



Collaborating and Networking for a Circular Economy: CIRCit Workbook 6

Blomsma, F.; 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):
Blomsma, F., Jensen, T. H., Pigosso, D. C. A., & McAloone, T. C. (2020). *Collaborating and Networking for a Circular Economy: CIRCit Workbook 6*. 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.

Collaborating and Networking for a Circular Economy

6

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?

When designing, implementing and optimising circular value chains, it is easy to get lost in the complexity of using multiple circular strategies. More so, since this can involve having to work with existing stakeholders in new ways or having to engage with more, new or different types of stakeholders. This workbook will help you to identify who the relevant stakeholders are for you to realise your circular initiative, how to align interests across your value chain, and how to work with your stakeholders to capture new opportunities. What opportunities lie within your value chain?



In this workbook

Introduction to Circular Economy	5
What is Circular Economy?	5
How to make the transition	8
Introduction to CIRCit	9
The Process for Designing and Developing Circular Value Chains ...	11
1 What's in it for the stakeholders?	13
1.1 Business ecosystem mapping	16
1.2 Stakeholder value mapping	19
1.3 Stakeholder exploration	22
1.4 Stakeholder opportunity clusters	24
1.5 Prioritising opportunity clusters	26
2 What will the new circular business ecosystem look like?	29
2.1 Circular value chain activity cycle	33
2.2 Best practice exploration	37
2.3 Co-creation and keystone activity scan	41
3 How to work with which stakeholders in making the transition? ...	45
3.1 Keystone activity cycle	47
3.2 Co-creation learnings finder	51
3.3 Experiment design	54
3.4 Circular value chain roadmap	58
What now?	63
References	63



Collaborating and Networking for a Circular Economy

A workbook in the CIRCit Series

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

Authors: Fenna Blomsma, 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: Jia Jue Johannes Chen, Fenna Blomsma, Thomas Hjort Jensen, Sven Read, Nick Jio, Jon Tyson

Published: Technical University of Denmark (DTU)

Printed: KLS Pureprint A/S

Print Volume: 400

March 2020, 1st Edition.

e-ISBN: 978-87-7475-611-8

Citation data: Blomsma, F., Hjort Jensen, T., Pigosso, D.C.A., McAlloone, T.C. (2020) 'Collaborating and Networking for a Circular Economy: CIRCit Workbook 6', ISBN: 978-87-7475-610-1, Technical University of Denmark, 64 p.

E-book version and more information at 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.



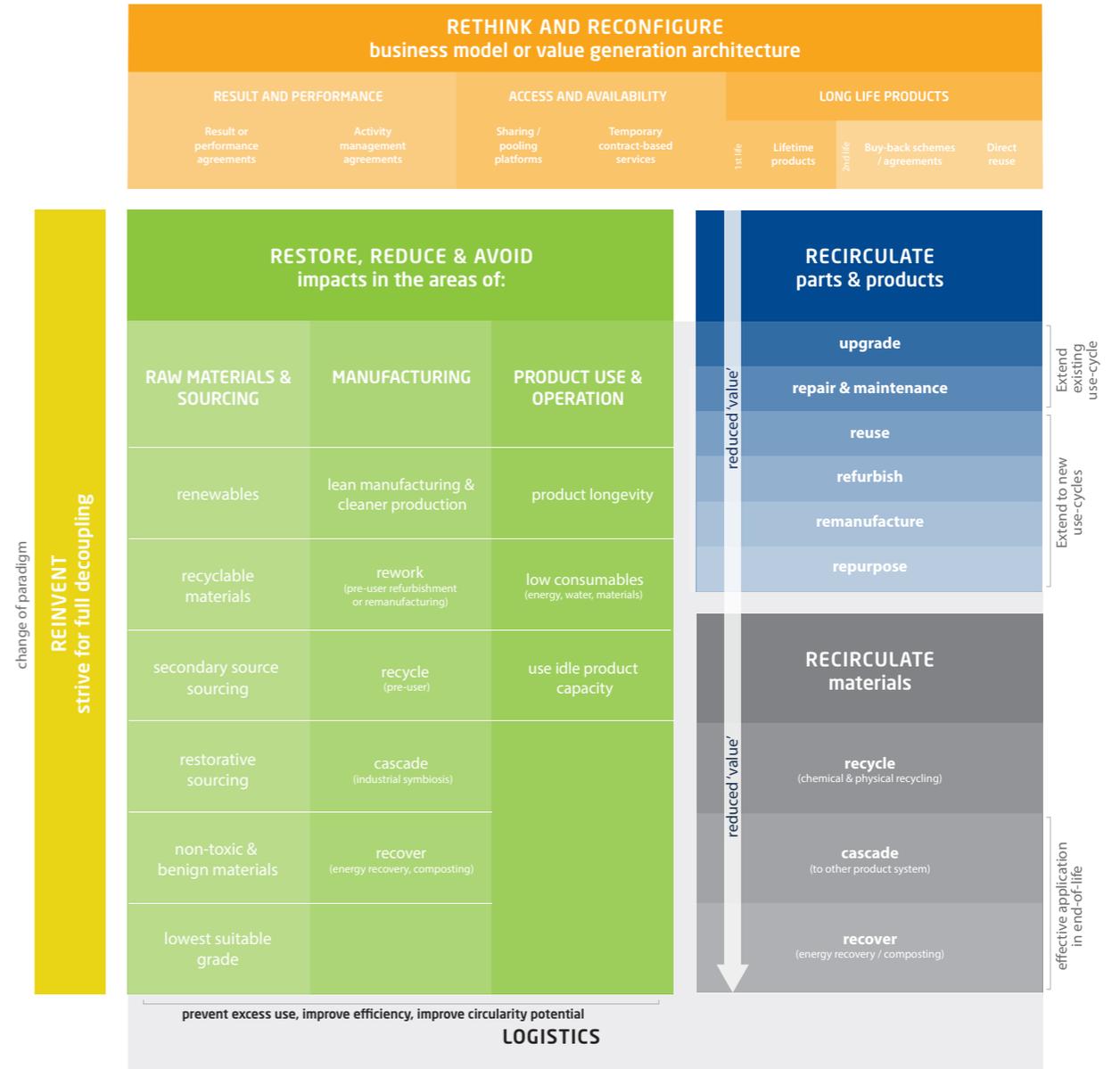
Achieving a Circular Economy requires a fundamental shift in mindset through business model, product design, support of the active product life cycle and closing the product loop, when the user no longer has a need for it. At the core of a Circular Economy lies collaboration, within and across value 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.



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.

The process for designing and developing circular value chains



The three phases for designing and developing circular value chains

This workbook provides the reader with the means to conduct a three-phase process for the design and development of circular value chains. The process is aimed at clarifying what stakeholders to work with, at what time, and in what capacity, in order to create circular value chains.

Expected outcomes

- Insight into what value proposition to offer stakeholders in order to motivate them to become part of the new circular value chain
- Insight into how the new proposed circular value chain will work including roles and responsibilities of various stakeholders
- Consolidation of the needed actions in a roadmap that outlines short

term pilots and experiments, as well as activities with a longer-term outlook.

When to use?

Use the process described here when:

- A circular strategy has been identified for which support from stakeholders is needed in order to implement it
- The implementation scenario for a circular strategy is unclear and it needs to be explored which is most feasible based on stakeholder interests.

Before starting

It is recommended that this process is started after it has been identified which circular strategies are of interest to your company. For the best outcomes for this process, limit the scope to one circular strategy or a set of closely related circular strategies. Of course, the same process can be run for other (sets of) circular strategies afterwards or in parallel.



Photo Kelyyn Ornette Sol Marte Unsplash

Engaging with in- and external stakeholders

The process focuses on the co-creation between internal and external stakeholders. However, it is recommended to start this process internally. Particularly, if it is uncertain “what’s in it” for the stakeholders at this point.

Start therefore by clarifying the internal perspective and seek feedback from external stakeholders when needed. Begin with trusted partners that are likely to have a role in the new value chain and gradually extend the circle.

Why design and develop circular value chains?

The creation of circular value chains requires access to and alignment of the knowledge and capabilities across a range of stakeholders. This means that the stakeholders need to collaborate, and, in many cases, to co-create what the circular value chain will look like, and how it will turn waste into business opportunities.

The deliberate design and development of circular value chains is therefore key to the successful implementation of CE.

1 What’s in it for the stakeholders?

To implement circular value chains, there needs to be something in it for your stakeholders, too. It is important to clarify what these benefits could be and to understand which are synergistic with each other. Think, for example, of increased convenience for your customers, or an increased order book for a supplier, or more services to sell for a service provider. List what these benefits may be to gain a first understanding of where the interests of your stakeholders lie.

However, depending on the circular strategy, it is important to consider that it can have effects that – at first sight – do not appear attractive to stakeholders. For example, a customer may have limited ability to switch in long-term

leasing agreements, a supplier may have less sales when less replacement products are needed, or a service provider may no longer be needed to provide certain services if these services are digitalised.

It is therefore important to also gain insight into what else such stakeholders may be interested in, apart from what is already being offered to them. This can then be used as a basis for redesigning a new relationship with these stakeholders.

Phase 1 - Steps for determining “What’s in it for the stakeholders?”



In addition to existing stakeholders, circular economy may also necessitate engaging with partners outside of the current value chain, which may allow for new opportunities to be created. When designing circular value chains, it is therefore important to look outside the current value chain, too.

It may furthermore be the case that the required knowledge or needed capabilities are not available in either the existing value chain or other value chains or sectors. In such cases, it may be necessary to create new entities: new (formal or informal) bodies that take on the development of the new knowledge and/ or capabilities.

After an overview has been generated of the opportunities available through new relationships, new partnerships and new entities the next step can be made. Complementary or synergistic opportunities can be clustered and prioritised so that a decision can be made as to what (set of) opportunities will be pursued further, and which stakeholders are involved in this.

Phase 1 - Time Plan

- 9:00 Welcome & introduction**
Purpose, process and activities
- 9:30 Business Ecosystem Map**
Complete a basic version of the Business Ecosystem Map.
- 10:30 BREAK**
Buffer
- 11:00 Stakeholder Value Map - I/II**
Perform step a-c.
- 12:00 LUNCH**
- 13:00 Stakeholder Value Map - II/II**
Perform step d-f to complete the Stakeholder Value Map.
- 14:30 BREAK**
Buffer
- 15:00 Stakeholder Exploration**
Perform a basic Stakeholder Exploration - bring case examples to facilitate the discussion.
- 16:00 Stakeholder Opportunity Clusters**
- 16:30 Prioritising Opportunity Clusters**
- 17:00 Close**

Getting ready for collecting information

Who to involve

Phase 1 is exploratory: it is aimed at providing insight into diverse stakeholder interests and opportunities. For this reason, seek input from a wide range of perspectives from across your company.

The activities of phase 1 build on each other: the outputs of one activity, are the input for the next. This means that it is recommended to start at the beginning, and follow the process step by step: important insights may not surface if steps are skipped.

Suggested time plan

The suggested timeplan in the box allow for the workshop activities of phase 1 to be conducted in a single day.

Practicalities

CIRCit materials:

- The following resources are available on the CIRCit website, that are helpful in preparing:
- Printout of Stakeholder Cards
 - Printouts of posters
 - A0 – Stakeholder Value Mapping
 - A0 – Stakeholder Exploration
 - A0 – Stakeholder Opportunity Clustering
 - A0 – Prioritising Opportunity Clusters

Other materials needed:

- Flip chart paper
- Post-its of various colours
 - Yellow
 - Orange
 - Green
 - One or two additional colours
- Markers in three different colours
 - Blue
 - Green
 - Red
- Small stickers in two colours
 - Red
 - Green

1.1 Business Ecosystem Mapping

Creating an overview of current stakeholders

The first step aims to get insight into your current stakeholders. The **Business Ecosystem Mapping tool** can be used to map the interactions between your company and both the up- and downstream stakeholders.

What will the results be?

- Shared understanding within the project team of the current business ecosystem
- Insight into interconnections that may help or hinder the circular strategy to be implemented
- Main stakeholders to be included in the next activity.

What is needed?

Data/Information

- A good overview into your company's value chain will suffice; intensive data collection is not required.

People

- A diverse group of participants representing different parts of the company.

Time

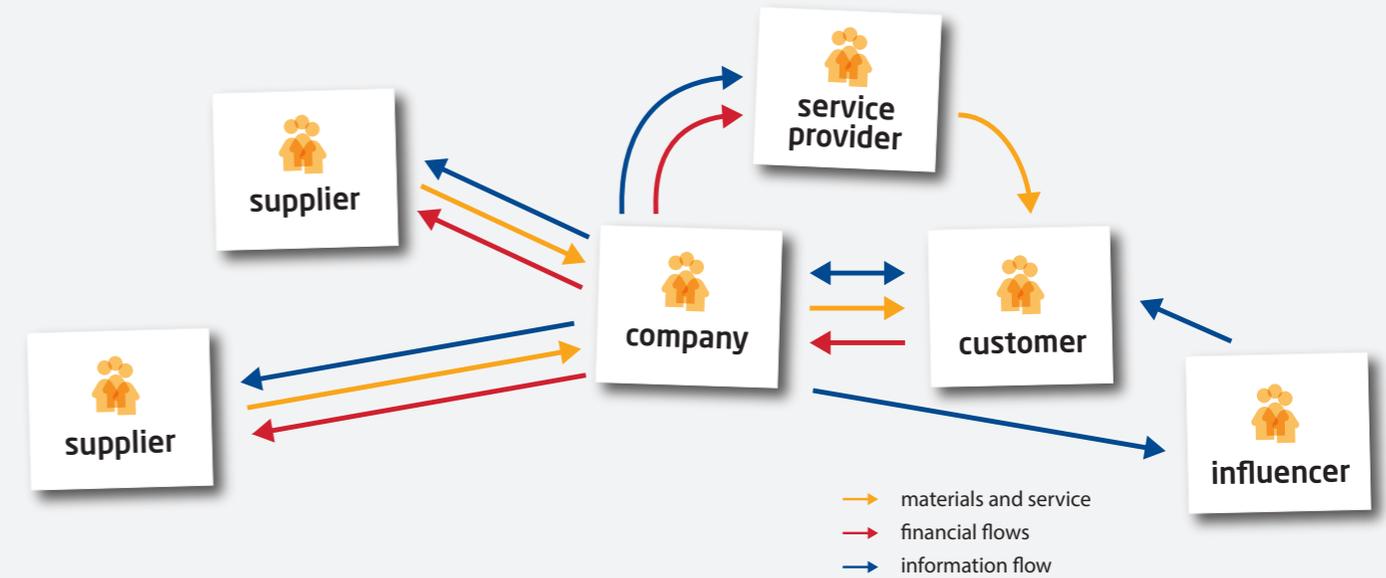
- Preparation & organisation: 1 hour
- Activity: 1 hour to create a basic network map; 2 hours if more detail is needed
- After: if needed for communication purposes, reserve additional time for creating a digital version.

With/without external stakeholders?

This activity is ideally done before engaging with external stakeholders.

Tips for facilitation

- Carefully consider the scope. If the change involves adding or creating entirely new value chains, it may be more appropriate to map the value chains that these aim to replace or will be competing with.
- Print out the Stakeholder Cards to write on: these are easier to move around than post-its.



APPROACH

Steps to complete the Business Ecosystem Map

a. Define what you are mapping

Decide whether you are focusing on a specific product or product group, or on the company as a whole.

b. Create Stakeholder Cards

Create a card with your company on it and put it on the middle of the flipchart. Add cards for different stakeholders, both up- and downstream. Also look outside your direct value chain (e.g. industry bodies, knowledge institutes, media, standard bodies and legislative bodies).

c. Organise stakeholders

Organise the stakeholders according to affinity with your company (close: high affinity, further away: low affinity). Group as needed.

d. Draw the most important flows

Identify service and resource flows, as well as finance and information flows on the diagram. Indicate the direction of flows, as well as their relative importance or magnitude.

e. Analyse

Discuss which stakeholders are relevant to look at for the design of circular value chains. Can you already identify interconnections that may help or hinder your circular strategy to be implemented?



Photo: Jia Jue Johannes Chen

1.2 Stakeholder Value Mapping

Understand in what ways your circular strategy is attractive for stakeholders

With this activity, you gain insight into how your circular strategy can be attractive for stakeholders. Through this, it becomes evident where the interests of your company and your stakeholder(s) are aligned, thus identifying a common ground.

What will the results be?

- Understanding of interests of current stakeholder (e.g. current value captured, value missed/destroyed/surplus/absence and value opportunities)

What is needed?

Data/Information

- A basic map of your company's business ecosystem suffices.

People

- Seek to include representatives of business strategy, innovation/ R&D, account management, sourcing, sustainability, customer relations and other relevant expertise.

Time

- Preparation & organisation: 1 hour
- Activity: 2-3 hours to create a basic mapping; 3-4 hours if more detail is needed
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

If you have trusted partners that are very likely to become part of your new value chain, consider including them in the workshop. In this case, try to conduct the workshop at a neutral location, with a neutral facilitator.

Tips for facilitation

- Assign stakeholder (groups) to individuals or teams whilst brainstorming, and discuss the outcomes with the group
- Prepare examples for the participants in each areas of the Stakeholder Value Map, to help them get started.



APPROACH

Steps to complete the Stakeholder Value Map:

a. Define the current situation and the new circular value chain

The current situation is the starting point for this analysis; the new circular value chain is the value chain needed for implementing the (set of) circular strategy(s) you are exploring.

b. Transfer the most important stakeholders from the Business Ecosystem Map

Remember to add new stakeholders such as the environment and society. Use the “...” category to place stakeholders that do not fit anywhere else.

c. Identify current value captured

For the current situation, identify what your company provides the stakeholders with. These can be tangible and practical things, such as money, goods or services, opportunities to innovate, and business continuity; or intangible, such as enhancement of brand value and knowledge sharing.

d. Identify pain points and latent needs

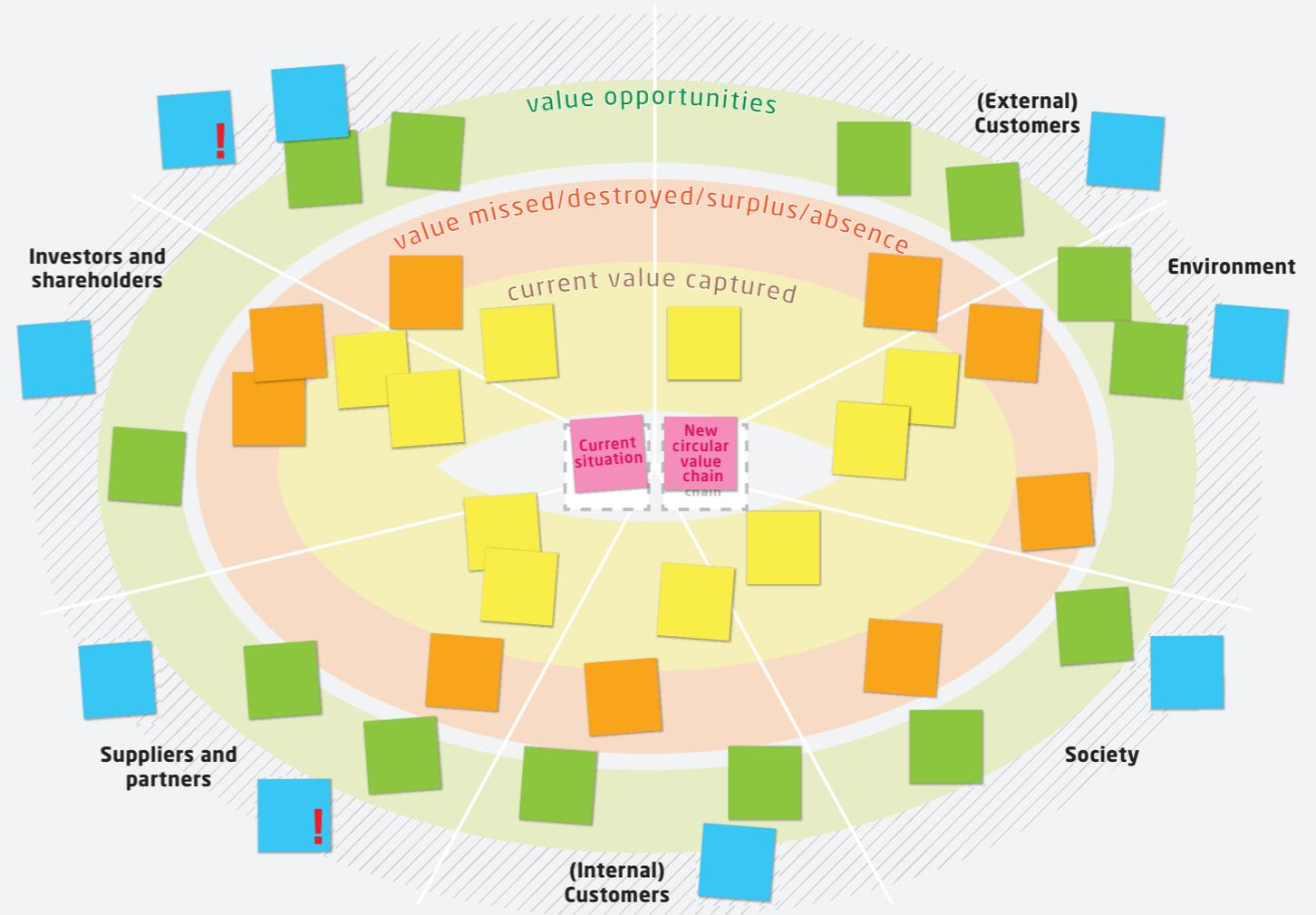
For the current situation, identify value missed/ destroyed/ surplus/ absence. These are things your company provides but does not capture value from, negative outcomes that are generated, value that is provided above the needs of stakeholders, or value that stakeholders want but that is currently not provided.

e. Identify stakeholder value opportunities

For the circular strategy, consider how the value missed/ destroyed/ surplus/ absence can be translated into an opportunity. What can you offer them that will excite and motivate the stakeholders to become part of your circular value chain?

f. Identify who risks ‘losing out’

Mark these stakeholders with a sticker or other mark. How will this stakeholder respond? Does the reaction need to be managed? Can they be offered something else to compensate for the loss?



Adapted from Bocken et al. (2013)



1.3 Stakeholder Exploration

Explore what opportunities are created through working with new partners or the creation of new entities

So far, the process looked at the stakeholders that are currently part of your business ecosystem, and how circular strategies can serve their needs. This next step explores what other collaborations with new partners or new entities extend the possibilities of the circular strategy, and how such collaborations can create new opportunities.

What will the results be?

- Insight into what possibilities are opened up by adding new stakeholders and what value opportunities this may represent

What is needed?

Data/Information

- A complete Stakeholder Value Mapping for existing stakeholders.

People

- This activity is a continuation of the Stakeholder Value Mapping; it is helpful if the same group is present.

Time

- Preparation: 2-4 hours to find relevant case examples of collaborations in circular economy
- Activity: 1 hour for a basic exploration, 2+ hours for more detail
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

It is recommended to conduct this activity internally first. Get feedback on your ideas from trusted partners next, and gradually widen the circle as you involve additional stakeholders.

Tips for facilitation

- This is a brainstorm: generate ideas and opportunities to be added in the Stakeholder Value Map.
- It is not needed to add post-its to every box. However, ensure that in each column knowledge and capabilities are available.
- If you use case examples, ask how the idea or principle translates to your company's context.

	SUPPLY		OPERATION			DEMAND			...
	Knowledge/technology/design	Supply of circular resources	Financing	Standards	Infrastructure and logistics	Combined offerings	Solution platforms	Story telling/narrative	
Your company's knowledge and capabilities...	... are adequate and readily available								
	... can be extended or created given sufficient investment of time and financial resources								
Your company's knowledge and capabilities need to be complemented through...	... creating new relationships with existing partners								
	... creating new partnerships outside of the current value chain								
	... creating new entities								

APPROACH

Steps to complete the Stakeholder Exploration

a. Internal resources — sufficient and available



On the top row, list the internal resources available for deploying the new circular value chain.

b. Internal resources — possibilities to create



On the second row, identify areas where knowledge and capabilities are not readily available, but could be created given sufficient investment of time and financial resources.

c. Collaborations needed — create new relationships with existing partners



Explore where collaborations can supplement internal capabilities or create new opportunities. Identify both the partner (in blue), and the opportunity (in green).

d. Collaborations needed — seek new partners outside of the current value chain



How can other partners support the implementation of your circular value chain? Identify both the partner, and the opportunity.

e. Collaborations needed — create new entities



What knowledge and/or capabilities are still not covered? Can a new entity or body be created? What new opportunities are opened up? Identify both the partner, and the opportunity.

f. Lastly, transfer all the new stakeholders and opportunities to the Stakeholder Value Map.

1.4 Stakeholder Opportunity Clusters

Find synergistic or complementary stakeholder value opportunities.

In the previous steps, new ideas and opportunities were generated. Some involved existing stakeholders, others new ones. In this step, select those of most interest and look at which ones 'go well together' and group them accordingly.

What is needed?

Data/Information

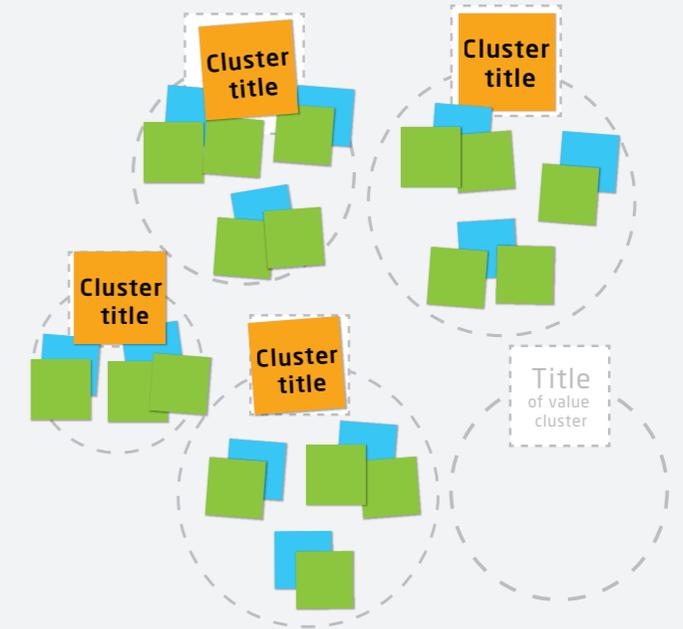
- A complete Stakeholder Value Mapping for existing stakeholders, supplemented with the stakeholders and opportunities from the Stakeholder Exploration.

People

- This activity is a continuation of the previous activities: it is helpful if the same group of people is present.

Time

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



APPROACH

Steps to complete the Stakeholder Opportunity Clusters

- Vote** on the opportunities on the Stakeholder Value Map; you can give participants a limited number of stickies for this (between 3-5 per participant).
- Transfer** the selected opportunities to the Stakeholder Opportunity Clustering sheet. If stakeholders or opportunities fit within multiple clusters, duplicate them.
- Discuss and add titles to the clusters that clearly, but succinctly describe their essence.
- Of the opportunities not selected, perform a final check whether some of these should be added to enhance the generated clusters.

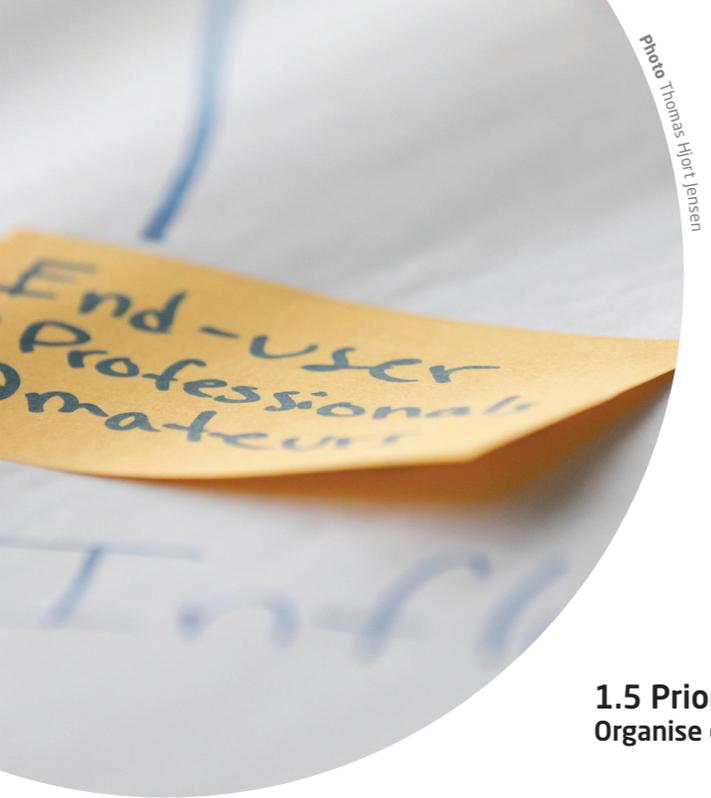


Photo: Thomas Hjort Jensen

1.5 Prioritising Opportunity Clusters

Organise opportunity clusters according to a set of criteria

In the final step of this phase, the generated clusters are rated. This serves to set priorities and select the cluster to be taken forward in phase 2.

What is needed?

Data/Information

- A set of 2-5 opportunity clusters.

People

- This activity is a continuation of the previous activities: it is helpful if the same group of people is present.

Time

- Preparation: gather materials.
- Activity: ±30 mins.
- After: additional time for reporting and communication of the results.

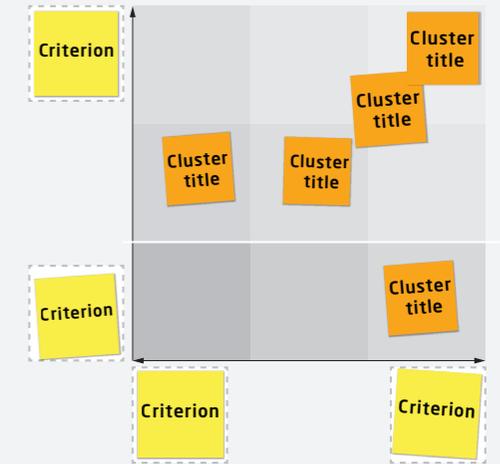
Outcome

From this activity, select the 2-3 most promising opportunity clusters.

APPROACH

Steps to complete prioritising the Opportunity Clusters

- First **decide** how to do the prioritisation. If the opportunity clusters generated represent different snapshots in time, use only the lower third of the diagram to organise them in a timeline. If the clusters are very different in nature, use the full grid.
- When using the full grid, **establish** the criteria to use to organise the clusters. See also concept slides.
- Next, **discuss and place** the opportunity clusters on the grid. The top cluster, or the top 2-3 clusters, are worth exploring further in the next steps.



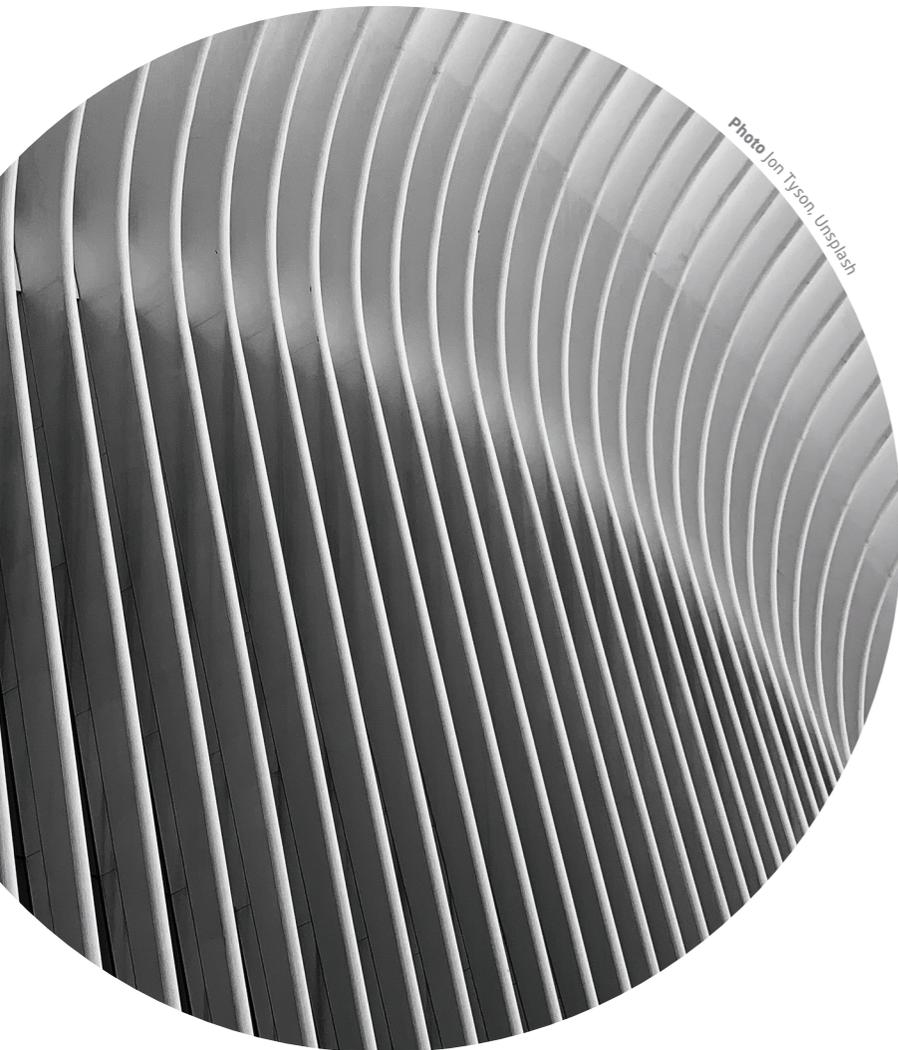


Photo Jon Tyson, Unsplash

Phase 2 - Steps for determining "What will the new circular business ecosystem look like?"

1 2 3

2.1 Circular Value Chain Activity Cycle

Explore where and how the opportunities from the clusters can be captured



2.2 Best Practice Exploration

Find improvement opportunities for the Circular Value Chain Activity Cycle



2.3 Co-creation and Keystone Activity Scan

Identify areas where co-creation is needed or beneficial

2 What will the new circular business ecosystem look like?

Phase 2 makes a start with answering the question of 'how' the new circular value chain would work and what the roles and responsibilities may be of the different stakeholders in operating the new circular value chain.

When you have created a clearer picture of how the main opportunities of interest could be captured with the help of the relevant stakeholders, you can review the prioritisation made in step 1.5. Have your views on the prioritisation you made changed? Select the most promising value chain configuration to take forward in the next steps.

The remainder of phase 2 focuses on further developing and improving the selected value chain, looking at best practices for sustainable and circular value chain development. This is used to improve the activity cycle further to make it more robust, and ensure that important factors that impact the new value chain's feasibility are not overlooked.

Getting ready for collecting information

Who to involve

During this phase, you will make a decision regarding which opportunity cluster you will (first) develop. Therefore, it is helpful if someone from business development and/or strategy is involved. Does your solution involve working in new ways with customers? Involve account management, sales, marketing and after-sales. Does your solution involve working with suppliers in new ways? Involve logistics and buyers or procurement.

Suggested time plan

The suggested timeplan in the box would allow for the workshop activities of phase 2 to be conducted in a single day. This is based on the assumption that you choose one opportunity cluster to further develop.

Phase 2 - Time plan

- 9:00 Welcome & recap**
Recap outcomes phase 1, outline activities of today
- 9:30 Circular Value Chain Activity Cycles - I/II**
Create 2-3 basic Circular Value Chain Activity Cycles based on the selected Opportunity Clusters.
incl. BREAK as needed
- 11:30 Circular Value Chain Activity Cycles - II/II**
Present & review Opportunity Prioritisation.
- 12:00 LUNCH**
- 13:00 Best Practice Exploration**
- 14:30 BREAK**
Buffer
- 15:00 Best Practice Collection & Circular Value Chain Activity Cycles 2.0**
- 16:30 Keystone Activity and Co-Creation Scan**
- 17:00 Close**

Practicalities

CIRCit materials:

The following resources are available on the CIRCit website:

- Printouts of posters
 - 2-3 x A0 – Circular Value Chain Activity Cycle
 - A0 – Best practice Exploration (5 grids + 1 Summary Sheet)
- From phase 1 bring:
 - The Cluster Prioritisation

Other materials needed:

- Post-its of various colours
 - Pink
 - Green
 - Blue
 - One additional colour
- Small stickers in one colour
 - e.g. green

Note that in the following, only the new tools are discussed. Please refer to the process described on the previous page and the concept slides for more detail.



Photo: via the Joannes Chen

2.1 Circular Value Chain Activity Cycle

Explore where and how the opportunities from the clusters can be captured

After having refreshed the 2-3 selected opportunity clusters, it will now be explored how those opportunities can be captured through making 2-3 Circular Value Chain Activity Cycles for each cluster.

What will the results be?

- New roles and responsibilities of the different stakeholders in the new circular value chain
- Cluster prioritisation.

What is needed?

Data/Information

- Insight into the different processes affected by the new circular value chain. In particular, the processes as viewed from the end-user.

People

- Review whether the group involved in phase 1 is still relevant. Consider adding people with needed insights and expertise.

Time

- Preparation & organisation: 1 hour;
- Activity: 2-4 hours (parallel groups);
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

Before engaging with external stakeholders, it can be helpful to have a draft activity cycle for them to react to, and to further develop together. This will make it easier for them to visualise your ideas and tell you what will or will not work from their perspective.

Tips for facilitation

- Keep in mind that the purpose is not to describe the current situation, but to explore how the new value chain would work;
- To use time efficiently, consider having groups work in parallel on the 2-3 activity cycles, and discuss with the group afterwards;
- After this activity, revisit the Opportunity Cluster Prioritisation. Which opportunity looks the most promising now? Discuss with the group, and try to reach consensus: this is the value chain design taken forward in the next steps.

APPROACH

Steps to complete the Circular Value Chain Activity Cycle:

a. Define opportunity cluster, end-user & scenario

Define which opportunity cluster will be explored, who the end-user is, and - if applicable - what (use) scenario you are looking at.

b. Add the circular strategy or strategies central to the cluster

Use the pink arrows in the middle of the diagram to indicate where which circular strategies take place.

c. Add the activities

Next, add the activities that the end-user (in the centre) goes through in the PRE, DURING and POST phases. Add a secondary stakeholder if the central stakeholder is not involved in actions that are of key importance.

d. Add the needs

Describe the needs associated with each activity. Think of a 'need' as the support stakeholder requires to complete the activity successfully. What information is needed? What format is the most useful to them? Where can it be found?

e. Add the stakeholders responsible & their roles

For each need, consider the stakeholder responsible for fulfilling it. This can be your company, a stakeholder, or a combination. Add a short description of how or in what form the need is fulfilled.

2-3x

CIRCULAR VALUE CHAIN ACTIVITY CYCLE

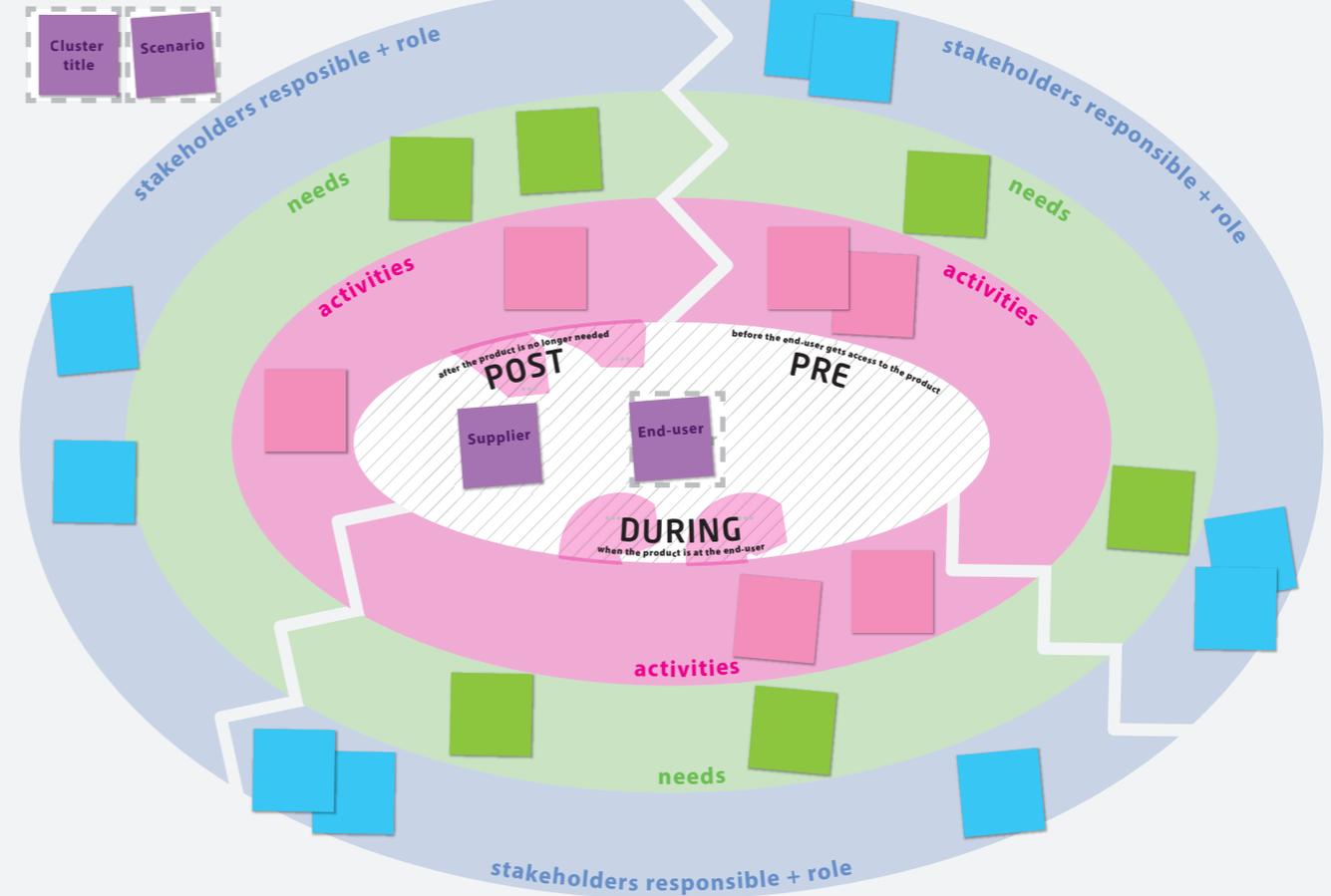




photo Stakeholder workshop with Etac

2.2 Best Practice Exploration

Find improvement opportunities for the Circular Value Chain Activity Cycle

Before starting this activity, it is recommended to have selected one Circular Value Chain Activity Cycle to focus on. For this activity cycle, it will now be explored what needs to be put in place to make it a success.

What will the results be?

- Actions with the most impact for improving the Circular Value Chain Activity Cycle.

What is needed?

Data/Information

- A good insight into the current activities affected by the new Circular Value Chain Activity Cycle, as well as some of the barriers that may be encountered in transitioning.

People

- Involve people who will be able to shed light on the inner workings of the new Circular Value Chain Activity Cycle.

Time

- Preparation & organisation: 1 hour;
- Activity: 1 hour to find the primary improvements; 2 hours for a more thorough discussion
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

This activity can be done either internally, or with external stakeholders.

Tips for facilitation

- Go over the grids in the suggested order: the final sheet has a place to collect the selected actions.
- Use the 5 grids provided as a means for a guided brainstorm: the purpose is to generate ideas about how the selected Circular Value Chain Activity Cycle can be improved.
- Capture other improvement ideas that may come up. Add these to the Best Practice Collection sheet for review later, when you are selecting the actions.

APPROACH

Steps to complete the Best Practice Exploration:

a. Define the current and the desired future positions

Identify what the current situation is, and the space the new value chain wants to occupy.

b. Brainstorm improvement opportunities

Guided by the axis of the grid, and the examples on the concept slides, generate as many improvement opportunities as you can for each of the 5 grids.

c. Select the actions that will give the best results & with the most impact

Select - for example through a vote using stickies - the actions that would add key improvements to the Circular Value Chain Activity Cycle.

d. Add the selected actions to the Best Practice Collection Sheet

You can find this on the sheet Best Practice Exploration - part 5. The purpose is to split the actions that can be taken on internally within your company, from those that will need the involvement of your stakeholders. Assign stakeholders to the actions.

e. Add the stakeholder(s) responsible

For each external action consider which stakeholder(s) can take it on.

2-3x

BEST PRACTICE EXPLORATION - part 5

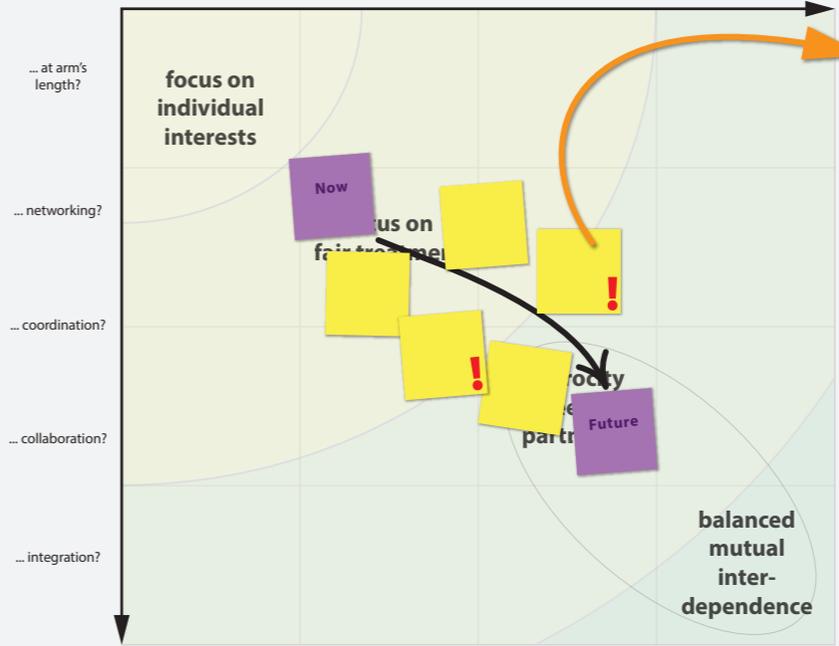
VALUE CHAIN STRUCTURE & FINANCIAL FLOWS

How are the financial flows organised and optimised, and how does this influence the value trajectory of circular solutions and the coping with risks?

FINANCIAL FLOWS and RISK BURDEN
Are characterised by:

- ... maximisation of own gain, minimisation of own risk?
- ... consideration of viability of key partners?
- ... value capture and risk burden are proportional to the respective value added by stakeholders?
- ... viability and competitiveness of whole chain is put first?

VC STRUCTURE
Are parts of the network connected through:



BEST PRACTICE COLLECTION

INTERNAL
to company/project

EXTERNAL
value chain actors or others in the business ecosystem

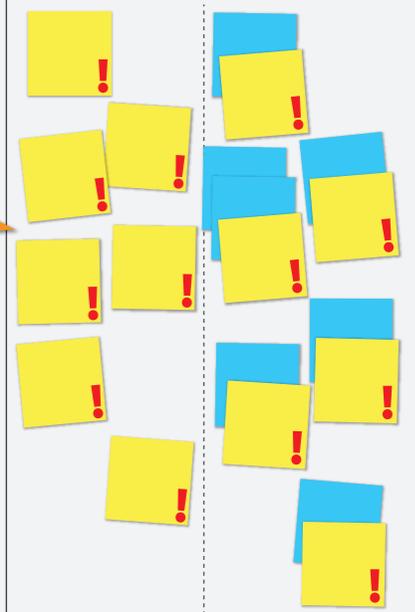




Photo Jia Jue Iohannes Chen

2.3 Co-Creation and Keystone Activity Scan

Identify areas where co-creation is needed or beneficial

This final step of phase 2, is the transition between designing the new value chain, and thinking about how to make the change. With the Co-Creation Scan key areas for co-creation are identified and prioritised.

What will the results be?

- Areas that could benefit from co-creating solutions together with stakeholders
- Alternative scenarios for keystone activities.

What is needed?

- Data/Information
- A good insight into the new Circular Value Chain Activity Cycle. If

needed, further develop this with additional input from internal and external stakeholders, before starting this activity.

People

- Involve people who will be able to shed light on the inner workings of the new Circular Value Chain Activity Cycle.

Time

- Preparation & organisation: 1 hour
- Activity: 30 mins- 1 hours
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

This step is perhaps best performed either internally, or with a close group of trusted stakeholders.

Tips for facilitation

- The purpose of this Scan is to take stock of phase 2, and determine the input for phase 3. Now that a picture has been created of how the new circular value chain would work, it is possible to identify activities that need to be co-created, and which of these are keystone activities.

APPROACH

Steps to complete the Keystone Activity and Co-Creation Scan:

a. Identify areas that could benefit from co-creation

Identify areas where a close collaboration with other stakeholders allows for:
Going further together - there exists co-dependence for shared value creation incl. capturing new types of value
Generation of shared savings - increased efficiencies by doing things smarter, increasing profitability/ viability.

b. Identify where these areas take place in relation to the product life cycle.

c. Identify whether different ways of working together are possible

These are areas where different scenarios for performing a certain activity are conceivable. How maintenance and repair is performed, for example, may differ depending on the type of maintenance or repair that is needed. Add the main variations to the Co-Creation Scan sheet.

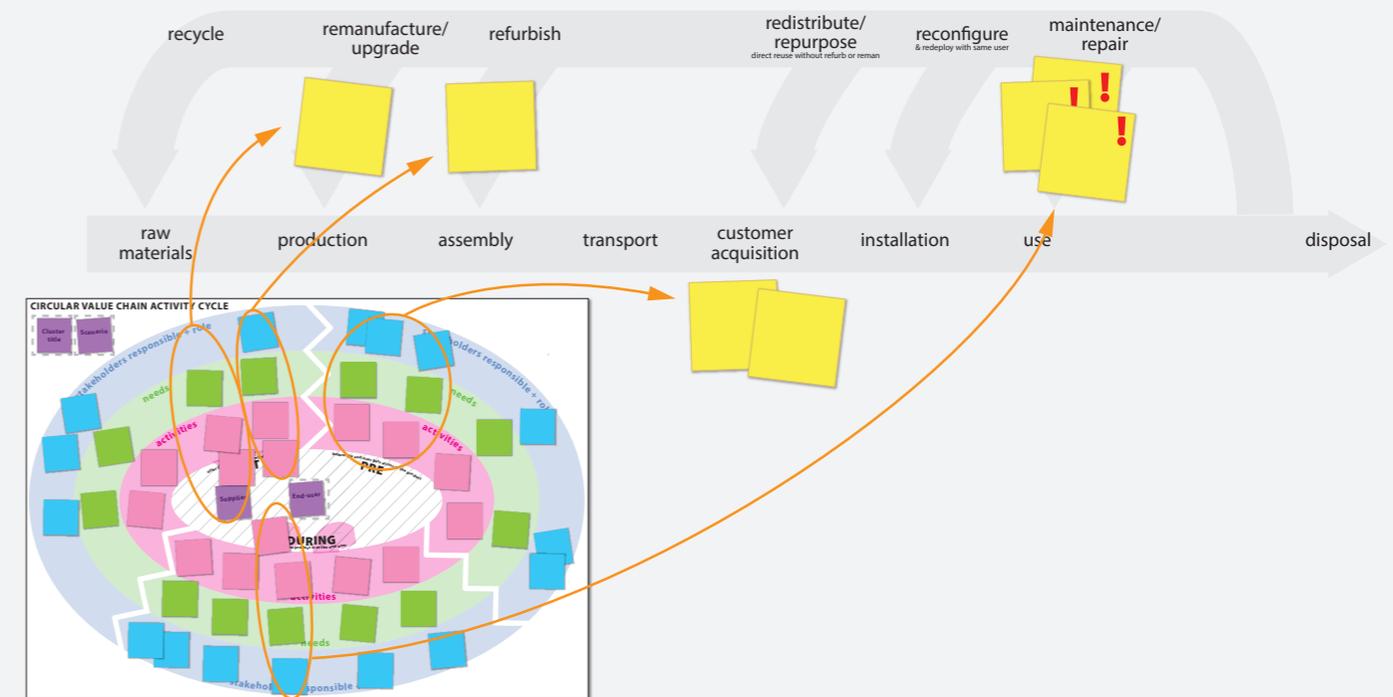
d. Identify areas that are critical for the whole value chain to function

Select - for example through a vote using stickies - the actions that form the basis or foundation of the new value chain. This is an activity

without which the rest of the chain would not function, or that needs to be in place for other circular strategies to be added.

e. Discuss the selection.

Is it important to detail the different scenarios taking place at one specific point of the product life-cycle? Or are there two or more closely related activities that are vital for the functioning of the circular value chain?



Phase 3 - Steps for determining "How to work with the stakeholders?"

3.1 Keystone Activity Cycle

Zooming in on Keystone Activities in the Circular Value Chain Activity Cycle.



3.2 Co-creation Learnings Finder

What does the change look like from the perspective of the stakeholder?



3.3 Experiment Design

What low-fidelity and high-fidelity pilots or experiments can be done?



3.4 Circular Value Chain Roadmap

Putting it all together.



Photo Courtesy of Framery

3 How to work with which stakeholders in making the transition?

At this point, you will have a high-level overview of how the new circular value chain can work. Many details are still in need of clarification, especially where it concerns the keystone activities and unverified assumptions. For instance, the new circular value chain may require customers to take a more active role in maintaining products, or perhaps suppliers or service providers will perform activities that are currently not part of their offering. Understanding the change from the perspective of the stakeholders, and which assumptions are made with regards to this will help identifying risks, so that they can be addressed.

Instead of investing a lot of time and resources into designing the perfect solution, therefore, it can pay-off to design smaller pilots or experiments to test such critical assumptions and manage risks.

Getting ready for collecting information

Who to involve

Phase 3 is not yet aimed at implementation, but at establishing how the transition would work. This phase supports creating an overview of what short, medium and longer term actions are needed. For this reason, it is helpful if those people are involved that will have a role in executing the short, medium and longer term actions. To make sure you have the mandate from management to go ahead and will be able to access the needed resources internally, also involve people with the authority to make decisions.

Also, if you have not done so already, it is recommended to get feedback on the outputs of phase 3 from external stakeholders that have a role in the

transition. Not only is their help needed, but they may have ideas with on to how to improve the approach.

Suggested time plan

The suggested timeplan in the box would allow for the workshop of phase 3 to be conducted in a single day. Note, however, that it is likely that this will give you a first draft, and that you will continue to develop and refine your approach with input for others within the organisation after the workshop.

Practicalities

The following resources are available on the CIRCit website, that are helpful in preparing:

- A0 – Keystone Activity Cycle
- A0 – Co-creation Learnings

- A0 – Experiment Design
- A0 – Circular Value Chain Roadmap
- From phase 1 bring:
 - The Cluster Prioritisation

Phase 3 - Time plan

9:00 Welcome & recap

Recap outcomes phase 2, outline activities of today

9:30 Keystone Activity Cycles

Create 3-5 basic Keystone Activity Cycles based on the selected Keystone Activities.

incl. BREAK as needed

12:00 LUNCH

13:00 Co-creation Learnings Finder

14:30 Experiment Design

incl. BREAK as needed

16:00 Circular Value Chain Roadmap

Create a first iteration of a roadmap.

17:00 Close

3.1 Keystone Activity Cycle

Zooming in on Keystone Activities in the Circular Value Chain Activity Cycle

In the Keystone Activity Cycle a similar approach is followed as with the Circular Value Chain Activity Cycle (see 2.1). Here, however, it is applied at a higher resolution, focusing exclusively on the keystone activity and what is needed to perform this activity or operation.

What will the results be?

- Insight into how the keystone activities would work.

What is needed?

Data/Information

- Insight into the Circular Value Chain Activity Cycle, and where the keystone activity sits within it;
- The most important scenarios or variations on keystone activities.

People

- Involve those people that will have a role in or are affected by the keystone activities discussed.

Time

- Preparation & organisation: 1 hour;
- Activity: 2-4 hours. If different scenarios of keystone activities are discussed, allocate additional time.
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

Note that those people that will have a role in or are affected by the keystone activities may be located within or be external to the company. If external stakeholder are not (yet) involved, it may be helpful to get feedback from them on the outputs of this step before continuing.

Tips for facilitation

- Keep in mind that the purpose is not to describe the current situation, but to explore how this keystone activity would work. Focus on those aspects that are new or different from the current situation.

As many as needed

APPROACH

Steps to complete the Keystone Activity Cycle:

- a. Add the activity scenario or variation, and the central stakeholder**
The central stakeholder, in this activity cycle, is the stakeholder which is central to the scenario. This can be the end-customer, like in the Circular Value Chain Activity Cycle, but they can be other stakeholders (e.g. suppliers, dealers, service providers or other actors.)
- b. Define PRE, DURING and POST**
As the focus is now on a specific keystone activity, define what it means to prepare or get ready to perform the activity (PRE), what steps the central stakeholder takes when doing the activity (DURING), and what happens after the activity (POST).
- c. Add the activities**
Next, add the activities that the central stakeholder goes through in the PRE, DURING and POST phases.
- d. Add the needs**
Describe the needs associated with each activity, as seen from the perspective of the central stakeholder. Think of a 'need' as the support the stakeholder requires to complete the activity successfully.
- e. Add the stakeholders responsible & their roles**
For each need, consider the stakeholder responsible for fulfilling it. This can be your company, another stakeholder, or a combination. Add a short description of how or in what form the need is fulfilled.





Photo | Ja Lie Johannes Chen

3.2 Co-creation Learnings Finder

What does the change look like from the perspective of the stakeholder?

With the Co-creation Learnings Finder you step in the shoes of the stakeholder. This tool supports identifying the critical assumptions with regards to what it is that stakeholders need to start, stop and continue doing to transition from the current chain to a (more) circular one.

What will the results be?

- Understanding of what the change from the perspective of your company
- Understanding of what the change from the perspective of the stakeholders
- Risks and critical assumptions that warrant verification with pilots or experiments.

What is needed?

Data/Information

- A good insight into the Keystone Activity Cycle (and, if applicable, its variations or different scenarios).

People

- Involve those people that will have a role in or are affected by the keystone activities discussed.

Time

- Preparation & organisation: 1 hour
- Activity: 1-2 hours, depending on the number of stakeholders that need to be discussed
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

It is recommended to perform this activity internally first, and to seek feedback on it from external stakeholders later. This will give you the opportunity to clearly articulate assumptions first.

Tips for facilitation

- When you are articulating the assumptions (in pink in the diagram to the right), finish with each stakeholder before moving on to the next. That is: go from top to bottom, and then from left to right.

APPROACH

Take the following steps to complete the Co-creation Learnings Finder:

a. Add the stakeholders involved in the keystone activity

Focus on those stakeholders with the largest or key roles.

b. Identify what your company needs to START, STOP and CONTINUE doing

Compare the keystone activity in the new circular value chain with current processes and procedures within your company. What needs changing? Add these to the top of the diagram.

c. Identify what the stakeholders need to START, STOP and CONTINUE doing

The same as the previous step, but now from the perspective of the stakeholders. What do they need to change? Continue until this has been done for all the stakeholders included in the analysis.

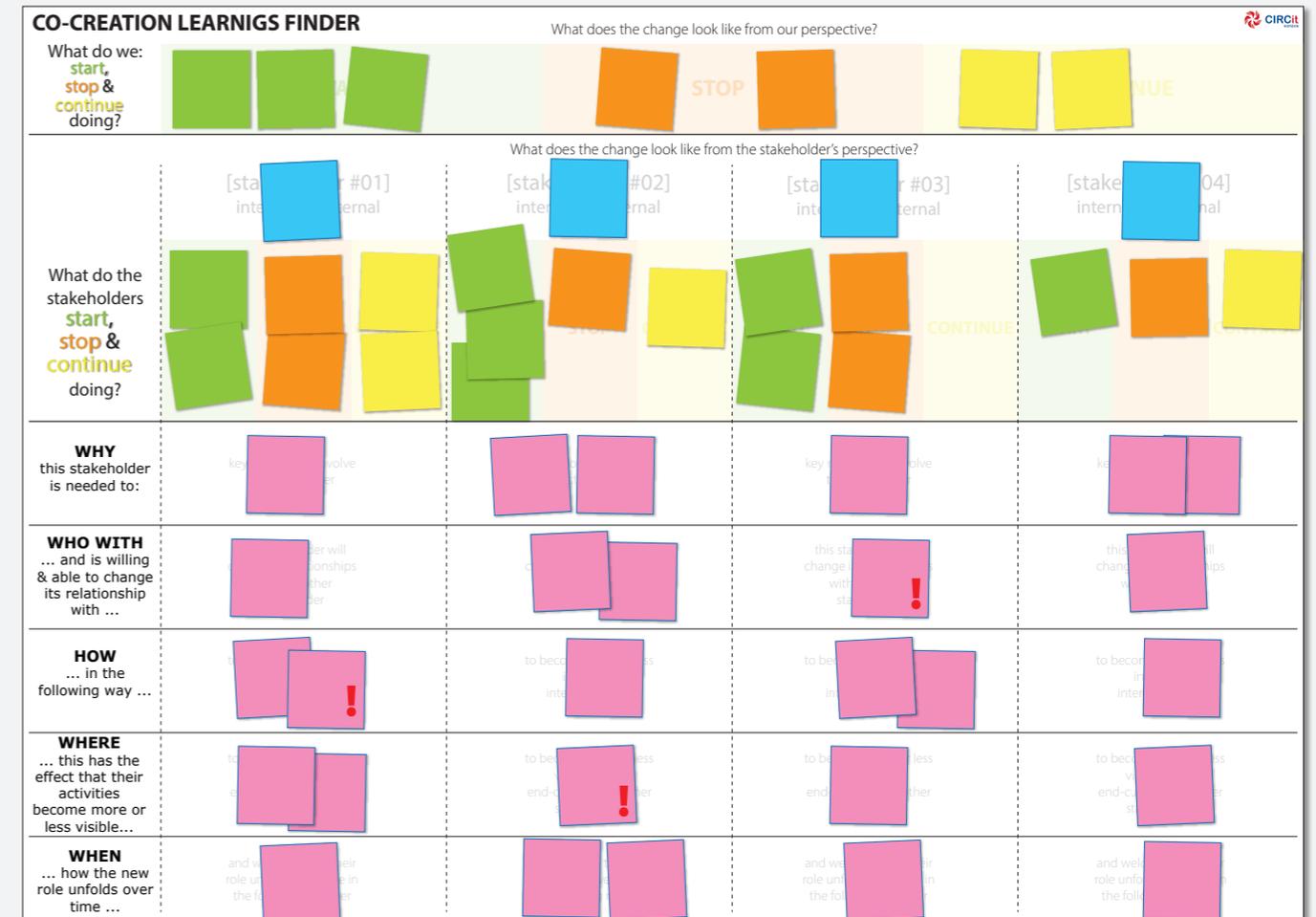
d. Articulate assumptions

For each stakeholder articulate WHY this stakeholder is needed, WHO they need to change their relationship with, HOW that relationship will change, what the impact is on the visibility of their activities and

how you anticipate that their role will change over time. These are your assumptions: you assume that the stakeholder is willing and able to do these things.

e. Identify critical assumptions

Some of the assumptions you listed are more risky than others. Identify - through placing stickies, for example - which of these assumptions are critical.



3.3 Experiment Design

What low-fidelity and hi-fidelity pilots or experiments can be done?

With this step – Experiment Design – you make sure that your short term actions maximise learning about the long(er) term goal – the keystone activity as it is envisioned to take place in the circular value chain when it is up and running – whilst minimising resources invested to do so.

Sometimes this may require building part of the solution: e.g. developing a high-fidelity prototype that offers one or more features of the proposed solution. However, less resource intensive means may also offer a means to learn more. Although limited in functionality, low-fidelity prototypes give insight into the problems your stakeholders face and how valuable your solution is to them. These prototypes can take the

form of surveys or teasers.

The main thing to keep in mind for designing this part of the process, is that actions speak louder and more clearly than words. That is: aim for designing experiments that go beyond verbal confirmation, and test what stakeholders are actually interested in or would actually do when faced with your proposed solution.

All that's left is to review the outcomes of the previous steps and collate it all in a roadmap.

What will the results be?

- Break down of the goal into lower fidelity prototypes that can be used to verify assumptions
- Lowest fidelity experiment that needs to be done first.

Review other keystone activity cycles, and add experiments for these cycles too, if needed.

What is needed?

Data/Information

- A good insight into the Keystone Activity Cycle (and, if applicable, its variations or different scenarios)
- Identification of the critical assumptions underpinning the keystone activities.

People

- Involve those people that will have a role in or are affected by the keystone activities discussed.

Time

- Preparation & organisation: 30min
- Activity: 1-2 hours
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

Some experiments work better if your stakeholder does not know they are experiments. Other experiments may require the permission of your stakeholders to go ahead. Consider this carefully before engaging stakeholders in the experiment design.

Tips for facilitation

- The purpose of this activity is not to design all the experiments for the entire development process. Rather: focus on the 1-2 lowest fidelity experiments. These will be conducted first. After this, you will review the outcomes. If your hypothesis holds true, you can design the remaining experiments. If not, track back into the process, change your assumptions, and work forwards from there.

APPROACH

Steps to complete the Experiment Design:

a. Name the keystone activity and list the critical assumptions

Place the critical assumptions - identified in the previous step - to the right of the diagram. This represent the goal you are working towards: the verification of these assumptions.

b. Work your way backwards devising experiments of different fidelity levels

Devise as many experiments as you need. What is the lowest fidelity experiment that you can think of? Iterate between this step and the next.

c. Clarify the hypothesis of the experiment

Clarify the hypothesis the experiment is designed to test. What is the expected outcome? Go back and forth between this step and the previous, until there is the feeling no lower fidelity experiment can be devised.

d. Add detail to the assumptions that will be tested

In this step verify which of the assumptions will be tested with the experiment.

e. Decide how progress will be tracked

Determine how you know that you are making progress towards your goal.





Photo: Thomas Hjort Jensen

3.4 Circular Value Chain Roadmap Putting it all together

In this last step of phase 3 – the last step before initiating the experiments and other actions needed for developing your circular value chain – you review what was done so far, and create a roadmap. This can then be used as a basis for a project plan.

What will the results be?

- Circular Value Chain Roadmap.
- A picture of how to proceed with the implementation of your circular economy value chain.

What is needed?

Data/Information

- Opportunity Cluster Prioritisation;
- Best Practice Exploration, specifically the Best Practice Collection sheet;
- Circular Value Chain Activity Cycle – improved
- Keystone Activity Cycle(s)
- Experiment Design – with the first 1-2 lowest fidelity experiments detailed.

People

- Involve those people that will be responsible for the implementation of the new circular value chain
- For securing mandate and resources to go ahead with the development, ensure to involve decision makers within your company.

Time

- Preparation & organisation: 2-3 hours to revisit the previous steps and consolidate the outputs
- Activity: 1-2 hours to create a draft, depending on detail; additional time for further refinement
- After: additional time for reporting and communication of the results.

With/without external stakeholders?

For the co-creation activities in particular, you may want to create a joint roadmap with external stakeholders.

Tips for facilitation

- Start with the most recent outputs and work your way backwards.
- It is useful if the outputs from the previous phases and steps can be revisited easily. However, instead of using the original materials, it may be helpful to consolidate and clean-up posters and post-its somewhat, so that they are easily accessible.

APPROACH

Take the following steps to complete the Circular Value Chain Roadmap:

a. Define the timeline

Agree on what SHORT, MEDIUM and LONG term means. Assign specific dates, months or years to the timeline, if possible.

b. Add SHORT term actions

First, add the actions from the Experiment Design sheet, focusing on the 1-2 lowest fidelity prototypes. Review other Keystone Activity Cycles, and add experiments for these cycles if they need to be run together or in parallel. Add the goal of the activities, how they will be evaluated, what resources are needed, and who will provide them.

c. Add MEDIUM & LONG term actions

Next, review the Best Practice Collection sheet and the improved Circular Value Chain Activity Cycle. Based on these, what other things need doing to ensure the success of the circular value chain? Add the goal of the activities, how they will be evaluated, what resources are needed, and who will provide them.

d. Revisit the remaining opportunity clusters

Go back to the output from step 1.5: Opportunity Cluster Prioritisation. Will the creation of this circular value chain allow for capturing these other opportunities more easily? Discuss whether these opportunities should be kept in mind as part of the goal.

CIRCULAR VALUE CHAIN ROADMAP

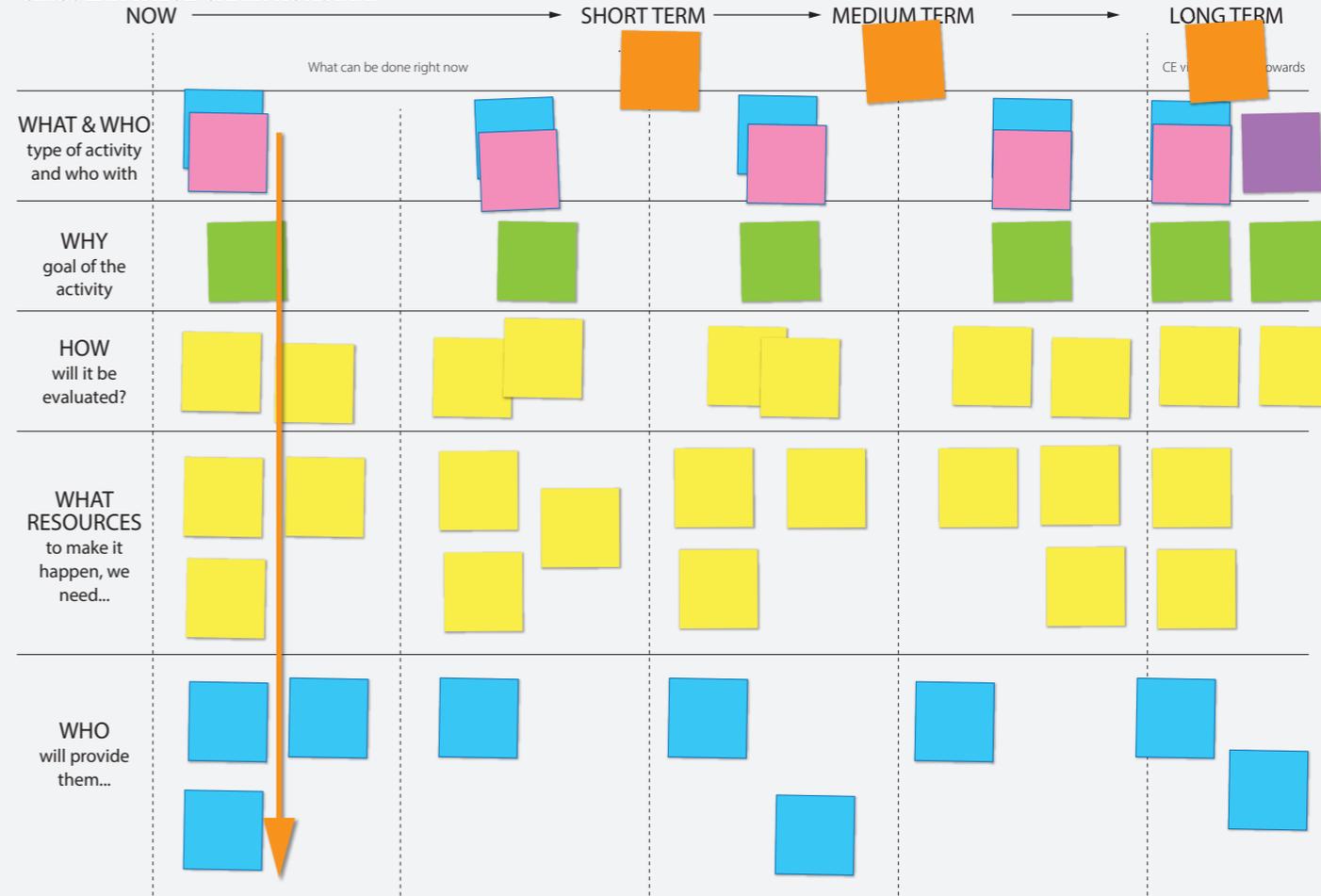




Photo Jia Jue Johannes Chen

What now?

Remember, operating in line with circular economy means to address structural waste, and to turn this into a business opportunity – for all stakeholders.

The next step means to start the short term actions you decided on in the Roadmap.

When your ideas meet reality, you will learn a tremendous amount. Be prepared to review and adjust your approach as needed. Sometimes that may mean taking one step back in the process. Other times, it may be necessary to take several steps back.

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](https://doi.org/10.1016/j.jclepro.2019.118271).
- Bocken, N. *et al.* (2013) 'A value mapping tool for sustainable business modelling', *Corporate Governance*, 13(5), pp. 482–497. doi: [10.1108/CG-06-2013-0078](https://doi.org/10.1108/CG-06-2013-0078).



Nordic Green Growth

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



Innovation Center
Iceland



Technology Industries
of Finland

