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# Urban Policy and Governance for a Circular Economy: Opportunities and Challenges

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**Abstract**

As sustainability gains global attention, the circular economy (CE) emerges as a key strategy for cities facing resource shortages, waste, and environmental issues. In the urban context, city governments play a pivotal role in the transition to a circular economy by shaping policies that influence resource use, waste disposal, and material recovery. This perspective article explores the role of urban policy and governance in promoting or hindering the shift towards a circular economy. Furthermore, it analyzes the opportunities presented by forward-thinking governance structures and policies that support circularity, as well as the challenges that arise from political, economic, and social factors. Case studies from Amsterdam, Copenhagen, and London showcase different policy approaches, highlighting successes and the complexities of implementing circular practices across various governance levels.

**Keywords:** circular economy, sustainability, urban policy, governance

## 1. Introduction

Urbanization is quickly reshaping the world, turning cities into key hubs for economic growth, population increase, and resource use. (UN Habitat, 2019). Currently, cities are responsible for approximately 75% of global resource use, 50% of waste production, and 60-70% of global greenhouse gas emissions, highlighting their significant environmental footprint (Haas et al., 2015; Ferronato C Torretta, 2019). As urban populations continue to grow, the environmental impacts of urbanization intensify, making the need for sustainable urban development models increasingly urgent (Ghisellini et al., 2016; European Commission, 2017). The circular economy (CE) offers a promising alternative to the traditional linear economy by focusing on resource efficiency, waste minimization, and material reuse, which can help reduce cities' overall ecological impact (Ellen MacArthur Foundation, 2017; Kirchherr et al., 2017).

The concept of the circular economy promotes a closed-loop system in which waste is eliminated, and materials are continuously reused or recycled within the economic system (Stahel, 2016; Murray et al., 2017). Cities are seen as critical arenas for the implementation of these principles, given their high concentration of resources, energy use, and waste generation (Pomponi C Moncaster, 2017). However, while the principles of the circular economy are well-established, their implementation at the urban level poses significant governance challenges, including issues of policy coherence and institutional capacities (Korhonen et al., 2018). Cities must overcome existing urban management systems, which are largely structured around linear models of production and consumption (Geissdoerfer et al., 2017; OECD, 2016).

City governments are well-positioned to lead the shift toward a circular economy because they can shape policies in areas like waste management, infrastructure, and land use (Williams, 2019; McDowall et al., 2017). They have the authority to create regulations and incentives that promote circular practices among businesses, industries, and residents (London Waste and Recycling Board, 2020). Cities like Amsterdam and Copenhagen, for example, have set examples by integrating waste recovery, energy efficiency, and material reuse into their planning efforts, paving the way for other urban areas to follow (Circle Economy, 2019; Ellen MacArthur Foundation, 2020).

Moreover, local governments can play a critical role in promoting innovation, fostering public-private partnerships (PPPs), and creating platforms for multi-stakeholder engagement, all of which are essential for advancing circular economy goals (Geng et al., 2012; Fratini et al., 2019). These partnerships can provide additional financial resources and technological expertise, helping cities overcome the barriers posed by limited funding and capacity (Williams, 2019; Velenturf C Purnell, 2021). In particular, digital technologies like the Internet of Things (IoT) and data analytics offer new opportunities for optimizing resource use and improving waste management in urban environments (Allam C Dhunny, 2019; Reindl et al., 2024).

Transitioning to a circular economy faces several hurdles. Fragmented policies, with waste and resource management divided across government levels, often lead to inefficiencies (OECD, 2016; Kirchherr et al., 2018). Limited funding also restricts cities from investing in needed infrastructure, and businesses tied to traditional models are often resistant to change due to the costs involved (Williams, 2019; Geissdoerfer et al., 2017). Effective circular economy governance requires coordinated efforts across government layers and collaboration with international partners. This article examines both the potential and the challenges cities encounter, highlighting successful case studies that show how urban governance can drive the shift to circular practices (Circle Economy, 2016; London Waste and Recycling Board, 2020).

## 2. The Role of Urban Policy in Shaping Circular Economies

Urban policy plays a critical role in shaping the transition to a circular economy by influencing how resources are managed, waste is treated, and materials are reused within city systems. Cities account for a significant portion of global resource consumption, and as such, they are well-positioned to spearhead the transition to circular economies (UN Habitat, 2019; European Environment Agency, 2016). The success of this transition often hinges on progressive policies that prioritize circularity in key urban sectors, including construction, waste management, and energy systems (Bocken et al., 2016; Kirchherr et al., 2018). These policies establish the frameworks within which circular business models can emerge, driving sustainability and resource efficiency at a systemic level (Ghisellini et al., 2016; Circle Economy, 2016).

One prominent example of urban circular policy is the City of Amsterdam's Circular Strategy, which integrates circular economy principles into municipal waste management, housing, and transportation policies (Circle Economy, 2019). Amsterdam's approach involves urban mining initiatives and material exchange platforms, promoting the recovery and reuse of resources that would otherwise be wasted (Ellen MacArthur Foundation, 2020). By embedding circularity into various sectors, the city encourages the adoption of business models that prioritize material reuse and energy efficiency, such as initiatives where construction waste is recycled and repurposed for new infrastructure projects (Williams, 2019; Pomponi C Moncaster, 2017).

City governments also play a significant role in facilitating circular economies through the creation of regulatory frameworks that incentivize businesses to adopt sustainable practices (Fratini et al., 2019). Extended Producer Responsibility (EPR) policies are a notable example. EPR policies hold producers accountable for the entire lifecycle of their products, encouraging companies to design products with recyclability and repurposing in mind (OECD, 2016; Kirchherr et al., 2017). This regulatory approach shifts the burden of waste management from consumers and municipalities to manufacturers, fostering innovation in product design and reducing the environmental impact of post-consumer waste (Lifset et al., 2013; Ghisellini et al., 2016). In Sweden and Japan, the implementation of EPR policies has significantly improved recycling rates and reduced landfill usage, demonstrating the effectiveness of these policies in promoting circularity (Williams, 2019; Stahel, 2016).

Urban policies can also stimulate circular economies by fostering innovation and supporting the development of new technologies and business models that facilitate circularity (Geissdoerfer et al., 2017). For instance, the City of Copenhagen has developed an extensive waste-to-energy network that transforms non-recyclable waste into renewable energy, showcasing how municipal policies can transform waste management systems into circular resource recovery networks (European Commission, 2017; Ellen MacArthur Foundation, 2020). Through innovative policy interventions, Copenhagen has reduced its reliance on landfills while simultaneously generating energy, positioning the city as a leader in urban circularity (Fratini et al., 2019; Williams, 2019).

The development of circular economy hubs is another key policy initiative driving circular transitions in cities. For example, the City of London has established a Circular Economy Accelerator, designed to foster circular innovations and support businesses developing waste reduction technologies and material reuse platforms (London Waste and Recycling Board, 2020). By providing financial resources and technical assistance to startups and established firms, London's Accelerator promotes the scaling of circular business models across sectors such as fashion, construction, and technology, thereby contributing to the city's broader circular economy strategy (Bocken C Short, 2016; Circle Economy, 2016).

However, urban policy alone is insufficient to drive the transition to a circular economy. Effective governance is essential to ensure that circular policies are not only implemented but also sustained over the long term (Kirchherr et al., 2018; McDowall et al., 2017). Strong leadership at the municipal level is crucial for navigating the political and economic complexities associated with urban governance (Murray et al., 2017; Williams, 2019). Collaboration between governmental institutions, private sector actors, and civil society is necessary to ensure the alignment of circular economy goals with broader urban development strategies (Fratini et al., 2019). In cities like Rotterdam and Paris, public-private partnerships have been instrumental in overcoming challenges related to financing and stakeholder engagement, enabling the implementation of circular economy initiatives that might otherwise have stalled due to lack of resources or political will (Geng et al., 2013; Grand Paris, 2020).

Additionally, the transition to circular economies requires coordination across various levels of government, from local to national and even international scales, given the interconnectedness of urban economics (Kirchherr et al., 2018). Policies promoting circularity must be harmonized across sectors and governance levels to prevent fragmentation and policy incoherence, which are significant barriers to circular economy adoption (OECD, 2016; European Commission, 2019). In this context, cities play a crucial role in demonstrating how local circular policies can complement national sustainability goals, as seen in the European Union's circular economy strategy (European Commission, 2017; Ellen MacArthur Foundation, 2020).

Without contradiction, urban policy is a powerful lever for shaping the transition to circular economies. Through the development of progressive regulatory frameworks, the promotion of innovation, and the facilitation of public-private partnerships, cities can lead the way in adopting circular economy practices (Bocken et al., 2016). Nevertheless, the governance of urban circular economies presents its own set of challenges, requiring strong leadership, cross-sectoral collaboration, and effective coordination across governance scales (Williams, 2019; Fratini et al., 2019). As cities continue to adopt circular policies, their experiences will provide valuable lessons for other urban centers seeking to transition to more sustainable, resource-efficient models (Pomponi C Moncaster, 2017; Ellen MacArthur Foundation, 2017).

## 3. Governance Models for Circular Cities

The governance of circular economies in urban contexts requires the coordination of a diverse array of stakeholders, including government agencies, businesses, civil society organizations, and individual citizens (Ghisellini et al., 2016; Kirchherr et al., 2017). This multi-stakeholder approach is crucial because the transition to a circular economy (CE) involves systemic change across various sectors such as waste management, energy production, and construction (Pomponi C Moncaster, 2017; Fratini et al., 2019). Different governance models have been employed by cities to manage this complexity and to promote circular economy goals, with some proving more successful than others in specific contexts (Murray et al., 2017). Governance models designed for circular economies must facilitate the integration of CE principles across sectors, engage stakeholders, and encourage the sharing of resources, knowledge, and responsibilities (Bocken et al., 2016; OECD, 2016).

One of the most common approaches to governing circular economies is the establishment of dedicated circular economy task forces or committees within city governments (Williams, 2019; Geng et al., 2013). These task forces act as focal points for circularity efforts, coordinating cross-departmental collaboration, setting policy objectives, and facilitating engagement with external stakeholders such as businesses and non-governmental organizations (NGOs) (Kirchherr et al., 2018). For example, the City of Amsterdam has established a Circular Economy Taskforce to oversee the city's Circular Strategy and ensure that circular principles are embedded into all aspects of urban planning and policy development (Circle Economy, 2016). This task force plays a crucial role in monitoring the city's progress on CE initiatives, engaging with local businesses to promote circularity, and ensuring alignment with broader sustainability goals, such as the city's ambition to become carbon-neutral by 2050 (Ellen MacArthur Foundation, 2020).

Public-private partnerships (PPPs) represent another governance model that has proven effective in advancing circular economy objectives in urban areas (Fratini et al., 2019). PPPs allow cities to leverage the financial resources, technical expertise, and innovative capabilities of the private sector, facilitating the development and implementation of circular economy initiatives (Bocken C Short, 2016; Geissdoerfer et al., 2017). In cities like Rotterdam, PPPs have been instrumental in developing industrial symbiosis networks, where the waste from one business becomes the resource for another, creating closed-loop systems that reduce waste and enhance resource efficiency (Geng et al., 2012). This approach fosters collaboration between industries, local governments, and research institutions to identify opportunities for waste valorization and resource sharing, thus minimizing environmental impact (Williams, 2019; Korhonen et al., 2018).

Similarly, in Paris, the Grand Paris Circular Economy Pact exemplifies how PPPs can facilitate collaboration

between businesses, government agencies, and civil society organizations (Grand Paris, 2020; Ellen MacArthur Foundation, 2020). The pact focuses on a range of circular projects, such as the reuse of construction materials, waste reduction, and the development of local recycling infrastructure, showcasing the potential of partnerships to scale circular initiatives across the city (Fratini et al., 2019). The involvement of private companies in these initiatives provides additional financial backing and innovative solutions that governments alone may not be able to deliver (McDowall et al., 2017).

In addition to institutional and business collaboration, citizen engagement is a critical component of effective circular economy governance. Cities that have successfully implemented circular policies have often done so by involving citizens in the decision- making process and encouraging behavioral changes that support circularity (Velenturf C Purnell, 2021). For example, in Ljubljana, Slovenia, citizen participation has been central to the city's efforts to become a zero-waste city (Zero Waste Europe, 2019). Ljubljana's municipal government has implemented public awareness campaigns and participatory budgeting processes to engage citizens in waste reduction initiatives and promote greater participation in recycling and composting programs (Ghisellini et al., 2016). This model of participatory governance encourages local residents to take ownership of circular economy initiatives and fosters a sense of community responsibility for sustainable waste management practices (Murray et al., 2017; Stahel, 2016).

However, governance models for circular cities are not without challenges. One of the most significant challenges is the fragmentation of authority across different levels of government (Williams, 2019; OECD, 2016). In many cases, local governments lack the legal and financial autonomy to implement circular economy policies without the support of national or regional governments (Fratini et al., 2019). For example, while cities may have jurisdiction over certain aspects of waste management, they often require national legislation to implement extended producer responsibility (EPR) schemes or to secure funding for large-scale infrastructure projects (Geng et al., 2013). This fragmentation can lead to policy incoherence and create barriers to the effective implementation of circular initiatives (Kirchherr et al., 2018; McDowall et al., 2017).

Alongside fragmented governance, moving to a circular economy demands substantial upfront investments in infrastructure and technology—often a challenge for budget-constrained city governments (Ellen MacArthur Foundation, 2017). Cities may need to fund new recycling or waste-to-energy facilities and upgrade current infrastructure to support circular practices (Circle Economy, 2016). Securing the necessary financial resources to make these investments is a major hurdle, particularly for smaller municipalities that lack the fiscal capacity of larger cities (Korhonen et al., 2018; Ghisellini et al., 2016). Innovative governance solutions, such as the use of green bonds or the establishment of circular economy investment funds, may provide viable options for overcoming these financial barriers (Williams, 2019; OECD, 2016).

Furthermore, the success of circular economy governance in urban settings depends on the ability to foster collaboration across sectors and to promote the integration of CE principles into all aspects of urban development (Bocken C Short, 2016). This requires strong leadership at both the municipal and national levels, as well as the ability to navigate the political and economic complexities that often accompany urban governance (Murray et al., 2017). Governance models must also be adaptable, allowing for the continuous refinement of policies and initiatives as new technologies and business models emerge (Geissdoerfer et al., 2017; Kirchherr et al., 2018).

Governance models for circular cities play a pivotal role in determining the success or failure of circular economy initiatives. Whether through task forces, PPPs, or citizen engagement, governance structures must be designed to facilitate collaboration, ensure policy coherence, and overcome financial and institutional barriers (Fratini et al., 2019). While challenges such as governance fragmentation and financial constraints remain, cities that adopt innovative and inclusive governance approaches have the potential to lead the global transition toward circular economies (Ghisellini et al., 2016; Williams, 2019).

## 4. Case Studies: Circular Economy in Action

Several cities worldwide are pioneering circular economy (CE) practices, offering examples of how urban policy can drive circularity. By embedding CE principles across sectors like waste management, construction, energy, and consumer goods, these cities showcase diverse strategies and reveal both opportunities and challenges in circular governance (Williams, 2019; Ellen MacArthur Foundation, 2017). Such case studies provide insights into the successes and challenges of circular urban governance, revealing both opportunities for innovation and barriers that cities must overcome to realize the full potential of the circular economy (Fratini et al., 2019).

A standout example is Amsterdam, which has crafted a Circular Strategy aimed at reducing resource use and waste across its economy (Circle Economy, 2016). The strategy focuses on three critical areas: construction,

organic waste, and consumer goods, with the goal of creating a circular, low-carbon city by 2050 (City of Amsterdam, 2020). In the construction sector, Amsterdam promotes the reuse of building materials, aiming to reduce the environmental impact of construction and demolition waste, which accounts for a large portion of urban waste (Circle Economy, 2016; Pomponi C Moncaster, 2017). Through urban mining initiatives, for example, materials from old buildings are recovered and reused in new construction projects, significantly lowering the demand for virgin resources (Williams, 2019). In the realm of organic waste, the city has implemented widespread composting programs to divert food waste from landfills and convert it into valuable resources like biogas and fertilizer (European Commission, 2017; Ellen MacArthur Foundation, 2020). Amsterdam has also fostered the development of circular business models, such as sharing platforms and repair services, that extend the life cycle of consumer goods and promote material reuse (Ghisellini et al., 2016; Murray et al., 2017).

Another notable case is Copenhagen, which has integrated CE principles into its waste management and energy systems, positioning itself as a leader in sustainable urban governance (Fratini et al., 2019; European Commission, 2017). A cornerstone of Copenhagen's circular strategy is its network of waste-to-energy plants, which convert non-recyclable waste into renewable energy, providing a model for other cities seeking to reduce landfill dependency and enhance resource recovery (Korhonen et al., 2018). These facilities play a critical role in Copenhagen's waste management system, processing over 25% of the city's waste and generating electricity and heat for local homes and businesses (European Commission, 2017). Moreover, the city has set an ambitious goal to become carbon-neutral by 2025, with CE initiatives such as waste-to- energy conversion and the circular design of buildings and infrastructure contributing to this target (McDowall et al., 2017). Copenhagen's success in promoting circularity is supported by strong political leadership, public-private partnerships, and innovative urban policies that prioritize long-term sustainability over short-term economic gains (Williams, 2019; Bocken et al., 2016).

In the United Kingdom, London has also made significant strides in embedding CE principles into its urban planning through the development of the Circular Economy Route Map, launched by the London Waste and Recycling Board (LWARB) (LWARB, 2020). The Route Map outlines strategies for reducing waste and promoting resource efficiency in four priority sectors: the built environment, food, textiles, and electrical goods (Circle Economy, 2019; Murray et al., 2017). London's circular economy efforts are bolstered by initiatives like the Circular Economy Accelerator, which supports startups and businesses focused on circular solutions such as material reuse platforms, zero-waste product designs, and closed-loop supply chains (LWARB, 2020). The built environment is a particular area of focus for London, with initiatives to encourage the reuse of construction materials and promote the design of buildings that can be easily disassembled and recycled at the end of their life cycles (Pomponi C Moncaster, 2017; Kirchherr et al., 2017). London's approach to circularity underscores the role of innovation and entrepreneurship in driving the CE agenda, with support for circular businesses helping to create new economic opportunities and reduce the city's environmental footprint (Velenturf C Purnell, 2021).

The Grand Paris Circular Economy Pact in Paris showcases how public-private partnerships can drive circular economy initiatives across a major city (Grand Paris, 2020). This multi-stakeholder initiative brings together businesses, government agencies, and civil society organizations to collaborate on circular projects, such as the reuse of construction materials, the development of local recycling infrastructure, and the reduction of food waste in the hospitality sector (Ghisellini et al., 2016; Grand Paris, 2020). The pact aims to foster a culture of circularity by encouraging businesses to adopt circular practices and by creating the necessary infrastructure to support material recovery and reuse (Bocken C Short, 2016). Paris has also introduced circular procurement policies, requiring city departments to prioritize recycled or reused materials in public construction projects, thus reinforcing the city's commitment to circularity through policy-led initiatives (Williams, 2019; OECD, 2016).

Ljubljana, the capital of Slovenia, presents a compelling case of how smaller cities can also lead the transition to a circular economy (Zero Waste Europe, 2019). The city's zero- waste strategy, launched in 2014, has dramatically improved its recycling rates, which now exceed 68%, making it one of the highest in Europe (Zero Waste Europe, 2019). Ljubljana's approach has been marked by extensive citizen engagement, with public awareness campaigns and participatory processes encouraging residents to reduce waste, recycle more, and compost organic materials (Fratini et al., 2019). Additionally, the city has implemented several innovative policies, including pay-as-you-throw waste management fees, which provide financial incentives for households to reduce their waste generation (Williams, 2019; Kirchherr et al., 2018).

These case studies further reinforce the critical role that urban policy and governance play in facilitating the transition to a circular economy. Cities that have successfully implemented circular policies have done so by adopting comprehensive strategies that integrate CE principles into all aspects of urban planning and policy

development (Ellen MacArthur Foundation, 2017; Williams, 2019). However, these examples also underscore the challenges that cities face in promoting circularity, particularly in terms of financing, stakeholder engagement, and policy coherence (Kirchherr et al., 2017; Fratini et al., 2019). Securing the necessary resources for infrastructure upgrades, fostering collaboration across sectors, and maintaining the political will to pursue long-term sustainability goals remain significant barriers for many cities (Williams, 2019; Pomponi C Moncaster, 2017).

Varying from different views these case studies provide valuable insights into the potential of urban policy and governance to advance circular economy goals. Through the adoption of innovative policies, fostering partnerships, and engaging citizens, cities like Amsterdam, Copenhagen, London, Paris, and Ljubljana have demonstrated the potential of CE strategies to reduce waste, conserve resources, and create new economic opportunities (Williams, 2019; Murray et al., 2017). However, the path to circularity is complex and requires sustained effort, financial investment, and governance innovations to overcome the inherent challenges in transitioning to a circular economy (OECD, 2016; Bocken et al., 2016).

## 5. Challenges and Opportunities for Circular Economy Governance

Shifting to a circular economy in cities offers big benefits but comes with tough challenges, especially around funding. Municipal governments often lack the financial resources needed for costly infrastructure, like waste-to-energy plants and recycling facilities, which require significant upfront investment. For cash-strapped cities, it's particularly hard to secure enough capital to build and maintain essential circular systems, including advanced recycling, efficient transport networks, and sustainable construction methods (Angelidou, 2014; Allam C Dhunny, 2019). The financial constraints of local governments often make it difficult to fund such projects independently (Williams, 2019; Hass et al., 2015; Kirchherr et al., 2018). Cash-strapped cities face limitations in securing the necessary capital to develop and maintain circular systems, such as advanced recycling facilities, energy-efficient transportation networks, and circular construction processes (Ellen MacArthur Foundation, 2017; Kirchherr et al., 2017; Kirchherr et al., 2018).

In addition, entrenched economic interests represent a considerable challenge. Many industries still operate under traditional linear models of production and consumption, relying on the "take-make-dispose" system (Lifset et al., 2013; Lehmann et al., 2012; Raworth, 2017). Businesses, particularly in sectors like manufacturing and construction, may resist adopting circular economy practices due to the perceived costs and risks associated with transitioning to new business models (Geissdoerfer et al., 2017; Reindl et al., 2024; Tukker, 2015). Firms are often concerned about the financial burden of retrofitting their systems to meet circular standards and the uncertainty around market demand for circular products (Korhonen et al., 2018; Tukker, 2015; Stahel, 2016). Moreover, for industries heavily reliant on natural resource extraction and product manufacturing, a shift to circularity may challenge the very foundations of their business models (Murray et al., 2017; Zink C Geyer, 2017).

Policy fragmentation is another major obstacle. Governance structures in many countries are highly fragmented, with responsibilities for waste management, resource allocation, and environmental protection spread across multiple levels of government, often with overlapping and sometimes conflicting mandates (OECD, 2016; Velenturf C Purnell, 2021; Winans et al., 2017). The lack of alignment between local, regional, and national policies creates inefficiencies and regulatory obstacles, slowing the adoption of circular practices. For example, cities may face challenges in implementing circular waste management if national recycling laws conflict with local efforts. Additionally, cities often lack the legislative power or funding to pursue comprehensive circular policies independently (Williams, 2019; Winans et al., 2017; Kirchherr et al., 2018).

Despite these challenges, opportunities abound for cities to advance circular economy principles through innovative governance models (Kirchherr et al., 2017). One of the most promising avenues for financing and implementing circular initiatives is through public- private partnerships (PPPs) (Hass et al., 2015; Kirchherr et al., 2018; Kitchin, 2014). Through leveraging private sector resources, expertise, and innovation, cities can overcome some of the financial barriers to circular economy projects. PPPs have been successfully used in cities like Rotterdam to develop industrial symbiosis networks, where waste from one company becomes a resource for another, promoting resource efficiency and waste reduction (Geng et al., 2013; Hass et al., 2015; Murray et al., 2017). Similarly, in cities like Paris, collaborative frameworks between businesses, government agencies, and non-governmental organizations (NGOs) have fostered the development of circular projects in the construction and food industries (Grand Paris, 2020). PPPs offer an effective model for overcoming both financial and operational hurdles by sharing risks and benefits between public authorities and private stakeholders (Stahel, 2016; Tukker, 2015; Raworth, 2017).

Additionally, the rise of smart city technologies provides new opportunities to support circular economy initiatives. The use of digital technologies like the Internet of Things (IoT), big data analytics, and blockchain enable real-time monitoring of resource flows, waste generation, and material recovery processes, which can dramatically improve the efficiency and sustainability of urban systems (Angelidou, 2014; Allam C Dhunny, 2019; Bocken et al., 2016). For example, IoT-enabled sensors in waste bins can track fill levels and optimize waste collection routes, thereby reducing fuel consumption and operational costs. Big data analytics can be used to predict resource shortages or waste surpluses, allowing cities to adapt their circular economy strategies dynamically. Blockchain technology, in particular, holds promise for tracking materials and ensuring transparency in supply chains, thereby encouraging reuse and recycling (Allam C Dhunny, 2019; Angelidou, 2014; Korhonen et al., 2018).

Cities are also increasingly recognizing the importance of citizen engagement in driving circular economy transitions. Effective governance requires the participation of civil society in decision-making processes to foster greater acceptance and compliance with circular policies. In many cases, behavioral change at the individual and community level is necessary for the success of circular economy initiatives (Zero Waste Europe, 2019). Engaging citizens in co-creation processes, through participatory budgeting or public consultations, can help to ensure that circular policies are locally appropriate and have broad-based support. For instance, public awareness campaigns in cities like Ljubljana, which emphasize waste reduction and recycling, have led to a greater understanding of circular practices and increased citizen participation in circular initiatives (Williams, 2019).

To tackle the challenges and seize the opportunities of circular economy governance, cities need strong leadership, collaboration across sectors, and a commitment to embedding circular principles in urban planning and policy. Those that achieve this transition will build sustainable, resilient, and inclusive communities that minimize waste, conserve resources, and drive economic growth. Effective governance models that address financial, political, and social barriers will enable cities to lead the global move toward circularity.

## 6. Final Remarks

Shifting to a circular economy offers cities a powerful way to reshape urban life, though it brings challenges. City governments are central to driving this change by crafting policies for circular practices in areas like waste, construction, and energy. Cities like Amsterdam, Copenhagen, and London highlight both the promise and obstacles of these efforts. Their experiences reveal that, while such policies can spark meaningful progress, they often face issues like limited funding, fragmented policies, and pushback from entrenched industries.

To successfully govern circular economies, cities must develop adaptable governance models that promote collaboration across sectors and government levels. This requires strong leadership, the establishment of supportive regulatory frameworks, and the active engagement of businesses and civil society. Public-private partnerships, which can mitigate financial burdens, alongside emerging digital technologies like IoT and data analytics, offer powerful tools for optimizing resource flows and improving sustainability. Furthermore, citizen engagement and behavioral change are essential in ensuring the long-term success of circular initiatives, fostering an inclusive approach to urban transformation.

Ultimately, the future of urban governance for circular economies hinges on cities' ability to overcome institutional and financial barriers while capitalizing on technological innovations and multi-stakeholder collaboration. By doing so, they can transform cities into hubs of sustainability and resilience, leading the global shift toward circularity, reducing environmental impacts, and promoting economic prosperity. This holistic and inclusive approach is key to building cities that are not only more circular but also more sustainable and equitable.

## Author Contributions

Williams Chibueze Munonye: Responsible for the conceptualisation, data collection, writing of draft, review C editing, and supervision. George Oche Ajonye: Responsible for the proof reading, reading of drafts, writing and data collection.

## Declarations

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