



## Circular Economy Business Modelling: CIRCit Workbook 2

Pieroni, M. P. P.; Jensen, T. Hjort; Pigosso, D. C. A.; McAloone, T. C.

*Publication date:*  
2020

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*  
Pieroni, M. P. P., Jensen, T. H., Pigosso, D. C. A., & McAloone, T. C. (2020). *Circular Economy Business Modelling: CIRCit Workbook 2*. Technical University of Denmark.

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# Circular Economy Business Modelling **2**

A CIRCit Workbook

1

**Circular Economy Sustainability Screening** A support for decision-making through the sustainability screening of alternative circular solutions in terms of environmental, social and business potential. e-ISBN: 978-87-7475-601-9

2

**Circular Economy Business Modelling** A guide to the creation of circular business models based on a step-by-step approach, best practice and success cases. e-ISBN: 978-87-7475-603-3

3

**Circular Product Design and Development** An approach to assess product circularity and a set of circular design guidelines for early product development. e-ISBN: 978-87-7475-605-7

4

**Smart Circular Economy** A look at how digitalisation and smart products can play a role in facilitating the transition to a Circular Economy. e-ISBN: 978-87-7475-607-1

5

**Closing the Loop for a Circular Economy** An assessment tool and guidelines to support the identification of the best circular strategy for products at end-of-use. e-ISBN: 978-87-7475-609-5

6

**Collaborating and Networking for a Circular Economy** An approach to support circular value chain configurations, seeking innovation through collaboration. e-ISBN: 978-87-7475-611-8

## What are we exploring in this workbook?

This workbook provides a step-by-step approach and tools to support the creation of sustainable circular business models, based on a company's position in the value chain, current and new products & services, best practice, success cases, and the company's strategic goals. Questions that the workbook will help you to answer include: How ready are the internal business capabilities of your company, to enable the implementation of new concepts and pilot new business forms that are not based on single-transactional product sales? And how can your company conceive, develop and implement new Circular Economy business models?



## In this workbook

<b>Introduction to Circular Economy</b> .....	<b>5</b>
What is Circular Economy .....	5
How to make the transition .....	8
<b>Introduction to CIRCit</b> .....	<b>9</b>
<b>Business Model Innovation for Circular Economy</b> .....	<b>11</b>
Benefits of business models for Circular Economy .....	13
<b>1 What's in it for my business?</b> .....	<b>16</b>
Activity 1: Understand where you are .....	19
Activity 2: Analyse change drivers .....	23
Activity 3: Define where to go .....	27
Activity 4: Consolidate a vision .....	35
<b>2 What will the new business model(s) look like?</b> .....	<b>38</b>
Activity 5: Conceptualise the Circular Economy business model .....	43
Activity 6: Configure a complete business model concept .....	48
Activity 7: Improve and optimise .....	53
Activity 8: Experiment and orchestrate collaborations .....	56
<b>3 How to plan for the transformation and scale-up?</b> .....	<b>61</b>
Activity 9: Make the new business model happen .....	63
Activity 10: Trigger and guide the organisational renewal .....	64
Activity 11: Improve and innovate continuously .....	66
<b>What now?</b> .....	<b>69</b>
<b>References</b> .....	<b>70</b>
<b>Acknowledgements</b> .....	<b>71</b>



### Circular Economy Business Modelling

A workbook in the CIRCit Series

**CC-BY-ND** 2020 Technical University of Denmark (DTU). Unless otherwise stated, in specific graphical material.

Authors: Marina de Pádua Pieroni, Thomas Hjort Jensen, Daniela C.A. Pigosso, Tim C. McAlloone

Sponsor: Nordic Green Growth Initiative – NordForsk, Nordic Innovation, Nordic Energy Research

Design: Thomas Hjort Jensen

Cover Picture: Olga Lele/Adobe Stock

Photos: Sven Read, Nick Jio, Marina de Pádua Pieroni

Published: Technical University of Denmark (DTU)

Printed: KLS Pureprint A/S

Print Volume: 400

March 2020, 1<sup>st</sup> Edition.

e-ISBN: 978-87-7475-603-3

Citation data: Pieroni, M.P.P., Hjort Jensen, T., Pigosso, D.C.A., McAlloone, T.C. (2020) 'Circular Economy Business Modelling: CIRCit

Workbook 2', ISBN: 978-87-7475-602-6, Technical University of Denmark, 72 p.

E-book version and more information at [www.circitnord.com](http://www.circitnord.com)



## Introduction to Circular Economy

### What is Circular Economy?

Circular Economy is a concept, based on the principle of decoupling value creation from resource consumption. The basic idea of Circular Economy is to move away from the so-called linear mindset, where value creation is based on the 'take-make-use-dispose' dogma.

Circular Economy has the potential to achieve maximum value by increasing resource productivity, enhancing energy efficiency, lowering resource consumption and decreasing waste. To do this, we should continue to extract value from resources for as long as possible, by extending their productive lifetimes. This means, for example, increasingly enjoying product and service offerings that are not necessar-

ily based on one-time ownership, and not necessarily based on single-lifetime products.

On first thought, many might equate Circular Economy to recycling of old and used products and materials. And indeed, *material recirculation* is a possibility, whether it be via recycling, cascading or recovering. Alternatively, and more valuable again, one could consider *product recirculation*, by applying tactics such as upgrade, repair & maintenance, reuse or remanufacturing. Even greater potential could also be achieved, by rethinking whole new ways of generating value, via integrated product/service business approaches, shared-access products, or new service offerings for long life products.



Achieving a Circular Economy requires a fundamental shift in mindset through business model, product design, support of the active product life cycle and closing the product loop, when the user no longer has a need for it. At the core of a Circular Economy lies collaboration, within and across value chains and with different societal stakeholders than we've maybe been used to.

And there's no use being circular, if the outcome is less sustainable than the starting point. Therefore we need to be able to estimate the sustainability benefits and drawbacks of our actions.

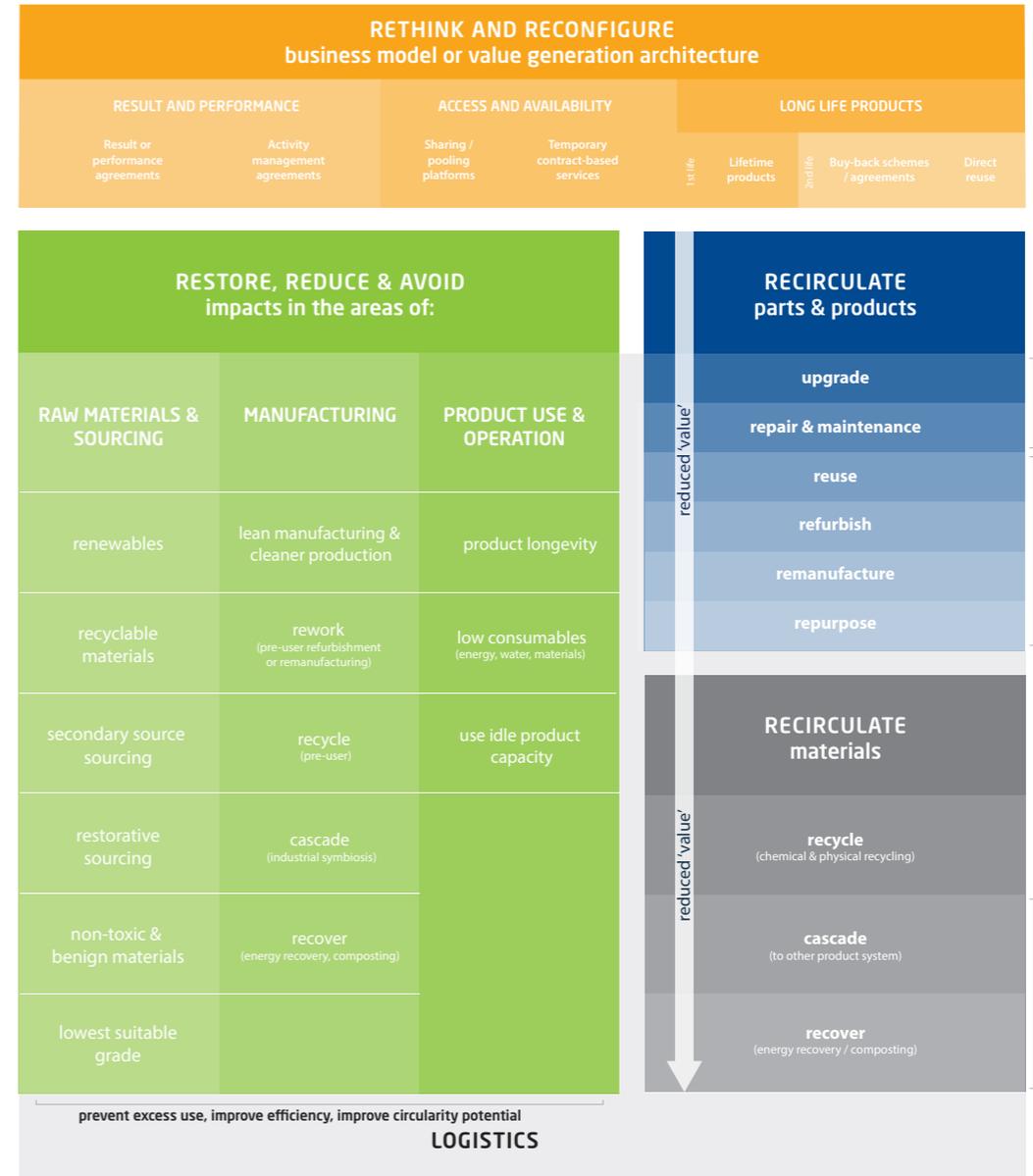
For many companies, there will be obvious low-hanging fruits, such as reduction of single-use packaging

in the production facility, or making small design changes to the product, to ease its disassembly at end-of-life. But for most, there will be a necessity to re-think the way in which business is done, materials and components are sourced, and new types of solutions are developed and marketed, in order to achieve maximum value and circularity from the resources used.

The good news is that there are increasing numbers of examples, in all types of business sectors and within civil society, in general. Circular Economy is a movement that is currently under rapid development, and the many necessary components to shift our mindset from a linear to a circular economy are increasingly manifesting themselves.

change of paradigm

**REINVENT**  
strive for full decoupling



The **Circular Strategies Scanner** can help you to map which strategy or strategies are already being implemented by your company and to identify opportunities of complementary strategies to maximise the value created for as fewer resources as possible. We will refer to this Scanner throughout the six workbooks.



photo Nick Jio, Unsplash

### How to make the transition

The basic concept of Circular Economy is easy to grasp for many. It is appealing from a business perspective, as it connects good business sense to good environmental stewardship. After all, which business would not like to reduce the consumption of cardboard boxes in internal production shipping; fully utilise its logistics capacity; or make its product easier to produce, maintain and upgrade?

The tricky part for many companies, however, is in knowing which steps to take first. How ready is your customer and the market in general, to embrace circularity and what role can your company play? Are there drivers or barriers to be found in the way in which regu-

lations are composed in your area of operation – and if so, are there ways of exploiting the drivers or removing the barriers? Should we design the product for upgrade, or should we develop a new business for leasing? Should we make a new partnership for materials sourcing, or should we be better at monitoring our product in-use? As with many new phenomena and business trends, it is often easier to admire and envy the existing good case examples than it is to actually get started on the journey within one's own business.

This workbook is one in a series of six proposed areas to begin the transition to a Circular Economy.



Circular Economy Sustainability Screening



Circular Economy Business Modelling



Circular Product Design and Development



Smart Circular Economy



Closing the Loop for a Circular Economy



Collaborating and Networking for a Circular Economy

## Introduction to CIRCit

The CIRCit research project was a 3½-year research project, spanning the five Nordic countries, Denmark, Norway, Finland, Iceland and Sweden. Using a number of action research methods, CIRCit's objective was to support the Nordic industry to discover and implement the opportunities of Circular Economy, through the development, testing and implementation of science-based tools.

The project spanned six main areas, corresponding to the workbooks that you are currently reading, as follows.

### Circular Economy Sustainability Screening

This workbook supports decision-making by providing sustainability screen-

ing of alternative circular solutions in terms of environmental, social and business potential.

### Circular Economy Business Modelling

This workbook supports the creation of circular business models, based on a step-by-step approach, best practice and success cases.

### Circular Product Design and Development

This workbook presents an approach for assessing product circularity in the conceptual design stage, plus practical design guidelines to support early product development decisions.

### Smart Circular Economy

This workbook helps to evaluate how digitalisation and smart products can play a role in facilitating the transition to a Circular Economy.

### Closing the Loop for a Circular Economy

This workbook provides an assessment tool and guidelines to support the identification of the best circular strategy for products, taken back at end-of-use.

### Collaborating and Networking for a Circular Economy

This workbook presents an approach to support various circular value chain configurations, seeking innovation through stakeholder collaboration.

## Business Model Innovation for Circular Economy

A business model for Circular Economy translates how a business creates, delivers, and captures value to contribute to resource efficiency and effectiveness.

Business models for Circular Economy explore multiple types of economic and stakeholders' values along the product life cycle. This gives rise to new business opportunities, such as extending the useful life of products through upgrade, maintenance, repair, or remanufacturing services; closing material loops through recycling services or trade of by-products and adding new services for optimisation of operations, through sharing instead of owning.

Examples of Circular Economy business models are emerging in a range of markets, from Business-to-Consumer (B2C), through Business-to-Government (B2G), to Business-to-Business (B2B). Depending on the market characteristics, the sector of application, or the type of products, different solutions or business model configurations can be adopted, as described in the examples on the next page.

This workbook aims to guide you in exploring and designing suitable configurations of business models for your company, in order to obtain environmental soundness and business profitability.

## Circular Economy business model configurations

### Example 1

Philips offers *light as a service* to buildings (e.g. airports, hospitals). Customers pay for the light they use, and Philips retains ownership of all installations. Philips and partners take full responsibility for the performance and durability of the system, including monitoring of energy consumption (up to 50% reductions achieved) and reuse or recycling of installations at end-of-life.

Source: Knowledge Hub (2018)

### Example 2

Circos, Hulaaloo and Vigga are examples of companies offering subscription to baby clothing. Customers pay per use of single items or packages containing a number of items. When the babies grow out of the clothes, subscribers can swap them for a bigger size. Estimated savings are up to 80 % on resource use, plus lower costs for the subscriber.

Source: de Pádua Pieroni et al. (2018)

### Example 3

RePack is a Finnish company, offering reusable packaging for online retail. At check-out on webstores, customers are offered the option to use RePack and a small deposit is charged. After having received their order, customers can return the RePack, free-of-charge through the regular postal system, and receive the deposit back. The packaging is designed to be used up to 20 times, and the return rate of packaging is estimated to be 60%.

Source: de Pádua Pieroni et al. (2018)

## Benefits of business models for Circular Economy

Circular Economy business models are particularly beneficial for producers and shareholders due to:

- direct increase in revenues with new services and offerings
- penetration of new market segments and scopes
- long-term customer relationship
- cash flow predictability with recurring income
- savings with operational efficiency (e.g. reduced downtime)
- potential savings of raw materials
- reduction of resource consumption
- generation of new jobs.

Circular Economy business models rely on an ecosystem of partners to enable the value generation, including customers and suppliers. Hence, benefits for different stakeholders shall be explored.

### Potential benefits for customers

Examples of how customers can benefit from Circular Economy business models include:

- enhanced affordability with reduced prices (e.g. 25%-50% of original offering price) or eliminated up-front investment
- reduced operational costs
- budget predictability
- controlled risks
- compliance with environmental legislation
- flexibility
- convenience through less space or time and skills required for specific activities (e.g. installation, buying clothes)
- knowledge and expertise
- single point of accountability with measurable and consistent service

levels

- frequent access to new releases and upgrades.

### Potential benefits for other partners

Examples of how partners can benefit from Circular Economy business models include:

- brand enforcement, marketing, and visibility
- new sources of revenue and market scopes
- enhanced competitiveness through enlarged know-how and skills
- additional jobs
- compliance and reduced environmental impact of operations
- sharing of risks and transparency in the value chain.

### This workbook

This workbook provides an overview of how to plan for changing business models towards Circular Economy. It takes an organisation-centric approach, with manufacturers leading the process. After the application of the process and tools available in the workbook, a complete reconfiguration of the ecosystem is recommended (see approach available in Workbook 6).

The workbook provides the reader with the means to conduct a three-stage process for rethinking and reconfiguring business models for Circular Economy. The process intends to clarify what are the opportunities for Circular Economy and how and when to seize them with viable and feasible business models.

### Expected outcomes

- Insight into business opportunities and value propositions for Circular Economy
- Insight into how the new proposed business model(s) will work, including simulations of economic and resource decoupling potential
- Consolidation of the needed actions in a roadmap that outlines short term experiments and pilots, as well as activities with a longer-term outlook for scaling up.

### Before starting

#### Activate the sponsors' mindset

Engage and prepare the leadership of your company with a Circular Economy mindset, by reframing beliefs and questioning the status-quo of linear assumptions. Get their commitment to

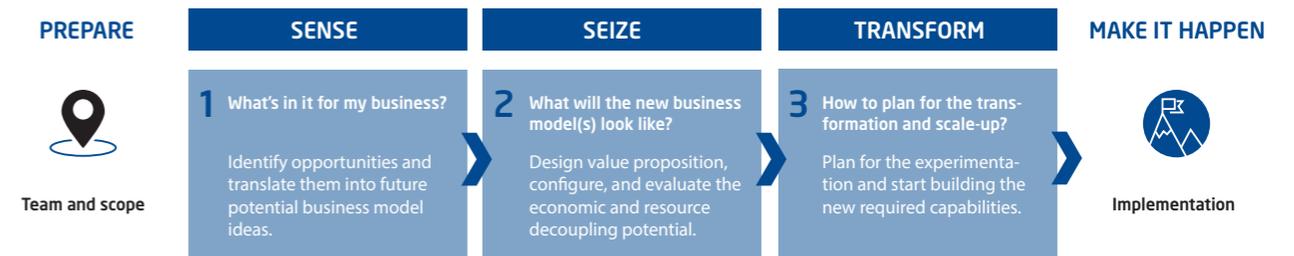
the process, by establishing governance and pre-defining roles, as follows.

#### Empower a facilitator for the process

This role will require time for adapting and preparing tools, and ability to act throughout different levels and departments of the organisation, to engage people, collect data, and make informed decisions.

#### Get a team of champions on-board

Engage a cross-functional innovation team as soon as possible and align the level of knowledge about Circular Economy. In more advanced stages, external stakeholders, such as trusted customers or suppliers, could also be engaged for co-creation.



### Start small and set a scope

For the best outcomes, limit the scope to one offering at a time (i.e. product/service category). In the CIRCit project, companies applied different criteria to base their choices of initial scope for exploration, e.g. products with more significant market representativeness, products with lower regulatory control in early design and market exploration stages, offerings related to future strategy (e.g. new products/services; new critical customer needs).

### Make decisions and iterate

Along the stages, make decisions to move forward, focusing on the top business model ideas. As you validate assumptions and obtain new insights, review and refine the previous activities.

### What to expect next?

The following sections of this workbook provide a detailed explanation of how to carry the process in your organisation.

Two formats of tools are available:

- Interactive paper-based templates: recommended to facilitate workshops and meetings
- Digital tool, Circular Economy Business Model (CEBM) Configurator: recommended as support for the facilitator.

Variations are available in the CEBM Configurator for six sectors: Heavy Machinery, Electronics, Medical Devices, Furniture, Textiles, and Food.

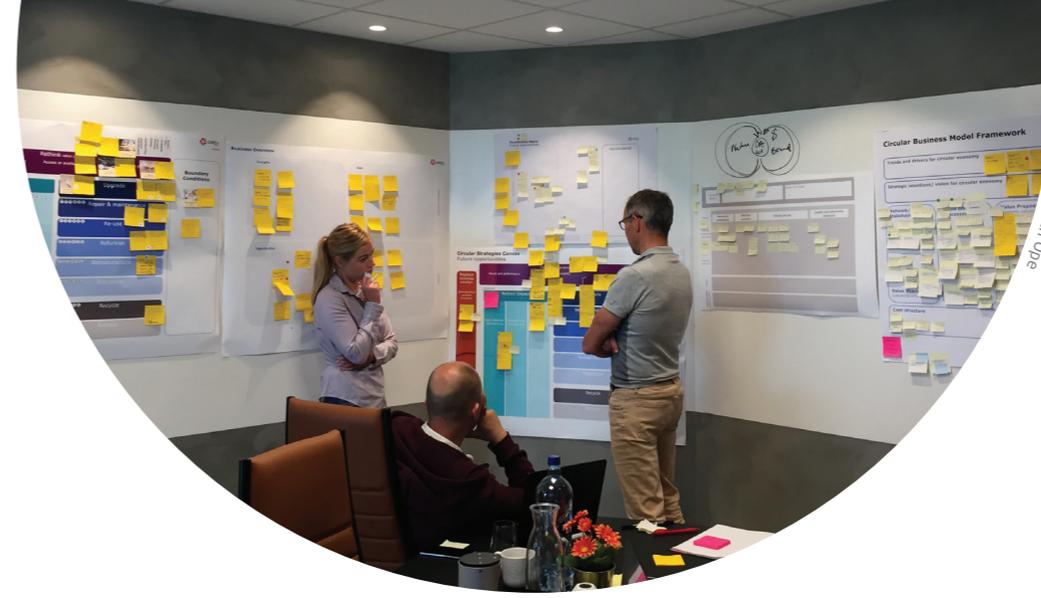


Photo Workshop with Open

# 1 What's in it for my business?

Configuring and implementing business models for Circular Economy requires a matching of opportunities in the business ecosystem with the intentions and strategy of each organisation. The process starts with understanding what types of Circular Economy business models make sense for your organisation.

To identify business opportunities for Circular Economy, drivers and barriers must be explored internally and externally. Internally, it is essential to map Circular Economy initiatives in the existing business model(s). Externally, it is important to analyse the business ecosystem and identify drivers for change and critical aspects influencing

the development of Circular Economy business models.

After that, it is time to translate the identified opportunities into realistic business model ideas, prioritised according to the company's purpose and systemic vision for Circular Economy.

### Who to involve

Stage 1 requires input from a range of perspectives from across your company, such as Procurement, Business Strategy & Development, Research & Development, Sales, Marketing, Operations & Logistics, After-Sales or Services, Digital Technologies, Finance, Legal, Corporate Social Responsibility.

### How to involve

It is recommended that all participants start and follow the process, step-by-step. If you already have a clear idea of a business model concept with a defined value proposition, consider skipping to stage 2.

### Suggested time plan

The suggested time plan would allow for conducting the workshop activities of stage 1 in a single day.

### Self-preparation for the facilitator

CIRCit materials (available on website):

- *Digital Tool: Circular Economy Business Model Configurator*
- *Print-outs of information sheets and offering cards*

### Stage 1 - Time Plan

- 9:00 **Welcome & introduction**
- 9:30 **Understanding where you are**
- 10:30 **Analysing change drivers**  
*Incl. BREAK as needed*
- 12:00 **LUNCH**
- 13:00 **Define where to go**  
*Incl. BREAK as needed*
- 15:30 **Consolidate a vision**
- 16:30 **Feedback and next steps**
- 17:00 **Close**

- *Cards for Circular Economy Trends and Business Model Patterns*
- *Printouts of templates [size]*
  - Circular Strategies Scanner [A0]
  - SWOT Matrix [A0]
  - 10x - Circular Economy Business Model Configurator [A3]
  - Circular Economy Business Model Innovation Roadmap [A0]

### Other infrastructure & materials:

- Ample room to hang posters side-by-side and with projector
- Flip chart paper
- Markers in different colours
- 76 mm x 76 mm sticky notes of various colours
- Small red, green, and white stickers

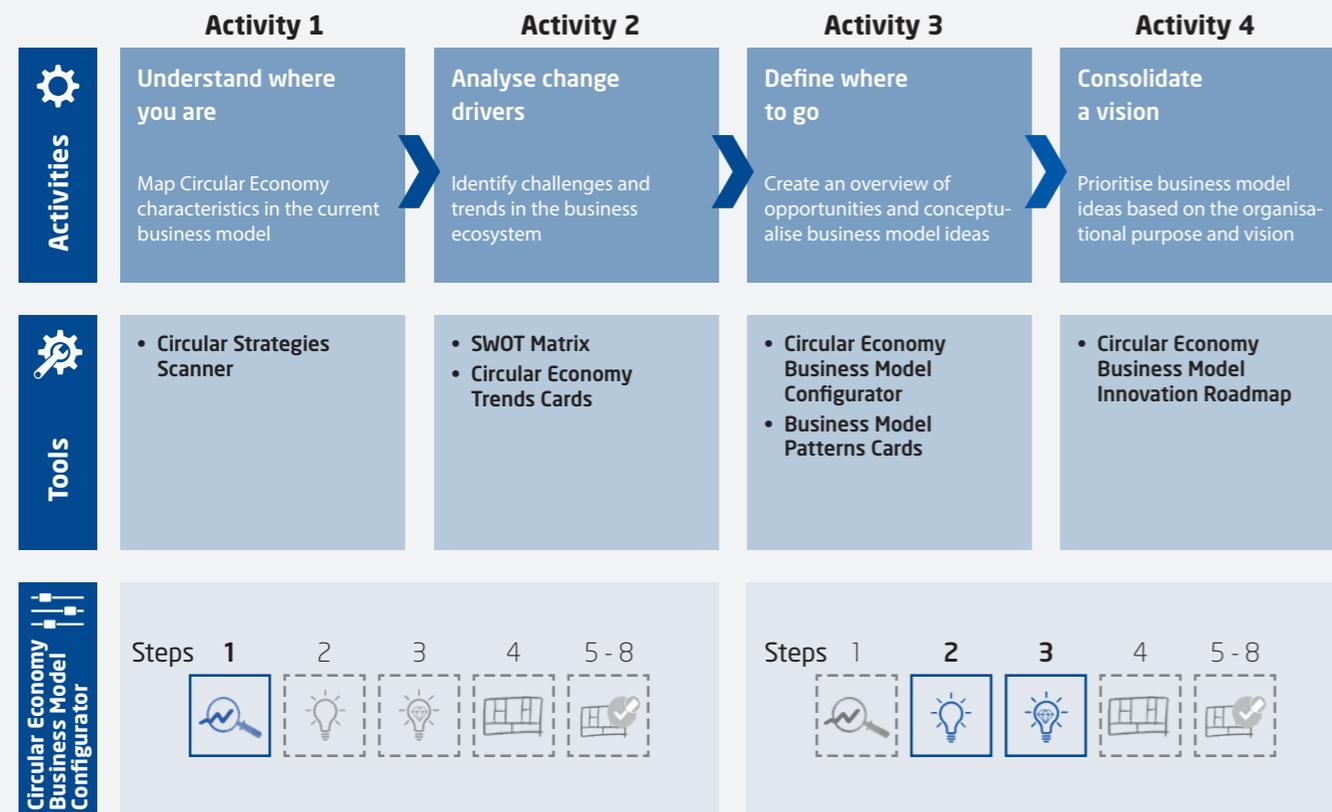
### Circular Economy Business Model (CEBM) Configurator:

The facilitator can use the digital tool to support stage 1:

- *Before the workshop (1-4 weeks), for self-preparation, in order to find information and structure arguments to support the discussions and decisions during the workshop.*
- *During or after the workshop, for documenting assumptions and decisions that can support meetings for engagement or validation with internal stakeholders.*

## Stage 1: SENSE

Activities for determining “What’s in it for my business?”



### Activity 1: Understand where you are

Mapping characteristics of Circular Economy in the current business model

The first activity in this stage is to **get insight on how the existing business model works. The *Circular Strategies Scanner* tool maps existing contributions to different Circular Economy strategies.**

#### What will the results be?

- Shared understanding about the current business model and its potential Circular Economy characteristics
- Opportunities for enhancing value generation for Circular Economy.

#### What is needed?

Data/ Information

- An overview of the company’s existing business model and value proposition(s).

Time

- Preparation & organisation: 1 hour
- Activity: 1 hour to create an initial scan of strategies; 2 hours for more details or larger groups
- After: if needed, reserve additional time to create a digital version for communication purposes.

#### Benefit from the CEBM Configurator

If time is limited to engage a large group of participants, pre-collect information and pre-fill the interactive tools. Step 1 of the CEBM Configurator tool has a structured questionnaire that works as a checklist of topics to consider, when characterising challenges and opportunities.

#### Tips for facilitation

- Carefully consider the scope before engaging in this activity. If you choose a broad scope, such as a business unit or the organisation, many products and business models could be in place, which makes it difficult to focus. Select fewer or single business models.
- Take pictures of the poster after filling it in, to facilitate the creation of the digital version. A *template in Excel* for documentation of results is available on the CIRCit website, [www.circitnord.com](http://www.circitnord.com).

APPROACH

Steps to complete the Circular Strategies Scanner:

Information Sheets

**Information sheet to describe existing business models**

**Step 1.A**  
Commercial model(s):  
Lifetime of related products (on average):  
Extension by how much with services:  
Synergies in between offers/other businesses:  
Key partners and suppliers:  
Enablers:

**Step 1.D**  
Representativeness (% income or profit):

**Market share:**

- Are you leading in this segment? What position?
- Key customer segments
- regions
- Competitors

a. Selected business model

Use the Information Sheets to describe the key characteristics of the selected business model(s) (one sheet per business model). Indicate the unit of analysis, e.g. the business model, or business unit.

b. Identify circular strategies

Use sticky notes to map how the existing business model(s) relates to the strategies. In terms of value propositions, products or services, partnerships, activities, and commercial model. Select different colors to represent different offerings or business models.

c. Implementation level of the circular strategies

Identify and mark to which extent the company has implemented each mentioned strategy, by checking the circles (scale 1-6) on the top-right part of each block. If different strategies in each block or for different business models present different levels of implementation, identify each sticky note individually.

d. Estimate the representativeness of offerings

If you decided to explore more than one business model, estimate and register the representativeness and market share of each one on the Information Sheets.

Circular Strategies Scanner

Current business model scan

- ① Understanding potential
- ② Planning pilot
- ③ Piloting
- ④ Planning scale-up
- ⑤ Scale-up
- ⑥ Fully running

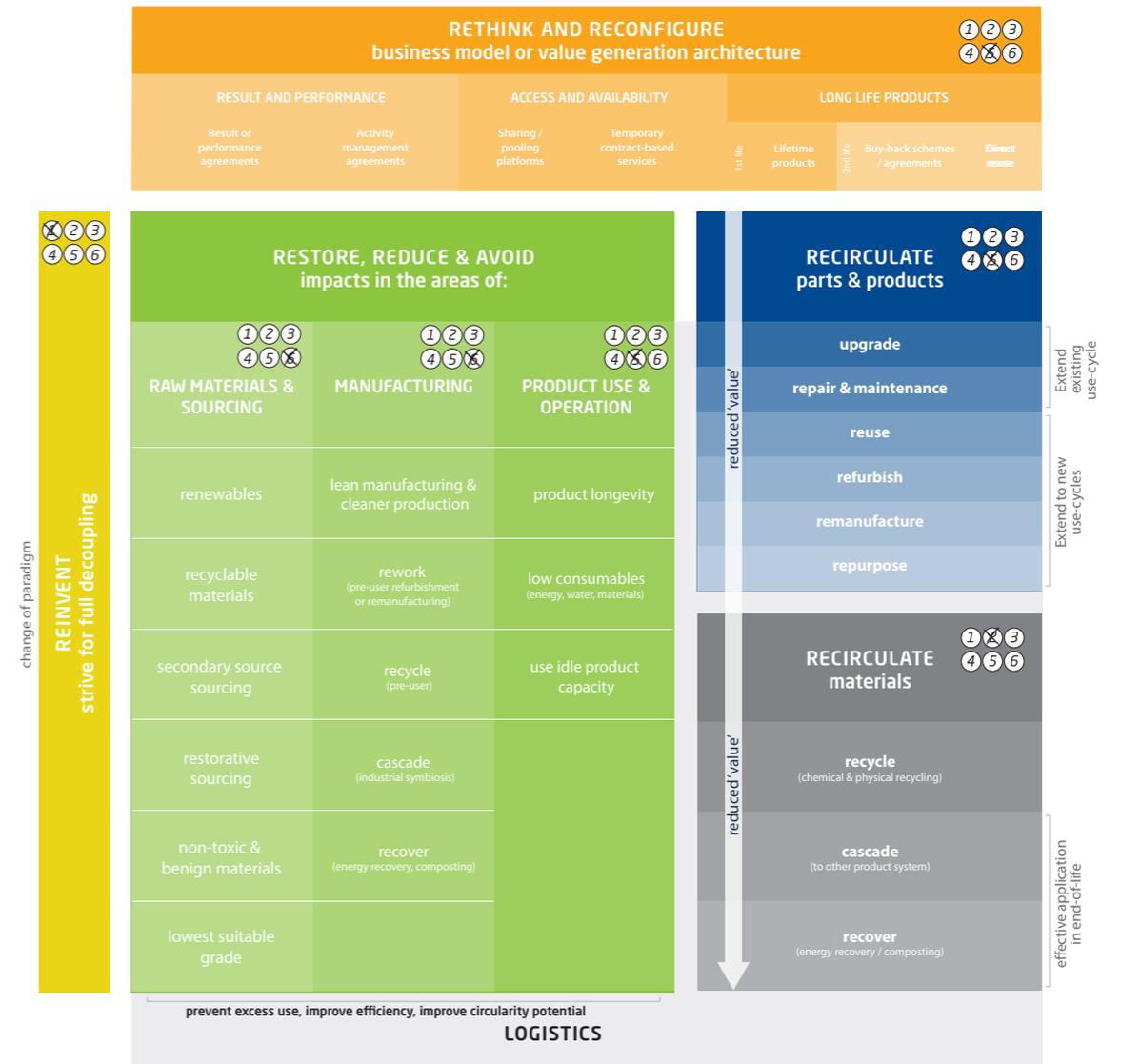




Photo workshop with Danlec Marine management team

## Activity 2: Analyse change drivers Identify challenges and trends for Circular Economy in the business ecosystem

With this activity, you gain insight into drivers for change and critical aspects influencing the configuration of business models for Circular Economy, internally or externally to the organisation.

### What will the results be?

- Internal and external aspects acting as challenges or drivers for Circular Economy business models
- Critical aspects influencing future Circular Economy business models.

### What is needed?

Data/ Information

- Map of Circular Economy characteristics for existing business model(s)
- An overview of trends in the business ecosystem.

Time

- Preparation & organisation: 1 hour
- Activity: 1h30 hours to create a basic mapping; 2+ hours if more detail is needed
- After: if needed, reserve additional time to create a digital version.

### Tips for facilitation

- Position the posters of *Circular Strategies Scanner* and *SWOT Matrix* side-by-side
- Provide examples for your sector to support in identifying potential opportunities and threats for Circular Economy
- If time is limited, ask participants to search for information to fill in the SWOT matrix previously to the workshop. Use the Circular Economy

Trends Cards as a checklist of topics for the search.

#### (i) Market

- New needs from customers
- Market changes (e.g. new customers, segments, or sectors)

#### (ii) Industry & Business Ecosystem

- Competitors
- Suppliers & value network
- Cross-collaboration

#### (iii) PESTEL Trends

- Political (e.g. change in government)
- Economic (e.g. financial instability)
- Social (e.g. collaborative consumption)
- Technological (e.g. digital technologies)
- Environmental (e.g. best practices)
- Legal (e.g. safety legislations, policies)

APPROACH

**Steps to complete the SWOT Matrix and Circular Economy Trend Cards:**

**a. Analyse strengths and weaknesses in existing business model**

Register strengths and weaknesses of the existing business model(s) on the corresponding blocks of the *SWOT Matrix* poster, consolidating similar notes. Include strengths and weaknesses from a Circular Economy perspective. Remember to follow the colour coding applied in Activity 1, selecting different colours of sticky notes to represent different business models or offerings.

**b. Analyse future opportunities and threats**

Ideate about future opportunities and threats potentially affecting the implementation of Circular Economy business models. Use the *Circular Economy Trends Cards* to prompt discussion. Register the opportunities and threats on sticky notes, following the colour coding.

**c. Establish priorities**

Identify the most critical aspects on the *SWOT Matrix* or *Circular Strategies Scanner* to establish priorities for the generation of Circular Economy business model ideas. Critical aspects might envision lower hanging-fruits or topics that require urgency in addressing, e.g. customers requiring end-of-life services such as possibility of reusing or refurbishing the products. Highlight prioritised aspects with red stickers.

**SWOT Matrix**

Business overview and challenges for Circular Economy





Photo Workshop with Lillelam management team

### Activity 3: Define where to go Create an overview of opportunities and conceptualise business model ideas for Circular Economy

This activity explores how new business models for Circular Economy can be configured for your company's context, while addressing the critical aspects identified in previous activities.

#### What will the results be?

- Mapping of potential Circular Economy business model ideas for your company
- Detailed Circular Economy business model ideas, with a description of initial value propositions.

#### What is needed?

Data/ Information

- Critical aspects (i.e. 'hotspots') for configuring Circular Economy business models

- Insight of stakeholders' needs and values.

Time

- Preparation: 2-4 hours to explore/ select the relevant case examples
- Activity: 2.5 hours for a basic exploration, 3+ hours for details
- After: additional time for reporting and communication of the results.

#### Benefit from the CEBM Configurator

The Steps 2 & 3 of the *CEBM Configurator* tool can support with: (i) suggestion of solution patterns; (ii) inspirational cases for benchmarking; (iii) recommendations about combinations of solution patterns, based on success cases. Detailed explanations of Steps 2 & 3 are available in the tool.

#### Tips for facilitation

- Brainstorm ideas of Circular business models, documenting them in the paper-based or digital version of the *CEBM Configurator*
- Translate the idea or principle from the case examples to your company's context
- Create holistic business model ideas, envisioning both upstream and downstream solution patterns
- Identify synergies among ideas
- Identify core actors for your idea.

APPROACH

**Steps to complete the Circular Economy Business Model Configurator:**

**a. Identify opportunities**

Brainstorm individually and freely about opportunities for Circular Economy business model(s). Then, to inspire ideation, distribute the *Circular Economy Business Model Patterns Cards*. Screen the cards individually, selecting the relevant ones. Share the selected opportunities and build on each others' ideas.

**b. Make sense of opportunities and translate them into ideas**

Adapt the business model patterns selected in the previous task to the company's context. Start with the downstream patterns, adding spe-

cific information about key actors that could benefit from the opportunity, the value proposition that could be offered to the key actors, and the benefits for key actors and the system.

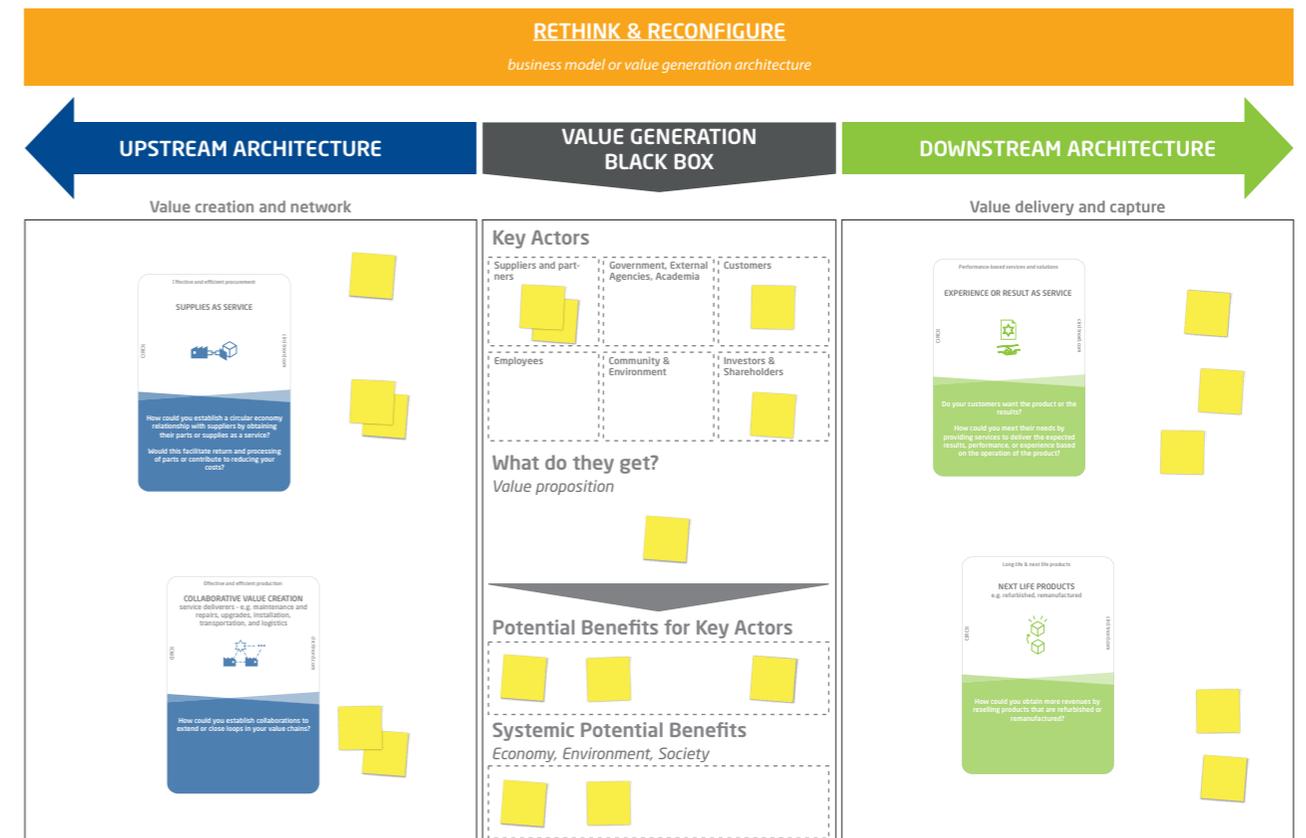
Take notes and place them on the *Business Model Configurator Template* (middle block on the poster). Combine solution patterns from the downstream (right side of the poster) with the upstream blocks (left side of the poster). Use one template per idea or value proposition, and create as many ideas as needed.

**c. Match business model ideas and critical aspects**

To guarantee that the proposed Circular Economy business model ideas are aligned with the organisational strategy and business ecosystem needs, analyse if they are able to address the critical aspects identified in Activity 2. If not, repeat the ideation and improve ideas to match the critical aspects.

**Circular Economy Business Model Configurator**

Combine different solution patterns to configure new business models



### **Database of Business Model Patterns for Circular Economy (generic version)**

The database contains a comprehensive set of suggestions of how to change business models for Circular Economy with a generic perspective.

Screen through the Patterns Cards or check the *CEBM Configurator* digital tool to understand how to choose patterns according to:

- Type of product (e.g. durable goods, parts, consumables, bio-products)
- Sector (e.g. furniture, medical devices, agriculture & food)
- Market segments (e.g. business-to-customer, business-to-business).



## UPSTREAM ARCHITECTURE

Value creation and sharing with the network

### Effective and efficient procurement



#### Circular supplies

- biodegradable or bio-materials
- recovered and previously used materials
- recycled or recyclable material



#### Industrial symbiosis



#### Assets as service



#### Supplies as service

### Effective and efficient production



#### On-demand



#### Service delivery and support for life-extension activities

e.g. maintenance, repairing, upgrading, refurbishing



#### Sales of recovered products, parts or materials



#### Local manufacturing

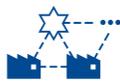


#### Own reverse operations for

- reusing or refurbishment
- remanufacturing
- recycling process



#### Development and management of digital technologies and services



#### Collaborative value creation

- Service deliverers – e.g. maintenance and repairs, upgrades, installation, transportation, and logistics
- Digital deliverers – e.g. marketplaces, platforms
- Financial solutions partners – e.g. insurance, investors, banks
- Reprocessors and redistributors – e.g. re-commerces, collection, cleaning, refurbishment
- Transformation or recycling technology, facilities, alliances, clusters, and platforms
- Waste management, haulers, and scrap dealers

## DOWNSTREAM ARCHITECTURE

Value proposition, delivery, and capture

### Digital service packages and dematerialised solutions



#### Tracking and tracing products, consumables, and materials



#### Maintenance management and prediction



#### Management of operational efficiency



#### Consumption rationalisation or demand reduction



#### Digital products

### Performance-based services and solutions



#### Function as service

- in customisable time-based contracts
- per subscription



#### Activities management solutions



#### Experience or result as service

### Access to products as services



#### Products as collaborative service in

- pooling platforms
- sharing platforms based on transaction fee
- sharing platforms with listing fee
- sharing platforms with subscription



#### Products as through-life care service in

- customisable time-based contracts (e.g. monthly fee)
- customisable per-use contracts (e.g. pay-per-use)
- pre-configured packages (e.g. per subscription)



#### Access to products in

- long-term contracts (e.g. leasing)
- short-term contracts (e.g. renting)

### Long life & Next life products



#### Lifetime products



#### Product sales with through-life care service packages



#### Bio-based products from cascaded ingredients or nutrients

e.g. fertilisers from coffee grounds, beer from bread



#### Buy-back scheme of products based on

- deposit, reimbursement, or swapping systems
- vouchers, or discounts on next purchase



#### Trade of products for direct reuse in platforms



#### Additional services to add new life cycles to products



#### Next-life products

e.g. refurbished, remanufactured



#### Trade of surplus food or agricultural production in platforms



Photo Workshop with Lilleham management team

### Activity 4: Consolidate a vision Prioritise business model ideas for Circular Economy based on the organisational purpose and vision

In the previous activities, new opportunities were identified, and new ideas for Circular Economy business models were generated. In this activity, the ideas are organised with the support of a *Circular Economy Business Model Innovation Roadmap*, to set priorities and select the ones to be taken forward in the next stage.

#### What will the results be?

- Defined strategic roadmap for Circular Economy business model innovation.

#### What is needed?

- Data/ Information
- Circular Economy business model ideas.

#### Time

- Preparation: 30 min to gather materials
- Activity: 1 hour
- After: additional time for reporting and communication of the results.

#### Benefit from the CEBM Configurator

Step 3 of the *CEBM Configurator* tool can support the pre-work with benchmarking for potential economic, environmental or social benefits (qualitatively and quantitatively). These can be used as references for defining goals for short, medium, or long-term in the roadmap.

#### Tips for facilitation

- The ideas that are not prioritised in this activity can be kept in the roadmap for future exploration and detailing of business model concepts
- Establish a governance structure that allows for periodic revisions of the Roadmap, in order to seize the vision or change the course, when needed.

APPROACH

### Steps to complete the Circular Economy Business Model Innovation Roadmap:

**a. Define WHEN to explore business model ideas**

Set a time frame for exploring each idea.

**b. Define WHAT business model ideas to explore**

Consolidate synergistic or similar ideas generated in Activity 3.

**c. Define WHY to explore business model ideas**

Identify the systemic benefits (i.e. economic, environment, and society) enabled by each idea and use those along the time frame accord-

ing to expected strategic goals for Circular Economy.

**d. Relate different ideas to each other**

Indicate the relationship among different Circular Economy business model ideas, i.e. dependent or enablers. Use lines or coloured stickers to indicate the relationships.

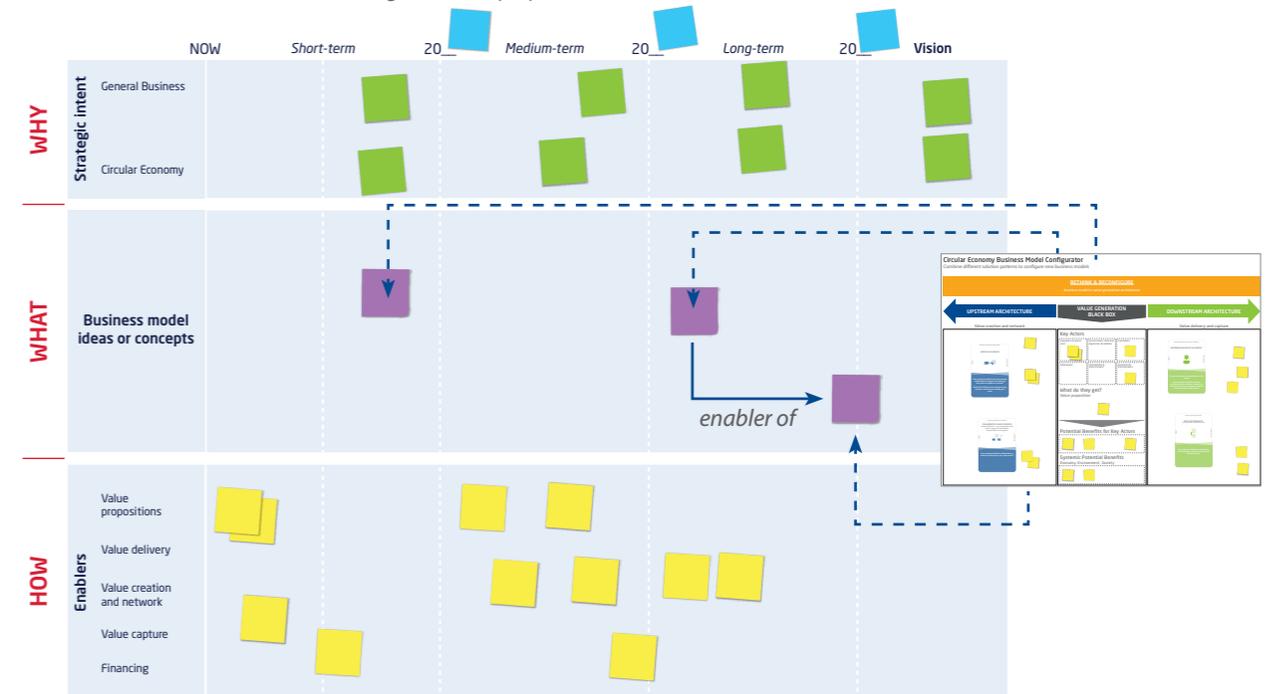
**e. Identify HOW to seize the business model ideas**

If possible, detail key enablers for each Circular Economy business model idea in the format of

business model elements: value proposition, value delivery, value creation, value capture, and financing requirements. Select one final idea to take to the next stage.

### Circular Economy Business Model Innovation Roadmap

Prioritise business model ideas based on the organisational purpose and vision



## 2 What will the new business model(s) look like?

Stage 2 aims at understanding how the new Circular Economy business model would work. It builds on Stage 1 by further developing the ideas and exploring how they can be seized into feasible concepts.

By the end of this stage, you will be able to answer how the new Circular Economy business model would work with detailed insights about the value proposition, value creation and delivery, and value capture architectures.

Stage 2 adopts the perspective of the end-users and their journey in the pre, during use, and after use phases. Understanding the customers' and end-users' needs lead to insights about new products and services and

supports the refinement of the value proposition from Stage 1.

When you have a clearer picture of a value proposition, you can start detailing the remaining elements of the business model – value creation, value delivery, value capture – to explain how the value proposition for Circular Economy will be delivered by your company and partners, while checking viability and consistency of activities. A qualitative sustainability check can help optimising the potential to generate positive impact. Lastly, the business model concept can be improved based on the estimations of economic and resource decoupling potential, and assumptions confirmed through experiments and engagement of a new

ecosystem. Depending on the results, new cycles of ideation with revisions of Stage 1 might be required.

### Who to involve

The same participants involved in Stage 1 should be involved. Additional dedication from Finance, Corporate Social Responsibility and Legal will be required for Activity 7, which involves collecting economic and environmental data for the business case.

### How to involve

It is recommended that all participants follow all activities of the process. If you already have a detailed and viable business model concept and intend to calculate the business case or test hypotheses, advance to Activity 7.

### Suggested time plan

The suggested time plan would allow for Activities 5 and 6 to be conducted in a single day. This is based on the assumption that you choose one business model to develop further and that you already have an initial value proposition and systemic benefits outlined from Stage 1. Reserve extra time for the development of additional business models or if you need more clarity about the value proposition outline. Additional days will be required for Activities 7 and 8.

### Stage 2 - Time Plan

- 9:00 Welcome, intro & recap**
- 9:30 Conceptualise the Circular Economy business model**  
Defining customer segments and benefits  
Incl. BREAK as needed
- 11:00 Configure a complete business model concept**  
Designing offering and refining value propositions
- 12:00 LUNCH**
- 13:00 Configuring revenue mechanism**
- 14:00 Configuring value delivery and creation**  
Incl. BREAK as needed
- 16:00 Outline of costs and consistency check**
- 17:00 Feedback and next steps**  
Close

### Self-preparation for the facilitator

CIRCit materials (available on website):

- *Digital Tool*: CEBM Configurator
- *Printouts of templates [size]*
  - Customer and End-User Journeys Map [A1]
  - Circular Economy Business Model Framework [A1]
  - Experimentation Roadmap [A0]
  - Test Cards.
- From Stage 1, bring:
  - The CEBM Innovation Roadmap
  - Business model ideas with outlines of the value generation (i.e. middle part in the CEBM Configurator).

Other infrastructure & materials:

- Ample room to hang posters side-by-side and with projector
- Flip chart paper
- 76 mm x 76 mm and 38 mm x 51 mm sticky notes of various colours
- Small white stickers.

**Benefit from the CEBM Configurator:**

The facilitator can use the digital tool (Steps 4, 5, 6, 7 and 8) as follows:

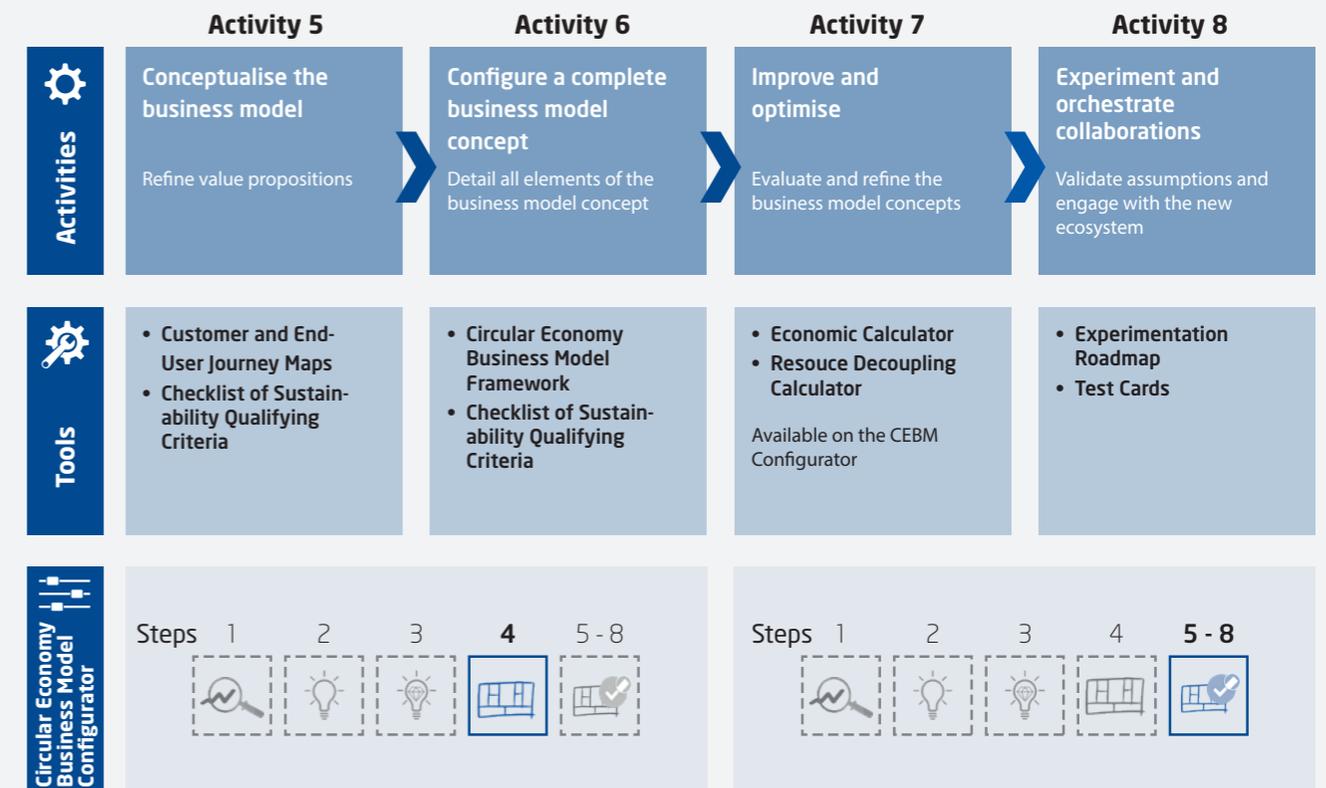
- *Before Activities 4 and 5 (1-2 weeks)*, use Step 4 to find recommendations of business model design options. Step 8 provides a checklist of qualitative sustainability criteria, which can be used intermittently with Activities 4 and 5.
- *During or after Activities 4 and 5*, for documenting assumptions and de-

isions about the detailed business model concepts, to support engagement or validation meetings and the data collection for the business case.

- *Before, during and after Activity 7*, apply Steps 5, 6 & 7 for the calculations of economic and resource decoupling potential of the proposed business models.

## Stage 2: SEIZE

Activities for determining “What will the new business model(s) look like?”





## Activity 5: Conceptualise the Circular Economy business model Refine value propositions

After recapping the selected business model idea(s), it is time to **configure and further refine the value proposition(s)**. Two tools are available: *Circular Economy Customer and End-User Journeys Map*, and *Checklist of Sustainability Qualifying Criteria*.

### What will the results be?

- Translation of the prioritised ideas into initial business model concepts with refined value propositions.

### What is needed?

#### Data/ Information

- An overview of the selected idea(s), the initial value proposition(s), and systemic benefits (from Activities 3 and 4)
- Insights about future customers and end-users.

#### Time

- Preparation & organisation: 1 hour; consider additional 2-4 weeks for field investigation
- Activity: 1.5 hours (parallel groups if more than one idea is to be detailed)
- After: additional time for reporting and communication of the results.

#### Tasks

- 5A. Describe the key actors interested in receiving and willing to 'exchange' value (e.g. monetary, return of product) – focus on customers & end-users
- 5B. Refine the experiences, sacrifices, benefits, and values enabled to customers and end-users



- 5C. Refine what customers and end-users could get from the business model in the format of the value proposition(s) and update the *Value Generation Black Box* field in the *CEBM Configurator*
- 5D. If multiple value propositions emerge during the process, prioritise the most adequate or promising ones. The *Checklist of Sustainability Qualifying Criteria* available in the *CEBM Configurator* can support this task.

**Benefit from the CEBM Configurator**

Step 4 of the *CEBM Configurator* tool can support with: (i) recommendation of how to explore customer segments and benefits (tasks 5A and 5B); and (ii) how to configure offering combinations of products and services to refine the value proposition (task 5C). If applicable, use the tool for specific sectors to obtain more relevant results. Step 8 of the *CEBM Configurator* tool can be used to support prioritisation (task 5D). It enables ranking and comparison of how the value propositions perform, according to 16 qualitative criteria for sustainability (check the *Value Proposition* section).

**Tips for facilitation**

- Explore what the new journey will look like, when the future Circular Economy business model is in place
- Remind the participants to put themselves in the shoes of the customers or end-users, instead of focusing on the company's activities
- Consider carrying out field research – e.g. interviews, focus groups - with key customers and end-users, to collect their perspectives
- If you have selected more than one idea that could translate into different value propositions, consider having groups to work in parallel on the ideas.

APPROACH

### Steps to complete the Circular Economy Business Model Customer and End-User Journeys:

**a. Describe customers and end-users**

Start on the centre of the poster, by describing who are the customers, (i.e. buys and pays for the offering,) and end-users, (i.e. uses the offering). If customers are different than end-users, use different colored sticky notes. Include estimations of the potential market size and your expected share.

**b. Add the experiences and touchpoints**

Using the sticky notes, list the experiences that the end-users go through, when relating to the offering. Follow the suggested journey on the poster, going from the *Pre*, through *During*, and lastly *Post* contact with the offering. Identify,

with white stickers, the experiences that require touchpoints with your company (C) or other potential partners (P).

**c. Add benefits**

After identifying their journey, analyse where and which benefits could appear for the customers or users as a consequence of the new business model (e.g. enhanced convenience and flexibility; reduced costs or initial investments).

**d. Add sacrifices**

The business model and new offerings might introduce sacrifices to some customers and users. Outline those, as they could present risks for the solution that shall be mitigated

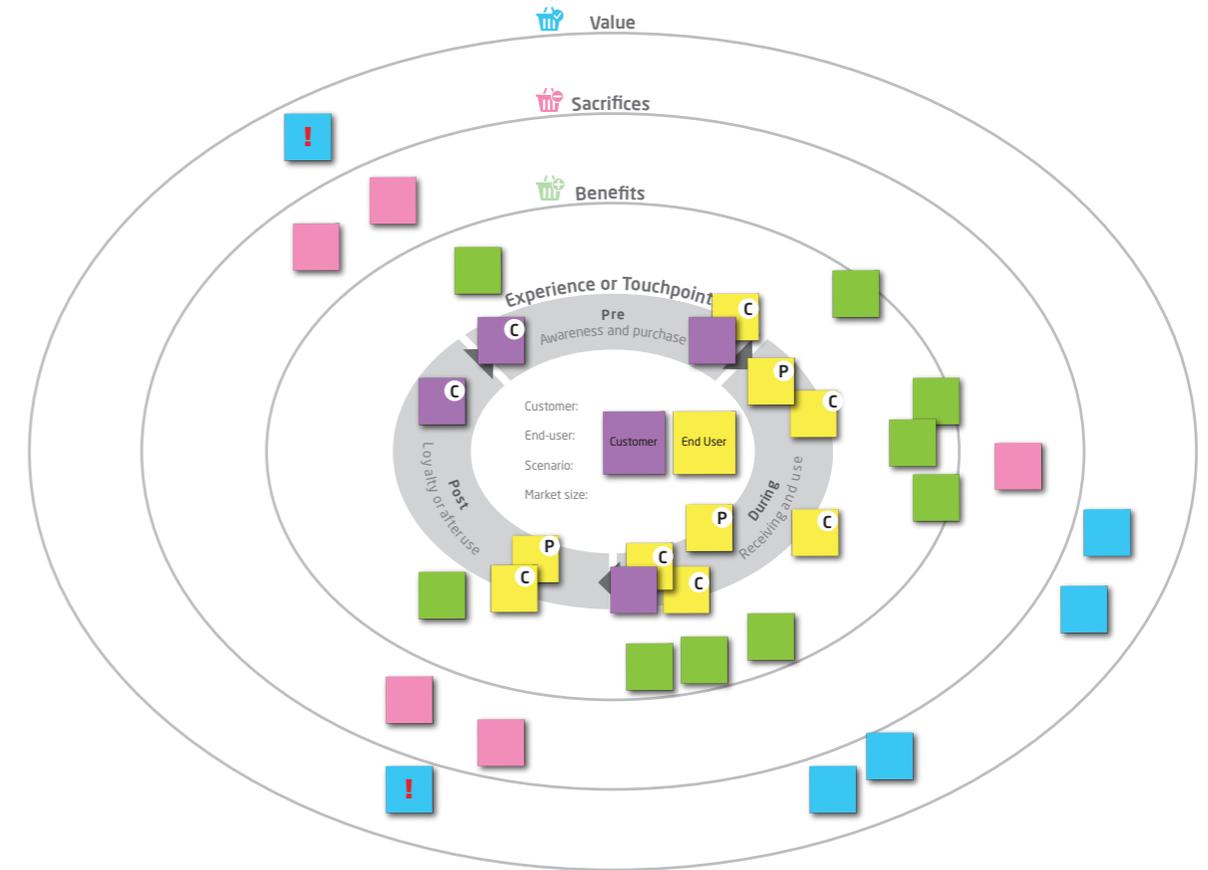
(e.g. resistance to loss of products ownership; effort to return products).

**e. Estimate the value generation potential**

Value can be seized when the perception of the customers or users regarding the benefits is superior and enough to compensate for their perception of sacrifices. In this step, make a qualitative evaluation of benefits and sacrifices, to identify the potential value to customers and users. Indicate when and where value is degraded, presenting risks. Iterate and adjust to mitigate risks.

### Circular Economy Customer and End-User Journeys

Exploring benefits, sacrifices and value potential for Circular Economy



Adapted from Nielsen (2019)

## Activity 6: Configure a complete business model concept

### Detail all elements of the business model concept

After refining the value proposition, it is time to detail all the other elements of the business model. For that, the tools can support the consolidation of a complete and purposeful business model concept for Circular Economy.

#### What will the results be?

- Complete business model concept, which will enable the articulation of the complete logic of how the new or reconfigured Circular Economy business will work.

#### What is needed?

##### Data/ Information

- An overview of the initial Circular Economy business model, with a detailed value proposition.

##### Time

- Preparation & organisation: 1 hour
- Activity: 4-6 hours per business model (consider parallel groups to explore more than one concept)
- After: additional time for reporting and communication of the results.

##### Tasks

Fill in the *Circular Economy Business Model Framework*:

- 6A. Document the systemic benefits, value proposition, customer & users, and value delivered (i.e. benefits for customers and users) discussed in Activities 4 and 5
- 6B. Explain how the value proposition will be provided by configuring the other elements of the business model, in the suggested order

- 6C. Explore the viability of different configurations and identify variations in design options for the business model elements
- 6D. Check consistency among elements and use the Checklist of Sustainability Qualifying Criteria to improve the configurations
- 6E. Create and test virtual prototypes of the different configurations to investigate assumptions
- 6F. In case of multiple business model configurations, another round of prioritisation is recommended.

#### Benefit from the CEBM Configurator

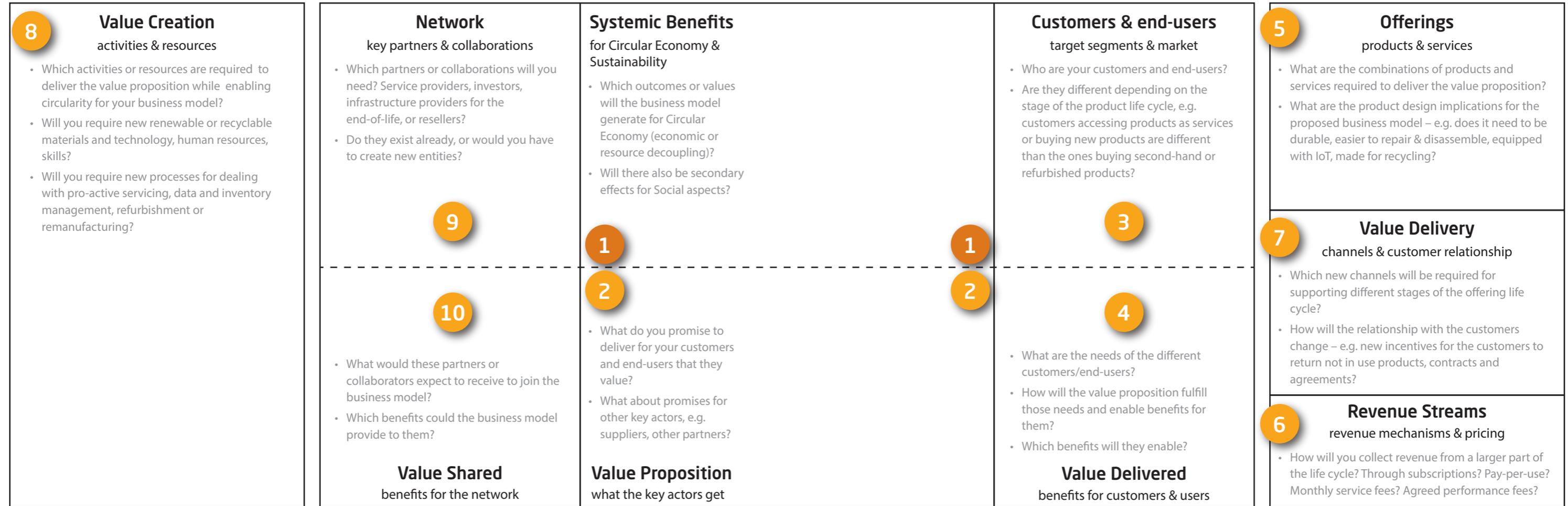
Step 4 of the *CEBM Configurator* tool can support t with recommendations of how to configure offering combinations of products and services, revenue streams, value delivery and creation processes, key partnerships and the benefits shared with them (Tasks 6A and 6B). If possible, use the tool for specific sectors to obtain more precise results. Step 8 of the *CEBM Configurator* tool can be used to support improvement and prioritisation of business model concepts (Tasks 6C and 6E). This enables ranking and comparing how the business model concepts perform according to qualitative criteria for sustainability. Now, review your previous input for the section *Value Proposition*

and complete the remaining sections of this tool.

#### Tips for facilitation

- Test prototypes of the value proposition with key customers or end-users to, verify assumptions and eliminate biases
- Follow the proposed order for configuring the elements – starting in the centre, going to the right side of the framework and ending on the left side
- Consolidate the application of the *Checklist of Qualifying Sustainability Criteria* as you advance with the configuration of elements in the *Business Model Framework*.

# Circular Economy Business Model Framework



## Cost Structure

investment or capital expenditures (CAPEX) & operational costs (OPEX)

- Building and maintaining the capabilities for Circular Economy can be expensive – how is your organisation foreseeing costs with this business model?
- Is your organisation planning to invest or maintain the most attractive activities and needs? Or maybe share some of the costs with the Network?

## Financing options

cash flow restrictions & external financing options for scaling up

- Launching and scaling-up business models can be expensive and require initial up-front capital to build new infrastructure or build initial stock of products for a platform or product as service offerings. How can your organisation access financing options? Are external sources available?



Photo CIRCit industry workshop

## Activity 7: Improve and optimise Evaluate and refine the Circular Economy business model concepts

This activity aims to improve and optimise the business model concept, before implementation. The digital tool *Circular Economy Business Model Configurator* can support estimating the economic and resource decoupling potential, comparing and prioritising different configurations of the business model.

### What will the results be?

- Potential economic and resource decoupling performance for the proposed business model concept – i.e. Business Case
- Detailed, refined, and optimised business model concept
- Prioritised configurations for the Circular Economy business model concept.

### What is needed?

#### Data/ Information

- Representation of the Circular Economy business model concept
- Estimations of economic and environmental data for calculations.

#### Time

- Data collection: 1 to 2 days
- Calculation and iterations: 1 to 2 days (3h per sheet of calculation)
- Validation meetings and refinement: 1 to 2 weeks (depending on how many people you engage).

#### Tasks

- 7A. Estimate the economic potential for the different configurations of a business model concept
- 7B. Estimate the resource decoupling

potential of the different configurations for a business model concept

- 7C. If multiple Circular Economy business model configurations are evaluated in parallel, a prioritisation and selection of the configurations to be implemented shall be conducted.

### Benefit from the CEBM Configurator

Steps 5 and 6 of the *CEBM Configurator* are fundamental tools to support data collection and calculations of the economic and resource decoupling potential. Step 5 deals with the economic estimation (task 7A) and Step 6 deals with the resource decoupling estimation (task 7B).

Step 7 supports comparison and prioritisation of different business model configurations (task 7C) with an analytical framework, based on: customer value fulfilment, economic fulfilment, and resource decoupling fulfilment.

#### Tips for facilitation

- Test prototypes of the value proposition with key customers or end-users, before starting this activity to verify assumptions and eliminate misbeliefs or biases.

#### Is there potential to make money?

Step 5 of the *CEBM Configurator* contains the *Economic Potential Calculator*, which supports the estimation of the business model economic potential, based on a cost-benefit analysis and

structured in a dynamic business case framework. This means that depending on the business model patterns considered in your configurations (Step 4), different economic indicators will be suggested by the *CEBM Configurator* to compose the business case framework.

These indicators cover six categories:

- Financial factors - e.g. income tax, depreciation and interest rates
- Market and demand assumptions
- Revenue sources
- Development costs (CAPEX)
- Recurrent costs (OPEX)
- Intangible benefits – e.g. improved reputation with customers and brand value.

The tool enables estimating the economic potential for up to three different business model configurations at a time.

To present the final results and enable comparison among different configurations, the *CEBM Configurator* aggregate the calculations in five composite economic indicators.

Step 5 can also be used to compare the sensitivity of variables for the same configuration. Just repeat the three configurations in Step 4 and you will have three identical business case frameworks in Step 5, which you can populate with different input data for some critical variables.

### Economic Indicators

-  Cash Flow
-  Internal Rate of Return
-  Payback Period
-  Net Present Value
-  Gross Margin

#### Is the business model contributing to resource decoupling?

Step 6 of the *CEBM Configurator* supports the estimation of resource decoupling potential based on eight key indicators. The *CEBM Configurator* will suggest the adequate indicators depending on the business model

patterns and configurations defined for your company (defined in Step 4).

The tool enables estimating resource decoupling for up to three different business model configurations at a time.

To establish a reference point for comparisons among different configurations, the tool will request information about the existing business model, which could be yours or a competitor's.

If you intend to explore the configurations further, a comprehensive sustainability assessment tool with over a hundred possibilities of indicators can be found in CIRCit Workbook 1.

### Resource Decoupling Indicators

-  Average Utility
-  Longevity
-  Virgin Resource Consumption
-  Energy Consumption
-  Fuel Consumption in Logistics
-  Fuel Consumption in Product Operation
-  Waste Output
-  Land/Facilities Usage or Productivity

## Activity 8: Experiment and orchestrate collaborations

### Validate assumptions and engage with the new ecosystem

This last activity of Stage 2 aims to validate assumptions and start the establishment of a new ecosystem in which the Circular Economy business model will be implemented. An *Experimentation Roadmap* can help planning and monitoring experiments and small pilots to validate assumptions.

#### What will the results be?

- Verified assumptions to improve and optimise the Circular Economy business model concept
- New ecosystem established.

#### What is needed?

##### Data/ Information

- Representation of the Circular Economy business model concept
- Overview of the economic and resource decoupling potential for the business model configurations.

##### Time

###### *Experimentation (8A)*

- Preparation: 30 min to gather materials
- Activity: 3-4 hours
- After: additional time for reporting and communication of the results.

###### *Partnerships and collaborations (8B)*

- Consult CIRCit Workbook 6.

##### Tasks

- 8A. Experiment with the selected Circular Economy business model concept to validate assumptions
- 8B. Orchestrate partnerships and collaborations to establish the necessary ecosystem for implementing and operating the Circular Economy business model. Detailed guidelines and tools for exploring the ecosystem perspective are available in CIRCit Workbook 6.

#### Benefit from the CEBM Configurator

After conducting experiments, revise and update the documentation of decisions in Steps 4 and 5 of the *CEBM Configurator* with the new insights obtained.

#### Tips for facilitation

- If you are conducting the activity in 3 hours, reserve 30 minutes to work on each of the four groups of elements of the business model (i.e. 4 lanes of the poster) and reserve the last hour to work on the final step (d), in order to set a critical path and timeframe
- To optimise time – in the case of a large group of participants – form smaller groups to work in paral-

lel with different elements of the business model (i.e. lanes in the *Experimentation Roadmap*) in steps a, b and c. In the end, each group can present in plenary, discuss and iterate results with comments from other perspectives. Lastly, they can work together on step d.

APPROACH

### Steps to complete the Experimentation Roadmap:

**a. Define what to investigate**

Brainstorm experiments to conduct, documenting them on the *Test Cards*. If necessary, recap the *Circular Economy Business Model Framework* and the *Business Case*, to identify assumptions that require validation in the different elements of the business model (indicated in the lanes of the poster). Rank the importance of each experiment on the *Test Cards*.

**b. Describe how to experiment**

Indicate how to conduct the experiments and to what extent to engage users – i.e. in controlled or real environments. For example, for *value proposition* and *delivery*, think

of click-through-rate of advertisements on social media, interview with end-users, social media panels, or questionnaires. For *value creation*, interview with potential partners and co-creation sessions. For value capture, think of detailed business case simulations, interviews with users to check willingness to pay, interviews with banks and financing agencies.

**c. Describe how to measure results**

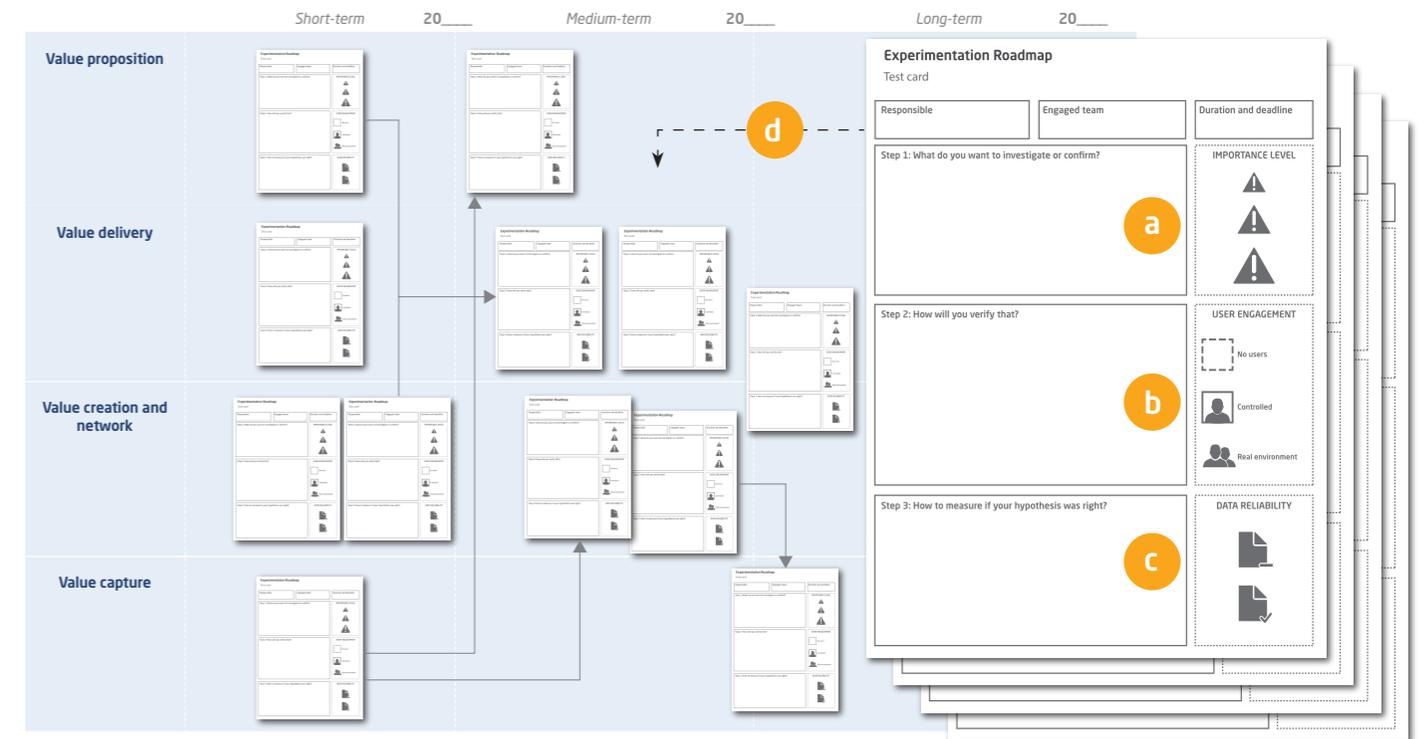
Indicate how you intend to collect data and measure the results. Indicate how reliable the data obtained could be at the stage of the experiment.

**d. Set a critical path and timeframe**

Define the critical path to conduct the pool of experiments, by positioning them on the poster throughout the time frame. Remember to indicate dependencies among experiments (e.g. pre-required experiments to others). Lastly, define a responsible and engaged team to participate in each experiment and document it on the *Test Cards*.

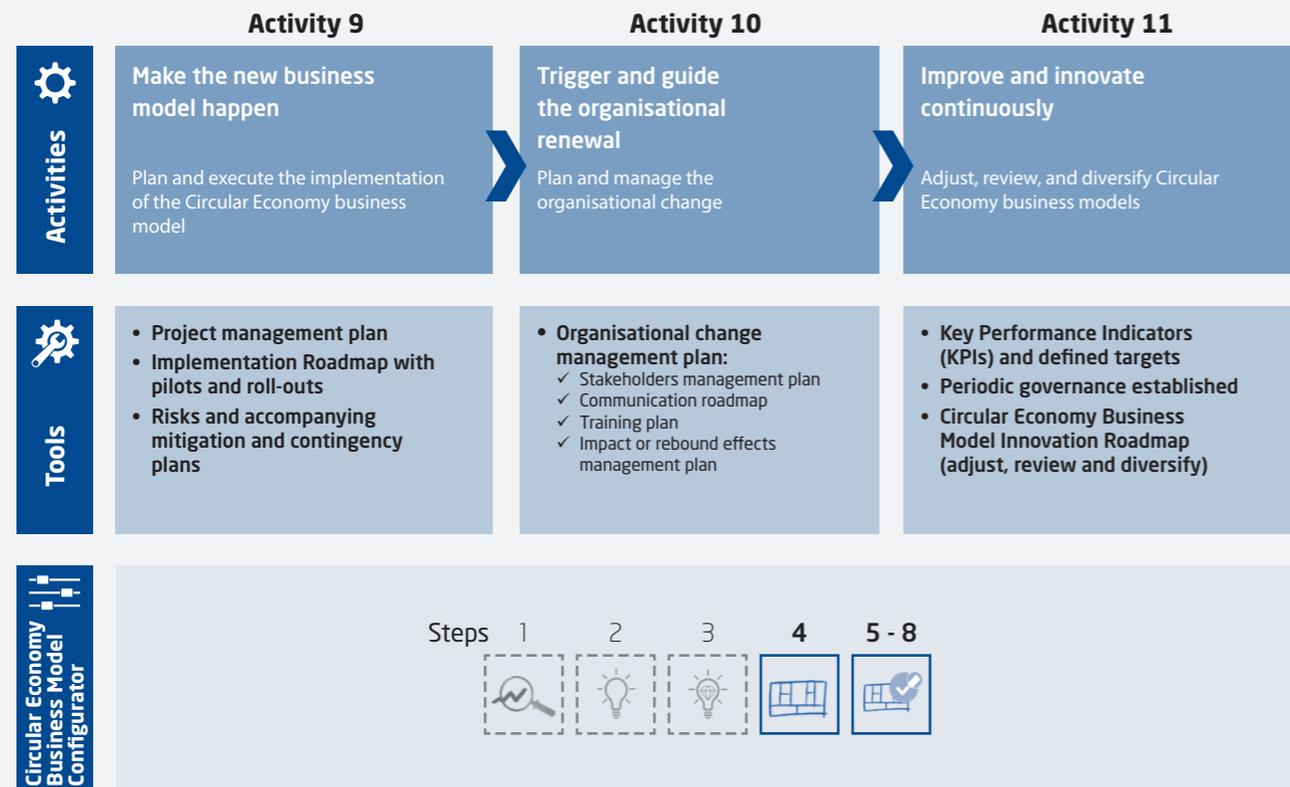
### Experimentation Roadmap

Test assumptions to improve the Circular Economy Business model concept



## Stage 3: TRANSFORM

Activities for determining “How to plan for the transformation and scale-up?”



## 3 How to plan for the transformation and scale-up?

In Stage 3, it is time to start building new capabilities, planning and implementing the projects to enable organisational renewal and scale-up of the selected Circular Economy business model concept. To do that, it is necessary to set milestones for the implementation of the Circular Economy business model concept. Additionally, it is necessary to create procedures for dealing with resistance to change; definition of expected leadership roles; and a new governance model for collaboration. Lastly, it is important to establish a structure to monitor the performance of implementation, with tailored key performance indicators that will enable reflecting, reviewing, improving or diversifying business model concepts.

### Who to involve

It is helpful to involve people that will have a role in executing the short-, medium- and long-term actions. The participants involved in Stages 1 and 2 can work as *champions* or *ambassadors* to support development and diffusion of the business model concept. Furthermore, a larger group will have to be involved, based on the project management and change management plans. It is also essential to activate project sponsors and a steering group, to validate decisions and provide support. For the case of start-ups or SMEs, remember to engage board members and external financing institutions.

### How to involve

Due to the nature of this stage, the participants can be involved in individual meetings. Subsequent joint workshops can be conducted for integration and interdependency mapping, or the final presentation of the project by the project manager.

### Suggested time plan

Depending on the scope of the transformation and the complexity of the organisation, this stage might require from 3 to 6 weeks.

### Practicalities

CIRCit materials:

- From Stages 1 and 2 bring:
  - Digital Tool: CEBM Configurator
  - Circular Economy Business Model

Framework

- Experimentation Roadmap
- Circular Economy Business Model Innovation Roadmap.

### Other materials needed:

It is recommended to adopt usual practices for this activity. Examples of materials are:

- Traditional, agile, or hybrid project management approaches and tools
  - Project management software
  - Implementation roadmaps
- Organisational change management approaches
- Performance management practices, e.g. governance and key performance indicators.

### Benefit from the CEBM

#### Configurator:

The project manager can use the digital tool to document assumptions and decisions taken in the development of the Circular Economy business model concept.

## Activity 9: Make the new business model happen

### Plan and execute the implementation of the Circular Economy business model

The first activity of Stage 3 focuses on defining activities, milestones, and deliverables needed to implement the new Circular Economy business model.

#### What will the results be?

- Project management plan for the implementation of the new Circular Economy business model concept.

#### What is needed?

Data/ Information

- Detailed representation of the Circular Economy business model concept.

Time

- 1 to 3 weeks - including preparation and validations.

Tasks

- 9A. Identify the required deliverables, activities and milestones for implementing the Circular Economy business model based on the detailed concept and elements
- 9B. Organise the activities in a time-frame, defining their duration and deadlines
- 9C. Consolidate an implementation roadmap, identifying the critical path, mapping their interdependencies, and defining responsibilities
- 9D. Identify risks and accompanying mitigation and contingency plans.

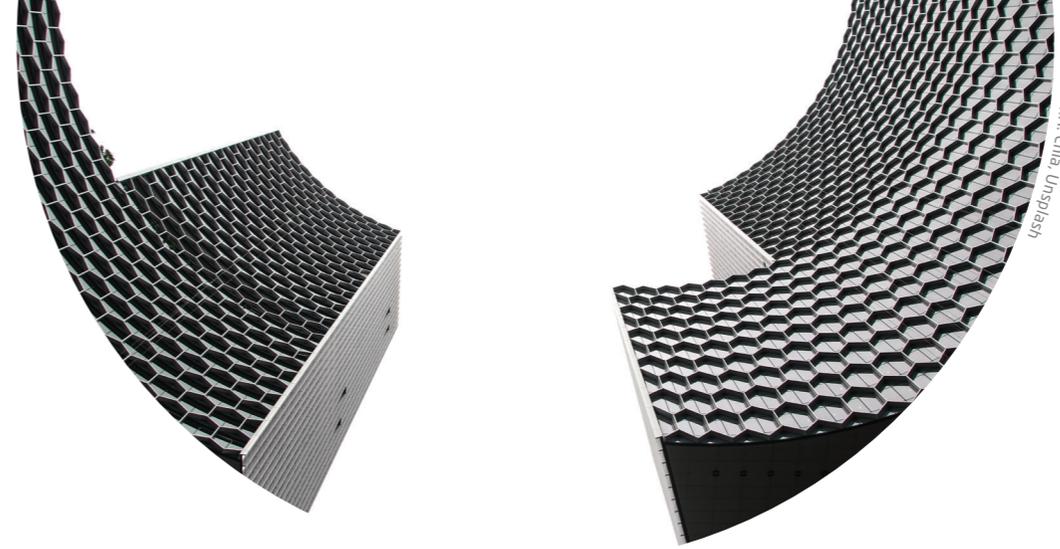
### Benefit from the CEBM

#### Configurator

Step 4 of the *CEBM Configurator* can support the definition of required activities, work packages, and the critical path for the project plan.

#### Tips for facilitation

- Consider phasing the milestones with pilots, and gradual launching, scale-up, and roll-out
- Consider applying usual project management practices and tools for this activity (e.g. traditional, agile or hybrid).



## Activity 10: Trigger and guide the organisational renewal Plan and manage the organisational change

After having a plan of activities, milestones and deliverables it is time to plan for how people inside and outside the organisation shall cope with the required changes.

Time

- 1 to 3 weeks - including preparation and validations
- Consider additional time for further exploration of the ecosystem.

### What will the results be?

- Organisational change management plan towards the new Circular Economy business model.

### What is needed?

Data/ Information

- Project management plan with expected milestones
- Affected stakeholders inside and outside the organisation.

Tasks

- 10A. Outline a plan to engage and manage stakeholders. Think about how to motivate people; deal with resistance to change; and leadership roles.
- 10B. Establish a communication roadmap to support the implementation of activities. For each intervention, indicate the purpose, audience, means, frequency.
- 10C. Define training plans, based on the identification of new skills (e.g. sales skills for selling services, collection and refurbishment of products).
- 10D. Define a strategy to deal with indirect impacts or rebound effects generated by the new business model.

### Benefit from the CEBM Configurator

Step 4 of the *CEBM Configurator* can support the identification of affected stakeholders, which will require training, communication or individual engagement. For instance, customers might need to be informed about new practices for returning products back at specific collection points.

Suppliers might need to be trained about how to handle, transport, and store returned products before they are refurbished. Sales representatives might require new skills and incentive schemes for selling services contracts, instead of products.

### Tips for facilitation

- Adopt usual change management practices and tools
- For a more detailed exploration of affected stakeholders, required capabilities, and skills in the ecosystem, check CIRCit Workbook 6.

## Activity 11: Improve and innovate continuously Adjust, review, and diversify Circular Economy business models

This last activity of Stage 3 aims to prepare a plan for monitoring the implementation performance in order to adjust, review, and diversify the Circular Economy business model(s).

### What will the results be?

- Reviewed implementation of Circular Economy business model according to key performance indicators (KPIs) and targets
- New ideas to diversify Circular Economy business model concepts.

### What is needed?

#### Data/ Information

- Project management plan with expected milestones
- An overview of the economic and resource decoupling potential and indicators for the business model.

#### Time

- 1 to 3 weeks - including preparation and validations - are sufficient for a first overview based on the KPIs already explored in Stage 2
- Consider more time if you intend to explore other KPIs.

### Tasks

- 11A. Select key performance indicators (KPIs) and define targets to monitor the implementation of the Circular Economy business model
- 11B. Establish a periodic governance for revision of the milestones and outcomes of the implementation roadmap (Activity 9), including:
  - Routines for collecting data and updating KPIs
  - A project organisational structure to monitor the KPIs and take decisions regarding the implementation.

### Benefit from the CEBM

#### Configurator

Steps 5, 6 and 7 of the *CEBM Configurator* can support the selection of economic and resource decoupling KPIs and estimated targets to be monitored, based on your previous estimations for Stage 2.

#### Tips for facilitation

- For a more detailed exploration of KPIs with a broader view of environmental and social indicators, consult CIRCit Workbook 1
- Consider additional periodic revision meetings to take a look at the *Circular Economy Business Model Innovation Roadmap* defined during Stage 1.

## What now?

With a defined vision for your future Circular Economy business model and a detailed implementation plan in hands, it is time to make the transformation happen!

Implementing and operating business models for Circular Economy means continuously fighting against inefficiencies or structural waste by creating, delivering, and capturing multiple types of value along the product life cycle and for different stakeholders in the business ecosystem.

Remember that by the time that your vision and ideas become a reality, new external or internal factors might require changes and iterations in your Circular Economy business model(s).

Maintaining updated versions of the tools provided by this workbook can guarantee continuous organisational learning and circularity performance improvement.

## References

Blomsma, F. *et al.* (2019) 'Developing a circular strategies framework for manufacturing companies to support circular economy-oriented innovation', *Journal of Cleaner Production*, 241. doi: 10.1016/j.jclepro.2019.118271.

Chiappetta Jabbour, C. J. *et al.* (2019) 'Who is in charge? A review and a research agenda on the "human side" of the circular economy', *Journal of Cleaner Production*. Elsevier Ltd, pp. 793–801. doi: 10.1016/j.jclepro.2019.03.038.

Knowledge Hub (2018) *Case studies and articles*. Available at: <https://circle-lab.com/knowledge-hub/all-content> (Accessed: 23 September 2018).

Mendoza, J. M. F. *et al.* (2017) 'Integrating Backcasting and Eco-Design for the Circular Economy: The BECE Framework', *Journal of Industrial Ecology*, 21(3), pp. 526–544. doi: 10.1111/jiec.12590.

Nielsen, A. K. (2019) *A user-driven innovation approach to create business models for circular economy: A case in the textile and fashion industry*. Technical University of Denmark.

Nußholz, J. L. K. (2017) 'Circular business models: Defining a concept and framing an emerging research field', *Sustainability (Switzerland)*. MDPI AG, 9(10). doi: 10.3390/su9101810.

OECD (2018) *Business Models for the Circular Economy*. Paris.

Oghazi, P. and Mostaghel, R. (2018) 'Circular business model challenges and lessons learned-An industrial perspective', *Sustainability (Switzerland)*. MDPI AG, 10(3). doi: 10.3390/su10030739.

De Pádua Pieroni, M. *et al.* (2018) 'Enabling circular strategies with different types of product/service-systems', in *Procedia CIRP*. Elsevier B.V., pp. 179–184. doi: 10.1016/j.procir.2018.03.327.

Pieroni, M. P., McAloone, T. and Pigozzo, D. A. C. (2019) 'Business model innovation for circular economy and sustainability: A review of approaches', *Journal of Cleaner Production*. Elsevier BV, 215, pp. 198–216. doi: 10.1016/j.jclepro.2019.01.036.

Pieroni, M. P. P., McAloone, T. C. and Pigozzo, D. C. A. (2019) 'Configuring new business models for circular economy through product-service systems', *Sustainability (Switzerland)*. MDPI AG, 11(13). doi: 10.3390/su11133727.

Rosenbaum, D., More, E. and Steane, P. (2018) 'Planned organisational change management: Forward to the past? An exploratory literature review', *Journal of Organizational Change Management*. Emerald Group Publishing Ltd., pp. 286–303. doi: 10.1108/JOCM-06-2015-0089.

## Acknowledgements

Our special thanks goes to: Anne Kaae Nielsen for the contribution provided during her Masters Thesis in the development of Activity 5; and to Jasper Emil Strømgren and Tue Nørgaard Lindhart Thomsen for the contribution provided for the graphic development of tools for Activity 3.





# Nordic Green Growth

This workbook supports the creation of circular business models, based on a step-by-step approach, best practice and success cases.



Innovation Center  
Iceland



Technology Industries  
of Finland

