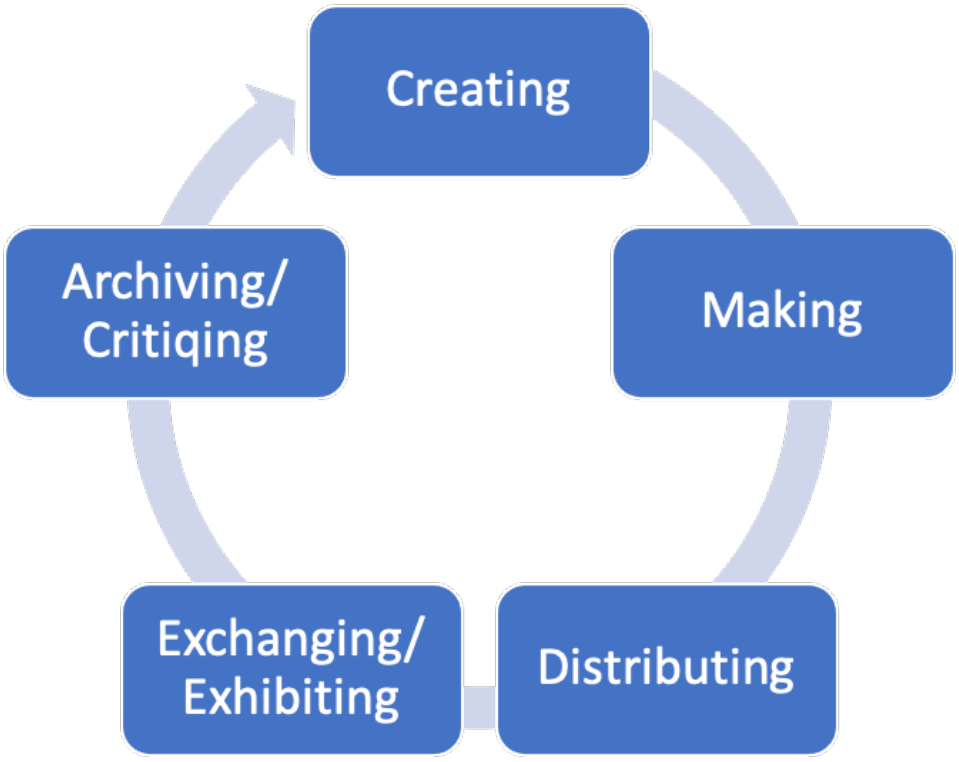

Fig 1: The creative economy ecosystem: each art form (or domain as UNESCO (2009) term it) has its own cycle: 1.Cultural and natural heritage, 2.Performance and celebration, 3.Visual arts and crafts, 4.Books and press, 5.Audio-visual and interactive media, 6.Design and creative Services, and (in some definitions) 7.Tourism, and 8.Sport and recreation

There is a common narrative shared by the 'creative economy' and the 'circular economy': the notion of feedback, holism, flows and process. However, they are not the same, and have a different root. As noted above, mainstream circular economy debates are founded in technical and logistical concerns, and on cybernetic logics; in this sense they tend toward a technical, rational and economic determinacy. Technical in the sense of the primary focus on the scientific definitions and measurements of products and flows; rational in their reliance on limited decisions predefined by (sub-) system definitions and concepts of 'what counts' as inputs and outputs, as well as efficiencies; finally, economically, that those efficiencies are primarily expressed in (normative) neo-economic terms, or derivatives. They struggle to bring in alternative 'value/s systems' or different subject positions, or that recognise the distributional inequities as a result of institutional and individual bias, or partial knowledge. In this sense the reduction of all value to economic value- as a common currency – is a problem most starkly illustrated by normative practice in indigenous communities that have different conceptions that private property or land ownership (Lessig 2001). Such debates quickly run into an incommensurability problem. More generally we can see this as the challenge of unitary versus multiple value systems and can only be grasped with an institutional logic[15].

Creative economy (3.0)[16] debates have an advantage in being inspired by a mix of anthropological perspectives, and institutional economic thought, a broader sociological perspective, as well as notions developed by cultural studies of diversity of value. Accordingly, as a general field the CE 3.0 is more able to incorporate a less reductive and deterministic models. Recent work that stresses the issues of governance based on both the awareness of, and the need to overcome the historical 'silo' of institutions fitted to CE 2.0, or CE 1.0 has sought to make visible the hidden work of cultural ecosystem[17]; as well as the exploration via global networks of shifting 'out of view' in both space and time both 'waste[18]' and 'exploitation'(Pratt 2019; Devine 2019)[19].

[15] As opposed to an atomistic neo-classical logic, one of relations and networks: referred to as institutional economics (see Hodgson 1993)

[16] This definition is slightly different to Sacco's (2018) concept where 3.0 is focused on digitisation.

[17] This is a parallel conceptualisation of the socio-technical imaginations associated with CE 1.0/2.0/3.0 and the cultural objects (artefact/heritage, or cultural ecosystem).

[18] There is a lively debate drawing upon anthropology of what is defined as 'waste'.

[19] Another striking example of the apparent 'zero waste' of digitisation is film streaming. In addition to the parallel cloud storage issues to music, film uses far more capacity and produces far more warming. Moreover, the economics of film making has since the 'Star Wars' franchise relied upon more income being generated from merchandise than box office(Proctor and McCulloch 2019). Much of that merchandise is aimed at children, and is made of non-recyclable plastics. The ultimate irony is perhaps Frozen 2.0, a film with a strong environmental message, but based upon a polluting model (Horvath and Gyenge 2018).

There are a number of weaknesses evident in this approach to the Creative Economy that precise echo those of the Circular Economy. In both the narrative innovation has redefined the object of analysis, expanding it from either a single object, or an artist, to a system; moreover, a system with tentacles that reach to the ends of the earth (Pratt 2017). The challenges are twofold. First, the global cities debates have shown the limitations of both the administrative limits to the city and the extensive flows of capital and commodities well beyond this city and the nations they inhabit (Sassen 2001) and how this is creating a new 'power geometry' (Massey 2007) of new inequalities and control. Remarkably little attention has been paid to the role of culture in these global cities and how it is used as an instrument of promotion, but also increasing as an economic force in its own right (Pratt 2011).

Second, the creative economy has been slow as yet to understand its impact on/in the environment as in the social world; in part hampered by a lack of data[20]. In the latter the emergence of studies on the 'work' or culture, and moral questions of the immaterial economy have been notable (Gill and Pratt 2008). But, as yet, we have only indicative accounts of the global analyses of E-waste, and the carbon footprint of touring bands (referred to above), and those GPN studies of particular cultural industries (Pratt 2008; Power and Hallencreutz 2007; Coe 2013).

4. Governance

In this section we discuss the challenges that the prevailing conceptualisations of both environment and creative economy, as illustrated in the previous sections, mean for the governance of the proto-circular creative economy (a potential amalgam of the circular economy, and the creative economy). The intention here is not to specify policies and targets that might be necessary; but instead to consider the means that society will need to mobilise to make such polices (whatever they are) possible: namely the challenge to governance structures and institutions.

Reviewing the debates about the circular economy we have noted the tendency to technical reductivism in approaches. This is both a legacy of the cybernetics systems concepts, and the pragmatism adopted by circular economy advocates. As we can see, there are internal contradictions: these are exemplified by the sustainability debates post-Brundtland which sought to 'draw the future back' into contemporary calculations[21]: causing us to evaluate the impact on future generations in the here and now. The evidence of the ICC has focused attention on the timelines of actions. To be clear, within such a context the role of economics has been both part of the problem and part of a potential solution: on ethe negative side, normative economics 'under-pricing the environment, or 'discounting the future' (so that it is less 'valuable'); on the positive side new techniques of proxies, hedonic pricing, and changing discount rates has not doubt helped with more

[20] Despite the claims of those that seek to 'scrape data' from websites in the hope of 'big data' solutions, the appropriate data does not presently exist (Boyd and Crawford 2012).
[21] In the terms used by this paper, Brundtland changed the socio-technical paradigm of what was calculable, and what should be calculable: it changed the object of policy, and implied a new governance.

appropriate 'signals' to the market system. However, we are arguing here that these technical modifications of calculus are merely apply a superficial sticking-plaster to bigger issues associated with the wider marginalisation of social-cultural factors. To be clear, these 'factors' are not additional variables, as we might have expected in the revised models; but rather they suggest the need for a whole new model[22]; a new socio-technical imagination.

This is why governance is important, and interventions from the Club of Rome report onwards can be re-interpreted as constantly chasing a redefinition of the boundaries, or seeking to capture the consequences: of impacts with regulation, awareness and governance; whether it is framing by sub-systems, time and space, or the life cycle. As noted above the issues concern ontologies and taxonomies, and the epistemologies of causality based upon flow and relationship rather than atomism and randomness (the dominant logic of positivism). Rather than play catch-up, a full revision of the guiding ontology and epistemology is indicated. Arguably, this is what has been happening in relation to our recent definitions and debates about 'what the environment is', and 'how it is related to human activity'. Clearly, these are social and cultural, as well as scientific debates: we are suggesting the need to modify our conceptions in order to recognise these 'new' objects.

As also noted above, this re-conceptualisation process has also been paralleled in debates about the creative economy. Where the object of cultural policy - the artist, or the paternalism of the nation state - has been broadened progressively from a heritage and patrimony focus, to one the includes (on an equal footing) the commercial creative economy. In addition, this move signals that these 'Janus faces' of culture are not a dualism, but a duality: accordingly, the hybrid is a more appropriate model to capture this reality. Moreover, that taxonomies based on flows, rather than objects, have expanded the notion of a system of cultural re-production. Similar to debates about the environment, the questions of 'what is culture' and 'how it is related to human activity', have been raised as have the additional question of what the relationship of culture is to the environment and development. These latter two questions have been stymied by initial 'bolt on' and instrumental approaches: these have fundamentally failed to recognise the relational nature of cultural and environmental action, and as often as not culture has been used as a 'simple' instrumental 'fix' to resolve (environmental) implementation issues. The debate has perhaps been best advanced in urban regeneration (Pratt 2009b), and development contexts (Pratt 2015). Less progress has been made with respect to environmental issues where, particularly, in a cultural policy context, the environment is still an add on, rather than systematically included part of the whole.

Policy making is one part of governance, but it pivots upon an understanding of the problems, and of the processes that generated it. Fundamentally, policy seeks to ameliorate 'bad' outcomes, and support 'good' ones. Hence, the ontology of environment or culture is fundamental in allowing users to define the 'object' of policy action.

[22] Another example is 'green accounting' which focuses on changing the incentive model for shareholders to maximize the 'triple bottom line' (Slaper and Hall 2011).

Accordingly, there follow many boundary disputes between economic, environmental science, political, cultural and social concerns. In this context, re-imaging boundaries can redefine, or eradicates the problem, and opens up different solutions. Arguably, this is why the rise in interdisciplinary knowledge has been a signal characteristic of all of the sciences in the last half century.

A second part of governance are the institutions of its delivery and deliberation. Having institutional silos that reflect 'old' definitions of the object of policy, or the problems to be solved is clearly yet another barrier, or boundary dispute (Tett 2015). Thus, we have seen an on-going struggle within governments to act on transversal problems between institutions that are in many ways internally resistant to transversal operation: in capability and accountability. The designation of a new 'department' of Environment (or Culture) may simply exacerbate the problems of boundary dispute, or hierarchical control of, rather than lateral flow, of knowledge; likewise, an ambitions umbrella 'super department' may be subject to internal disputes[23]. Clearly, our public and scientific institutions that developed in a previous age have yet to match the current problems that they face: not necessarily through any internal shortcoming, but due to a legacy system and configuration of objectives and capacities set in a previous age and not fitting the contemporary processes they seek to act upon.

A third and final aspect of governance that can be considered is that of the understanding of value, and values. Clearly, evaluation has been increasingly important in the way in which technocratic processes have been embedded into policy making to avoid the worst excesses of political self-interest and to ensure the efficient allocation of resources. However, evaluation processes themselves, despite attempts to extend the scope and extent of evaluation terms (in space and time) are still 'hoist on their own petard': they rely upon some a priori agreement of a unitary and universal value. In an ideal case the bottom right had cell of the spreadsheet audit gives a definitive and universal cost or benefit. Standing aside from the internal debates about 'pricing' objects on 'indeterminate value' (for example a landscape view, a human life, an ancient artefact, poem, song or habitat), we can recognise the other dimension of pricing which is fundamentally incommensurable: that of multiple value systems. We can recognise this in examples of the environment related to land value or environment as defined by indigenous peoples, and we can see this in terms of cultural values (even between two pieces of music). Moreover, there is a lively debate about the multiple social and health roles of culture (and environment) in our lives which contribute to, or detract from, overall 'well-being' (Crossick and Kaszynska 2014).

Of course, there are innovative attempts to quantify and normalise this diversity of value(s); however, the counter – humanities', and social science's, response - has been to re-assert incommensurability. This is not a dead end of eternal non-agreement, but a positive route

[23] This analysis of the problem only concerns one level of government: the potential for dispute between levels of government within a nation state, let along bi-lateral or multi-lateral relations between nations states is quite clear.

way to decision-making to embrace, rather than to erase 'difference'. It is a challenge which has been demonstrated in the case of inter-cultural dialogue: where the key is to acknowledge cultural values and differences, and accept and understand it, and not to simply tolerate, or discount it (Wood and Landry 2007).

5. Conclusions

This paper has explored what can be learned from the recent debates about the environment in the Anthropocene as seen through the lens of the circular economy, as well as that of the creative economy. The objective was to build upon the foundations of innovation in the Heritage domain, specifically on adaptation, reuse and sourcing construction materials. We identified a variety of similarities and differences as well as shifting substantive concerns; however, underlying this we have sought to extract a more fundamental logic that indicates a foundational challenge to how we conceptually and practically address the problems of a finite and fragile world. Moreover, we identified a potential learning from the creative economy ecosystem approaches that indicated that other cultural domains aside from heritage should receive more research attention, moreover that the whole production process (not just the final artefact and its conservation) requires investigation: we provided some illustrative examples of how digitization has posed some new issues for sustainability and the cultural economy. We can draw four general conclusions that might inspire further work.

The first point that we can make is that the notion of circularity is an appealing, and easily communicated idea; one that challenges the commonly held perceptions of isolated things or actions, and linear and non-recursive approaches. Alerted to this logic practitioners, and the general public, can at least appreciate, and perhaps explore the links in the chains through the 'life cycle' of familiar products. However, there are difficulties as the ends of chains may be invisible to casual inquiry, 'hidden' in space and time as they extend via complex routes to the ends of the earth. The recent consumer interest in origins, and the labour conditions of those who produce goods has shown just how difficult it is to establish these linkages. Quite simply, there is little information collected either by producers or statisticians in one part because these flows are new; and on the other part, because the information is not made publicly available[24]. It is not as simple as checking up on the numbers employed by a company a production chain passes through many complex transformations. The new field studying Global Production Networks indicates the way forward; although it is notable that very little has been written about culture and the creative economy in this context.

Second, and following on from the idea of networks and life cycles, we are led to question taken for granted taxonomies of 'things'; definitions which commonly only account for the (im-) material presence in the here and now: for example, a singer delivering a song. It is questionable to extract the singer from the song: the expertise, training, the composition,

[24] There is a conflict of interest here as commercial producers may not want to disclose such flows, anticipating adverse consumer, or legislative action. This would be a potential area for legislation.

the backing musicians, and even the theatre ticket sellers and concert promoter. All of these activities were necessary for the singer to perform. Thus, we are encouraged to see products not as 'stand-alone' but assemblages that don't just 'exist' but are social constructs, temporary structures, and achievements for a particular moment in time.

Third, with respect to the notion of circularity, a deeper philosophical point: relationality. By reconceiving the 'life of the product' as constitutive of that product: literally as the sum of its relations is an approach that has been pioneered in the discipline of anthropology, but applied to analyses of globalisation (Appadurai 1990). Studies directs us to the diverse ways which we are entangled in webs or ecosystems: a situation that is far messier and more recursive, and hybrid compared with 'simple' cybernetic systems. Critically, this relationality has two dimensions. First, that unlike cybernetic systems where the focus is on inputs and outputs, and nodes; by contrast relational networks focus on the flows; a shift from quantity to quality. Second, the meaning and value of a product is defined by its relations, it is as contextual as it is intrinsic. This 'value/s' issue is one that has undermined both environmental and cultural analyses. Notably, economic attempts to devise shadow or hedonic values assume that simply because products such as feeling, or a view, are not traded as market goods, they can still be assigned a price/value. Commonly used universal measures of value – such as those produced by hedonic pricing are of limited utility in a multi-value world: where value literally changes depending on its location in space and time.

Fourth, and finally, if these assemblages (Ong and Collier 2005), situated in networks, are to be manged or governed then we will need appropriate mechanisms that can effect change in these new assemblages: they will be ineffective on the (old) isolated objects. Potentially, we need to re-think the 'objects of policy' and the relational nature: how they might be influenced in one direction or another. A practical example can be highlighted in respect to heritage, where issues of material heritage are explored at the expense of immaterial forms (skill, knowledge, practice). This paper argued for the need to reconfigure the object (culture), and the policy mechanisms (and the associated socio-technical imagination). What was clear from the discussion of governance is that it was fashioned to interact with an object that no longer exists; if it was appropriate or effective, it was so for a 'previous' object of culture. The new hybrid of culture and the creative economy is a more complex entity, and it requires us to imagine new institutions and scope of governance. Simply adding some new objectives to an existing system will miss the point

We have drawn out some key issues about relational understanding, and relevant taxonomies; moreover, in both the cases of the circular economy and the creative economy how practitioners, consumers and governments have found the ideas easy to understand but quite difficult to adopt. We identified that governance, rather than simply policy outputs, was a key area for attention; in particular the existence of initiations and calculus potentially suited to a carbon profligate age, that assumed infinite resources and no limits to life, let alone continual growth. Accordingly, we have suggested issues that may need to act as the guiding stars for our future actions.

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