



Our Shared Understanding:

a circular economy in
the built environment

We cannot continue exceeding
the limits of our finite planet.

To have a sustainable future,
the built environment must
embrace the circular economy.

We need a shared
understanding to work
together to make this a reality.



Our Shared Understanding is a summary of core concepts that inform the transition to a circular economy. By holding these principles in common, we can align policies, strategies and initiatives, enabling the built environment industries to work together towards a more sustainable future.

Who?

Who we are

We are people who care about the built environment and its impact.

Everyone who wants to make a positive difference in the built environment has a part in this. Policy-, strategy- and decision-makers have particular power to make this happen.

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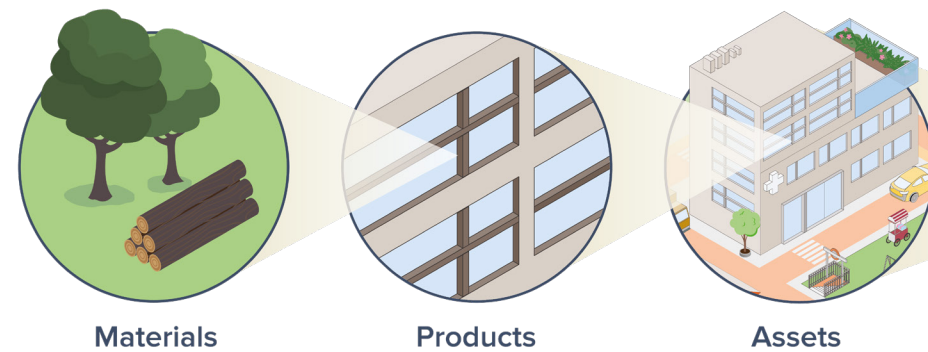
Why we need a circular economy

Today's economic model and ways of living exceed the limits of our finite planet. Therefore we need to adapt our economy, society and built environment to operate within them.

The circular economy is essential for our long-term survival. With it, we can fulfil people's needs while reducing the pressure on the environment and improving the security of supply of raw materials¹.

The circular economy aligns with the United Nations' Sustainable Development Goals (SDGs), promoting long-term wellbeing for people and the planet. It is a more resilient system that encourages innovation and durability, offering significant commercial opportunities and value for money².

Ultimately, the cost to society would be greater if we retain a linear economy, based on extraction, consumption and disposal. If we fail to change, society will pay through the loss of natural capital and ecosystem services, negative impacts on health and wellbeing, and the effects of climate change.



The built environment consists of interconnected systems that are made up of assets, which are built from products that are made from materials. To maximise value, we should manage materials and products through multiple lifecycles and maintain optimal use of assets and systems.

Why?

Why we're focusing on the built environment

We depend on the built environment for our survival. But it has a huge impact on our planet.

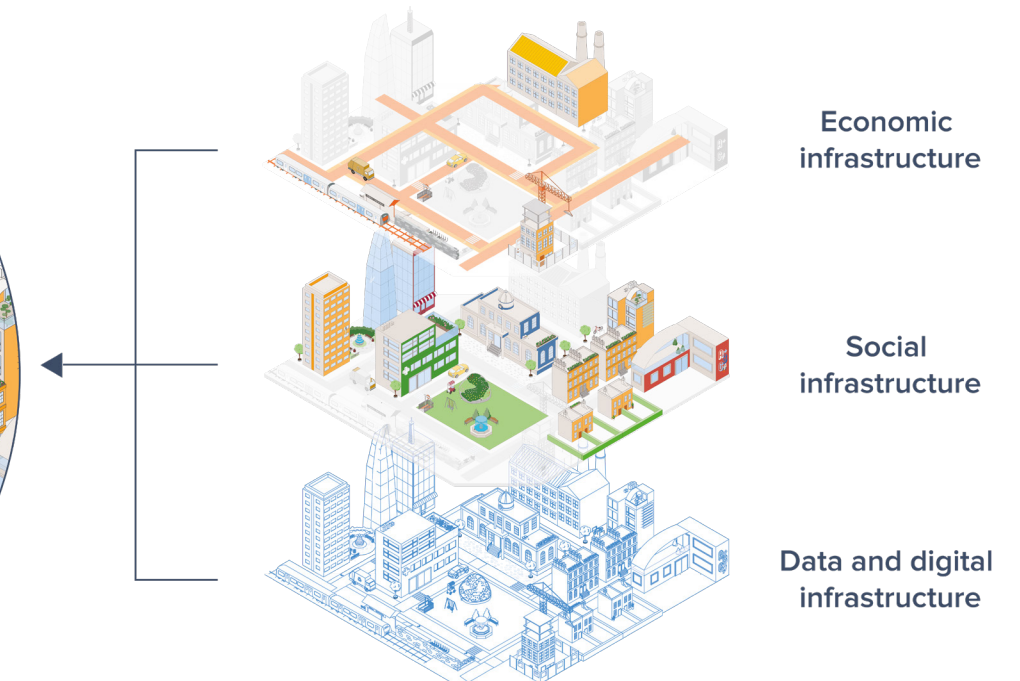
- Material extraction has tripled since 1970 and almost doubled since 2000, reaching 100 billion tonnes per year³.
- The built environment is the biggest user of natural resources; its total mass now exceeds that of everything living on the planet⁴.
- Despite occupying just 1% of land surface, the built environment is responsible for about 25% of land system change, causing habitat destruction, water stress and biodiversity loss⁵.

- The built environment is a major driver of climate change and ocean acidification, responsible for more than half of global carbon emissions⁶.

The built environment can play an enormous role in the overall circular economy because of its size and longevity.

Other sectors have directed their circular economy efforts towards the way they use materials and products. The built environment must do this too, but it can and must go further by pursuing the greatest value from the use of assets and systems as well.

The built environment



The built environment is everything we've built

This is all of our buildings and infrastructure, all of the urban spaces and managed landscapes between and all of the data and digital infrastructure we use to manage them. The built environment is a 'system of systems'. Built environment systems must last for as long as we need them to serve society.

What we mean by the circular economy in the built environment

The circular economy is about enabling people and nature to flourish within our planet's capacity to provide resources and handle waste.

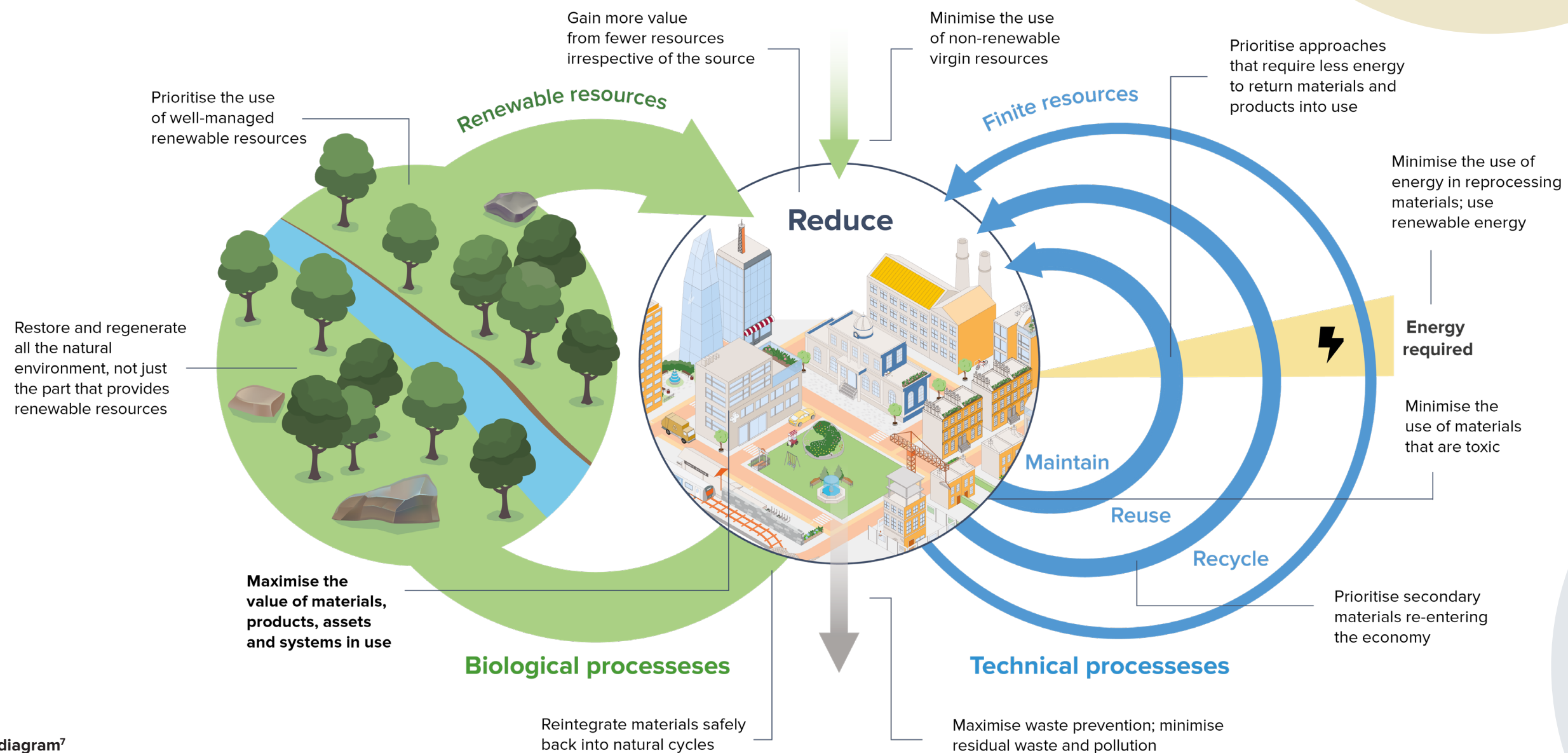
It means getting the greatest possible value from the use of materials, products, assets and systems in the built environment.

Value is ultimately defined by the social, environmental and economic outcomes we gain from the built and natural environments.

What?

The circular economy...

- ... enables better **outcomes** within planetary boundaries
- ... requires change to whole **systems**
- ... demands radical rethinking of our **economic model**
- ... needs active choice and collective action for **transformation**



Butterfly diagram⁷

In reality, there are limits to the circular economy in the built environment. It cannot become a completely closed loop because virgin materials will be needed and there will be some residual waste. Nevertheless, we should target zero waste.



Maximise value through use

The value of the materials, products, assets and systems that make up the built environment is in the social, environmental and economic outcomes gained from their use. It is essential to keep them in optimal use for as long as possible.

This means putting much greater focus on getting more value from existing buildings and infrastructure. We should see refurbishment and repurposing as a way of meeting new needs.

Where existing assets, products and materials are no longer useful, we must redeploy them where they will deliver value, through reuse or recycling. In this way, we will see the built environment as an important alternative source of materials to nature.



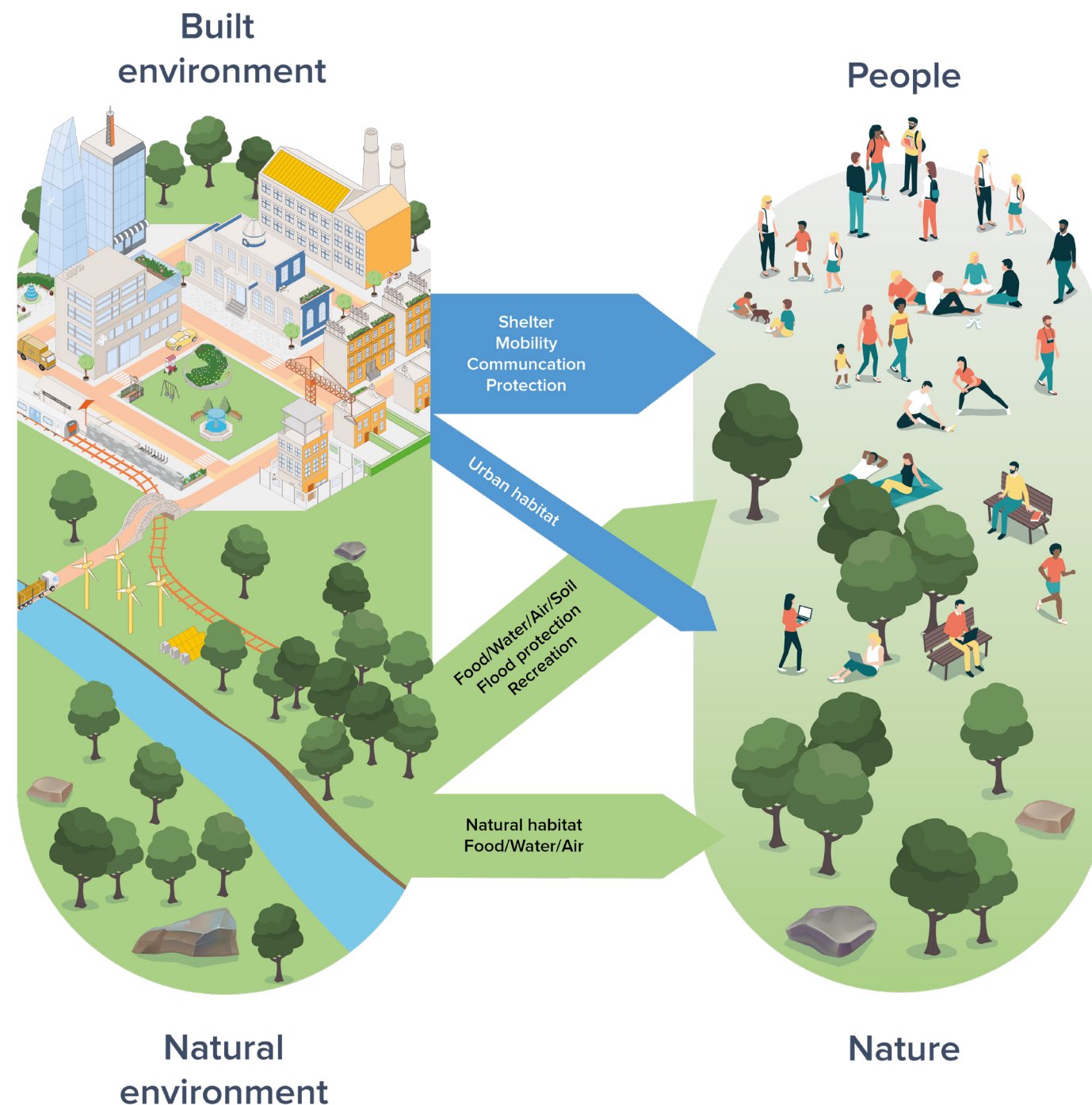
Work with nature

We must view nature as a provider of vital services, not just as a source of materials.

The Earth's natural processes and systems, such as water and nutrient cycles, operate in a circular way. However, our activities have disrupted many of these cycles and caused some of them to break down.

We must realign our actions with the natural circular economy by shifting to more regenerative practices, learning from and mimicking natural cycles, not upsetting them. We can promote regeneration by greater use of renewable natural materials and nature-based solutions.

Outcomes



Focus on people and nature

The purpose of the built environment should be to enable people and nature to flourish together for generations – as set out in ‘Our Vision for the built environment’⁸. This vision connects the use of the built environment with achieving better outcomes and defining value in social, environmental and economic terms.

Maximising value from the use of systems, assets, products and materials is a key enabler of this vision and unites key concepts from both the circular economy and the built environment.



Outcomes for people and nature come from the use of built and natural systems.

The built environment is inextricably linked with the natural environment. As are people and nature.

Systems

Transform the whole system

The transition towards a circular economy in the built environment demands whole system change because it is a complex system that is inextricably linked with natural cycles and social and economic models. Therefore, it is crucial to adopt a systems-based approach, understanding how an intervention in one part of the system can have consequences in another.

Adopting this approach to the circular economy can therefore help in addressing other global systemic challenges, such as achieving net zero emissions, providing climate resilience, protecting biodiversity and enabling social equity.

Make the most of data and digital approaches

Digitalisation can help us address the scale and complexity of interconnected systems. Data and digital solutions support us in making better decisions faster. Federated solutions, such as ecosystems of connected digital twins, can help us to understand whole systems better and intervene more effectively.

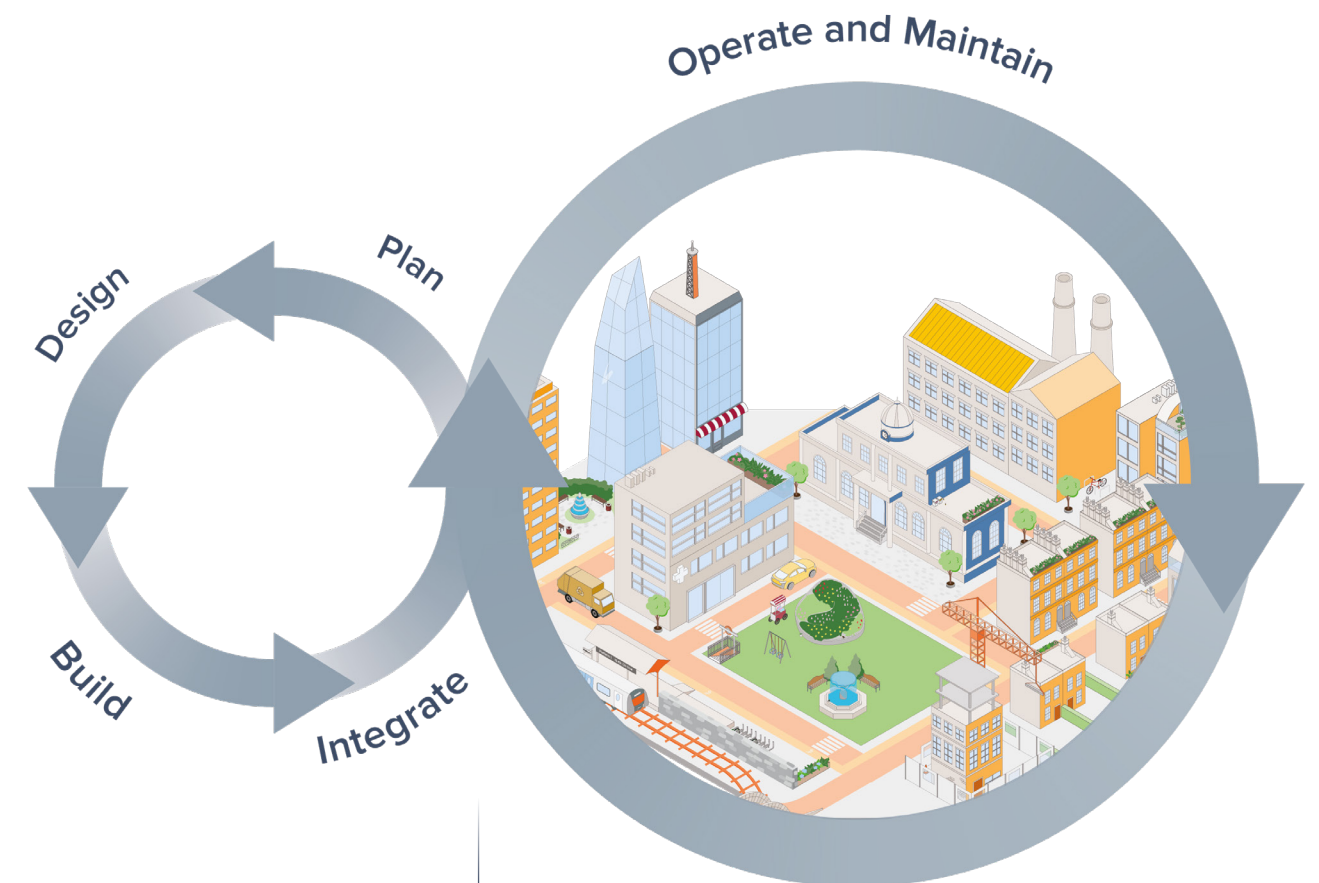
To achieve this, we must manage data more consistently and facilitate secure information flows across organisational and sector boundaries. By doing so, we will be able to provide the relevant information about materials, products, assets and systems in a way that is useful to others. This kind of 'data infrastructure', which promotes interoperability, is crucial for managing stocks and flows in the built environment, including existing buildings and infrastructure. As a result, it is an essential enabler of a wider circular economy.

While digitalisation is a critical part of the overall solution, we must not over-rely on technology – it is just part of the solution. Human and organisational factors are at least as important for success.

Combine systems thinking and design thinking

We must use systems thinking to overcome longstanding silos, making connections between organisations and across sectors. This will facilitate the flow of materials, energy and information, so that waste in one part of the system can become resource for another.

We must also use design thinking to get the most out of those materials, products, assets and systems. This involves understanding and addressing users' needs better, so that buildings and infrastructure are designed and managed to deliver higher value in use. It also involves designing-in circularity, making assets longer-lasting and easier to adapt, maintain, reuse and recycle.



Circular economy interventions are important in every process that affects the built environment. Some processes, like operation and maintenance, are needed continually. Other processes, like planning, designing and building, are intermittent – they are only needed when modifying existing assets or adding new ones.

Decouple economic activity from finite resource use

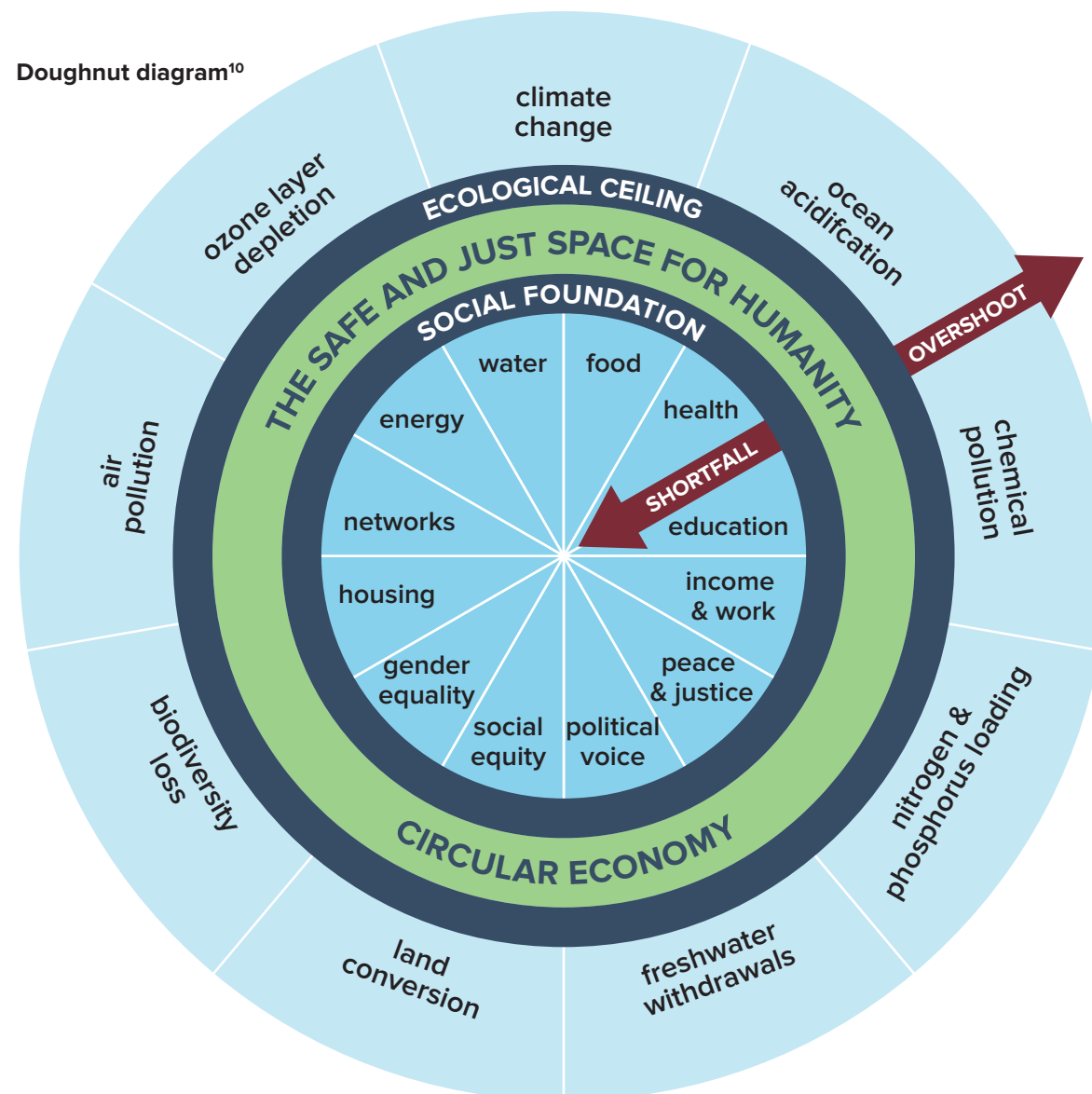
Economic activity is vital for people to have a sufficient standard of living, and the built environment plays a crucial role in enabling a flourishing economy. However, neither can be sustained if we exceed the limits of our finite planet. The circular economy offers the potential to address this.

The consumption of non-renewable resources must decline as economic activity grows, and we must restore and regenerate renewable resources. The price of materials needs to reflect their true whole-life environmental and social costs. Including these externalities would increase the price of virgin materials relative to reused or recycled materials and help to drive circular economy business models.

The planetary boundaries framework¹¹ describes a social foundation for satisfying people's needs and an ecological ceiling above which we would exceed Earth's life-supporting capacity. Between these boundaries is the safe and just space for humanity, within which we can continue economic activity without harm. A circular economy would help us to live within this space.

Economics

Doughnut diagram¹⁰



Develop metrics that work for the circular economy

The circular economy is not served well by our current focus on growth in Gross Domestic Product (GDP) alone, not least because it does not include either wellbeing benefits or environmental costs. Prioritisation of GDP growth over other economic metrics inevitably incentivises us to exceed planetary boundaries.

We need economic objectives and metrics for the circular economy that align better with the real needs of people and nature, such as the Inclusive Wealth Index that was developed by the United Nations Environment Programme⁹. We need shared circular economy metrics that indicate how circular the built environment is and help to drive improvements where they are most needed. National governments should set baselines and targets for their level of circularity. The focus of effort needs to be in countries that are responsible for the greatest exceedance of planetary boundaries.

Align economic, financing, business and procurement models

The industries that serve the built environment must move away from the unsustainable models on which they are currently based, towards sustainable economic, business and procurement models. Although we should not wait until all these models are in place before taking action, it is crucial that they are integrated and aligned over time.



Economics

Economic models

- Promote economic activity that does not rely on the use of finite resources
- Create economic drivers to support secondary materials markets
- Incorporate environmental costs into pricing
- Shift from ownership to access to services
- Encourage collaboration between industry, governments and academia to promote a circular economy

Funding/financing models

- Create new markets (for example, secondary materials markets and futures markets for material reuse)
- Refuse to fund/insure low circularity interventions
- Provide market incentives for companies to adopt circular practices
- Support the development of recycling infrastructure and technologies
- Explore the potential and applicability of extended producer responsibility schemes for construction product groups
- Provide financial support and incentives for circular economy start-ups and small businesses

Business/commercial models

- Promote business models that prioritise the reuse, repair and recycling of products and materials
- Explore product-as-a-service models, where appropriate, which focus on offering access to products rather than ownership
- Develop businesses to manage stocks and flows of materials across the built environment (for example, urban mining and storage for materials between use)
- Incorporate data and digital technologies to optimise the use of resources and reduce waste
- Foster collaboration across the value chain
- Drive upskilling

Procurement models

- Prioritise circular economy principles in procurement decisions
- Procure based on outcomes, not outputs
- Procure across the system, not in silos
- Require the use of digital information about construction products to track and trace materials
- Drive investment in research and development for new technologies
- Drive the use of standards for sustainable product design and production
- Encourage collaboration around shared outcome objectives
- Reward design of products for longevity, durability and ease of repair and recycling
- Measure and report on circularity metrics

How?

Transformation

Choose positive change

The call to action is for us now to pull together to make a circular economy in the built environment become mainstream.

This requires the industries that serve the built environment to embrace circular economy principles. It will also require the community of circular economy specialists to recognise the distinctive characteristics of the built environment. Particularly, this entails improving outcomes for people and nature through the optimal use of assets and systems. Above all, it means aligning policies, strategies and actions to achieve this.

Each of us must choose to act and make change happen in the parts of the built environment where we have influence and control.

Take collective action

The shift towards circularity cannot be achieved by individual organisations acting alone, nor if organisations pull in different directions. We need to develop a shared 'theory of change'¹² that recognises how the interventions we collectively make affect the performance of built and natural systems, and how that in turn influences the outcomes we seek.

The move towards circularity requires radical collaboration and connection between industry, government, academia and civil society. We must transcend existing silos and make valuable connections across organisational, sector and national boundaries. To enable a just transition, we must uphold the rights and wellbeing of citizens and work collaboratively with civil society.

While collaboration on principles and objectives is crucial, competition in delivery can be beneficial. Markets will emerge within which competition will drive efficiency. Transforming economic systems to embrace circularity will involve changes in services, technologies and skills, leading to the need for many people to change their job or the way that they work. Therefore support measures, such as reskilling programmes for workers and economic diversification policies for regions, will be crucial.

Embrace global diversity and share learning

Each country will have a different pathway towards a circular economy, depending on its starting point. Some nations will need to reduce materials extraction and usage to come back under the ecological ceiling. Others may need to increase it to attain the necessary social foundations for their citizens.

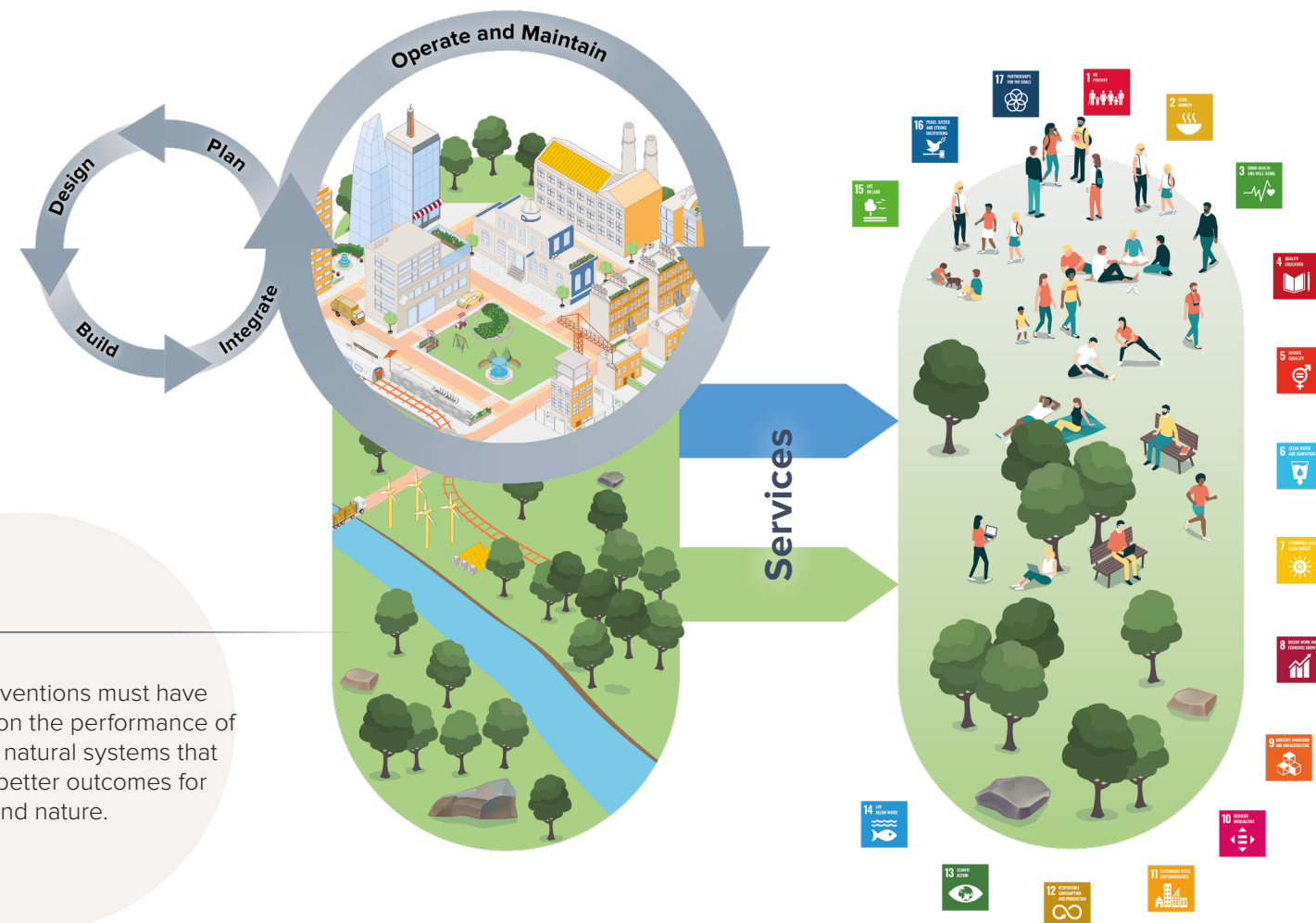
Distinct solutions will be needed in different parts of the world and for different parts of the asset lifecycle. Successfully implementing circular economy solutions demands a deep understanding of national, regional and local trading contexts. Great learning will emerge. We must share it to move faster and further together.

Interventions

Systems

Outcomes

Our interventions must have impacts on the performance of built and natural systems that achieve better outcomes for people and nature.



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