

# How Circular Economies Will Drive a New Urban Metabolism

By Gianluca Di Pasquale, EY Global Smart Infrastructure and Future of Cities Leader, and Justin Badlam, Lead Analyst, Future Cities

Gianluca Di Pasquale is a seasoned professional with international exposure to the intersection of business and innovation. With 20 years of industry experience, he focuses on the strategic management of sustainability, digitalization and finance. He seeks to inspire companies in various industries and local government authorities to establish new business models enabled by the internet economy.

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What sector best defines you?

The Italian city of Matera, the current European Capital of Culture, is an ancient city founded atop a rocky outcrop. Its history, from Paleolithic settlement, to abandoned ghost town, and finally to sustainable, regenerated city, embodies the Greek word μεταβολή ("change"). And for me, it poses an interesting question: could the cities of the past hold the key to understanding the cities of the future?

Like Matera, the first cities were circular by design. They were self-sustaining, built on a virtuous cycle of activities that were interconnected and self-regenerating. They also integrated with the environment, feeding their people with local produce and building water channels through the rock.

Since the Industrial Revolution, though, the system underpinning the global economy has taken primary resources, turned them into products, and disposed of the waste. This linear approach has brought increased prosperity, but it's also brought significant climate costs: greenhouse gas emissions, unmanageable levels of pollution and waste and depleted natural resources. As a result, each of the last 10 years has been successively the hottest on record, and sea levels are on the rise.

These statistics show that we can't afford another decade of the linear economy. And as producers of more than 70 percent of global CO2 emissions, cities will need to lead the transition to circular.

In a circular city, "reduce-reuse-recycle" will replace "take-make-dispose". Urban mobility will be carbon-neutral, relying on low- to zero-emission vehicles within a broader energy network powered by renewables. Cities and businesses will also generate savings from using recycled building materials and turning waste into fuel to power buses.

In other words, circular cities will blend ancient approaches with modern technologies. But how will they do it, and where will the money come from?

## Five Ways Cities are Going Circular

While central governments are jumpstarting efforts to create a circular economy, the real change is taking place in cities. For example, Amsterdam is redesigning 20 product/material chains that are estimated to bring nearly €250 million in annual value (cost savings, in-kind value, and revenue).

At EY, we've studied hundreds of circular programs to establish the five areas that will be central in cities becoming circular.

1. *Citizen engagement.* Just as with smart cities, citizen engagement will be at the center of the transition. Cities can use mobile technologies to influence consumer behavior and improve feedback loops to support their circular goals.
2. *Waste as a resource.* Globally, only 9.1 percent of materials used by society are secondary; the remaining 92 percent are primary materials that end up in a landfill. Cities play an essential role in turning waste into assets.
3. *Circular design and planning models.* Moving to a circular economy requires a fundamental change in how we design, produce, and use products. Products and plans will be based on zero waste and maximizing all resources from the outset.
4. *New models of procurement.* Government procurement and buying rules favor owning, operating, and disposing of an asset. The circular approach favors access, such as leasing an asset or switching to service-based operating models.
5. *Circular economy incubators and start-up ecosystems.* Entrepreneurs use creativity and hard work to bring new concepts and products to market, creating jobs and redefining what's possible. Cities need to both support and work with entrepreneurs to create a circular economy.

### How Cities Can Pay for Circular Initiatives

The five areas above show where cities are using their ingenuity to lead the shift to the circular economy. But while lack of funding and financing remains a constant pressure, the economic gains the transition will bring far outweigh the upfront costs. City leaders need to think creatively and work with the private sector to secure the funds for circular programs, faster. These approaches will help.

1. *Make circular a priority with direct funding and grants.* Cities serious about circular programs will find a way to allocate funding for them. Singapore allocated \$45 million to its Closing the Waste Loop R&D initiative, which funds projects that adopt circular economy approaches. City plans and budgets must also apply circular thinking when factoring in new revenue streams and cost savings.

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out £18 million as grant funding to circular SMEs and entrepreneurs.

3. *Explore alternative funding models.* New financial instruments that complement traditional public-private-partnership models can encourage the transition to the circular economy and fund sustainable infrastructure. Cities are increasingly using green, social impact, and sustainability bonds; in 2018, global green bond issuance reached \$203 billion, up 3 percent from 2017.
4. *Use blended financial models for promising pilot programs with limited funding.* Combining investment from international donor organizations, sovereign wealth funds, philanthropic organizations, and the private sector can get programs off the ground. The World Bank has pledged \$200 billion for blended financing for urban sustainability in 2021-2025.

#### A New Chapter in a Long Story of Success and Survival

Achieving the shift to circular will require a city-wide effort, one that mobilizes stakeholders around a long-term common vision and takes citizen needs into account.

To attract investment for circular projects, cities should make data available on their performance and potential impact. They should also align policies to attract investment, such as targeted taxation and incentives, with those of central government.

Shifting from the system that has dominated the global economy for two centuries won't be easy. Yet the history of our species is a story of success, survival, and continuous transformation – much of it incubated in cities. By merging ancient approaches with modern technologies, cities will be able to lead the shift to a circular economy and a sustainable way of life.

## Discussion

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**Carl Bodimeade** on November 25, 2019 at 9:41 am

Changes to city procurement rules will be critical to making this happen!

[Reply](#)

**Jason Beck** on November 25, 2019 at 3:55 pm

Providing policy recommendation down to the relevant level of detail is paramount if this is to be successful. We will be faced with a mountain of special interests putting up road blocks, but if we can do this work for them it will help immensely.

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### The Future of Work: After the Virus

by [Jessie Feller Hahn](#)

My take-aways from this interview:

1. The world swapped commercial real estate for residential real estate overnight, and as Robert says, our homes are now our castles. The ripple effects this will bring to the workplace and the real estate economy will be far spread and difficult to unwind once the pandemic is resolved. This is a pivotal moment for digital connectivity – Robert calls it the “big bang moment for online.”
2. Among the many problems commercial real estate has right now – elevators are definitely one of them. Robert describes this is ways I hadn't thought of, and I don't look forward to.
3. Business travel will lose its cool – which could be a net benefit for climate change, but will require business development teams and convening organizations (ahem... like ours...ahem) to recalibrate our business models and not just for the short term.

### From Fixed Routes to Flex Routes: Additional Responses to the May 13 Webinar

by [Dave Hahn](#)

Earlier this month we hosted a live webinar featuring Alex Gibson from TransLoc, and Josh Powers who is serving as a member of the County Manager's Office and is the contract administrator and regional transit liaison between Johnson County Government and the Kansas City Area Transit Authority (KCATA). Josh shared his unique perspective and insights from service changes and the re-utilization of infrastructure to creative ways to avoid driver layoffs and the allocation of resources with CARE Act funding.

Included in this post are responses to additional questions we were not able to answer during the live session.

### Reopening Our Cities in the Midst of COVID-19 Calls for Inclusive Community Engagement

by [Katrina Johnston-Zimmerman](#), [Urban Anthropologist & Director at THINK.urban](#) and [Marisa Denker](#), [Co-Director & Founder, Connect the Dots](#)

Though public life has been put on pause by the COVID-19 pandemic, the recovery period is predicted to bring a sequence of phases returning us gradually into public spaces with varying levels of social distancing as Coronavirus cases decline. The way to recovery is through collaboration; across sectors, across stakeholders, and across equity gaps. We believe that the careful engagement of all voices, in a collaborative, thoughtful way is critical when forming solutions to the challenges we are facing and to moving forward with confidence and trust.

We hope to provide a framework for addressing the challenges that will come with building back our necessary social infrastructure, by and for the community. From our perspectives as an urban anthropologist at THINK.urban and as a director of stakeholder engagement firm Connect the Dots, we see the following key points as a good place to start.



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