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**TOWARDS THE CIRCULAR ECONOMY:
A COMMENTARY ON CORPORATE APPROACHES AND CHALLENGES**

Peter Jones and Daphne Comfort

Abstract

The concept of the circular economy is gaining momentum within the business world and it is seen as an important element in the transition to a more sustainable future. Circular economies are built around a range of activities which look to reduce the demand for raw material inputs and natural resources and to recover, recycle and re-use those inputs and resources as an integral part of the production process. As such the concept of the circular economy is restorative and regenerative and is contrasted, by its proponents, with the traditional 'linear economy' which turns raw materials into waste in the production process and which is seen to lead to environmental pollution and the removal of natural capital from the environment. This commentary paper outlines the characteristic features of the concept of the circular economy, outlines how a number of companies are adopting circular economy approaches and offers some general reflections on the application of the concept.

Introduction

A growing number of organisations and companies claim to be promoting the concept of the circular economy as an important element in the transition to a more sustainable future. The European Commission (2015), for example, argued that *'the transition to a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste is minimised, is an essential contribution to the European Union's efforts to develop a sustainable, low carbon, resource efficient and competitive economy.'* In launching *'A Circular Economic Strategy for Scotland'* Richard Lockhead, the then Cabinet Secretary for Rural Affairs, Food and Environment, emphasised that *'the circular economy offers a new and exciting perspective'* which is *'about the environment, the economy, and people'* and which *'above all it is about the moral imperative to reduce our demand on the planet's resources'* (Natural Scotland 2016). From a commercial perspective Coca Cola (2016), the multinational beverage corporation, reported *'our long term vision is to leverage our significant scale and resources to contribute meaningfully to the circular economy where materials are recycled and reused for as long as possible to ensure maximum value is gained from them.'* UPM-Kymmene (2017), one of the largest companies within the European forest, paper and packaging industry, claimed that *'the circular economy is seen as the way to secure a sustainable future and to enable businesses and societies to succeed.'* More generally the World Business Council for Sustainable Development (2017) claimed that *'by moving towards the circular economy, countries and companies can capture increased growth; innovation and competitive advantage while enjoying cost savings; reductions in energy use and CO2 emissions, as well as better supply chain and resource security.'*

The corporate enthusiasm for a circular business model seems to be clearly rooted in the belief that sustainable development will increasingly become a mainstream priority for

many markets. Under the headline *'Rising to the Challenge'* PricewaterhouseCoopers (2017a) claimed *'the circular economy is here to stay'* and that the company also argued the circular economy *'opens up opportunities for companies to build competitive advantage, create new profit pools, develop resilience and provide solutions to some of the most important issues facing business today'* (PricewaterhouseCoopers 2017b). However the transition towards a circular economy, and the opportunities it may bring, presents a major challenge for businesses, consumers and governments. Accenture Strategy (2015), for example, suggested *'transitioning to the circular economy may be the biggest revolution and opportunity for how we organize production and consumption in our global economy'* and that *'at its essence, the circular economy represents a new way of looking at the relationships between markets, customers and natural resources.'* In a similar vein Bjorn Delbeecke (2016), writing under the European Public Affairs banner described the transition to a circular economy as a *'paradigm shift'* and that such a shift requires *'not only the reevaluation of business models and industrial policies, but of established consumer behaviour as well.'* Perhaps not surprisingly Perella (2015) argued that *'circular economy communication strategies are, by and large, still in their infancy'* but suggested that *'circular economy corporate messaging will become a sharper focal point for those companies looking to position themselves at the forefront of this agenda.'* With this in mind this commentary paper outlines the characteristic features of the concept of the circular economy, outlines how a number of companies are adopting circular economy approaches and offers some general reflections on the application of the concept.

The Concept of the Circular Economy

While Murray et al. (2015) outlined a number of claimed origins for the circular economy and cited a number of definitions of the concept they argued that in its most basic form *'a circular economy can be loosely defined as one which balances economic development with environmental and resource protection.'* Circular economies are built around a range of activities which look to reduce the demand for raw material inputs and natural resources and to recover, recycle and re-use those inputs and resources as an integral part of the production process. As such the concept of the circular economy restorative and regenerative and is contrasted, by its proponents, with the traditional 'linear economy' which turns raw materials into waste in the production process and which is seen to lead to environmental pollution and the removal of natural capital from the environment.

The concept of the circular economy embraces all stages of the product life cycle from both the product design and the production process, through marketing and consumption to waste management, recycling and re-use. For PricewaterhouseCoopers (2017c), for example, *'ultimately the circular economy is about rethinking everything, including business models themselves, so we can reduce consumption.'* Within such an economy an initial focus on designing products that are more resource efficient throughout their life cycles can make products more durable, easier to repair and to recover constituent, and potentially still useful, materials from the products when their initial lifespan is over. The importance of design was starkly illustrated in a study of energy use in the UK housing market by Boardman et al. (2005) in which it was estimated *'that over 80%*

of all product-related environmental impacts are determined during the product design phase.' While the majority of environmental costs are borne not by producers but more generally by a potentially wide range of stakeholders then there is limited incentive to introduce more innovative design thinking. The circular economy also demands greater efficiency in production processes and here the focus should be on looking to reduce the environmental and social impact of production, for example, through more sustainable sourcing and the promotion of innovative industrial processes.

Consumers will also have a vital role to play if there is to be a transition to a more circular economy. Here the focus will need to be on looking to consumers with clearer information on the environmental impacts of their buying behaviour, for example within retail stores, in an attempt to reduce household, particularly food, waste, and on more general and sustained educational and public awareness initiatives designed to promote more responsible environmental attitudes to consumption. A number of factors are at work here but price is widely seen to be an important factor in determining consumer buying behaviour and while there are deeper rooted problems in looking to use regulatory frameworks to try to ensure that prices more adequately reflect environmental costs and social benefits there may be more, though currently limited, mileage in using incentives to achieve the same goal.

Within a circular economy waste management is no longer seen as a problem, traditionally solved by landfill, but rather as an opportunity to return as much waste as possible back into productive use. The focus is on the prevention, reuse and recycling of waste materials rather than their disposal by landfill and here there is recognition that improvements are needed in waste collection and sorting and that more could be done to recycle packaging materials, including paper, paperboard, plastic and metal, that are often the very visible manifestations of a 'throwaway culture' in a variety of landscapes. Where waste can be prevented, reused or recycled then recovering its energy content is seen preferable to landfill and waste to energy solutions are also seen to be integral to the circular economy. More generally the circular economic model also looks to investigate and promote new markets for waste materials.

A number of factors can be identified in explaining the pressure for the transition to a more circular economy. These factors include the continuing depletion of scarce natural resources, the supply problems associated with both the increasingly volatile international political situation and unpredictable events associated with climate change and the potential price volatility associated with both these factors and the continuing environmental degradation and natural resource depletion associated with the current dominant traditional (capitalist) business model. At the same time, the increasing introduction of national and international statutory legislative regulation designed to reduce environmental problems and investment in technological innovation which promote the more efficient use of natural resources are both important drivers for a circular economy. More generally indications of the emergence of new strategic corporate thinking that recognises that the imperatives of business continuity will encourage the adoption of new and more resilient business models.

A variety of potential environmental benefits, energy generating opportunities and business benefits are claimed for a transition to a circular economy including substantially reduced carbon dioxide emissions, greater use of renewable sources of energy, reduced pollution levels, the production of energy from waste materials and increased growth and profitability. The World Economic Forum (2014) estimated that globally the circular economy is a *'trillion dollar opportunity with huge potential for innovation, job creation and economic growth.'* Further McKinsey and Company (2015) argued that a circular economy *'would allow Europe to grow resource productivity by up to 3% annually'* and that it could generate a net economic benefit of 1.8 trillion Euros by 2030. More specifically EY (2015) suggested that *'the circular economy helps to contain risks'*, for example, in managing raw material supply in competitive markets, and in providing opportunities to *'extend and strengthen customer relationships'*, *'tap into new markets'*, *'become more efficient'* and *'yield extra income.'*

Corporate Approaches to the Circular Economy

A growing number of companies are looking to translate the circular economic concept into their corporate strategies, business models and operations. In the retail sector, Kingfisher (2013), the British multinational home improvement retailer, for example, has reported on how it is *'seizing opportunity in a circular economy'*, and has argued that what the company describes as *'closed loop products'* are at *'the heart of the opportunity.'* The company claimed that *'ultimately we want to see a world where creating and using products wastes nothing – and by 2020 we want to have 1,000 products on our shelves with closed loop credentials.'* By way of specific illustration of its progress in pursuing a circular economy Kingfisher cite a number of examples. Kingfisher's Castorama chain in France have worked in partnership with Le Relais, a recycling social enterprise, in a scheme which enables customers to dispose of old clothes, and linens in containers outside some of the companies' stores. The textiles are sorted by their condition and quality and 55% are cleaned and resold, 10% are turned into cleaning cloths, 25% are pulped and returned to simple fibres and the remaining 10% that cannot be recovered are used to generate energy. The newly created fibres are remanufactured to make a range of thermal and acoustic insulation materials that are available in some 38 Castorama stores in France. In a similar vein Kingfisher reported that Screwfix UK was extracting valuable parts, plastics and metals from used and damaged power tools collected in store. These tools are broken down into ten different streams and each stream is sold to specific companies who repurpose the parts or materials.

H&M, the Swedish multinational clothing retailer, reported on its commitment to the circular economy in its 2016 sustainability report (H&M 2017). In the Chief Executive Officer's message in the preface to the report, Karl-Johan Persson argued that the transition to a circular economy is essential if the company is *'to continue to offer sustainable fashion to present and future generations in a world with growing populations and finite resources'* (H&M 2017). Further H&M reported its commitment to become *'100% circular and renewable'*, which will involve *'building circularity into every stage of our value chain, including the products we make and the materials we use in our operations'* (H&M 2017). More specifically H&M reported on their aspirations to become *'100% circular'* (H&M 2017)

which included becoming circular on 80% of its store concepts by 2025, using recycled or sustainably sourced materials by 2030, achieve zero discharge of hazardous chemicals in any of the company's production procedures by 2020 and to have store waste and recycling systems at 100% of its stores by 2020. Marks and Spencer (2017a), the major British multinational retailer, argued *'we support the transition to a sustainable circular economy and will prioritise business model innovation and put circular ways of working into practice.'* In 2017 the company relaunched its sustainability *'Plan A 2025'* (Marks and Spencer 2017b) which included the goal of *'being a circular business generating zero waste'* which will include *'designing our products and packaging to underpin the creation of a circular economy in the markets we serve.'*

A number of companies in the primary and secondary sectors of the economy have also stressed their commitment to the concept of the circular economy and to a circular business model, which looks to minimise waste and to use renewable resources in a sustainable and circular way. UPM-Kymmene, headquartered in Finland and one of the major companies within the European forest, paper and packaging industry, claimed *'the future is circular'* (UPM-Kymmene 2017). For the company a circular economy *'means reusing materials and products several times and creating added value through smart solutions'* and *'we also avoid generating waste and strive to increase the use of renewable energy and materials'* (UPM-Kymmene 2017). In illustrating its focus on the circular economy, the company outlined the efficient recycling of waste at some of its paper mills, reducing nutrient discharge into the Baltic Sea, using ash generated in the production process for landscaping and road building projects and using organic residues for energy generation. Smurfit Kappa, one of the world's largest paper based packaging companies, titled its 2016 Sustainability Report *'Sustainability that is Innovative, Inclusive and Circular'* (Smurfit Kappa 2017). Further Smurfit Kappa reported *'for many years we have focussed on designing our operations around a circular economy model- a truly closed loop system in which the productivity of the resources we use is maximised and waste, including carbon dioxide emissions, is minimised. Simultaneously we endeavour to promote sustainable use of renewable raw materials, to reduce the use of and replace non-renewable raw materials where feasible and ultimately to reuse resources we take out'* (Smurfit Kappa 2017).

Reflections

While a growing number of companies are emphasising their commitment to the concept of the circular economy and to the principles underpinning it, many of these commitments are aspirational. Looking to the future many companies may well look to follow their aspirations and pursue their commitments as an important contribution of the wider transition to a more sustainable future. That said a number of more general issues surrounding the concept of the circular economy merit attention and discussion. While in theory the ideas underpinning the concept of the circular economy might seem straightforward, in practice a number of operational difficulties can be identified. Sufficient quantities of waste have to be available to make the supply chain economically viable and natural resources and materials circulate differently across space and time. Thus where small amounts of materials are used in manufacturing processes then collection and recycling may need to be on a national or international scale with attendant cost implications. Glass has to be recycled within a 100 miles of its collection point to ensure

that lower carbon dioxide emissions than those generated by the production of new glass. The time frame is also important, not least, in that continually recycling may not always be feasible. In the forest, paper and packaging industry, for example, conventional wisdom has it that wood can be recycled up to seven times but the fibres become shorter and lose some of their strength with each round of recycling and the recycling process itself uses water, energy and chemicals which have cost as well as environmental implications. At the same time an increasing emphasis on the circular economy demands the development of dedicated facilities and investment.

In addition to the operational constraints outlined above, Ritzen and Sandstrom (2017) have identified a number of attitudinal, financial, structural, and technological barriers to a transition to a more circular economy in a study of large manufacturing companies. In attitudinal terms, for example, the findings revealed that risk aversion was a prohibitive factor in making what were seen as disruptive changes to adopt a circular business model. A shift towards a circular model was also perceived to require far reaching changes within companies and to influence all departments and activities. Such changes take both time and investment and where corporate financial systems are focused on rapid returns on investment and cost savings this currently does not encourage long term strategic change. There are also challenges in developing indicators or measures that might help to monitor how a product or a company is progressing towards the circular economy. At the same time corporate finance departments are developing and refining tools to measure the financial costs and benefits of pursuing circular business models.

It is also important to recognise that the transition to a circular economy will both drive and demand major changes in consumer behaviour and consumption patterns. The transition could see the growth of a larger service economy with a greater accent on consumers leasing products, as and when they are required, rather than on purchasing and owning products. More generally the consensus within the UK's retail community is that while a transition to a circular economy will mean behavioural changes of both producers and consumers but that consumers must be at the heart of the circular economy. Retailers and brand owners will need to reframe their relationships with consumers which may, for example, involve digitally monitoring the performance of products and enabling customers to repair products easily, both of which will enable brand owners to develop their long term relationships with their customers.

A transition to the circular economy will certainly constitute a dramatic change in way in which consumers approach consumption and it seems likely to challenge the social value which consumers ascribe to many of the products and services. At its most extreme this might be seen to be reflected in the view that 'we are what we buy' and as such may make it difficult for many consumers to buy into second hand or reusable patterns of consumption. That said it remains to be seen how enthusiastically consumers will embrace the realities of the circular economy not least in that it might be seen by many as *a reverse of progress towards a better life that involved 'a sacrifice of our current, tangible needs and desires, in the name of a better but uncertain future'* (European Commission 2012).

While the circular economy has a strong environmental focus much less attention has been paid to the social dimension. Murray et al. (2015, p.22), for example, argued that the circular economy *'is virtually silent on the social dimension, concentrating on the redesign of manufacturing and service systems to benefit the biosphere.'* A number of issues may be important here. While the transition to a circular economy will bring socio-economic benefits, for example in terms of the creation of new employment opportunities associated with the establishment of new waste management and recycling facilities, issues may arise in terms of the quality of such opportunities, the reward levels associated with them and the geographical distribution of such benefits at regional, national and international levels. More generally the impact of an increasingly important circular economy on social and intergenerational equity, seen to be fundamental to sustainable development, and on the United Nation's Sustainable development Goals launched in 2015, may prove a complex and testing set of issues.

More contentiously, there are issues about how the concept of the circular economy might be captured by corporate interests, and more specifically by corporate capitalism, to justify continuing economic growth despite concerns about the overconsumption of natural resources and the damaging environmental effects of such growth. Valenzuela and Bohm (2017), for example, suggested that *'given the all too obvious consequences environmental crises associated with out-of-bounds capitalism, the circular economy has been one of the main references for rebuilding a political economy of sustainable growth.'* Valenzuela and Bohm (2017) further argued with the terms circular economy and sustainability were effectively being *'captured by politic-economic elites claiming that rapid economic growth can be achieved in a way that manages to remain responsible to environment and society.'* In their conclusions Valenzuela and Bohm (2017) pessimistically suggest that *'the closer we get to the ideal of a fully circular economy, the more we are allowed to consume without taking an ethico-political stance.'*

Conclusions

The ideas behind the circular economy appear to be gaining momentum, not only amongst policy makers, but more importantly within the business world. While many of the initial corporate initiatives have focussed on recycling and zero waste initiatives a comprehensive approach to the development of a truly circular economy will need to include the whole of the consumer product life cycle embracing product design, production processes through marketing and consumption as well as waste management and to involve the primary, secondary, tertiary and quaternary sectors of the economy. That said at the present time it remains to be seen whether or not the circular economy can become a workable and realistic business model. If the circular economy is to become a reality then winning the hearts and minds of consumers may prove to be its most testing challenge and here the battle will be played out, in part at least, in the public arena. As such public affairs analysts, who may have an increasingly important role to play in developing and delivering circular economy communication strategies and messages, will want to maintain a watching brief on the development of circular economy thinking and operations.

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