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WINNING HEARTS AND MINDS: A COMMENTARY ON CIRCULAR CITIES

Peter Jones and Daphne Comfort

Abstract

There is growing interest in the concept of the circular city, which looks to embed the principles of the circular economy across all urban functions. This commentary paper outlines the concept of the circular city, explores how three European cities, namely Amsterdam, London and Paris, are currently looking to develop a vision and an action plan for the transition to a circular city and offers some general reflections on the role public relations and communications may play in the transition process. The findings reveal that each of the action plans has its own distinctive flavour but that a number of common elements can be identified. The paper suggests that public relations and communications will have an important role to play in raising and building awareness and changing attitudes, with the ultimate goal of changing behaviour, within the corporate world and amongst public sector decision makers and policy makers and the general public.

Introduction

The concept of the circular economy, which looks to reduce the demand for raw material inputs and natural resources and to recover, reuse and recycle those inputs and resources as an integral part of the production process, has attracted increasing attention from business corporations (Jones and Comfort 2017). As such the circular economy 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. At the same time there is also growing interest in '*pioneering the application of circular economy approaches to address today's urban challenges*' (Ellen MacArthur Foundation 2016). In justifying its claim that claimed '*cities are key to going circular*', The World Economic Forum (2018) suggested that '*more than 80% of global GDP is generated in cities*', which '*makes them ideal testing grounds for circular economic models*.' More specifically, the World Economic Forum (2018) argued '*the confluence of business, resident and government actors creates live innovation labs for addressing the complex challenges of linear economic models*.' At the same time Williams (2016) has outlined a number of potentially daunting economic, cultural political and regulatory challenges facing the transition to the successful functioning of a circular city. With these thoughts in mind, this commentary paper outlines the concept of the circular city, explores how three European cities namely, Amsterdam, London and Paris, are currently looking to develop a vision and an action plan for the transition to a circular city and offers some general reflections on the application of circular thinking to urban development.

The Circular City

The World Economic Forum (2018) argued *'the foundations of a circular economy derived from several theoretical concepts over time and are not attributable to a single work or author'* and that while the origins of the concept can be traced back to the 1970's when applied to economic systems and industrial processes, it now has much wider currency. Further, the World Economic Forum (2018) suggested that the concept now embraced a range of related concepts including sustainable development, life cycle thinking, the green economy, eco-design and shared value, and that it offered the opportunity *'to create a more sustainable future that allows the natural environment to restore resources and protects it from the negative effects of industrialized waste.'* Much more optimistically the Glasgow Chamber of Commerce et al. (2016) argued *'the circular economy means enough for everyone, a direct challenge to the take, make, waste mentality of the linear economy. The benefits of a circular economy for companies are endless; reducing dependency on scarce natural resources; increasing their competitive advantage; and realising significant financial savings.'*

Circular cities have emerged from the concept of the circular economy but there is no consensus on the definition of the term. That said, a focus on waste management seems to be a central feature of circular cities. Cities in Transition EU (2018), for example, suggests *'the circular city is where we manage waste, commodities and energy in smarter and more efficient ways.'* Perhaps more widely, the Bartlett School of Planning (2018) suggested that in a circular city *'resources can be recycled between urban activities', 'resources can be recycled within city regions'* and that *'cities can be designed so that land and infrastructure can be reused/recycled over time.'* The Ellen MacArthur Foundation (2017) suggested a more comprehensive definition namely, that *'a circular city embeds the principles of the circular economy across all its functions, establishing an urban system that is regenerative and restorative by design.'*

Many factors are seen to be driving pressure for a transition to circular cities. The World Economic Forum (2018), for example, argued *'as urban areas expand, infrastructure and services put growing strain on the environment as limited resources must be stretched to accommodate greater activity and population'* and *'digital platforms are enabling circular economy principles to be applied on a larger scale... and facilitating deployment of innovative circular solutions.'* At the same time 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. However, it is important to recognise that the process of transitioning to a circular city faces a wide range of potentially complex barriers and challenges, not least the dominant political and economic structure of the global economy, the costs to businesses, social resistance to change, and the need to develop agreed metrics to measure the efficiency and cost effectiveness of circularity.

Across the world a number of cities currently claim to be adopting circular economy principles, but rather than looking to review circular city developments on a global scale,

this paper offers an exploratory commentary on how three large European cities, namely London, Paris and Amsterdam, are currently looking to develop a vision and an action agenda for the transition to a circular economy. The Greater London Authority has a population of 8.6 million and recent decades have seen a major change in the structure of its economy, with a marked decline in manufacturing and a major shift towards professional and business service activities. The Greater Paris Metropolis has a population of 6.9 million and is the most important centre of economic activity within France and though its economy has a strong tertiary focus, it is diverse and includes major companies which are leaders in the fields of aeronautics/aerospace, information technology, communications and bio-technology. Amsterdam is much smaller, with a population of 840,000, but is the financial and business capital of the Netherlands and is also the fourth largest port in Europe.

The Circular Economy of Greater Paris

In identifying the '*challenges of the circular economy*' the '*White Paper on the Circular Economy of Greater Paris*' published by the Mairie of Paris (2016) claimed '*the densely populated Parisian metropolis, with its tightly woven logistics network, abundant resources and businesses, represents an important echelon and promising ground for the circular economy.*' More specifically, the White Paper, focused upon seven strategies, namely to:

- *'encourage and support economic players,*
- *innovate and experiment*
- *scale up and establish momentum in the region*
- *change attitudes and practices*
- *involve local authorities, businesses and citizens*
- *create a network linking players*
- *change legislation.'*

In addressing the first of these strategies namely, encouraging and supporting economic players, the White Paper identified a number of policies including leveraging public procurement, increasing the percentage of eco-designed products, developing a product-service system in public procurement, developing new economic models for green construction and establishing economic incentive mechanisms for renewable energy. Underlying the focus on leveraging public procurement, was the recognition that less than 7% of public contracts concluded in 2013 included any environmental clauses, and a call to introduce indicator clauses for the circular economy into future contracts. The White Paper suggested that such clauses should ideally embrace all stages of the service and product life cycle.

A small number of initiatives were also outlined to illustrate how policies could be brought to life. During 2014-2016 the RATP, who are responsible for the operation of most

public transport in Paris, for example, launched a programme designed to collect and recycle used uniforms from their 27,000 workers. RATP were responsible for collecting the uniforms and Le Relais, a social co-operative, was responsible for the recovery process. Items of clothing were channelled, according to their composition and condition, to a variety of uses including spools of recycled thread, rags, insulation materials and second-hand clothes. This initiative is currently seen to be making an active contribution to, and providing a model for, the emergence of a work clothing recycling sector within France. A second initiative showcased within first circular city strategy was the recovery of heat from data centres in Marne-la-Vallée. Here the heat produced by data centres is recovered for use in the Paris Val d'Europe business park with water being channelled directly from an exchanger outlet to the municipal heating system in the business park.

The strategic focus on innovation and experimentation included policies focused on developing industrial and regional ecology thinking and practice and on piloting innovative projects. In addressing the former, for example, the White Paper argued that many companies were largely unaware of industrial and regional ecology, a symbiotic system in which two or more companies exchange flows of materials, energy and information for their mutual benefit, but that it could play a valuable role in the transition to a more circular economy. At the same time, innovative approaches could be promoted by the development and organisation of new financing models, based for example, on civic savings accounts, crowd funding and third-party financing. More generally, the White Paper also suggested that the share and exchange processes that underlie industrial and regional ecology, such a model could play an important future role in the creation of new business parks and in helping to regenerate existing parks that have fallen into decline.

The fourth strategy, focussed on changing attitudes and practices, is seen to be vitally important if individuals, communities and companies are to take the circular economy to their hearts. This strategic goal embraced three major policies namely, raising public awareness about the circular economy, training professionals and teaching in schools. The final strategy recognised the need for legislative change in harmonising sorting regulations, promoting more sustainable agriculture and food supplies and in facilitating renovation rather than new build within the construction industry. By way of an illustrative exemplar there is a cameo case study of how the City of Paris uses recycled and treated local materials, including flagstones, sandstones and granite borders, when carrying out many of its public works programmes and of how penalties are incurred if suppliers fail to deliver natural stone materials to be recycled. Here the argument is that this practice not only has financial benefits but it also reduces the need for new quarrying, with its attendant environmental costs, and to transport materials over long distances.

London: The Circular Economy Capital

In December 2015 the London Waste and Recycling Board (2015), with support from the Mayor of London, published *'Towards a circular economy: context and opportunities'* and at the same time WRAP et.al. (2015) published a research report entitled *'Employment and the circular economy – job creation through resource efficiency in London.'* In June 2017

the London Waste and Recycling Board (2017) published the '*London's Circular Economy Route Map*' designed to '*accelerate London's transition to become a circular city.*' These three documents provide the context and a framework for the vision for a circular economy in London.

In arguing that the potential scope of the circular economy could be very large within London, the London Waste and Recycling Board (2015) and the Greater London Authority identified five sectors namely, the built environment, food, textiles, electrical and electronic equipment and plastics for the initial focus of circular economy development. These sectors are large elements within Greater London's economy and the London Waste and Recycling Board estimated that in total the circular economy opportunities will be valued in excess of £7 billion by 2036. Within the textile sector, for example, circular economy activities could include increasing the lifetime of clothes through design, innovative technologies, while the renting, leasing and sharing of a range of products could become a more common business model within the electrical and electronic sector.

Further, the London Waste and Recycling Board argued that the capital's strong digital, financial and media sectors and its prestigious academic institutions could become great enablers for the circular economy. As a hub for a number of leading global digital companies, for example, London is seen to be particularly well placed to drive the links between continually evolving smart technologies and the circular economy and to offer the opportunity to track and trace products, to facilitate reverse logistics and to provide online platforms for collaboration and the sharing economy. While financing the transition to a circular economy is recognised as a major challenge, the ability to use the strength and versatility of the city's financial sector, is seen to be a vital asset in accelerating change. Here crowdfunding and providing insurance cover for new business models could have an important role to play.

In addressing the potential scale of job creation within London's developing circular economy WRAP et al. (2015) reviewed three scenarios. The first assumed some advancement in circular economy activities particularly in the recycling, repair and reuse sectors, rather than any new major circular economy initiatives. The second assumed a continuation of current trends in circular economy developments and moderate progress in remanufacturing and servitization. The third assumed a much more intensive development of the circular economy with substantial advancement in remanufacturing and servitization. Estimates for the first scenario suggested that by 2030 there would be an increase of 3,000 jobs (gross) while the corresponding figures for the second and third scenarios were 16,000 (gross) and 40,000 (gross) respectively.

The more recently published Circular City Route Map (London Waste and Recycling Board 2017) recommends actions for a wide range of stakeholders. In the '*Foreword*' to the route map, Marcus Gover, the Chief Executive of WRAP, ambitiously claimed '*the route map is a dynamic tool to unite London's unique blend of creativity, innovation and entrepreneurship and shift the circular economy from debate to delivery*' (London Waste and Recycling Board 2017). Essentially the route map consists of a number of cross cutting

themes designed to help to create the conditions to accelerate the circular economy and a series of recommendations to support these themes and put them into practice in London.

The eight cross cutting themes are communications; collaboration; policy; procurement and market development; finance; business support; innovation; and demonstration. While all these themes will surely be vitally important if there is to be a transition to a circular economy, demonstration may be a crucial theme in that demonstration projects and new pilot business models are a powerful way to show companies how the circular economy can work in practice. There are also a large number of recommendations for a range of organisations including the Mayor of London and the Greater London Authority; the digital community; the finance community; social enterprises; communities; local authorities; and perhaps crucially, the private sector, trade bodies and business support organisations. On the one hand it is recommended that the Mayor of London sets out a vision for London to be the global leader in supporting a circular economy approach. On the other hand, there is a recommendation that the private sector needs to analyse the opportunities the circular economy can bring to businesses and to leverage its collective buying power to achieve good value outcomes from circular economy goods and services.

Circular Amsterdam

In 2016 Gemeente Amsterdam (Amsterdam Metropolitan Municipality) in collaboration with Circle Economy and FABRIC TNO published a document entitled *'Circular Amsterdam: A vision and action agenda for the city and metropolitan area'* (Gemeente Amsterdam 2016) which was seen as a pillar of the city's wider sustainability policy. In the foreword to the document it was claimed that *'cities are the hotbed of innovation and circularity is now on the agenda'*, and that *'the ability to identify and implement circular solutions at the city level will lead to job creation, a cleaner environment, new or rejuvenated industries and competitiveness in global market.'*

This vision and action plan for Amsterdam built upon a *'Circle City Scan'* (Amsterdam City 2015) which looked *'to identify areas within Amsterdam that can make the most significant, tangible progress in realizing a circular economy.'* The scan methodology included four stages namely, the mapping of material flows and added value; a comprehensive analysis and evaluation of value chains; the development of a vision for a circular future; and the establishment of an action agenda and attendant planning and implementation strategy. This exercise led to the identification of the construction chain and the organic residuals stream as being likely to make the greatest initial contribution to the circular economy.

In focusing upon the city's construction chain, the accent was on how the construction industry could make better use, better value and longer lasting use of its material flows, and experts within the industry and a range of stakeholders played a part in developing a circular city vision for the future. This in turn led to the development of four partly interlinked strategies namely, *'smart design'*, *'dismantling and separation'*, *'high value recycling'* and a *'marketplace and resource bank.'* In addressing smart design, for example,

modular and flexible approaches, 3-D printing, bio-based materials and experimental construction areas were identified to illustrate circular construction thinking. Within the experimental areas, for example, the focus would be on adjusting laws, regulations and building codes to allow developers more freedom to experiment and put innovative designs into practice. At the same time, it was suggested that 3-D printing could play a pioneering role in reducing both costs and the use of materials.

The vision of organic residual streams centred on high value recycling led to the identification of four strategies namely, a '*central bio-refinery hub*', '*waste separation and reverse logistics*', the '*cascading of organic flows*' and '*recovering nutrients*.' The thinking behind the development of a central bio-refinery hub is that it will allow the highest possible value to be extracted from organic residue streams, and that it will be able to produce a variety of products including biomaterials, building blocks for the chemical industry, food, animal feed, lubricants and fertilisers. The city's port was suggested as an ideal location for the hub in that processed materials from all over the world are traded there and that as such it would facilitate the co-ordinated central marketing of the organic streams. Another strategic goal is to improve the nutrient cycle within the city and more specifically to establish decentralised local systems to increase the current low levels of nutrient recovery. One aim here, for example, will be to use residues from the many food production and processing plants in the city's port area for use in fertiliser production.

The visions for both the construction chain and the organic residual stream included a series of action plans, the identification of the barriers perceived to be likely to hamper the scaling up the initial small-scale initiatives, and an outline of economic and environmental impacts. One of the sets of action points in the construction vision, focused upon the creation of a market place and resource bank and the here local authority was seen to have an important role to play in stimulating innovation in the logistics and marketing of secondary materials. The best estimate for the economic benefits for the circular scenario for the construction chain included 3% annual growth in the city's construction industry over a period of 5-7 years compared to a decline of almost 3% during the period 2005-2012.

At the same time, there was also a clear identification of barriers to the development of circular strategies on a larger canvas. A number of barriers in the organic residual stream were identified, not least, that high value bio-refinery technologies were still seen to be in the early stages of development and current regulations concerning expiry dates and food hygiene were seen to create uncertainty for the high value reuse of food. Barriers in the vision for the construction chain included the limited opportunities in making 3-D printed buildings or 3-D components for buildings under current building regulations, and the lack of information, experience and resources to design for decommissioning. A stylised spatial vision, which showed how circular strategies might be interlinked in a spatial context, was also provided for the construction chain and for the organic residues stream.

The importance of measuring circularity is seen as a major challenge in a transition to a more circular economy. In an attempt to address this issue Circle Economy and TNO

developed four sets of circular indicators. The ecological impact indicator includes a range of issues including metal exhaustion, abiotic depletion, global warming, terrestrial toxicity and land use, while the transition potential indicator embraces three issues namely, transition readiness, organisation and culture and visibility and impact. Looking to the future, it is argued that if the circular vision for Amsterdam is to become more of a reality, then both private and public-sector stakeholders will need, at worst to be engaged, and at best, to be actively involved in the development of new circular initiatives.

Reflections

Each of the visions and action plans for the development of a circular economy within London, Paris and Amsterdam have their own distinctive flavour and look to capitalise on the characteristics and strengths of the resources and economies of these three cities. However, a number of strategic common elements, including a central focus on waste management and recycling; the importance of innovation; the development of new markets; the need for support from both the private and public sector; and the identification of a range of economic and environmental benefits were identified in the action plans for all three cities. At the same time, there was recognition of a wide range of barriers to greater circularity and those organisations looking to develop the transition to a more circular urban economy will certainly need to overcome many complex challenges. Not least, that in a world where economies, and the raw material and finished goods flows that underpin and drive those economies are increasingly global, it remains to be seen how individual cities can sizeably increase the scale of their circularity when the traditional linear model dominates the world economy.

However, winning the hearts and minds of the business community, of national and local politicians and policy makers, and of the people, may also prove to be a massive challenge. Here public relations and communications may have a vital role to play and a number of interlinked elements merit reflection and discussion. Building awareness is a vital element and the focus should be both on continuing to develop awareness of the current environmental and economic problems associated with the traditional linear economy and on creating increasing awareness of the opportunities and benefits of a transition to a more circular economy.

At the corporate level, the Ellen MacArthur Foundation has developed collaborative links with a number of large corporations including Unilever, Nike, Phillips, Renault, Danone and H&M. On the one hand, the Ellen MacArthur Foundation (2017) outlined the '*challenges of the linear economy*' and drew attention to '*economic losses as a result of structural waste and negative environmental impacts.*' More specifically, the Ellen MacArthur Foundation (2017) drew attention to the problems of structural waste in urban food systems and in the built environment, to traffic congestion within cities and its impact on city life and productivity and to the problems of air and water pollution. On the other hand, the Ellen MacArthur Foundation outlined its vision for a circular economy, suggested how the circular economy could support wider urban policy objectives and identified the factors that could drive the transition towards a circular economy.

More generally, the Circle Economy Club (2017a), which describes itself as an international platform and network for circular economy professionals, looks to *'drive attention to the circular economy'* and argues that *'social media sites like Facebook, LinkedIn, Instagram and Twitter are vibrant online forums for Circle Economy club organizers to bring together their local communities by keeping your local members engaged in your activities while connecting your local members to the CEC global community.'* Here initiatives included, 'Advance London', a small and medium sized enterprise business support programme for London and a Circular Economy Club meeting in London in November 2017 designed to *'celebrate the work of our fast-growing network of circular economy professionals in London, and discuss how to make the consuming season both joyful and circular'* (Circular Economy Club 2017b). The strapline for a *'Circular Economy Mapping Week'* held in February 2018, was *'if we all map circular economy initiatives in our cities, together we can map the world'* (Circular Economy Club 2017c). The Circular Economy club also provides advice on promoting circular city awareness and initiatives in the press media.

In many ways raising awareness amongst individuals is arguably the most daunting challenge. One of the initiatives outlined within the Circular Paris White Paper, is *'raising public awareness about the circular economy'* (Mairie de Paris 2016). An online information platform for the circular economy, was initially created to foster dialogue and idea sharing between all the players in the circular city action plan, but the White Paper suggested that it could be opened up to all citizens and could be an important communications source for the general public within Paris. This platform could be coordinated via social networks and updated in content through regular newsletters.

Two specific initiative suggested in the White Paper were raising the awareness of citizens about recoverable energy and food waste and in addressing the latter it was argued that if the general public were to take some ownership of the problems of food waste, it would be advisable for numbers of people to participate in, and contribute to, food waste management programmes. More formally the White Paper also suggested that circular economy principles should be covered at all teaching levels from primary schools through to high schools, colleges and universities, and that such teaching programmes should include the entire product life cycle.

Influencing, and ideally changing, attitudes, must also be a key element in communications strategies for circular cities. Here the promotion of positive outcomes from circular city initiatives is vitally important and once again a variety of audiences, including large corporations, small and medium sized enterprises, politicians, policy makers, non-governmental organisations, community groups and the public at large, can be identified. More specifically, audience mapping may be important in enabling circular city project teams and/or the consultancies they engage, to understand how different audiences can influence support for circular economy initiatives and to schedule, customize and prioritise and their communications. In pursuing such a strategy, it is important to focus on, and evidence, actual benefits generated by specific circular city initiatives rather than solely on aspirations and best estimate goals. Thus, positive outcomes related, for example, to energy generation in district heating schemes, the recycling and reuse of waste materials to

produce new products, and the creation of new employment opportunities, are all powerful messages. Measuring changes in awareness is also vitally important and here maintaining regular contacts with members of the key audiences and commissioning independent short surveys amongst these audiences may be valuable in building up a picture of changing attitudes.

More generally in looking to address raising awareness and influencing attitudes, storytelling, simply defined as the cultural and social activity of sharing stories, may have an important role to play. Gupta (2015), for example, argued that *'stories are an effective tool in the strategy process and for communicating and achieving strategic objectives'* and PricewaterhouseCoopers (2017) suggested that *'storytelling is one of the most powerful tools available to effective communicators.'* Storytelling could be important in developing awareness and understanding of the circular economy, in linking the opportunities presented by the development of circular economy models to everyday human experiences, and in generating emotional connections with circular economic thinking. Ultimately, and ambitiously, there is the belief that stories can be inspirational and that they can have the power to encourage and stimulate changes in behaviour

Indeed, the ultimate test for circular city public relations and communications strategies is to convert the work in raising awareness and influencing attitudes into tangible and lasting changes in behaviour. The majority of the companies involved in the initial circular city programmes are small and medium sized enterprises but at the larger corporate level there is evidence that some companies are looking to translate the circular economic concept into their strategies, business models and operations, albeit at a company rather than a specifically urban level. Jones and Comfort (2017) cited three large retailers within the UK, namely Marks and Spencer, H&M and Kingfisher, the parent company of the B&Q chain, who claim to be supporting the transition to a more sustainable circular economy.

However, claims of corporate enthusiasm for the circular economy have been challenged. Gregson et al. (2015), for example, argued that a circular economy *'would require radical transformations to the economic order, including fundamental recasting of manufacture, retail, consumption and property rights.'* Further, Valenzuela and Bohm (2017) have questioned the integrity of corporate commitment to the circular economy and argued that 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.'*

A growing, but still relatively small, number of municipal authorities, and their economic development organisation, are looking to foster changing behaviours to adopt circular models, as outlined earlier. More generally the European Commission (2014) emphasised that *'public authorities must lead the transition to a circular economy.'* In many ways city authorities have, to date, been the principal drivers in looking to embrace new circular city initiatives and as such they have been involved in introducing supporting legislative measures, advisory services, voluntary agreements, fiscal incentives and joint public-private funding ventures. That said, at a time when public sector finances are limited

and often under increasing pressure the necessary expertise and the financial resources may not be available to support a large scale transitions to a more circular urban economy.

Changing consumer behaviour is also a daunting task. The transition to a more circular urban economy could, for example, effectively mean 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, and then discarding them when their useful or fashionable life was seen to be over. Such a scenario would surely be seen to challenge the current social value which consumers ascribe to many of the products and services they buy, which may in turn, make it difficult for large numbers of consumers to buy into second hand or reusable patterns of consumption. More generally, it remains to be seen how enthusiastically consumers will embrace the realities of the circular economy not least because 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).

Conclusion

During the last four years, a commitment to move towards a more circular economy has been launched in Paris, London and Amsterdam. The three cities have different population sizes and contrasting economic structures but each has a specific action plan and proposed development programme designed to guide the transition towards circularity. That said, organisations looking to develop the transition to a more circular urban economy will certainly need to overcome many complex challenges, not least the dominance of the traditional linear economic model within the global economy. However, changing hearts and minds will surely also pose a massive challenge and public relations and communications will surely have a massive role to play? Here a range of campaigns to raise and build awareness and to change attitudes, with the ultimate goal of changing behaviour, within the corporate world and amongst both public sector decision makers and policy makers and the general public, will be vitally important.

REFERENCES

- Amsterdam City (2015) 'Circle City Scan of the City of Amsterdam', <https://amsterdamsmartcity.com/projects/circle-scan-amsterdam> (Accessed 21 March 2018)
- Bartlett School of Planning (2018) 'UCL Circular Cities Research Hub', <https://www.ucl.ac.uk/bartlett/planning/research/ucl-circular-cities-research-hub> (Accessed 1 March 2018)
- Circular Economy Club (2017a) 'Social Media and Press Promotion', <https://www.circulareconomyclub.com/cec-local-organiser-checklist/social-media-press-promotion/> (Accessed 17 March 2018)

- Circular Economy Club (2017b) 'Advance London', <https://www.circulareconomyclub.com/making-circular-holiday-circular-economy-club-december-meet-london-6-dec-2017/> (Accessed 26 March 2018)
- Circular Economy Club (2017c) 'Circular Economy Mapping Week', <https://www.circulareconomyclub.com/circular-economy-mapping-week/> (Accessed 26 March 2017)
- Cities in Transition EU (2018) 'The Circular City', <https://citiesintransition.eu/transition/circular-city> (Accessed 2 March 2018)
- Ellen MacArthur Foundation (2016) 'The Ellen MacArthur Foundation launches Circular City Network', <https://www.ellenmacarthurfoundation.org/news/circular-cities-network> (Accessed 1 March 2018).
- Ellen MacArthur Foundation (2017) 'Cities in the Circular Economy; An initial Exploration', <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Cities-in-the-CE-An-Initial-Exploration.pdf> (Accessed 2 March 2018)
- European Commission (2014) 'Wasted Potential: Towards Circular Economy in Cities', http://ec.europa.eu/environment/archives/ecoinnovation2014/1st_forum/pdf/ecoap-16th-report.pdf (Accessed 29th March 30th 2018)
- European Commission (2012) 'Policies to Encourage Sustainable Consumption', http://ec.europa.eu/environment/eussd/pdf/report_22082012.pdf (Accessed 8 August 2017)
- Gemeente Amsterdam (2016) 'Circular Amsterdam', <https://www.amsterdam.nl/bestuur-organisatie/organisatie/ruimte-economie/ruimte-duurzaamheid/making-amsterdam/circular-economy/report-circular/> (Accessed 1 March 2018)
- Glasgow Chamber of Commerce, Zero Waste Scotland, Glasgow City Council and Circle Economy (2016) 'Circular Glasgow: A vision and action plan for the city of Glasgow', <https://www.circle-economy.com/wp-content/uploads/2016/06/circular-glasgow-report-web-low-res.pdf> (Accessed 1 March 2018)
- Gregson, N., Crang, M., Fuller, S. and Holmes, H. (2015) 'Interrogating the Circular Economy: The Moral Economy of Resource Efficiency in the EU', *Economy and Society*, 42, 2, pp. 218-243
- Gupta, M. (2015) *How Strategic Leaders Use Storytelling*. <http://www.strategicthinking.eu/how-strategic-leaders-use-storytelling/> (Accessed 24 October 2017)
- Jones, P. and Comfort, D. (2017) 'Towards the Circular Economy: A Commentary on Corporate Approaches and Challenges', *Journal of Public Affairs*, <https://onlinelibrary.wiley.com/doi/full/10.1002/pa.1680> (Accessed 4 April 2018)

London Waste and Recycling Board (2015) 'Towards a circular economy – context and opportunities', https://www.lwarb.gov.uk/wp-content/uploads/2015/12/LWARB-circular-economy-report_web_09.12.15.pdf (Accessed 1 March 2018)

London Waste and Recycling board (2017) 'London's Circular Economy Route Map', https://www.lwarb.gov.uk/wp-content/uploads/2015/04/LWARB-London's-CE-route-map_16.6.17a_singlepages_sml.pdf (Accessed 1 March 218)

Mairie de Paris (2016) 'White Paper on the Circular Economy of Greater Paris', <https://api-site.paris.fr/images/77050> (Accessed 1 March 2018)

PricewaterhouseCoopers (2017) 'Storytelling in Business', <http://www.pwcacademy.lu/Pages/courses/storytelling.aspx> (Accessed 24 October 2017)

Williams, J. (2016) 'Circular Cities: Strategies, Challenges and Knowledge Gaps', <http://circularcitieshub.com/wp-content/uploads/2017/06/Circular-Cities-Strategies-Challenges-and-Knowledge-Gaps-Page.pdf> (Accessed 2 March 2018)

World Economic Forum (2018) 'Circular Economy in Cities: Evolving the Model for a Circular Economic Future', http://www3.weforum.org/docs/White_paper_Circular_Economy_in_Cities_report_2018.pdf (Accessed 20 March 2018)

WRAP (2015) 'Employment and the circular economy: Job creation through resource efficiency in London', <http://www.londonsdc.org.uk/documents/LondonCircularEconomyJobsReport2015OnlineVersionFinal.pdf> (Accessed 1 March 2018)