

Presentation

# Circular Design Competencies

Deborah Sumter, PhD  
Researcher Circular Design and Business  
Amsterdam University of Applied Sciences

[d.x.sumter@hva.nl](mailto:d.x.sumter@hva.nl)

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# Content

Circular Economy

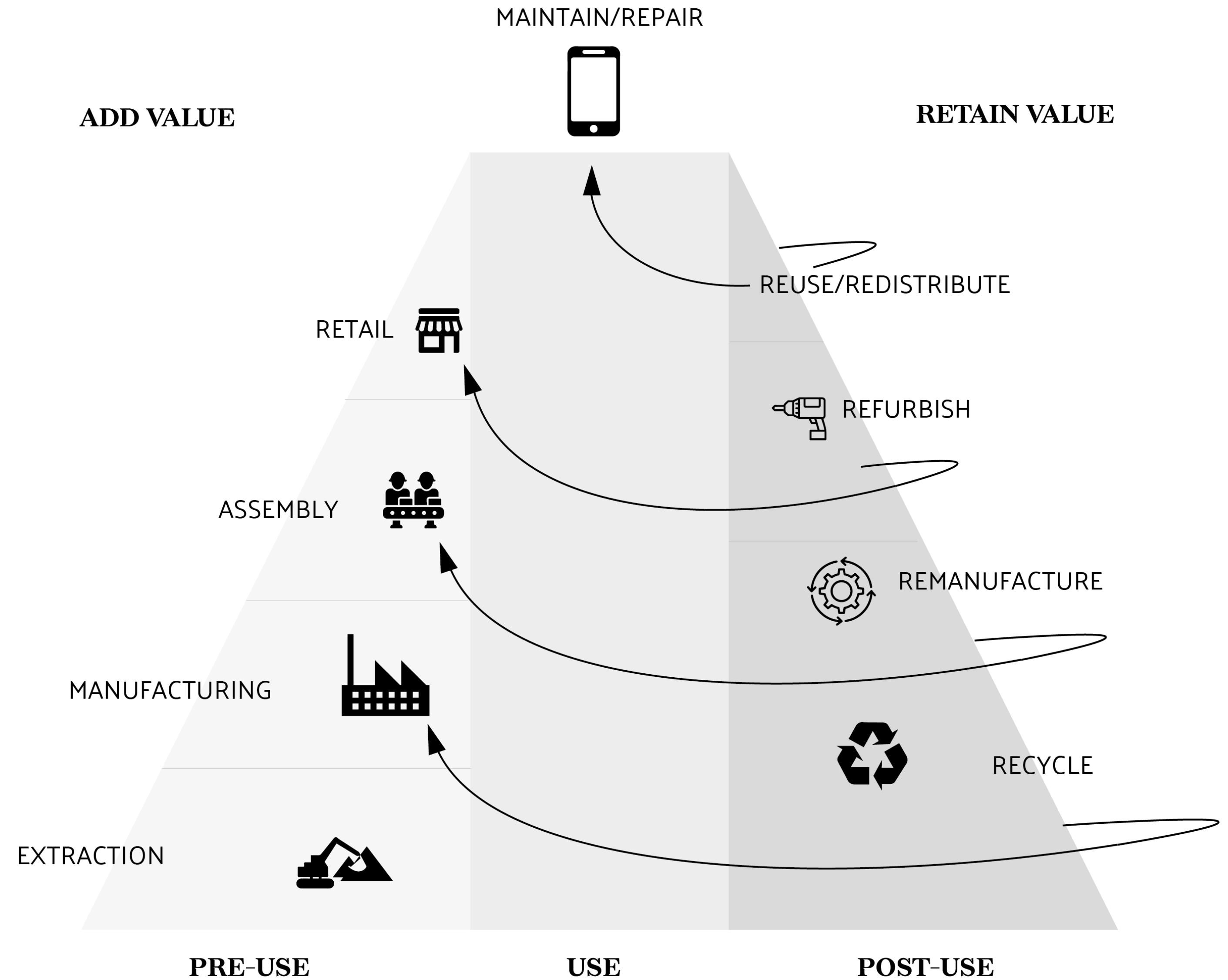
**Case Study: Bugaboo Flexplan**

Circular Design Competencies

Self-assessment tool

Q&A

# Circular Economy



What  
competencies are  
important for  
designers to  
develop products  
and services for a  
circular economy?

# Case Study

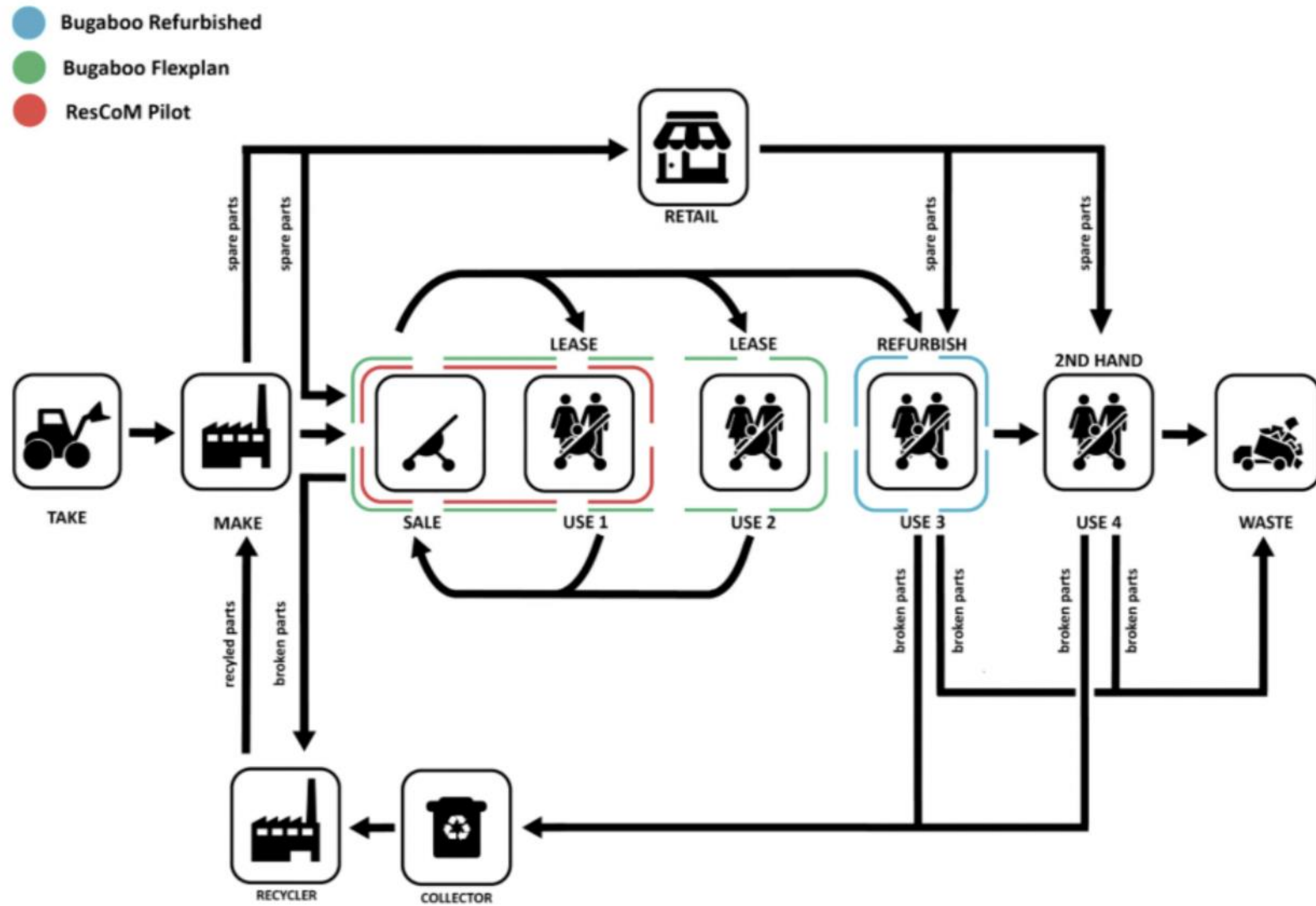









**Figure 1.** The third generation of the Cameleon line, (left) and the modules of the stroller (right): 1. rain cover, 2. under seat basket, 3. base seat fabric, 4. seat/carrycot frame, 5. carry handle, 6. wireframe, 7. chassis with wheels, 8. extendable sun canopy, and carrycot apron, and 9. base carrycot [30].



**Figure 2.** Schematic overview of Bugaboo Flex Plan and Bugaboo Refurbished.



**Table 3.** Product to last—part lifetime categorization. Some examples from the part lifetime list.

Categories	Long Lasting	Wear and Tear	Fabrics	Packaging
Example part				
	Bugaboo Cameleon Frame	Bugaboo Cameleon Snow wheel	Bugaboo Cameleon Carry cot	Bugaboo Cameleon Car seat adapter packaging
Lifecycle	Lasts for three use cycles	Degrades during one use cycle	Replaced every use cycle (in lease model)	One-time use



# Insights

Don't be gentle, it's a rental

Increased (reverse) logistics and touch points

Modularity vs. Durability

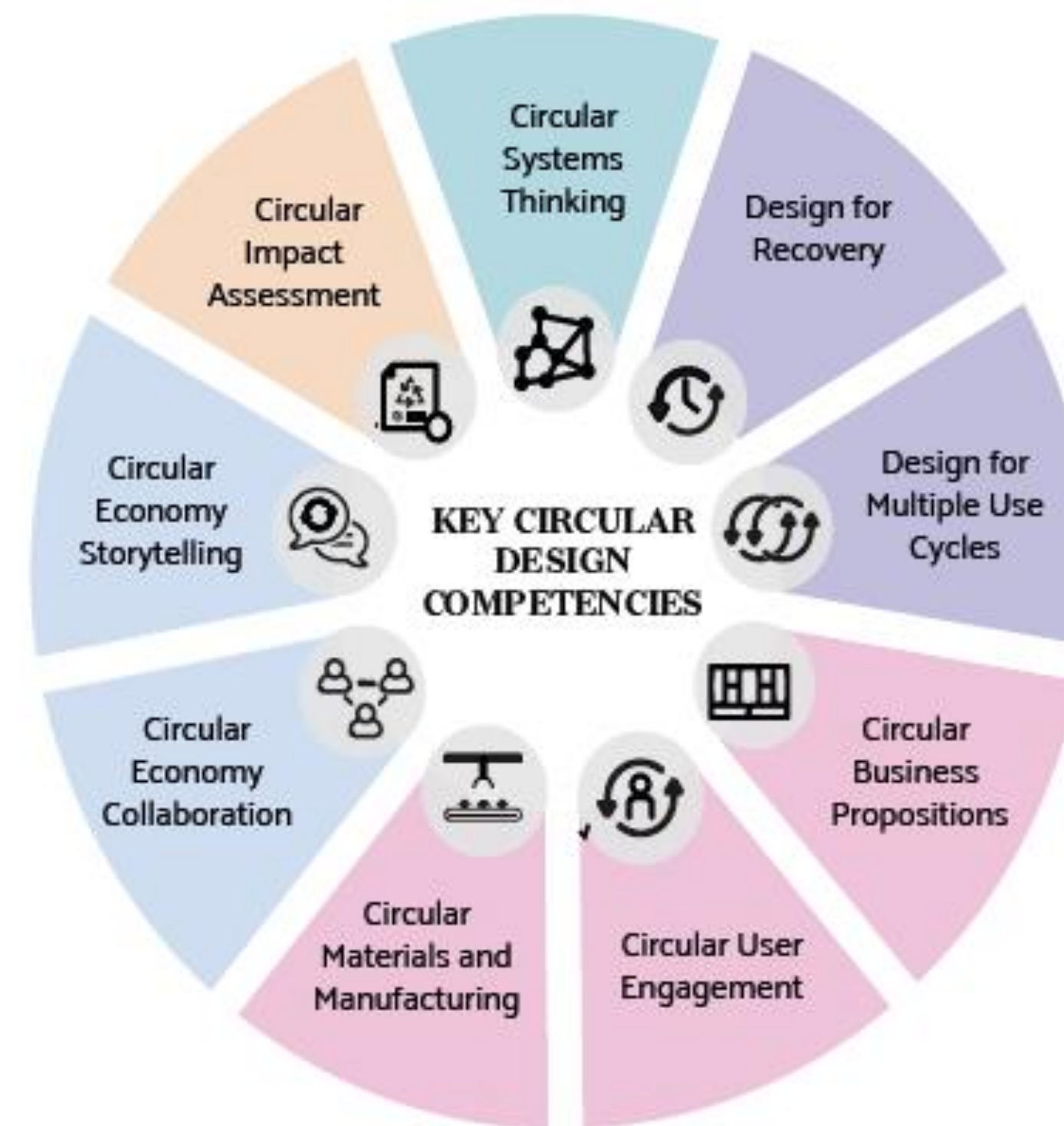
Standardization vs. Exclusivity



# Circular Design Competencies



# Circular Design Competencies



## The ability to

### Circular Systems Thinking

Adopt an approach to design that regards the circular economy as a complex system, taking into account that circular design interventions will have systemic effects.

### Design for Recovery

Develop product service systems that allow for products, components and materials to be recovered and looped back into a circular economy.

### Design for Multiple Use Cycles

Create product service systems that are designed to have more than one use cycle while retaining value in a circular economy.

### Circular Business Propositions

Develop circular business propositions that aim at fully closing product and material loops and thereby keeping resources in use for as long as possible.

### Circular User Engagement

Engage users in all aspects of the circular economy, for instance by enabling users to share and care for (shared or owned) products and stimulate them loop back products at the end of a use cycle.

### Circular Materials and Manufacturing

The ability to select and use materials and manufacturing methods for a product to minimize the impact (environment, health, social), while taking into account the full life cycle of the product and its recovery.

### Circular Economy Collaboration

Facilitate multi-stakeholder collaboration across value networks in order to create circular product service systems as well as stimulate the transition towards a circular economy.

### Circular Economy Storytelling

Create engaging visions and narratives of the circular economy in order to make the idea understood and to garner support for it amongst various stakeholders.

### Circular Impact Assessment

Measure the environmental, economic and social impact of circular design interventions throughout the full product-service life cycle.



# Circular Systems Thinking

## Spare Parts

Select your device to find the parts you need



The Fairphone (Gen.6)



Fairphone 5



Fairphone 4



Fairphone 3(+)



Fairphone 2



Fairbuds XL



Fairbuds

## Keep what you love for longer

Swapping parts is a breeze with Fairphone. Order from our webshop, grab a screwdriver, and fix it in minutes. And if you need a hand, we'll be with you every step of the way.



Fairphone



Liam Recycle Robot

# Design for ... Recovery ... Multiple Use Cycles





# Circular

- ... Business Propositions
- ... User Engagement
- ... Materials and Manufacturing



# **Circular Economy ... Collaboration Storytelling**





# Circular Impact Assessment

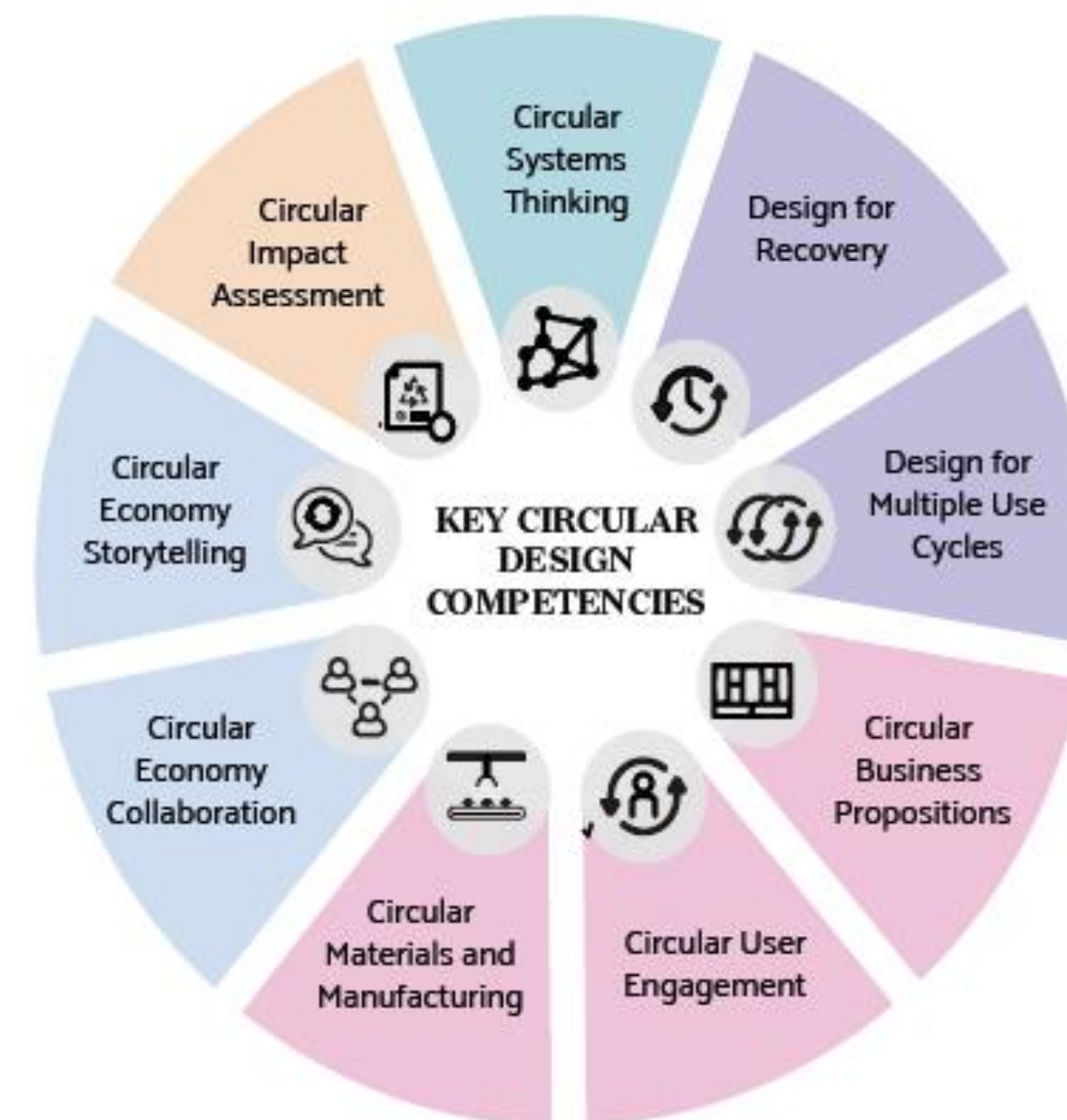
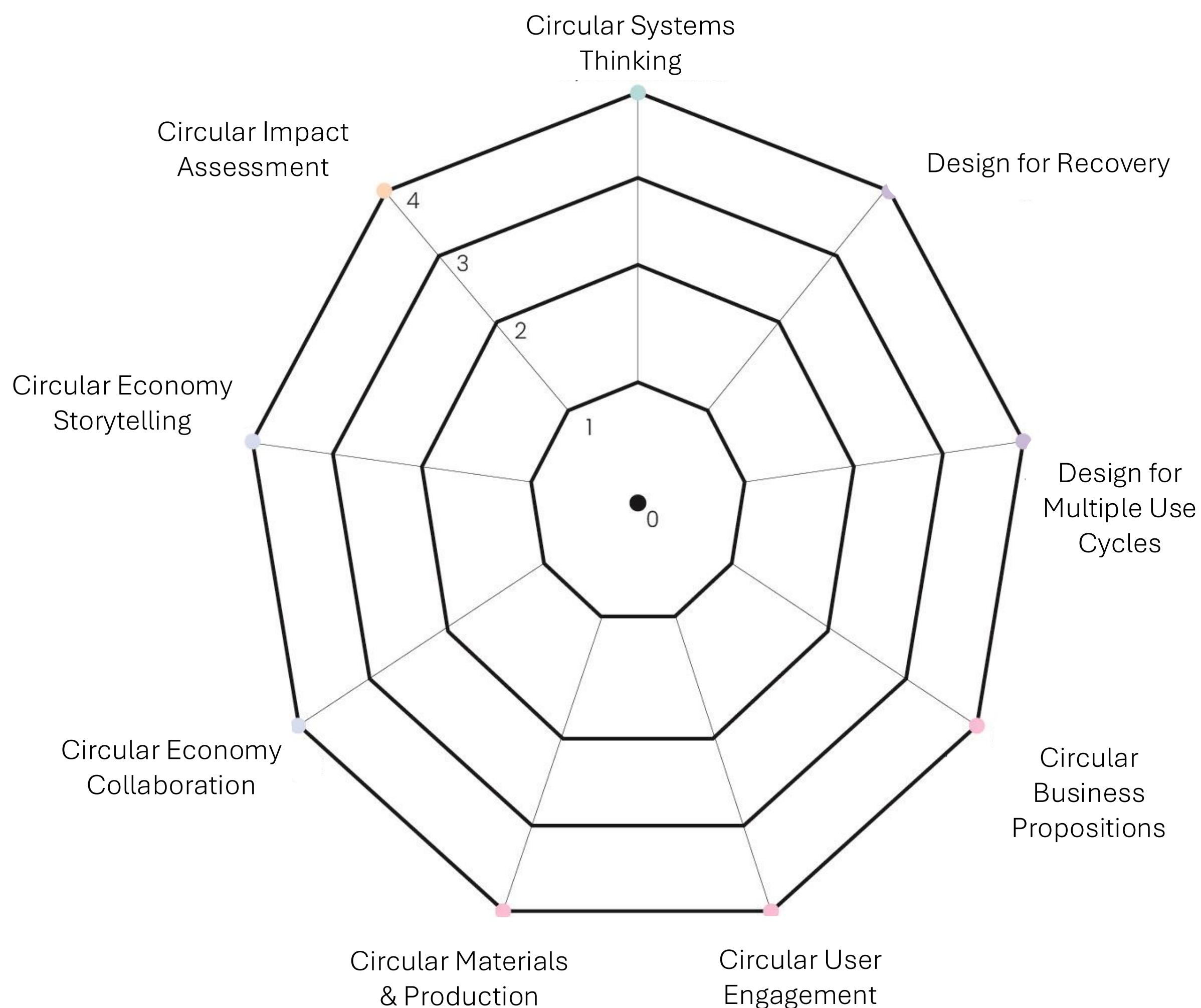




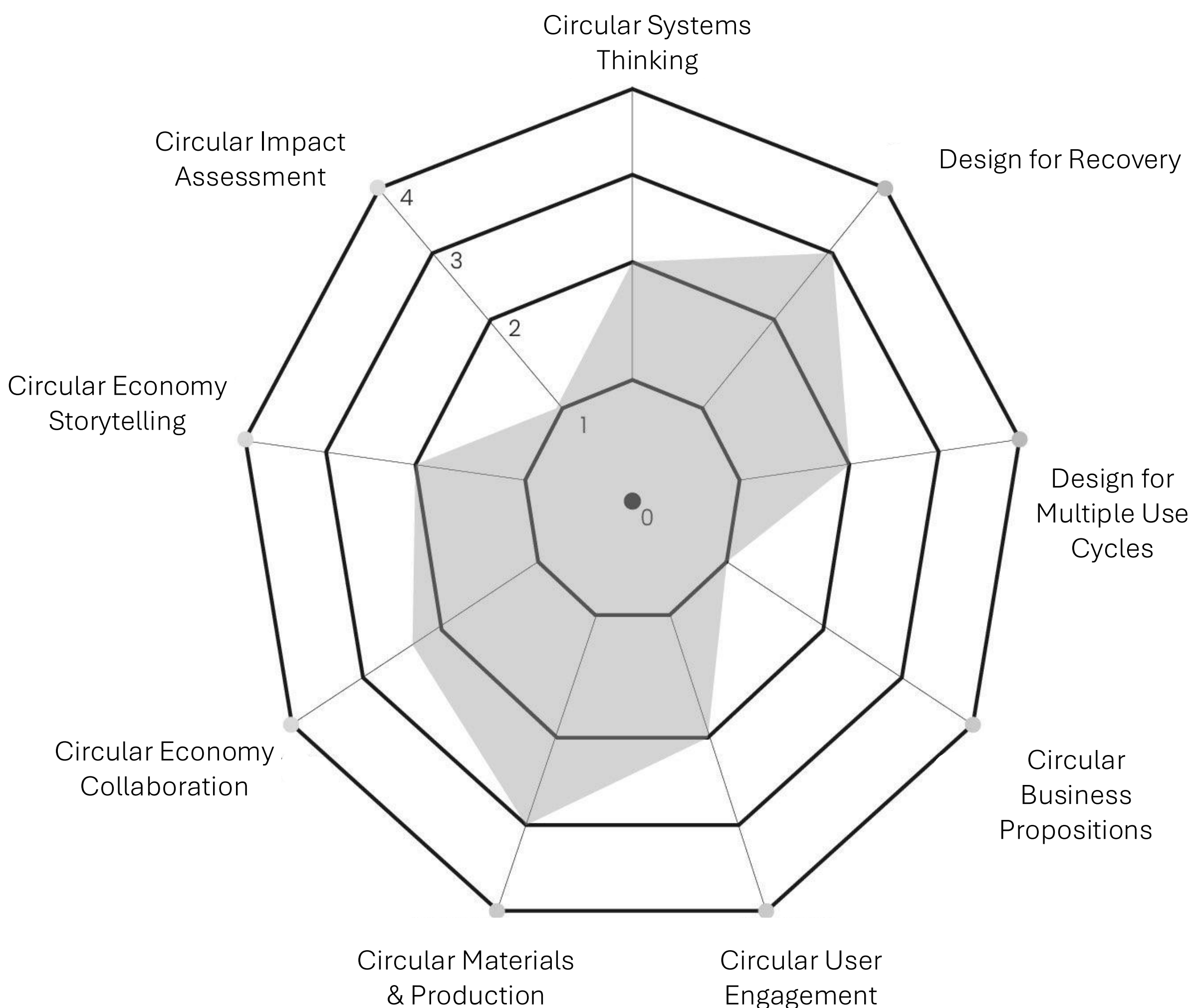
# Self-assessment Tool



# Circular Design Diagram



# Circular Design Diagram



## Level 4 Expert

I have extensive knowledge, skills and experience to apply this in a professional context

## Level 3 Advanced

I understand the concept thoroughly/really well and have applied it extensive in practice

## Level 2 Intermediate

I understand the concept quite well and have applied it in practice

## Level 1 Basic

I understand the basic principles of this concept and have applied this in practice

## Level 0 No

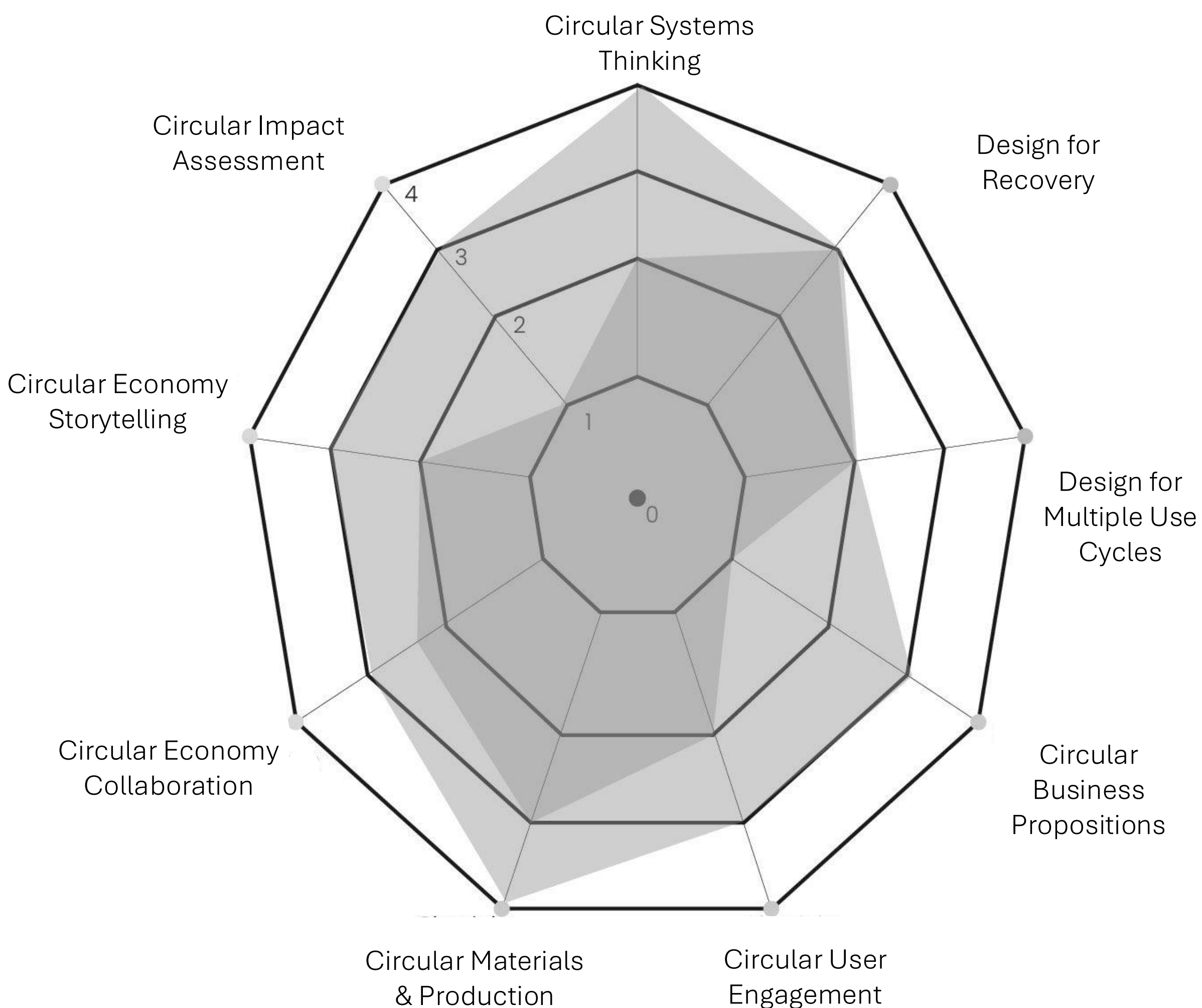
I don't have any knowledge and/or have never applied it

## Reflect on the circular design competencies

- A. At which level do assess yourself to be for each competency? (Color 1)
- B. Which competency do you want to further develop? At which level (Color 2)
- C. What do you need to move from situation (A) to situation (B)?



# Circular Design Diagram



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- C. What do you need to move from situation (A) to situation (B)?

# My work at the AUAS

## Current

### **Rethinking Packaging Systems**

How can we use Rethink (as a circularity strategy) to make (floriculture and cosmetics) packaging systems more sustainable?

### **Urban Upcycling**

How can urban upcycling entrepreneurs change the customer's perception of repurposed furniture (through design)?



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## ***Future***

### **Circular Design Diagram**

Preparing a research application to further develop the circular design diagram

# Resources

[Design for Product Care](#) (Ackermann et al. 2021)

[Products that Last](#) (TU Delft)

[Products that Flow](#) (TU Delft/ Partners for Innovation)

[Delft Design Guide](#) (TU Delft)

[Repurpose Driven Design](#) (AUAS)

[Circular Design Guide](#) (IDEO)

[Material Circularity Indicator](#) (EMF)



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