

Faculty of Design

2024

The circularity project: mapping the transition to a sustainable future

Shilpi, Hitesh, Deore, Shlok and Deshmukh, Vedant

Suggested citation:

Shilpi, Hitesh, Deore, Shlok and Deshmukh, Vedant (2024) The circularity project: mapping the transition to a sustainable future. In: Proceedings of Relating Systems Thinking and Design, RSD12, 06-20 Oct 2023, Washington, D.C., USA. Available at <https://openresearch.ocadu.ca/id/eprint/5171/>

Open Research is a publicly accessible, curated repository for the preservation and dissemination of scholarly and creative output of the OCAD University community. Material in Open Research is open access and made available via the consent of the author and/or rights holder on a non-exclusive basis.

The OCAD University Library is committed to accessibility as outlined in the [Ontario Human Rights Code](#) and the [Accessibility for Ontarians with Disabilities Act \(AODA\)](#) and is working to improve accessibility of the Open Research Repository collection. If you require an accessible version of a repository item contact us at repository@ocadu.ca.



Relating Systems Thinking and Design (RSD12) Symposium | October 6–20, 2023

The Circularity Project

Hitesh Shilpi, Shlok Deore, and Vedant Deshmukh

Mapping the Transition to a Sustainable Future

The Circularity Project includes a comprehensive systems map that explores the transition from a linear economy to a circular economy, focusing on the roles and interactions of various stakeholders. Our team of three researchers diligently analysed and visualised the complex web of relationships within the context of circular economy principles. The systems map provides a holistic view of the current linear economy model, highlighting its shortcomings regarding resource depletion, waste generation, and environmental degradation. It depicts how the linear economy funnel leads to vast amounts of waste ending up in landfills, perpetuating a cycle of inefficiency and ecological harm. Our map illustrates the engagement of diverse stakeholders, including governments, businesses, institutions, and consumers. By identifying their interconnected roles, the map showcases the potential for collaborative efforts in driving the transition to a circular economy.

Our research involves data collection, literature reviews, and engaging workshops with stakeholders from different sectors. Through site visits and interviews, we gained insights into real-world practices and challenges related to circular economy adoption. Therefore, the map presents a narrative for transition, with innovative solutions and proposals for the next ten years. It highlights the importance of education as a key driver in fostering circularity awareness and knowledge among students, empowering them to become active participants in the transition. Furthermore, policy recommendations are outlined

to facilitate the necessary regulatory frameworks and incentives for circular economy practices.

Additionally, the map emphasises the significance of circularity recognition, showcasing the potential for creating certification systems, labelling schemes, and incentives that encourage businesses and consumers to embrace circular practices. Overall, our systems map offers a visual representation of the journey towards a circular economy and serves as a valuable tool for policymakers, businesses, educators, and researchers. It provides a foundation for informed decision-making, guiding efforts to create a more sustainable and regenerative future.

KEYWORDS: sustainable development, resource efficiency, waste reduction, environmental sustainability, regenerative design, life cycle assessment, supply chain sustainability, recycling and reuse, zero waste,

RSD TOPICS: Mapping & Modelling, Policy & Governance, Sociotechnical Systems

A systemic approach to circular economy

The Circularity Project features an intricately designed systems map that meticulously charts the transition from a traditional linear economy to a more sustainable circular economy. This map serves not just as an informative piece but as a compelling narrative of this transition.

At its core, the project confronts the inherent limitations and environmental impact of the linear economy—where the end-of-life of products leads to waste and depletion of resources. It contrasts this with the principles of the circular economy, where waste is minimised, and materials are continually repurposed. The map illustrates these concepts through a series of interconnected nodes and pathways, each representing different aspects of the economy—manufacturing, consumption, waste management, and resource recovery.

Our systems map is more than a static representation; it's an educational tool that invites exploration. Viewers are guided through various stages of product life cycles,

from design and manufacturing to use and eventual recycling or reuse. This journey is punctuated by real-world examples, drawing from pioneering efforts in circular economy practices. Companies and initiatives that have successfully integrated circular principles are highlighted, providing tangible models for emulation.

Additionally, the map addresses the role of policy and education in fostering a circular economy. It highlights the need for systemic change, from consumer behaviour to business models and governmental policies. The map underscores the importance of collaboration among various stakeholders: businesses, governments, consumers, and educational institutions, all working in tandem to create a more sustainable future.

In creating The Circularity Project, our team aimed to encapsulate the complex, interconnected nature of economies and ecosystems. The map's design reflects this complexity, using an intuitive layout that allows viewers to grasp the nuances of circular economy principles and their application. It is an invitation to rethink our relationship with materials, products, and nature itself, urging a shift from a culture of disposability to one of sustainability and regeneration.

Intentions and concept

Our primary intention was to articulate the urgency and necessity of transitioning to a circular economy. The map is designed not just to inform but to provoke thought and inspire action. We aimed to evoke a sense of interconnectedness with the environment, emphasising that our economic actions have far-reaching consequences.

Symbolically, the systems map represents the Earth as a finite resource, highlighted by the restrained use of colours, signifying the delicate balance of our ecosystem. The flow of materials and energy within the map mimics natural cycles, drawing a parallel to how nature operates without waste. This metaphorically underscores the concept of circularity—everything taken from the Earth should ideally be returned in a form that sustains or enhances its value.

We incorporated visual storytelling elements to depict the journey from extraction to disposal in the linear model, contrasting it with the regenerative loops of the circular economy. These loops symbolise renewal and sustainability, suggesting that every end can be a new beginning if resources are managed thoughtfully. The map's use of arrows

and interconnected pathways serves as a metaphor for collaboration and the continuous flow of materials and information, crucial for the success of a circular system.

Emotionally, the project aims to instigate a sense of responsibility and hope. Responsibility, by making viewers aware of the current unsustainable practices and their impact; hope, by presenting feasible, practical solutions through circular economy principles. The map is intended to be an eye-opener, a conversation starter, and a blueprint for change, encouraging viewers to contemplate their role in this vital transition.

Through The Circularity Project, we sought to blend education, awareness, and aesthetic appeal to create a powerful message about sustainability, resourcefulness, and innovation. The project is a call to action, urging viewers to rethink, redesign, and rejuvenate for a sustainable future.

Creative Process

The creative process for the entire systems design project was a journey of discovery, innovation, and collaboration. Our approach combined theoretical research with practical exploration. We put our hands to work by creating biomaterials using different waste generated like coffee grounds, sawdust, etc. We also had a cigarette butt collection drive in the form of polls. We engaged in an extensive literature review and case study analysis to understand the principles and real-world applications of circular economy.

The *Circular Ventures* workshop by The Circular Design Guide and What Design Can Do Challenge played a crucial role in our process.¹ Organised with diverse stakeholders, including students, industry experts, and community members, these workshops were platforms for brainstorming and idea generation. They helped us gather diverse perspectives and real-world insights, which were crucial in shaping our project. One of the main challenges was integrating these varied inputs into a cohesive system design. The breakthrough came when we adopted a multidisciplinary approach, combining

¹ These are What Design Can Do Challenge Toolkit. [Circular Design Guide](#) and What Design Can Do Challenge Toolkit. [What Design Can Do](#)

insights from environmental science, economics, and design thinking. This approach allowed us to develop holistic solutions that were both innovative and practical.

Throughout the project, we made conscious choices in our materials and techniques to reflect the principles of sustainability and circularity. This included using sustainable materials for our prototypes and digital tools for mapping and visualisation. The creative process was iterative, involving continuous refinement based on feedback and new learnings. This dynamic approach enabled us to develop a systems design project that was not only informative but also transformative in its potential to influence perspectives and inspire change towards a circular economy.

Reflection

As a team, we reflect on The Circularity Project with a sense of accomplishment. We believe we have successfully achieved our intentions, effectively conveying the critical aspects of the circular economy and engaging a broad audience. This project was a profound journey for us, combining our collective passion for sustainable design with innovative solutions. The feedback we've received, particularly from workshop participants, has been encouraging. Their active engagement and interest affirm the project's effectiveness in raising awareness and stimulating conversations around sustainability.

The experience of creating the systems map and other project elements has significantly influenced our collective approach to design. It has underscored the importance of holistic systems thinking—looking beyond the immediate product to consider its lifecycle, impact, and potential for sustainability. This project has reinforced our commitment as designers to create work that is not only innovative but also responsible and regenerative, marking a pivotal step in our ongoing journey towards sustainable design practices.

Conclusion

Our team sees The Circularity Project as a significant milestone in our journey as designers committed to sustainability. The project, through its explorations and outcomes, has been a deeply personal and professionally enriching experience,

reinforcing our dedication to creating designs that are not only functional but also environmentally responsible. Looking ahead, we anticipate further developments and expansions of this project. We envision integrating more interactive elements, possibly through digital platforms, to enhance its educational reach. Future directions also include exploring global case studies and incorporating emerging sustainable technologies to continually update and evolve the project's content.

The Circularity Project stands as a testament to our belief in the transformative power of design. It underscores our commitment to contribute to a more sustainable future, both in our professional endeavours and personal philosophies. This project, therefore, holds a special significance for us, marking our growth as designers and our contribution to the broader dialogue on sustainability and circular economy principles.

Resources

Ellen MacArthur Foundation. *What is a Circular Economy?* [Ellen MacArthur Foundation](#)

Circular Economy: A Brief Literature Review (2015–2020) [ScienceDirect](#)

What Design Can Do Challenge Toolkit. [Circular Design Guide](#)

What Design Can Do Challenge Toolkit. [What Design Can Do](#)

Principles for a Sustainable Circular Economy on [ScienceDirect](#)

How do Scholars Approach the Circular Economy? A Systematic Literature Review [ScienceDirect](#)

Innovation and the Circular Economy: A Systematic Literature Review [Wiley Online Library](#)

The Circular Economy and Circular Economic Concepts - A Literature Review [Wiley Online Library](#)

The Typology of 60R Circular Economy Principles [ScienceDirect](#)

Circular Economy Pillars: A Semi-Systematic Review [SpringerLink](#)

A Systematic Literature Review on the Circular Economy Initiatives in Manufacturing [ScienceDirect](#)

Business Models in Circular Economy: A Systematic Literature Review [SpringerLink](#)

Authors

Hitesh Shilpi, Facilitator, Researcher, National Institute of Design (Ahmedabad),

hitesh_sh@nid.edu, [LinkedIn](#)

Shlok Deore, Facilitator, Workshop Organizer, National Institute of Design (Ahmedabad),

shlok_d@nid.edu, [LinkedIn](#)

Vedant Deshmukh, Facilitator, Presenter, National Institute of Design (Ahmedabad),

vedant_d@nid.edu, [LinkedIn](#)

Acknowledgements

We wish to express our sincere gratitude to Sahil Thappa and Praveen Nahar for their invaluable guidance and mentorship throughout The Circularity Project. Their expertise significantly shaped our approach and outcomes.

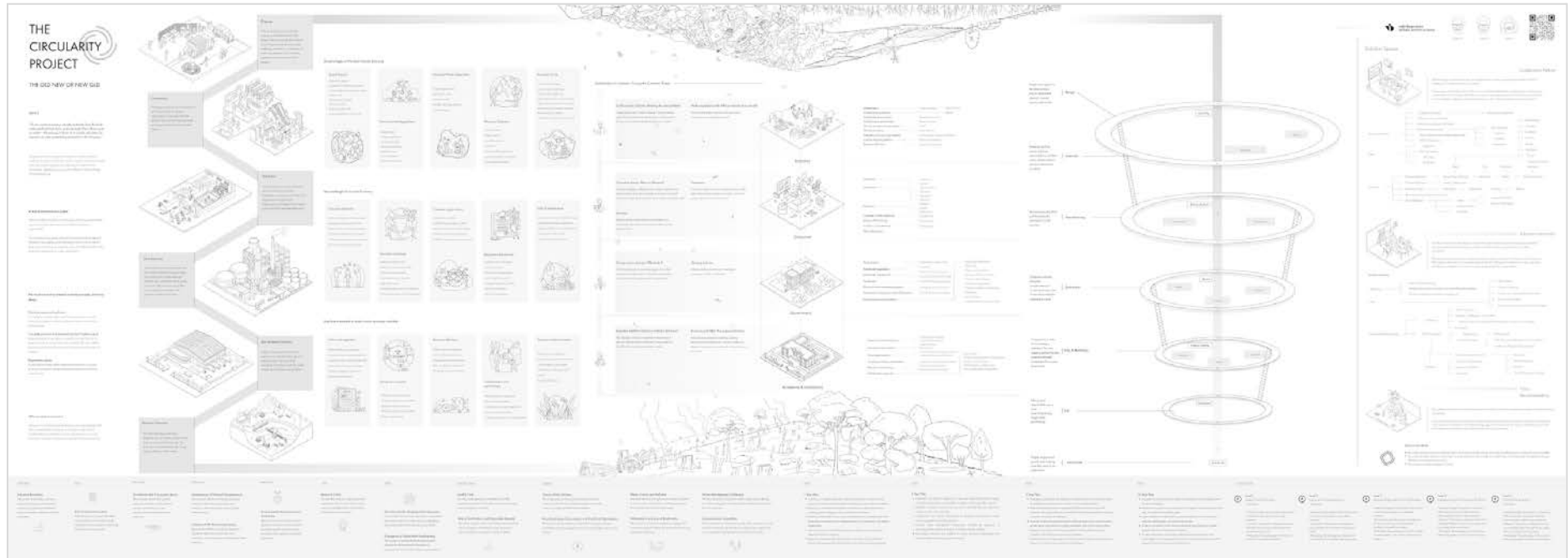
Special thanks to the stakeholders we interviewed, whose insights were crucial in understanding the real-world implications of circular economy practices. We acknowledge the land on which we conducted our research and the communities that have historically stewarded it.

Our reflexivity statement acknowledges the biases and perspectives we brought into this work, emphasising our commitment to ethical and inclusive research practices.

We are grateful to all individuals who contributed to this project, including those who provided logistical support, creative input, and critical feedback. Their contributions, though not directly cited, were integral to the project's success.

For our workshops, we include a testimonial from a previous session: The workshop not only enlightened us on sustainability concepts but also actively engaged us in finding real-world solutions. It was an eye-opening experience that changed the way we think about design and its impact on the environment.

This acknowledgement reflects the collective effort and diverse contributions that made The Circularity Project a reality



The Circularity Project map: The restrained use of colours signifies the delicate balance of our ecosystem.