

Governing the circular economy

How urban policymakers can accelerate the agenda



SEI brief

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Key messages

- While more cities adopt a circular economy (CE) model to advance their environmental ambitions, researchers and practitioners have much more to learn about the implementation and impact of CE strategies.
- Local governments play a central role in accelerating a CE, as they manage a wide range of local infrastructure and services and can thereby significantly contribute to local sustainability.
- To unlock the potential of the CE as a model for establishing more resource-efficient and resilient urban systems, cutting emissions significantly, and facilitating a just and inclusive society, urban policymakers need to: (1) create a shared CE vision with measurable targets and inclusive strategies; (2) establish supportive financial and regulatory instruments; (3) steer collaboration across sectors, stakeholders and governance levels; and (4) enforce evaluation mechanisms to help cities learn from experience and scale up CE practices.

1. Introduction

We believe the climate crisis will be resolved in cities. Today, while cities occupy only 2% of the Earth's surface, 57% of the world's population lives in cities, and by 2050, it will jump to 68% (UN, 2018). Currently, cities consume over 75% of natural resources, accumulate 50% of the global waste and emit up to 80% of greenhouse gases (Ellen MacArthur Foundation, 2017). Cities generate 70% of the global gross domestic product and are significant drivers of economic growth (UN-Habitat III, 2016). At the same time, cities sit on the frontline of natural disasters such as floods, storms and droughts (De Sherbinin et al., 2007; Major et al., 2011; Rockström et al., 2021).

One of the sustainability pathways to reduce the environmental consequences of the current extract-make-dispose model (or the "linear economy") is a circular economy (CE) model. A CE is defined as "an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes" (Kirchherr et al., 2017, p. 224). By redesigning production processes and thereby extending the lifespan of goods and materials, researchers suggest that CE approaches reduce waste and increase employment and resource security while sustaining business competitiveness (Korhonen et al., 2018; Niskanen et al., 2020; Stahel, 2012; Winans et al., 2017).

Organizations such as the Ellen MacArthur Foundation and Circle Economy help steer businesses toward CE strategies.

IMAGE (ABOVE): Roundabout in Bangkok,
Thailand © THIANCHAI SITTHIKONGSAK / GETTY

The CE is also a political priority in countries and municipalities globally. For instance, the CE Action Plan, launched by the European Commission in 2015 and reconfirmed in 2020, is a central pillar of the European Green Deal (European Commission, 2015, 2020). Additionally, more governments are implementing national CE strategies in China (Ellen MacArthur Foundation, 2018), Colombia (Government of the Republic of Colombia, 2019), Finland (Sitra, 2016), Sweden (Government Offices of Sweden, 2020) and the US (Metabolic, 2018, 2019), to name a few. Meanwhile, more cities worldwide are adopting CE models to achieve more resource-efficient urban management systems, thereby advancing their environmental ambitions (Petit-Boix & Leipold, 2018; Turcu & Gillie, 2020; Vanhuyse, Haddaway, et al., 2021). Cities with CE ambitions include, Amsterdam, Barcelona, Paris, Toronto, Peterborough (England) and Umeå (Sweden) (OECD, 2020a). In Europe, over 60 cities signed the European Circular Cities Declaration (2020) to harmonize the transition towards a CE in the region.

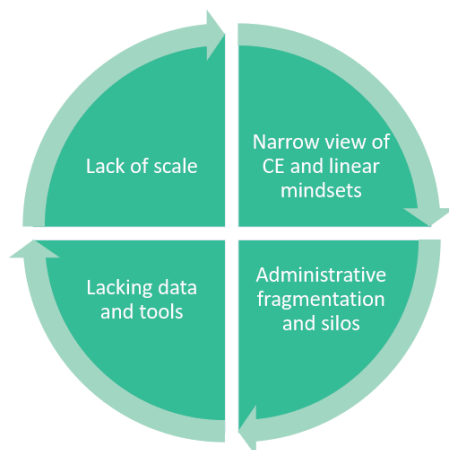
In this policy brief, we provide insights into common challenges local governments face in implementing their CE plans and suggest recommendations for overcoming these. It aims to answer the question: *How can the CE agenda be governed in cities?*

It is based on the results of the Urban Circularity Assessment Framework (UCAF) project, building on findings from 25 interviews, focus group discussions and workshops held with different stakeholder groups in Umeå, as well as research on Stockholm's urban circularity potential, including findings from 11 expert interviews (Rezaie, 2021). Our findings were complemented by the Circular Economy Lab project (Rezaie et al., 2022) and experiences from working with municipal governments in Sweden, Belgium, France and the UK, on CE and environmental and social sustainability.

2. Common challenges with the CE

Municipal governments play a central role in deciding, implementing and governing the CE transition. Though national and supranational governments decide on legislative frameworks, municipal governments often hold responsibility for waste and water management, urban planning, business development, social care and services, and local environmental protection. While governance presents one of the main obstacles to successful CE implementation, much of the emerging CE research focuses instead on the business case or technocentric perspectives (Ddiba et al., 2020; OECD, 2020a; Turcu & Gillie, 2020). Some of the challenges of implementing CE strategies in local governments include: (1) lacking data and tools to assess urban circularity; (2) administrative fragmentation and silos; (3) prevalence of narrow views on the CE and linear thinking, or the “take, make, dispose” mentality; and (4) lack of scale to accelerate CE strategies (Figure 1).

Figure 1. Challenges linked to governing the CE agenda in cities



Currently, there is no holistic approach to measuring the progress, impacts and opportunities of CE strategies in cities (see Papageorgiou et al., 2021). Municipal government officials report difficulties in measuring the city's progress due to **missing indicators and insufficient data**, impeding monitoring and evaluation. It also impedes learning and knowledge exchange to **scale urban CE strategies**, as local governments tend to lead pilot projects.

Another challenge in creating a CE vision is the varied understanding of CE, which often differs among actors or is driven by **linear mindsets** (OECD, 2020a; Paiho et al., 2020; Williams, 2019). There is a tendency to narrowly focus on technical aspects aimed at more efficient urban systems, mostly recycling, waste and energy recovery (Vanhuyse, Haddaway, et al., 2021). However, the CE will only be transformative if social and behavioural impacts are also considered (Rezaie, Vanhuyse, et al., 2022; Vanhuyse, Fejzić, et al., 2021). According to a survey by the Organisation for Economic Co-operation

and Development (OECD) (2020a , Executive summary, para. 5), "the lack of a holistic vision was a major obstacle for 67% of respondents, often due to poor leadership and coordination, and/or the lack of political will."

Prendeville et al. (2018, p. 187) define a circular city as a city "that practices CE principles to close resource loops, in partnership with the city's stakeholders (citizens, community, business and knowledge stakeholders), to realize its vision of a future-proof city", stressing the crucial role of multi-stakeholder collaboration. Yet, a study of nine Swedish cities highlights limited engagement with civil society, even if their participation was warranted (see Vanhuysse & Jokiahho, 2021). A municipal government's structure can also pose an obstacle, typically shaped by **administrative fragmentation and long-established silos** (Williams, 2019). That can impede CE best practices, which require collaboration across urban management areas, such as water, waste, energy, food and construction.

3. How to put cities on CE trajectories

We suggest four recommendations to help cities adopt effective CE practices and provide best practice examples from cities across Europe to overcome some of the aforementioned obstacles.

1. Vision and strategies

Create a shared vision with clear targets and inclusive strategies.

With more cities worldwide declaring their ambitious CE visions, different city stakeholders are needed from an early stage to develop a shared vision by involving all relevant parties, such as academia, businesses, the government and the public (Carayannis & Campbell, 2009). It can strengthen a shared understanding and mobilize support, increasing commitment and accountability. Additionally, studies stress the importance of citizen engagement to the successful implementation of CE plans (see Izdebska & Knieling, 2020; Kębłowski et al., 2020). We also suggest prioritizing CE strategies based on current material flows and emissions levels, including consumption-based emissions, to understand and account for consumption patterns (see IVL Swedish Environmental Research Institute, 2020; SEI, 2022). Overall, we recommend creating (1) a shared vision based on city priorities; (2) clear goals and targets embedded into other city targets; and (3) inclusive strategies, extending access to all city stakeholders.

Figure 2. Map of the Circular Cities Declaration signatories



Source: Circular Cities Declaration, 2020

Examples:

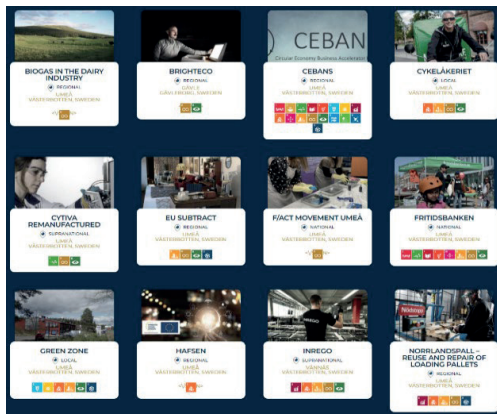
- As part of an initiative by Local Governments for Sustainability (ICLEI) Europe, over 60 cities have signed the European Circular Cities Declaration (see Figure 2), which aims to establish a shared circular city vision and coherent goals and strategies (see Circular Cities Declaration, 2020).
- In the [Paris Circular Economy Plan](#), the city presents an integrated approach to tackle various sustainable development challenges, mapping interactions with other municipal plans (Municipality of Paris, 2017).
- The city of Turku (Finland) presents the first [circular economy roadmap](#) to consider social equity by including a social risk assessment of the planned CE interventions (City of Turku, 2020).

2. Collaboration

Facilitate cross-sectoral and multi-level collaboration.

Collaboration among diverse actors across economic sectors and governance levels is another key factor in a successful CE transition (Ddiba et al., 2020). Innovative thinking and collaboration must be stimulated across municipal departments and administrative entities to develop integrated urban solutions. We suggest (1) platforms to exchange knowledge and collaborate within the municipality; (2) systems for coordination with the national and regional government; (3) collaboration with knowledge institutes, businesses and civil society; and (4) strengthening coordination between urban and rural areas (see also, OECD, 2020b). These strategies can boost awareness and accelerate CE uptake.

Figure 3. Multi-stakeholder mapping in Umeå



Source: Circular Regions, 2022

Examples:

- The city of Umeå developed a multi-stakeholder map, showcasing collaboration networks across governance and stakeholder groups, as part of the Circular Regions platform (see Figure 3), an initiative to bridge top-down and bottom-up approaches (see Circular Regions, 2022).
- ICLEI Circulars is a platform for facilitating CE interventions and uniting local and regional governments (ICLEI, 2022).
- In the project Urban Garden of the Future, the city of Copenhagen (Denmark) gathers residents' input to regenerate an urban courtyard (URBACT, 2021).

3. Instruments

Establish supportive regulatory and financial instruments.

Local governments typically manage a diversity of services (e.g. public services, utilities, income taxes and urban planning), offering distinct opportunities to accelerate the CE. Key municipal instruments include public procurement, zoning laws, training and staffing, and informational exchange among city officials, businesses and citizens (Campbell-Johnston et al., 2019). Drawing on our experience and previous studies (Ellen MacArthur Foundation, 2019; Prendeville et al., 2018), we highlight the following interventions to overcome CE barriers: (1) public procurement practice; (2) business support schemes; and (3) fiscal and regulatory frameworks.

We recommend exploring self-governing opportunities, for instance, by steering CE strategies through the city's own service providers (e.g. municipality-owned housing, energy and waste companies). City governments spend a substantial amount annually procuring goods and services; for instance, 68% of Sweden's public procurements are issued by local governments and municipal agencies (Vanhuyse, André, et al., 2021). Hence, we suggest integrating CE principles throughout the public procurement process (see European Commission, 2017b). Based on our work with Swedish cities, we identified first efforts toward circular public procurement practices in the areas of transport, information technology, food and furniture (see Umeå kommun, 2020). Local governments can embed circularity in urban planning, infrastructure and asset management. To accelerate CE implementation, urban policymakers should use economic incentives such as grants, subsidies and public-private partnerships to stimulate circular

innovation, as well as tax deductions to stimulate behavioural change. Furthermore, cities should collaborate with national and international institutions to establish favourable legislation and regulation (see Ellen MacArthur Foundation, 2019).

Figure 4. Public procurement guide for a CE



Source: European Commission, 2017b

Examples:

- As part of Nantes' Responsible Purchasing Promotion Scheme, the French city created a strategic direction and operational targets for incorporating a circular economy into procurement (see Figure 4) (European Commission, 2017a).
- The ReLondon initiative has a [CE Training Academy](#) that includes a module to help local authorities understand and embed the circular economy into their procurement.
- The London Waste and Recycling Board has created a [CE programme](#) offering business and investment guidance to small and medium-sized enterprises to support their CE transition.

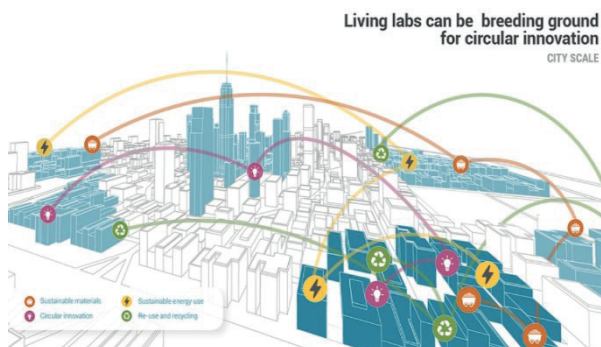
4. Information and scale

Monitor, evaluate and accelerate CE strategies where possible.

While more cities are showcasing CE projects, little is known about how to progress from pilot to scale due to a lack of effective evaluation and follow-up procedures. Indicator-based frameworks help monitor the transition toward a CE in cities (Papageorgiou et al., 2021). Hence, we suggest collecting reliable data on energy and material flows to establish a baseline through the use of information and communication technologies (e.g. sensors in smart buildings) and digital platforms throughout each project stage (see Viglioglia et al., 2021). Municipalities need to shore up their data collection and analysis – which often suffer more gaps and limitations than national or multinational databases – by investing in better data management fit for local needs that simultaneously feeds national data. We suggest starting at a local scale (for instance, at the neighbourhood level) and scaling up where needed. Additionally, we propose greater involvement of various societal actors, such as citizens, scientists, private sector and non-governmental organizations, in developing and improving urban data systems. The transition to a CE is a multi-dimensional process (Cairns & Patel, 2020); thus, multiple dimensions must be considered when monitoring progress (Henrysson et al., 2022).

Testing grounds for circular solutions can start, for instance, with a building, followed with neighbourhoods and then implementing circular planning at the city level (Metabolic, 2021). With this method, both technological innovations and citizen behaviour can be observed as reforms are implemented (e.g. in energy-efficient buildings). Urban Living Labs – spaces to experiment with innovative solutions in a real-life environment and with a wide range of city stakeholders – are one example of testing and co-creating novel CE policies and practices (see Amenta et al., 2019; Cuomo et al., 2020; Meloni et al., 2019). We recommend focusing on lessons from local CE projects for their integration into the city's urban management and planning. Knowledge exchange via transnational city networks can also be educational (Rashidi & Patt, 2018), but alignment with national and supranational CE plans is also required to strengthen local CE agendas.

Figure 5. Vision to scale Urban Living Labs.



Source: Metabolic, 2021

Examples:

- The city of Rotterdam (Netherlands) serves as a living laboratory, a space where circular innovations are tested and embedded into the broader city (see Figure 5). One example is Rotterdam Circulair, a program for sharing circular knowledge and inspiring other cities.
- The district of Buiksloterham in Amsterdam is home to two Urban Living Labs, a sustainable floating neighbourhood and a clean-tech hub. It demonstrates how local test beds can stimulate circular innovation in the bigger city context.
- In Stockholm, the city districts of Hammarby Sjöstad and the Stockholm Royal Seaport are examples of sustainable urban development with integrated circular solutions, which became international role models in urban planning.

4. Conclusion

Currently, the main challenges cities face in implementing CE strategies include narrow views on the CE concept and institutional capacities to steer collaboration and develop coherent policies accompanied by supportive instruments. Therefore, we stress the role of creating a shared CE vision among diverse city stakeholders to develop inclusive strategies. This can help cities understand stakeholder needs and find new business models and regulatory frameworks to facilitate the transition. Especially under municipal self-governance, circular procurement practices present a critical instrument for more sustainable societies, harnessing environmental benefits. CE strategies must also include monitoring and evaluation procedures, which require the establishment of indicator-based frameworks, adequate statistical systems and improved data quality. Early mapping of CE strategies' potential impacts and follow-up processes can support local policymakers in developing an inclusive CE agenda, using data to scale CE strategies up and contributing to sustainable development pathways.

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