Second year report project

circular

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CONTEXT OF PROJECT CIRCULAR X

The transition towards a circular economy is more urgent than ever. In 2022, the latest Intergovernmental Panel on Climate Change (IPCC) report was published – a real reminder for faster action. The report "recognizes the interdependence of climate, ecosystems and biodiversity, and human societies (…). The assessment of climate change impacts and risks as well as adaptation is set against concurrently unfolding non-climatic global trends e.g., biodiversity loss, overall unsustainable consumption of natural resources, land and ecosystem degradation, rapid urbanisation, human demographic shifts, social and economic inequalities and a pandemic" (IPCC, 2022a, p. 7).

The transition to a circular economy is seen by business and policy makers as an important driver for innovation and change towards a more sustainable society. However, the transition itself is slow and the impact of circular economy initiatives so far on climate change is unclear (IPCC, 2022b). This shows a dual need for a faster transition, but also a transition that is measured and assessed for its impact.

In 2022, Circular X started to spotlight the more 'difficult' strategies in the circular economy: sufficiency and regeneration. The circular economy requires companies to innovate to slow, close, narrow and regenerate resource loops (Figure 1). Companies often focus on innovations that have an immediate business case and are perhaps 'easier' to pursue, such as narrowing the loop by using fewer resources per product and recycling to close the loop (Bocken et al., 2017; Ritala et al., 2018). Slowing the loop is more challenging, as it requires companies to more radically transform their business models to incorporate product longevity and multiple product lifetimes. Regeneration is difficult as it requires new skills, capabilities, and collaboration, because issues about regenerating the natural environment and biodiversity are no typical 'business skills' and need to be learned or adopted through collaboration.

Slowing the loop and regeneration are gaining popularity but are still rather niche in a business context. We therefore focused on sufficiency and slowing the loop and sufficiency and regeneration through new studies, led by Laura Niessen and Jan Konietzko. Measurement of impact is addressed through a new Circular Rebound Tool, work led by Ankita Das. We also want to understand how companies can scale up their initiatives, work led by Deanna Han.

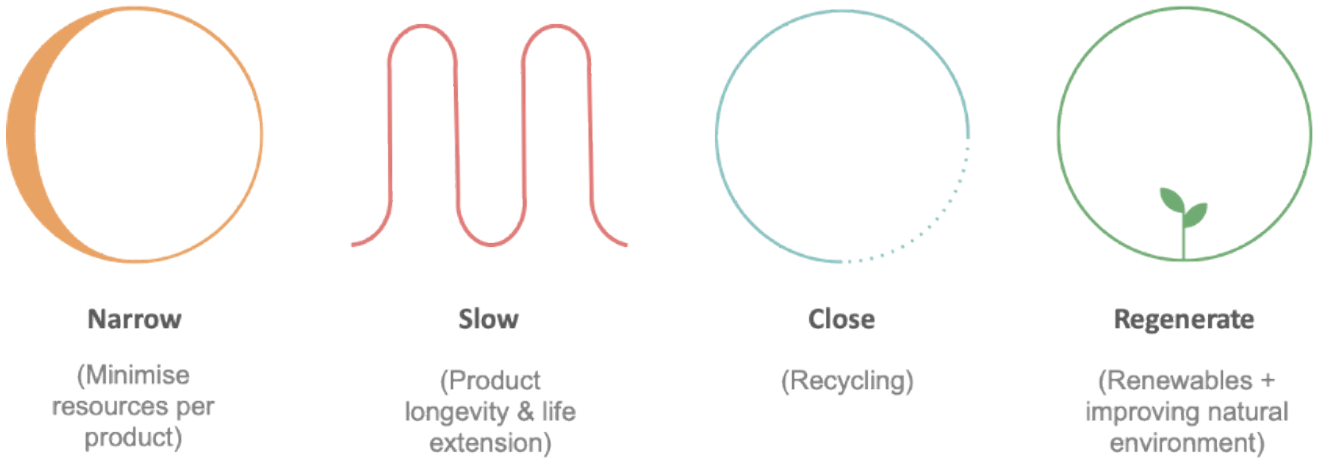

Figure 1. Circular strategies. Based on Bocken et al. [2016] and Konietzko et al. [2020]

However, circular service business models (CSBMs) are far from mainstream, and research focused on experimentation – the process of change towards new service business models – is little understood.

ABOUT CIRCULAR X

Project **Circular X** is a 5-year project running from mid-2020 till 2025 at Maastricht Sustainability Institute, funded by the **European Research Council (ERC)**. It has four key objectives:

1. *Advancing understanding of CSBMs; their emergence and impacts*
2. *Advancing knowledge on CSBM experimentation*
3. *Developing CSBM experimentation tools*
4. *Designing and deploying CSBM experimentation labs*

This report summarizes the outcomes of the second year into the project. It details the project timeline and progress, coverage in the media, launched tools for companies, publications and collaborations with businesses to connect research to real world experiences of driving circularity.

OVERVIEW

Circular X is wrapping up its second year! Some key research findings and highlights from the Circular X project after the second year include:

1. The **Circular X case database** was expanded to inspire companies to start experimenting with circular service business models. Including over **60 cases,** the database keeps growing. We aim to develop over 100 cases. Feel free to reach out to us if you want to share a company example that inspires you. We mainly look for circular service business model examples where we can show **how** a company experimented, and, where possible, where the **impact** of this experiment has been measured. Circular X focuses on high impact sectors such as food, mobility, appliances, housing & construction and clothing.

2. Circular X published an open access article in **Stanford Social Innovation Review** on Designing Your Circular Business Model. The strategies of narrowing, closing, slowing and regenerating resource loops are explained with **many company examples**. The article has also been translated to Portuguese for the inaugural issue of the new Brazilian outlet of Stanford Social Innovation Review.

3. Based on an increasing interest in the **sufficiency topic**, and questions about 'how can business actually pursue sufficiency?" the **sufficiency database** was developed. It showcases over 150 examples of businesses pursuing sufficiency in sectors like clothing, food, mobility, appliances and housing. Have a look to be inspired for your next sufficiency business idea!

4. The sufficiency database insight was used for the 2022 paper titled "**The Sufficiency-Based Circular Economy - An Analysis of 150 Companies**" about the **future of the circular economy**. This work received significant **social media attention** and stimulated debate on the role of circular economy in the sustainability transition. The topic of sufficiency was also featured in the Dutch critical journalism platform **De Correspondent.**

5. Regeneration is a topic that is increasingly important when the effects of climate change can already be felt. In addition to running focus groups with regeneration experts in business, researchers Jan Konietzko and Ankita Das have been conducting focus groups with indigenous groups across the globe, as they often know best how to incorporate biodiversity and the natural environment to help them thrive. A publication is in the works about regeneration and what business can do about this. We were also inspired by the **recent book** by Paul Hawken on Regeneration. You can find more information on regeneration and what you can do **here**.

6. When experimenting with new business models, many practitioners feel that current methods of **environmental impact measurement** are time-consuming and complicated to use, and therefore not fit for the rapid business experimentation process. This was found in a 2022 publication titled "**How do companies measure and forecast environmental impacts when experimenting with circular business models?**" by Ankita Das together with other Circular X colleagues.

7. Based on gaps in what type of assessment companies can do while experimenting with new business models a new **Circular Rebound Tool** was developed and tested with companies and researchers. It was presented at the **New Business Models 2022** conference. The tool guides companies that are innovating towards circular business models, to better understand their environmental impact in the early experimentation phase. The tool is based on principles of the life-cycle perspective, zero-waste hierarchy, and avoiding rebound effects. Watch **this** space for more info on the tool soon!

8. We also want to understand how companies **scale up their impact.** Deanna Han presented her work on how circular business scale up their impact at the New Business Models conference 2022 in Rome. Growth strategies and scaling strategies for these circular businesses differ from those of more generic businesses. Along with other Circular X colleagues, she examined 60+ such companies from across the globe, representing the fashion, mobility, electronics, consumer goods and food industries.

9. When launching circular service business models in different countries, companies need to adapt to the external context specific to that location. Based on practitioner interviews and desk research, Deanna Han and colleagues have identified six adaptation strategies – providing practical advice to other practitioners moving towards circularity and contributing to the current CBM discourse. This 2022 publication is titled "**How do companies launch circular service business models in different countries?.**"

10. The **circular experimentation workshops** by Nancy Bocken, Matthew Coffay, Jan Konietzko and Myrthe Velter have led to many new ideas for experiments and connections for innovators. We ran 2 workshops with quickly scaling circular businesses, as well as 3 workshops with groups of innovators in a virtual setting. For example, during the Dutch Week of the Circular Economy, we ran a **large virtual workshop** which was attended by innovators from three continents. They developed experiments for sectors such as clothing, mobility and appliances.

11. Researcher Myrthe Velter has written up her PhD dissertation titled **Journeying towards sustainable business models** - On the collaborative shaping, shifting and redesign of organizational boundaries for sustainable business model innovation (defence date: 3 October 2022). Myrthe has joined Circular X officially from August 2022 and will be focusing on tools, methods and experimentation cases. Welcome Myrthe!

12. After the second year, project Circular X has been covered in multiple media outlets, reached over 2000 people through public speaking engagements, has over 1750 followers on LinkedIn, 300 followers on Twitter and produced 2 new business tools and 12 publications.

13. Circular X aims to advance the academic debate on Circular Economy through two collaborative special issues in highly ranked business journals such as the **Strategic Entrepreneurship Journal** and the **International Small Business Journals**. Read more about these special issues **here**.

PROJECT PROGRESS

Circular X consists of 4 sub projects, based on the main objectives. While Covid made travel to the different Circular X countries challenging, the team took part in an experimentation workshop in the UK and conducted case research in London, Leuven and Cologne. Remotely, we investigated several cases of business experimentation. Our research on the Regeneration topic brought us to Latin America (virtually) and India (in Odisha, and Maharashtra), where we spoke with indigenous people about how they see 'regeneration' as a topic. We also held focus groups online with innovators.

For sub project 1 on understanding circular business models, we increased the Circular X database to over 60 cases. Since its inception, the case database has been growing and includes many examples of circular business model experimentation, and, where available, the impacts of these experiments. Research with a mobility company is also underway to understand the impact of a service business model on their customers' travel patterns, with a focus on sufficient consumption.

For sub project 2, progress has been made in understanding which circular service business model cases emerge and how circular businesses might achieve scale. We are also working on various tools such as the Circular Rebound tool and a circular experimentation lab approach.

For sub projects 3 and 4, we ran workshops with various companies and innovators already to make them more aware of the need to start experimenting and developing their own circular business experiments.

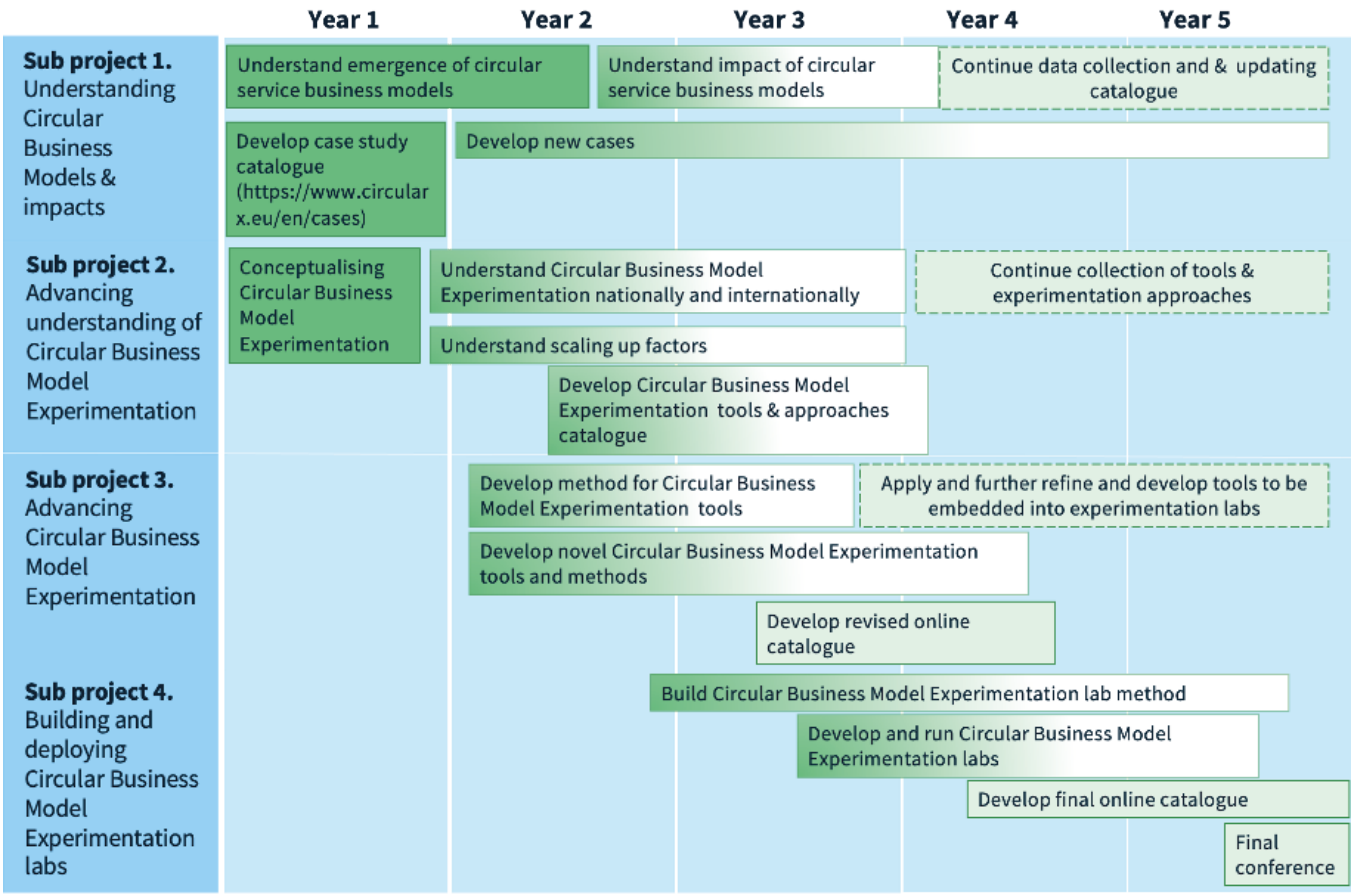

Figure 2. Project overview. *Note. Dark green means it has been developed; lighter shades mean in progress*

CONFERENCES: IN 2022... AND 2023!

In 2022, we contributed to live and part-virtual conferences. Nancy Bocken presented virtually at the Academy of Management (AOM) annual meeting, the largest global management conference, taking place between 5-9 August 2022 in Seattle, USA. The 82nd annual meeting was concerned with the topic of "Creating a Better World Together". Her presentation was about Circular start-ups and scale - an ecosystems perspective. This was part of a collaborative Professional Development Workshop (PDW) on "Start-up Support Promoting Circular Economy within Entrepreneurial Ecosystems".

Circular X also attended the New Business Models (NBM) conference taking place in Rome, 23-24 June 2022. The team ran a collaborative track on Business Experimentation for Sustainability with colleagues from Germany, Norway and Finland, covering a full day of contributions from international speakers on the topic who conducted studies on experimentation in startups, SMEs and larger corporations. PhD researchers Laura Niessen, Ankita Das and Deanna Han presented on sufficiency in a business context, circular rebounds and how to avoid them, and scaling up circular businesses respectively.

At the NBM conference 2022 it was announced that Maastricht University will be organizing the NBM 2023 conference June 21-23 in Maastricht. The theme will be “Building partnerships for more sustainable, resilient and regenerative business models”. This will be a collaboration between Abel Diaz Gonzalez of the Organization, Strategy & Entrepreneurship department, and team Circular X based at the Maastricht Sustainability Institute.

TOOLS AND FRAMEWORKS

As part of advancing knowledge on circular service business models and supporting business in driving innovation, the research undertaken by Circular X involves developing tools and frameworks.

SUSTAINABLE BY DESIGN TOOL

Research shows that to succeed with sustainable and circular business model innovation, companies need to start at the organizational design level. Sustainable By Design is a tool that will help your organization identify Barriers and Drivers to sustainable innovation at the level of Culture, Strategy, and Operations. The tool is leveraged via a half-day workshop with senior management.

By the end of the workshop, you will have reached consensus around which Barriers and Drivers to sustainable innovation exist within your organization's Culture, Strategy, and Operations. You will then be positioned to develop an internal strategy to affect change in these areas.

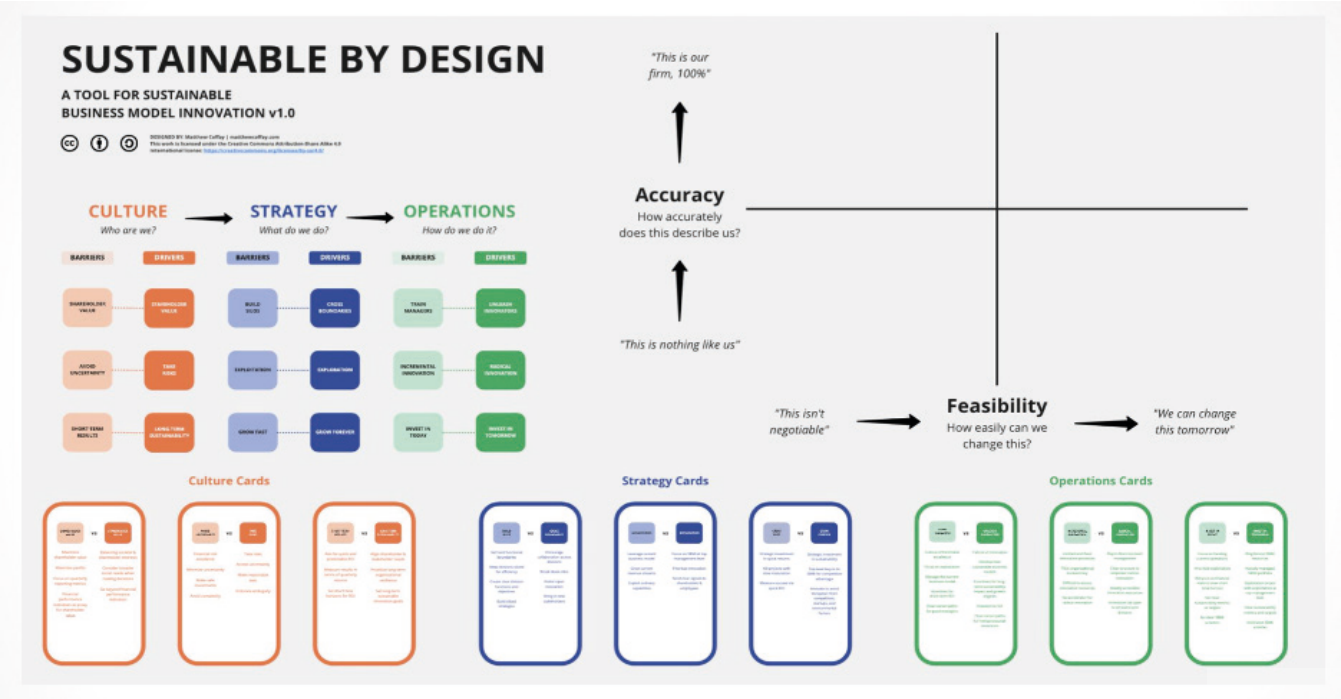

Figure 3. Sustainable by Design tool

SUFFICIENCY DATABASE

The Business for Sufficiency database is a tool that showcases companies' efforts to promote sustainable consumption practices. Consumption patterns need to change to address sustainability challenges. Businesses that work towards sustainable business models need to ensure that they support sufficiency, rather than inadvertently pushing for increased resource consumption.
To showcase existing businesses that promote sufficiency to their customers, Circular X researcher Laura Niessen developed an open access database of over 150 companies. It is intended to stimulate companies to consider sufficiency as part of their business model. Based on real-world examples of businesses that support sufficiency, it highlights the viability of sufficiency-oriented strategies and provides inspiration for what can be done.

	A	B	C	D	E	F	G	H	I	J	K	L
1	**Company** (* = info verified by company)	**Sector**	**Establi-shed**	**Company size (staff)** Small = <50 Medium = 50-249 Large = 250-500 Very large = >500	**Head office**	**Business Model summary**	**Example sufficiency statement**	**Business for sufficiency strategies** (based on: Niessen, L. & Bocken, N. (2021). How can businesses drive sufficiency? The business for sufficiency framework. *Sustainable Production and Consumption*, 28, 1050-1183.)	**Purpose statement**	**Social enterprise or B-Corp?**	**Value proposition** 1. Product / service 2. Customer segments & relationships 3. Value for customer, society & environment	**Value creation** 4. Activities 5. Resources 6. Distribution channels 7. Partners & suppliers 8. Technology & product features
13	Asket*	Apparel	2015	Small	Sweden	ASKET produce a collection of permanent clothing. Every item is made to be wearable forever, meaning very few pieces are made that measure up against the benchmark of eternal relevance. They advocate for reduced fashion consumption and work towards full transparency in their supply chain. The clothing is sold in their webshop and new shop in Stockholm. The Revival Program also lets items be sent in again to be repaired.	*If we all stop and think, it's pretty clear that the only real solution is to reduce production, resist over-consumption and opt for fewer, better-made and longer lasting items*	**Awareness-raising**: Communicating about the need to consume less (e.g., F*ck Fast Fashion mural in Stockholm) **Design:** Producing timeless, season-less clothing in a permanent collection **Green alternative:** High-quality clothes from natural materials designed to be worn for long **Life extension service:** Repair service in new ASKET store **Moderating sales:** Foregoing discounts and price reductions sales **Personalised production**: More specific sizing system that ensures better, more accurate fit **Support for repair:** Repair guides and instructions as well as providing spare parts **Question consumption:** Publicly advocating for less consumption	*The pursuit of less.*		1. Product: Long-lasting, sustainably & transparently produced menswear 2. Male customers, premium pricing 3. Long-lasting, sustainable clothing; transparent supply chains; repair	4. Producing and selling clothing. 5. ? 6. Own shop 7. ? 8. ?
14	Back Market	Energy using applian ce	2014	Large	France	Back Market aims to make refurbished devices mainstream. They provide an online platform for vendors to sell their refurbished devices, guaranteeing quality by vetting vendors and ensuring a 1-year warranty for all items.	*Spurred into action by the megatons of e-waste (electronic waste) we produce each year thanks to our collective obsession with new tech, Back Market is challenging people to rethink their tech consumption.*	**Awareness-raising**: Piloting CO2NSCIOUS app to show CO2 emissions while charging phones; raising awareness of overconsumption with 'Still in its Prime Day' **Exchange platform:** Providing platform for vetted refurbishers to sell their electronics **Open-source creation**: Open source code for CO2NSCIOUS app **Question consumption:** Asking citizens to question need to consume, e.g., through 'Still in its Prime Day' campaign against Black Friday	*Our mission is to restore trust and desire for refurbished devices.*		1. Service: Online platform connecting refurbishers with customers 2. Customers in France, UK, US, Germany, Spain, NL, Belgium, Ireland, Austria, Spain, Finland, Slovakia, Italy, Greece, Portugal, Sweden; Vendors of refurbished electronics 3. Enabling a second life to products and reducing e-waste	4. Offering online platform; Screening and selecting sellers; customer support; seller support 5. ? 6. Online shop 7. Over 1000 sellers of refurb electronics 8. ?
15	Baukjen (House of	Apparel	2003	Medium	UK	Baukjen (of House of Baukjen) design and sell long-life woMenswear. They also resell clothing returned through a	*As a business we aim to radically reduce the amount of fashion waste going to landfill each year and want to encourage all our*	**Awareness raising**: Communicating to customers through blog, care instructions and campaigns (e.g., Messy monster during COP26) **Design:** Clothing designed for longevity and durability **Green alternative:** Producing long-life clothing with low-impact and responsible	*House of Baukjen: Our mission is to put our customers and people at the heart of everything we do; through the timeless, carefully crafted designs that empower women to be their best selves every day;*	B-Corp certified	1. Products: Womenswear; Service: Resale, Rental	4. Producing and selling (reused) clothing. Rental service 5. Natural materials, low environmental impact fabric, some recycled

Figure 4. Sufficiency database

CIRCULAR REBOUND TOOL

The Circular Rebound Tool is meant to be an ideation decision-aid that guides business/product designers, innovators and entrepreneurs that are trying to launch circular initiatives, towards achieving better environmental impact outcomes. The tool is based on the principles of life-cycle perspective, the zero-waste hierarchy and preventing rebound effects. Through a 1.5-hour self-directed workshop, participants can gain more insights into the sustainability impact of their business idea and further ideation opportunities. The tool has been beta-tested and improved through 14 workshops with companies and researchers.
The Circular Rebound Tool is anticipated to be available in an open access form towards the end of 2022. Follow this space or sign up to our newsletter to stay updated!

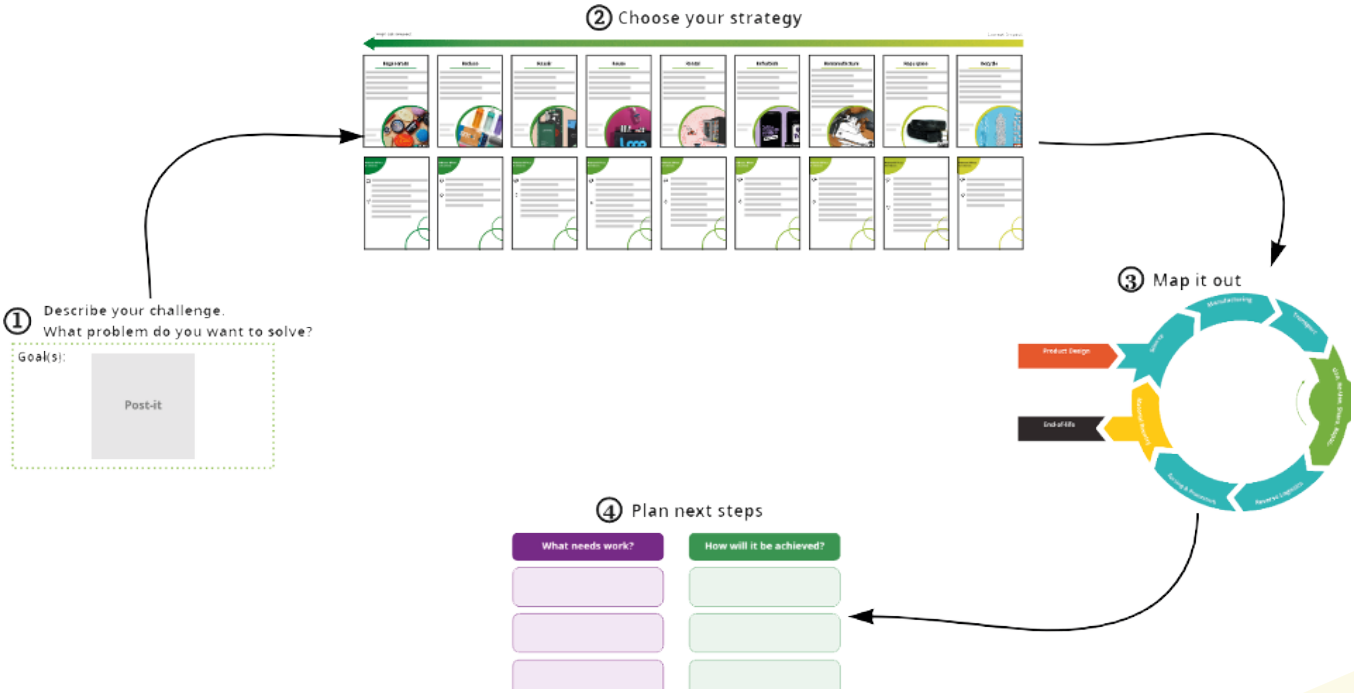

Figure 5. Circular Rebound Tool

PRESENTATIONS BY TEAM MEMBERS

To raise awareness of circular business models and experimentation opportunities as well as to share insights gained through the Circular X research, the team members have regularly taken the opportunity to present Circular X and its research outputs to expert as well as laymen audiences. Table 1 below provides an overview of presentations and their approximate outreach potential from August 2021 to August 2022.

Table 1. Presentations/ interviews by the team

Date	Topic	Team member	Channel
30/8/2022	ABIS and NN: Towards sustainable circular businesses. Challenges & Opportunities	*Nancy Bocken*	Hybrid
5/8/2022	Academy of Management 2022: Startup Support Promoting Circular Economy within Entrepreneurial Ecosystems	*Nancy Bocken*	Hybrid
24/6/2022	New Business Models Conference 2022: A Sufficiency Business Database as a Tool to Drive Sustainable Business Models	*Laura Niessen*	Live
24/6/2022	New Business Models Conference 2022: A Tool To Support More Sustainable Circular Business Models	*Ankita Das*	Live

Date	Topic	Team member	Channel
24/6/2022	New Business Models Conference 2022: How Do Circular Businesses Scale Up	*Deanna Han*	Live
17/5/2022	2nd Dutch Circular Economy Network Meeting – Keynote speech	*Nancy Bocken*	Live
18/5/2022	Inaugural lecture (delayed) Maastricht University: Towards circularity and beyond: exploring the future of sustainable business through experimentation	Nancy Bocken	Live and online: https://cris.maastrichtuniversity.nl/en/publications/towards-circularity-and-beyond-exploring-the-future-of-sustainabl
19/4/2022	Lecture on Sufficiency as part of University Maastricht extracurricular course	*Laura Niessen*	Live
9/3/2022	Research and practice frontier of sustainable business models (cultural leadership program)	*Nancy Bocken*	Online
8/3/2022	Developments of Circular Economy Business models (MBA)	*Nancy Bocken*	Online
24/02/2022	Honours Program Lecture on Circular Business Models at Maastricht University	*Ankita Das*	Online
27/01/2022	Closing event of the Brufonctionnel project (ICHEC): Circular X: experimentation towards circular service business models	*Nancy Bocken*	Online
19/01/2022	Sustainable business seminar, Eindhoven University	*Nancy Bocken*	Online
14/01/2022	Podcast Unsustainable and sustainable business models	*Nancy Bocken*	Online: https://www.jorgensenpedersen.no/asb003-unsustainable-and-sustainable-business-models-with-nancy-bocken
25/11/2021	Lecture on The impacts of our fashion consumption to Amnesty Maastricht Student Association	*Laura Niessen*	Live
02/11/2021	Maastricht Sustainability Institute & Circular X	Nancy Bocken	*online*
06/10/2021	Transitions & Circular Business Model Innovation	Nancy Bocken	*Zoom*

SOCIAL MEDIA & NEWSLETTER

Project Circular X is actively represented on social media through the LinkedIn and Twitter platforms and additionally reaches out to its audience through a quarterly newsletter. After first going live in mid-2020, the social media accounts and newsletter have seen a steady increase in interest and subscriptions.

LinkedIn

Since September 2021, Circular X has gained over 1750 followers from business, policy and academia.

Twitter

Since September 2021, we see a steady growth in new followers and impressions on Twitter. Our Top Tweet this year was able to garner over 500 impressions. A total of 60 new followers were obtained since 2021.

Newsletter

The Circular X newsletter is sent on a quarterly basis through the Mailchimp application. Newsletters were sent in September 2021, December 2021, February 2022 and May 2022. The newsletters provide updates about progress in the project, collaborations, publications, and outreach, as well as interesting events. Subscription is possible through the website and there has been a continuous stream of new subscribers with 383 subscribers at the end of August 2022.

Website visits

Compared to last year, the Circular X website has gained 135% new users and a 60% increase in page visits this year.

PUBLICATIONS

Since the Circular X First Year Report in 2021, the project has published 7 new journal articles, 4 conference contributions and one book chapter.
Articles published during project Circular X:

Articles published during project Circular X

Bocken, N., Niessen, L., & Short, S. (2022). The sufficiency-based circular economy - An analysis of 150 companies. Frontiers in Sustainability. 3:899289 (open access).

Han, D., Konietzko, J., Dijk, M., & Bocken, N. (2022). How do companies launch circular service business models in different countries? Sustainable Production and Consumption, 31, 591-602 (open access).

Geissdoerfer, M., Savaget, P., Bocken, N, & Hultink, E. J. (2022). Prototyping, experimentation, and piloting in the business model context. Industrial Marketing Management, 102, 564-575 (open access).

Bocken, N. M. P., & Geradts, T. H. J. (2022). Designing Your Circular Business Model. Stanford Social Innovation Review, 20(2), 34–39 (open access).

Bocken, N., Harsch, A., & Weissbrod, I. (2022). Circular business models for the fastmoving consumer goods industry: desirability, feasibility, and viability. Sustainable Production and Consumption, 30, 799-814 (open access).

Snihur, Y., & Bocken, N. (2022). A call for action: The impact of business model innocation on business ecosystems, society and planet. Long Range Planning, In press (open access).

Das, A., Konietzko, J., & Bocken, N. (2021). How do companies measure and forecast environmental impacts when experimenting with circular business models? Sustainable Production and Consumption, 29, 273-285 (open access).

Conference contributions project Circular X

Coffay, M., Bocken, N. (2022). Sustainable By Design: A Tool for Organizational Design to Facilitate Sustainable Business Model Innovation. 7th International Conference on New Business Models, 22-24 June, Rome, Italy (pp. 503-510).

Das, A., Bocken, N., Konietzko, J. (2022) A Tool To Support More Sustainable Circular Business Models. 7th International Conference on New Business Models, 22-24 June, Rome, Italy (pp. 790-794).

Han, D., Bocken, N., Konietzko, J., Dijk, M. (2022). How do circular businesses scale up? 7th International Conference on New Business Models, 22-24 June, Rome, Italy (pp. 368-370).

Niessen, L., Bocken, N. (2022) A Sufficiency Business Database as a Tool to Drive Sustainable Business Models. 7th International Conference on New Business Models, 22-24 June, Rome, Italy (pp. 640-644).

Book chapters Circular X

Bocken, Nancy & Niessen, Laura & Tukker, A. (2021). Impacts of Consumption and the Role of Business. In: Brinkmann, R. (Ed.). "The Palgrave Global Handbook of Sustainability", Palgrave Macmillan, Cham.

TEAM AND VISITORS

Nancy Bocken is Professor in Sustainable Business at Maastricht Sustainability Institute, Maastricht University. She is also visiting professor at Lund University and Fellow at the Cambridge Institute for Sustainability Leadership. She is co-founder of HOMIE, a 'pay-per-use' business pursuing the circular economy. Nancy's research evolves around the broad field of Sustainable Business, including topics like sustainable business models, business experiments, Circular Economy, sufficiency, and closing the 'idea-action' gap in sustainability through novel tools and approaches. She is the Principal Investigator of Circular X which focuses on 'experimenting with circular service business models'.

Prof. Dr. Nancy Bocken
Principal investigator/ project lead

Ankita Das
PhD student

Ankita's research interests are on designing tools that can foster circular business experiments, balancing the environmental and social costs of circularity, and scaling circular business models to developing countries. She is originally from Odisha, India and has a BSc. (Hons.) in Zoology & Biochemistry. She moved to Europe in 2017 to pursue an Erasmus Mundus Joint Master's in Environmental Sciences, Policy & Management at three European Universities. Since then, she has worked in various roles; as a consultant for universities, research agencies, and UNIDO, and co-founded a circular water reuse start-up in Sweden. Under Circular X, her current research focuses on exploring how companies can forecast the environmental impact of their circular business model ideas, during the experimentation phase.

Ankita published her first journal paper in 2022:

• *Das, A., Konietzko, J., & Bocken, N. (2022). How do companies measure and forecast environmental impacts when experimenting with circular business models?. Sustainable Production and Consumption, 29, 273-285.*

Marc's main research interests are innovation and innovation policy, sustainability assessment and societal transformation. Currently he also works in an action-research project on Urban Living Labs experiments focused on learning and upscaling. He has published on innovation in electric mobility, urban mobility, solar energy and resource efficiency. He teaches an integrative approach to sustainability assessment & innovation. It combines the understanding of stakeholders (perspectives, practices, etc.) with systems analysis (Qualitative Systems Analysis, Life Cycle Analysis, etc.). In Circular X, Marc supervises PhD-students and is excited to contribute to circular services innovation.

**Honorable Research Associate at Oxford University (School of Geography and the Environment, Transport Studies Unit)*

Dr. Marc Dijk
*Assistant professor in Innovation & Sustainability at Maastricht Sustainability Institute at Maastricht University**

Deanna Han
PhD student

Deanna is a PhD student in circular business models under the ERC funded Circular X project at the Maastricht Sustainability Institute. Prior to her PhD studies, she completed a BSc in Chemistry at York University in Canada. In 2018, Deanna obtained an MSc in Carbon Management from the University of Edinburgh, finishing with distinction. Her dissertation was on exploring the role of stakeholders in circular entrepreneurship in Denmark. Since graduation, she co-founded a consultancy start-up that helps organizations mitigate their emissions through negative emissions technologies. In her current research, she explores the factors influencing circular service business model pilots in different countries and the strategies companies employ to adapt to these factors.

Deanna published her first journal paper in 2022:

- *Han, D., Konietzko, J., Dijk, M., & Bocken, N. (2022). How do companies launch circular service business models in different countries?. Sustainable Production and Consumption, 31, 591-602.*

Jan researches and supports organizations in their transformation towards sustainability and a circular economy. His mission is to develop knowledge and tools that facilitate positive environmental change. He has a Ph.D. from Delft University of Technology in Innovation Management for a Circular Economy, and a M.Sc. in Sustainability Economics and Management from Leipzig University. Within Circular X, Jan researches the innovation process for a circular economy in organizations. Next to his role at Circular X, Jan works as a Sustainability Consultant at Cognizant, where he leads the domain on circular economy. Jan has run various Circular X workshops, works on topics like regeneration and innovation processes, and has been co-supervising PhD students Ankita Das and Deanna Han.

Dr. Jan Konietzko
Research fellow

Laura Nießen
PhD student

Laura is a PhD student in businesses driving sufficient consumption under the ERC funded Circular X project at the Maastricht Sustainability Institute. Her background is interdisciplinary with a BA in European Studies and an MSc in Environmental Studies and Sustainability Sciences. Previously, Laura worked on circular economy research and policy in Ireland, providing support for research and circular economy business development. Her PhD research investigates how businesses can drive sustainable consumption through sufficiency-based approaches.

Laura presented and (co-)published the following work in her second PhD year:

- *Bocken, N., Niessen, L. & Tukker, A. (2021). Impacts of Consumption and the Role of Business. In: Brinkmann, R. (Ed.). "The Palgrave Global Handbook of Sustainability", Palgrave Macmillan, Cham.*

- *Bocken, N., Niessen, L., & Short, S. (2022). The sufficiency-based circular economy - An analysis of 150 companies. Frontiers in Sustainability. 3:899289 (open access).*

- *Niessen, L., Bocken, N. (2022) A Sufficiency Business Database as a Tool to Drive Sustainable Business Models. 7th International Conference on New Business Models, 22-24 June, Rome, Italy (pp. 640-644).*

Myrthe is deeply motivated to find multi-stakeholder solutions to pressing sustainability challenges. Through her PhD, she specialized in boundary work, sustainable business model innovation and the circular economy. She developed the boundary tool, which helps professionals to engage in the collaborative shaping, shifting and redesign of organizational boundaries for sustainable business model innovation. Myrthe also conducts applied research on circular business innovation in the multidisciplinary research group on circular transitions at Fontys University of Applied Sciences. In Circular X, she focuses on multi-actor experimentation for circular service business models.

Myrthe Velter
Research fellow

Myrthe led the following joint publication:

- *Velter, M., Bitzer, V., Bocken, N., & Kemp, R. (2021). Boundary work for collaborative sustainable business model innovation: The journey of a Dutch SME. Journal of Business Models, 9(4), 36-66.*

Dr. Sam Short
Visiting researcher

Sam Short holds a PhD in industrial sustainability (University of Cambridge), an MBA, and an MEng in manufacturing, and has extensive international business experience. He is currently working with business start-ups in green mobility and the built environment, and as a freelance business consultant. He is also a mountaineer and climbed the seven summits, the highest mountain on each of the seven continents – including Mount Everest. Sam published one of the first doctoral theses on Sustainable Business Models, and co-wrote the highly cited articles on 'sustainable business model archetypes' and the 'value mapping tool'. He is interested in bridging theory and practice and will contribute to the research and tools for project Circular X.

Sam collaborated on the following joint Circular X publication:

- *Bocken, N. M., Niessen, L., & Short, S. W. (2022). The Sufficiency-Based Circular Economy An Analysis of 150 Companies. Frontiers in Sustainability, 3 https://doi.org/10.3389/frsus.2022.899289*

He also supports the supervision of Circular X Master theses.

Matthew Coffay is a PhD candidate in sustainable business model innovation at Western Norway University of Applied Sciences in Bergen, Norway. His doctoral research centers around the development of tools, techniques, and strategies that firms can leverage to innovate on their business models and achieve dramatic improvements in sustainability and circularity. Before beginning his doctoral research, Matthew worked as a business development and marketing consultant for startups, SMEs, and tech companies. He was also the owner and operator of an organic farm, and is passionate about regenerative practices in agrifood.

Matthew Coffay,
PhD student, visiting researcher

Matthew led the following joint publication:

- *Coffay, M., Bocken, N. (2022). Sustainable By Design: A Tool for Organizational Design to Facilitate Sustainable Business Model Innovation. 7th International Conference on New Business Models, 22-24 June, Rome, Italy*

He also supports Circular X experimentation workshops and is involved in the development of new tools such as "Sustainable by Design".

CONTACT DETAILS

Are you a business and are you interested in the Circular X research agenda and do you fit the Circular X core sectors (food, mobility, energy-using appliances, housing/ construction)? Do you want to serve as a Circular X case study? Are you a researcher with a clear research idea related to Circular X? Do you have any other queries related to the Circular X project?
Please contact us at: info@circularx.eu

The Circular X team is based at Maastricht Sustainability Institute (MSI), School of Business and Economics, Maastricht University, Tapijn 11-D, P.O. Box 616, 6200 MD Maastricht, The Netherlands. The project lead Prof Dr Nancy Bocken can be contacted at: Nancy.Bocken@maastrichtuniversity.nl

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