

# Sustainability Academy

Furnishing for the future



EUROPEAN  
FURNITURE  
GROUP

19 OCT 2023









**Hope for today**



# Furnishing for the future





# Agenda

**9:30 – 10:30**

Block 1 – Today's sustainability issues and challenges

**10:30 – 11:15**

Block 2 – How do we identify the best eco-friendly furniture?

**11:30 – 12:30**

Lunch

**12:30 – 14:30**

Block 2 – How do we identify the best eco-friendly furniture? Continued

**14:30 – 15:00**

Fika

**15:00 – 15:30**

Block 3 – Environmental standards with a focus on tenders

**15:30 – 15:50**

Block 3 – Tendering requirements for office furniture

*By Marianna Loikala, product manager, architect Msc, Senate Properties*

**16:15 – 16:30**

Summary of learnings today

**16:30 – 19:00**

Mingle & cocktails



1

Today's sustainability  
issues and challenges

2

How do we identify  
the best furniture?

3

Environmental standards with  
a focus on public tenders



# 1

## **Today's sustainability issues and challenges**

- Globally
- In the furniture industry
- Important focus areas
- EFG's goals & vision and sustainability efforts



# How do we identify the best eco-friendly furniture?

- Materials choices, useful life and design
- Carbon footprint with the aid of EPDs
- What are EPDs?
- Eco-labelling and certifications

# 2



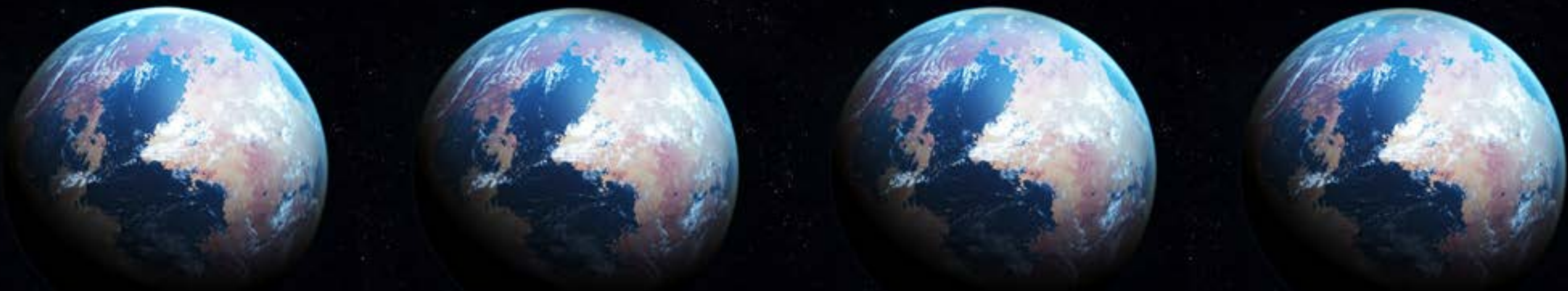
# 3

## Environmental standards with a focus on tenders

What standards apply today, and what will come next?

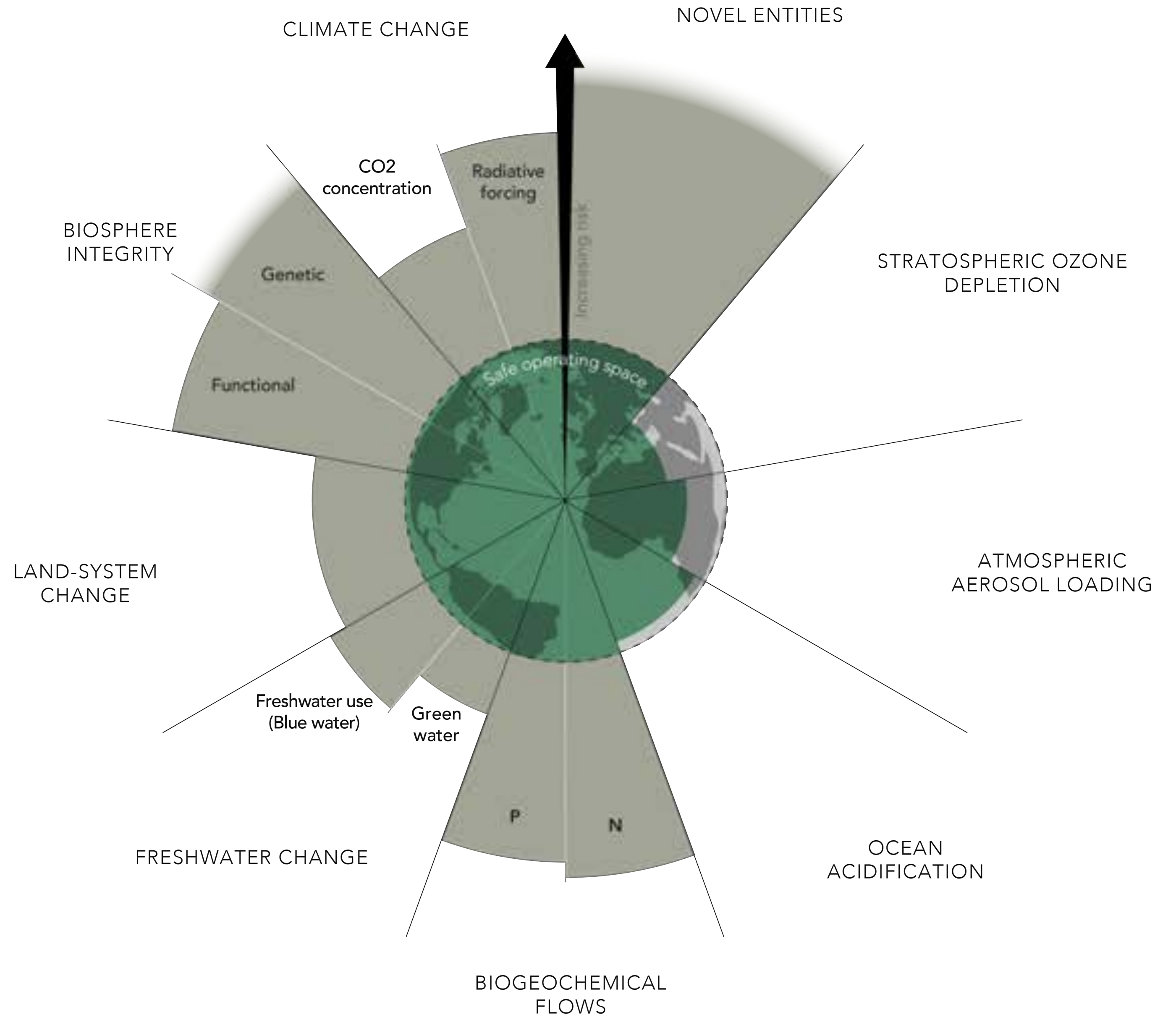
- Recyclability standards
- Supply chains
- Test requirements & reports
- Eco-labelling & EPD







# Planetary boundaries



Source: Stockholm Resilience Center





**What are the major  
sustainability challenges  
facing the furniture industry?**



# How the furniture industry impacts planetary boundaries





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**Rising materials prices and increased environmental impact.**

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## **Climate**

**Everything that is manufactured and transported affects the climate.**

Low carbon manufacturing during the production phase and use phase.  
Can a piece of furniture last 20 years instead of 5?



# EFG's goals and vision and sustainability efforts





# Focus areas and sustainability goals

## **Sustainable materials**

- Climate neutral products 2040
- Renewable, recycled and recyclable materials



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## **Sustainable design**

- Long life
- High quality
- Minimal material consumption (with no compromise on quality)
- Pure materials (not mixed materials, which prevent recycling)
- Layer by layer



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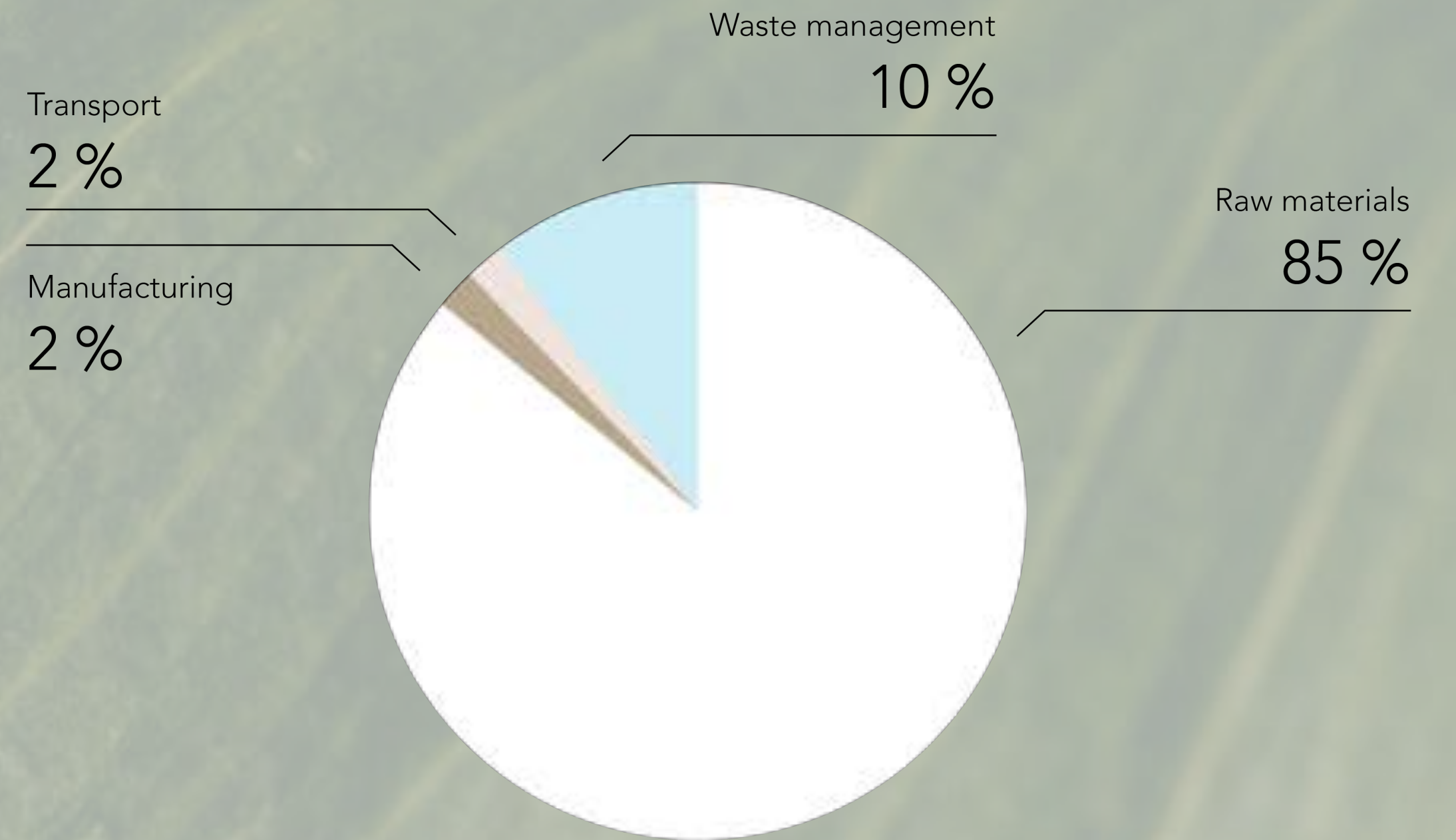
- Long life
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- Minimal material consumption (with no compromise on quality)
- Pure materials (not mixed materials, which prevent recycling)
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## **Responsible supply chains**

- Decent working conditions and eco-friendly energy both externally and internally



# Focus areas and sustainability goals





Goal and vision:

# Sustainability

Goal:

EFG's and Savo's products must be fully climate neutral by 2040 – 10 years ahead of the Paris agreement.

Vision:

We are committed to a sustainable future, encompassing People and Planet together with our Products - designed & produced to stand the test of time.





## EFG's design philosophy

EFG's design philosophy means furniture strives for:

- Long life
- High quality
- Minimal material consumption
- Pure materials
- Layer-by-layer structure



## QUESTION:

How many of you feel confident in choosing sustainable products and know what to look for?





**How do we identify the  
best eco-friendly furniture?**





## Important environmental impact aspects:

- Materials and raw materials
- Chemicals
- CO<sub>2</sub> emissions
- Environmental certifications
- Recyclable materials
- Ability to recycle and repair



# Design philosophy in practice





## Savo 360

- 26% of Savo 360 is wood
- 39% is recycled materials
- FSC certified wood
- 24% CO<sub>2</sub> is saved by using wood instead of plastic
- Layer by layer
- Slimline design takes up less space during haulage
- Less than 5% of the chair is plastic
- Certified by Möbelfakta and Nordic Swan



## Savo Soul (Recycled)

- Switched from virgin to recycled plastic in PA6 components on the black version
- A life cycle analysis (LCA) of climate emissions before and after the switch
- Soul's CO<sub>2</sub> emissions are now a full 43% lower
- 660 tonnes of CO<sub>2</sub> saved every year
- Certified by Möbelfakta







## EFG Archie

- Can plastic be eco-friendly?
- Archie is fibreglass-free and 100% recyclable
- As a plastic chair, it's one of the best environmental choices on the market
- Plastic that uses fibreglass cannot be recycled without loss of quality
- Resource smart, economical and eco-friendly
- Certified by Möbelfakta





## EFG Evo

- Hard to find an armchair with a smaller carbon footprint
- The fabric is eco-labelled and 3D-knitted = zero fabric waste
- No padding or polyurethane foam in Evo
- FSC wood and water-based adhesive and paints
- Certified by Möbelfakta



# Questions





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- Chemicals
- CO<sub>2</sub> emissions
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# LCA

Life cycle analysis



# EPD

Environmental Product Declaration





**How should we interpret an EPD?**





**Savo Soul**



**Flokk RH Logic**





**Product**

**Product description:**

Task chair, type A

**Product specification:**

Task chair, type A

Material	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Metal - Steel	3,67	25,39	0,00	0,00
Plastic - Polycyclohexylene (POM)	0,14	0,94	0,00	0,00
Plastic - Nylon (PA)	0,69	4,80	0,00	0,00
Metal - Aluminium	1,09	7,52	1,09	100,00
Plastic - Polyurethane (PUR)	1,90	13,15	0,00	0,00
Glass fibre	0,73	5,06	0,00	0,00
Plastic - Polypropylene (PP)	6,24	43,15	6,24	100,00
<b>Total</b>	<b>14,46</b>		<b>7,32</b>	

Packaging	kg	%	Recycled share in material (kg)	Recycled share in material (%)
Packaging - Cardboard	2,76	18,11	0,99	36,00
Packaging - Plastic	0,04	1,29	0,00	0,00
<b>Total incl. packaging</b>	<b>11,25</b>		<b>8,32</b>	

**Technical data:**

**Market:**

Scandinavia

**Reference service life, product:**

15 year

**Reference service life, building:**

**LCA: Calculation rules**

**Declared unit:**

1 pcs Savio Soul without armrest & neckrest upholstered back and seat excl. fabric

**Cut-off criteria:**

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

**Allocation:**

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

**Data quality:**

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases,ecoinvent and other LCA databases. The data quality of the raw materials in AT is presented in the table below.

Material	Source	Data quality	Year
Glass fibre	ecoinvent 3.6	Database	2019
Metal - Aluminium	ecoinvent 3.6	Database	2019
Metal - Steel	ecoinvent 3.6	Database	2019
Packaging - Cardboard	ecoinvent 3.6	Database	2019
Packaging - Plastic	ecoinvent 3.6	Database	2019
Plastic - Nylon (PA)	ecoinvent 3.6	Database	2019
Plastic - Polycyclohexylene (POM)	ecoinvent 3.6	Database	2019
Plastic - Polyurethane (PUR)	ecoinvent 3.6	Database	2019
Plastic - Polypropylene (PP)	Modified ecoinvent 3.6	Database	2019



**Product**

**Product Description and Application**

RH Logic collection is office chairs with optimal ergonomics and visual elegance, that provide comfort and enhances performance during the work day. Based on our vision of upright posture and active seating, RH Logic chairs are easily adjusted to individual needs and preferences, so that every user can find the perfect balance between movement and support.

Sustainability and environmental efficiency is a big part of RH Logic. The chair is designed to be long lasting and to make the lowest possible environmental impact throughout its life cycle - from raw material extraction to end-of-life. This is why all parts are easy to replace and disassemble, and every component is fully recyclable and free from toxic substance.

**Technical Data**

Total Weight: 24,95kg (packaging excluded)

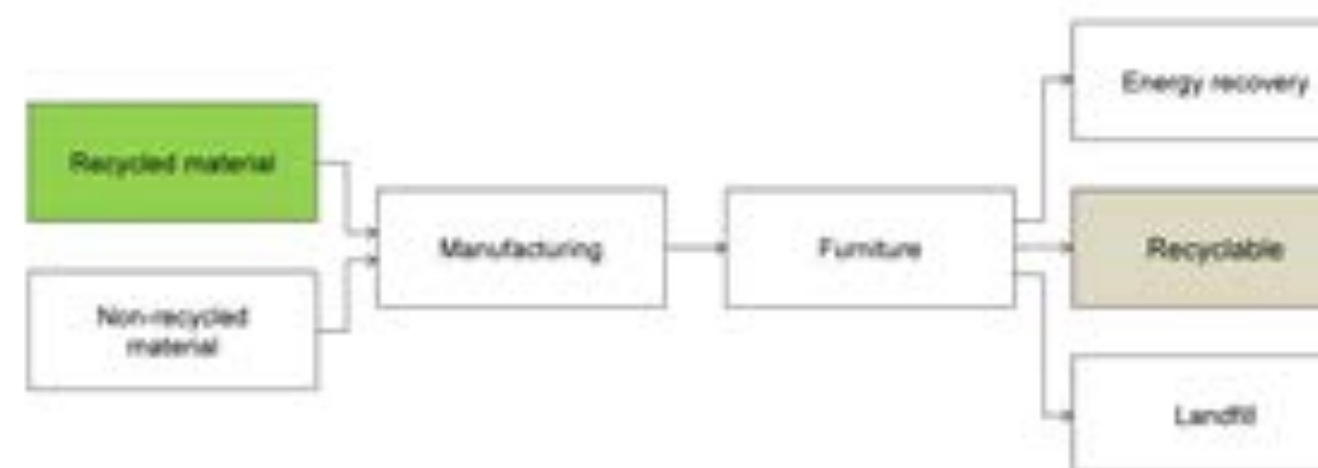
**Market**

Worldwide

**Reference Service Life**

15 years

Materials	Unit	g	%	Recycled share in product		Recyclable potential of product	
				g	%	g	%
Metal - Aluminium		8 702	35%	8 125	93 %	8 702	100 %
Metal - Steel		6 825	27%	1 549	23 %	6 825	100 %
Plastic - Polypropylene (PP)		5 775	23%	5 188	90 %	5 775	100 %
Padding - Polyurethane (PUR)		1 347	5%	0	0 %	0	0 %
Plastic - Polyamide with glass fiber (PA-GF)		1 094	4%	0	0 %	1 094	100 %
Plastic - Polycyclohexylene (POM)		451	2%	0	0 %	451	100 %
Textile - Select by Gabriel® (85%Wool 15% PA)		258	1%	0	0 %	0	0 %
Plastic - Thermoplastic polyurethane (TPU)		220	1%	0	0 %	220	100 %
Plastic - Polyamide (PA-Nylon)		143	1%	0	0 %	143	100 %
Metal - Zinc		92	0%	7	8 %	92	100 %
Textile - Polyester fibers		33	0%	0	0 %	33	100 %
Plastic - Rubber		12	0%	0	0 %	12	100 %
Plastic - Polyethylene (HDPE)		1	0%	0	0 %	1	100 %
<b>Total product</b>		<b>24 952</b>	<b>100 %</b>	<b>14 869</b>	<b>60 %</b>	<b>23 346</b>	<b>94 %</b>
Packaging - Cardboard		3 500	12%	2 060	76 %	3 500	100 %
Packaging - Expandable Polystyrene (EPS)		200	1%	0	0 %	200	100 %
<b>Total product with packaging</b>		<b>28 652</b>		<b>17 529</b>	<b>61 %</b>	<b>27 046</b>	<b>94 %</b>



Product manufactured from 61% recycled material (packaging included)  
 At end of life product contains 94% recyclable material (packaging included)





### Additional requirements

#### Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
Electricity, Sweden (2018)	ecoinvent 3.8	34.96	g CO <sub>2</sub> -eq/kWh

#### Dangerous substances

The product contains no substances given by the REACH Candidate list.

#### Indoor environment

### Additional Environmental Information

#### Key Environmental Indicators

Key environmental indicators	Unit	A1-A3	A4	A1-C4	A1-D
GWPtotal	kg CO <sub>2</sub> -eq	52.54	0.85	53.41	40.68
Total energy consumption	MJ	962.86	13.07	975.93	434.10
Amount of recycled materials	%	48.22			

#### Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	B2	B3
GWP-IOBC	kg CO <sub>2</sub> -eq	5,07E-01	6,53E-01	2,00E+00	6,13E-01	0

Indicator	Unit	B4	C1	C2	C3	C4	D
GWP-IOBC	kg CO <sub>2</sub> -eq	0	0	2,43E-01	2,46E-01	5,79E-02	-3,43E-02

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.



### General information

#### Product

RH New Logic  
See page 6 for variants and options

#### Owner of the declaration:

Flokk AS  
Contact person: Ate This-Messel  
Phone: + 47 982 56 830  
E-mail: ate.messel@fokk.com

#### General Information

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
Phone: +4797722020  
e-mail: post@epd-norge.no

#### Manufacturer

Flokk AB

#### Declaration number:

NEPD-1847-792-EN

#### Place of production:

Vallgatan 1, 571 23 Nässjö, Sweden

#### This declaration is based on Product Category Rules:

PCR for Seating Solution, NPCR 003 2015  
In accordance with recommendations by the Norwegian EPD Foundation. See [3]

#### Management system:

ISO 14001, Certificate No. 14001-0336  
From the accredited unit: SCAB Svensk Certifiering Norden AB  
ISO 9001, Certificate No. 9001-0336  
From the accredited unit: SCAB Svensk Certifiering Norden AB

#### Declared unit:

One office chair: RH New Logic large back  
with Select textile by Gabriel®

#### Declared unit with option:

- Amrest TPU top
- Neckrest
- Packaging

#### Org. No:

No 928 902 749

#### Issue date:

16.08.2019

#### Functional unit:

Production of one seating solution provided and maintained for a period of 15 years.

#### Valid to:

16.08.2024

#### This EPD has been worked out by:

The declaration has been developed using Furniture EPD Tool Version 1.4.3, Approval: NEPD04  
Company specific data collected and registered by:

**Laura Foulland**

Company specific data audited by:

**Carl Peter Aaser**

#### Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

#### Year of study:

2019

#### Verification:

Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3, and 8.1.4. See [2]

#### Approved

externally

Mia Vold, Senior Research Scientist  
(Independent verifier approved by EPD Norway)

Håkon Hauan  
Managing Director of EPD-Norway

Key environmental indicators for RH New Logic large back with Select textile including amrest TPU, neckrest and packaging	Unit	Cradle to Gate A1-A3
Global warming	kg CO <sub>2</sub>	95.5
Total energy use	MJ	1378
Amount of recycled materials	%	61 %





**LCA: Results**

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact		Unit	A1-A3	A4	A5	B2	B3
	GWP-total	kg CO <sub>2</sub> -eq	5,25E+01	8,53E-01	4,73E+00	3,19E-01	0
	GWP-fossil	kg CO <sub>2</sub> -eq	5,68E+01	8,53E-01	4,73E+00	1,17E-01	0
	GWP-biogenic	kg CO <sub>2</sub> -eq	-4,40E+00	3,48E-04	-4,66E+00	5,16E-02	0
	GWP-luluc	kg CO <sub>2</sub> -eq	1,36E-01	2,98E-04	1,30E-05	1,36E-01	0
	ODP	kg CFC11-eq	3,84E-06	1,94E-07	9,59E-09	1,88E-08	0
	AP	mol H <sup>+</sup> -eq	2,49E-01	3,48E-01	2,73E-04	1,37E-01	0
	EP-FreshWater	kg P-eq	2,75E-03	6,69E-06	5,73E-07	2,96E-04	0
	EP-Marine	kg N-eq	5,29E-02	1,03E-03	2,21E-05	1,34E-01	0
	EP-Terrestrial	mol N-eq	5,39E-01	1,14E-02	2,69E-04	4,40E-01	0
	POCP	kg NMVOC-eq	1,81E-01	3,50E-03	2,23E-04	1,47E-04	0
	ADP-minerals/metals <sup>1</sup>	kg Sb-eq	5,38E-03	2,31E-05	1,10E-06	6,77E-06	0
	ADP-fossil <sup>1</sup>	MJ	6,49E+02	1,29E+01	6,36E-01	1,21E+00	0
	WCP <sup>1</sup>	m <sup>3</sup>	9,19E+03	1,23E+01	8,33E-01	2,17E+00	0

Indicator		Unit	B4	C1	C2	C3	C4	D
	GWP-total	kg CO <sub>2</sub> -eq	0	0	2,42E-01	2,47E-01	5,32E-02	-2,75E+00
	GWP-fossil	kg CO <sub>2</sub> -eq	0	0	2,42E-01	2,47E-01	5,37E-02	-2,73E+00
	GWP-biogenic	kg CO <sub>2</sub> -eq	0	0	8,92E-05	8,98E-04	3,64E-05	-1,50E-03
	GWP-luluc	kg CO <sub>2</sub> -eq	0	0	8,44E-05	6,96E-05	1,37E-05	-4,64E-02
	ODP	kg CFC11-eq	0	0	5,51E-08	4,73E-08	1,33E-08	-6,68E-02
	AP	mol H <sup>+</sup> -eq	0	0	9,87E-04	7,43E-03	3,20E-04	-1,78E-02
	EP-FreshWater	kg P-eq	0	0	1,90E-06	4,13E-06	5,86E-07	-2,02E-04
	EP-Marine	kg N-eq	0	0	2,93E-04	3,89E-03	1,12E-04	-4,99E-03
	EP-Terrestrial	mol N-eq	0	0	3,34E-03	8,89E-02	1,24E-03	-5,31E-02
	POCP	kg NMVOC-eq	0	0	9,52E-04	9,27E-03	3,55E-04	-1,72E-02
	ADP-minerals/metals <sup>1</sup>	kg Sb-eq	0	0	6,54E-06	1,99E-06	1,25E-07	-1,69E-05
	ADP-fossil <sup>1</sup>	MJ	0	0	3,64E+00	3,83E+00	8,99E-01	-1,05E+01
	WCP <sup>1</sup>	m <sup>3</sup>	0	0	3,47E+00	1,17E+01	3,18E+00	-1,68E+02

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential; Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater and compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine and compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals/metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WCP = Water (sweet) depletion potential, depletion-weighted water consumption

<sup>1</sup>Reading example: 5.5E-03 = 5.0\*10<sup>-3</sup> = 0.005  
<sup>2</sup>NA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator

**Remarks to environmental impacts**



**LCA: Results**

The following information describe the scenarios in the different modules of the EPD.

**System boundaries (X=included, MND=modul not declared, MNR=modul not relevant)**

Product stage		Construction stage		Use stage				End of life			Beyond the system boundaries	
Raw materials	Transport	Manufacturing	Transport	Construction	Maintenance	Repair	Replacement	Operational energy use	Transport	Waste Processing	Disposal	Reuse-recovery-recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	D
X	X	X	X	MNR	X	MNR	MNR	MNR	X	X	X	X

**Environmental impact (INA=Indicator Not Assessed)**

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
GWP	94.9	0.9	3.4E+02	95.5	0.9	6.1E+03	2.4	22.7	0.1	25.2	-17.9
ODP	4.6E-06	1.8E-07	8.7E-10	4.8E-06	1.8E-07	1.9E-10	INA	INA	INA	INA	0.0E+00
POCP	3.0E-02	1.8E-04	1.7E-05	3.0E-02	1.8E-04	1.7E-05	INA	INA	INA	INA	0.0E+00
AP	0.4	4.3E-03	3.7E-04	0.4	3.4E-03	5.0E-06	INA	INA	INA	INA	0.0E+00
EP	0.7	8.9E-04	3.0E-04	0.7	7.7E-04	3.4E-06	INA	INA	INA	INA	0.0E+00
ADPM <sup>1</sup>	3.9E+03	1.7E-06	3.0E-08	3.9E+03	1.7E-06	3.0E-08	INA	INA	INA	INA	0.0E+00
ADPE	152.9	14.9	0.2	178.1	14.9	8.2E-02	INA	INA	INA	INA	-447.8

**GWP** Global warming potential (kg CO<sub>2</sub>-eq); **ODP** Depletion potential of the stratospheric ozone layer (kg CFC11-eq); **POCP** Formation potential of tropospheric photochemical oxidants (kg C2H4-eq); **AP** Acidification potential of land and water (kg SO<sub>2</sub>-eq); **EP** Eutrophication potential (kg PO<sub>4</sub>-3-eq); **ADPM** Abiotic depletion potential for non fossil resources (kg Sb-eq); **ADPE** Abiotic depletion potential for fossil resources (MJ)

<sup>1</sup> Some processes use Ecovent 3.0.1, and thus data on renewable resources is omitted. The true ADPM, RPEE, RPPEM and TPE may be higher than indicated. This issue will be addressed in a new version of Ecovent 3, data from which was not available when the declaration was prepared

**Resource use (INA=Indicator Not Assessed)**

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
RPEE <sup>1</sup>	132.4	0.3	14.9	147.5	0.3	9.3E+03	INA	INA	INA	INA	0.0
RPPEM <sup>1</sup>	39.4	0.1	2.0E+02	38.5	0.1	0.0	INA	INA	INA	INA	0.0
TPE <sup>1</sup>	171.9	0.3	14.9	187.0	0.3	9.3E+03	INA	INA	INA	INA	0.0
NRPE	1214.5	15.4	0.3	1230.0	15.3	7.9E+03	INA	INA	INA	INA	0.0
NRPM	110.4	0.0	1.5E+03	110.4	0.0	0.0	INA	INA	INA	INA	0.0
TNRPE	1324.8	15.4	0.3	1340.4	15.3	8.6E+03	INA	INA	INA	INA	0.0
SM	12.6	0.0	5.9E+13	12.6	0.0	0.0	INA	INA	INA	INA	0.0
RSE	0.0	0.0	6.7E-06	6.7E-06	0.0	0.0	INA	INA	INA	INA	0.0
NRSE	0.0	0.0	0.0	0.0	0.0	4.0E+03	INA	INA	INA	INA	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	INA	INA	INA	INA	0.0

**RPEE** Renewable primary energy resources used as energy carrier (MJ); **RPPEM** Renewable primary energy resources used as raw materials (MJ); **TPE** Total use of renewable primary energy resources (MJ); **NRPE** Non renewable primary energy resources used as energy carrier (MJ); **NRPM** Non renewable primary energy resources used as materials (MJ); **TNRPE** Total use of non renewable primary energy resources (MJ); **SM** Use of secondary materials (kg); **RSE** Use of renewable secondary fuels (MJ); **NRSE** Use of non renewable secondary fuels (MJ); **W** Use of net fresh water (m<sup>3</sup>).

**End of life - Waste and Output flow (INA=Indicator Not Assessed)**

Parameter	A1	A2	A3	A1-A3	A4	B1	C1	C2	C3	C1-C3	D
HW	0.1	7.4E-06	6.2E-06	0.1	7.3E-06	5.8E-06	INA	INA	INA	INA	0.0
NHW	55.7	1.3	0.1	57.0	1.3	7.6E-04	INA	INA	INA	INA	0.0
RW	0.0	0.0	0.0	0.0	0.0	0.0	INA	INA	INA	INA	0.0
CR	0.0	0.0	0.0	0.0	0.0	0.0	INA	INA	INA	INA	0.0
MR	2.0E+03	0.0	5.9E+04	2.6E+03	0.0	0.0	INA	INA	INA	INA	0.0
MER	0.0	0.0	6.4E-06	6.4E-06	0.0	0.0	INA	INA	INA	INA	0.0
EEE	0.0	0.0	0.0	0.0	0.0	0.0	INA	INA	INA	INA	0.0
ETE	0.0	0.0	0.0	0.0	0.0	0.0	INA	INA	INA	INA	0.0

**HW** Hazardous waste disposed (kg); **NHW** Non hazardous waste disposed (kg); **RW** Radioactive waste disposed (kg); **CR** Components for reuse (kg); **MR** Materials for recycling (kg); **MER** Materials for energy recovery (kg); **EEE** Exported electric energy (MJ); **ETE** Exported thermal energy (MJ)





### General information

#### Product

Savo Soul without armrest & neckrest upholstered back and seat excl. fabric

#### Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway  
The Norwegian EPD Foundation  
Phone: +47 23 08 90 00  
web: post@epd-norge.no

#### Declaration number:

#### This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR  
NPCR 026:2022 Part B for Furniture

#### Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

#### Declared unit:

1 pcs Savo Soul without armrest & neckrest upholstered back and seat excl. fabric

#### Declared unit (cradle to gate) with option:

A1-A3,A4,A5,B2,B3,B4,C1,C2,C3,C4,D

#### Functional unit:

Office chair, type A

#### General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

#### Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Norway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects  
(no signature required)

#### Owner of the declaration:

EFG European Furniture Group AB  
Contact person: Christer Johansson  
Phone:  
e-mail: christer.johansson@efg.se

#### Manufacturer:

EFG European Furniture Group AB

#### Place of production:

EFG European Furniture Group AB

, Norway

#### Management system:

#### Organisation no:

#### Issue date:

#### Valid to:

#### Year of study:

2022

#### Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

#### Development and verification of EPD:

The declaration is created using EPD tool ka.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway

Developer of EPD: Andreas Mattsson

Reviewer of company-specific input data and EPD: Christer Johansson

#### Approved:

Håkon Hauan, CEO EPD-Norge



### General information

#### Product

RH New Logic  
See page 6 for variants and options

#### General Information

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo  
Phone: +4797722020  
e-mail: post@epd-norge.no

#### Declaration number:

NEPD-1847-792-EN

#### This declaration is based on Product Category Rules:

PCR for Seating Solution, NPCR 003:2015  
in accordance with recommendations by the Norwegian EPD Foundation. See [3]

#### Declared unit:

One office chair: RH New Logic large back  
with Select textile by Gabriel®

#### Declared unit with option:

- Armrest TPU top
- Neckrest
- Packaging

#### Functional unit:

Production of one seating solution provided and maintained for a period of 15 years.

#### This EPD has been worked out by:

The declaration has been developed using Furniture EPD Tool Version 1.4.3, Approval: NEPD04  
Company specific data collected and registered by:

Laura Foulland

Company specific data audited by:

Carl Peter Aaser

#### Verification:

Independent verification of data, other environmental information and EPD has been carried out in accordance with ISO14024, 8.1.3, and 8.1.4. See [2]

externally

Mia Vold, Senior Research Scientist  
(Independent verifier approved by EPD Norway)

#### Owner of the declaration:

Flokk AS  
Contact person: Ate This-Messel  
Phone: + 47 982 56 830  
E-mail: ate.messel@fokk.com

#### Manufacturer

Flokk AB

#### Place of production:

Vallgatan 1, 571 23 Nässjö, Sweden

#### Management system:

ISO 14001, Certificate No. 14001-0336  
From the accredited unit: SCAB Svensk Certifiering Norden AB  
ISO 9001, Certificate No.9001-0336  
From the accredited unit: SCAB Svensk Certifiering Norden AB

#### Org. No:

No 928 902 749

#### Issue date:

16.08.2019

#### Valid to:

16.08.2024

#### Comparability:

EPDs from programmes other than the Norwegian EPD Foundation may not be comparable

#### Year of study:

2019

Approved

Håkon Hauan  
Managing Director of EPD-Norway

Key environmental indicators for RH New Logic large back with Select textile including armrest TPU, neckrest and packaging	Unit	Cradle to Gate A1-A3
Global warming	kg CO <sub>2</sub>	95.5
Total energy use	MJ	1378
Amount of recycled materials	%	61 %



# Questions



42%

of all Norwegian tenders had eco-labels either as a requirement,  
a contract condition or award criterion (2021)



# Eco-labelling and certifications





# Eco-labelling and certifications

Which ones are most relevant for us?







## M1

- Finnish emission certification
- Mostly building materials
- Few furniture





## Möbelfakta

- The leading, most in demand eco-label for furniture in Sweden
- Around 90% bear the Möbelfakta label
- Do not confuse the Swedish Möbelfakta label with the Norwegian one
- Requirements for quality, the environment and responsible supply chains
- Important with preventive work, risk analyses, follow-ups and action plans
- Proactive efforts to eco-label the product range with a focus on Möbelfakta





# Möbelfakta requirements

## **Quality:**

Must meet relevant international EN and ISO standards.

## **Environment:**

Based largely on the National Agency for Public Procurement's (UHM) recommended environmental requirements.

## **Responsible supply chains:**

Making sure the people who produce furniture have good working conditions.





## Nordic Swan label

- State sponsored label through Svensk Miljömärkning (Swedish eco-labelling)
- Dedicated eco-label with a number of quality requirements
- Tough, far-reaching requirements
- Environmental requirements often similar to Möbelfakta's
- Nordic Swan labelling is costly = cost must be passed on to customer





## EU Ecolabel

- Formerly the EU Flower
- Common eco-label at the European level
- Several product groups in addition to furniture, including textiles
- Very similar to Möbelfakta and the Nordic Swan



# What do FSC® and OEKO-TEX involve?

Two product labels for specific materials





The mark of  
responsible forestry

## FSC®

- Forest Stewardship Council®
- The problem with deforestation and clear cutting
- Independent international membership organisation
- Replanting and more sustainable forest management
- EFG has been FSC® certified since 2002 (FSC-C009111)
- All of the wood we buy is from FSC certified forests



# OEKO-TEX

- The most widely used textile label in the world
- Textile is one of the most chemical-intensive materials
- Oeko-Tex requirements only cover chemical ingredients
- Choose textiles labelled with Oeko-Tex or the EU Ecolabel





# Questions





# Agenda

**9:30 – 10:30**

Block 1 – Today's sustainability issues and challenges

**10:30 – 11:15**

Block 2 – How do we identify the best eco-friendly furniture?

**11:30 – 12:30**

Lunch

**12:30 – 14:30**

Block 2 – How do we identify the best eco-friendly furniture? Continued

**14:30 – 15:00**

Fika

**15:00 – 15:30**

Block 3 – Environmental standards with a focus on tenders

**15:30 – 15:50**

Block 3 – Tendering requirements for office furniture

*By Marianna Loikala, product manager, architect Msc, Senate Properties*

**16:15 – 16:30**

Summary of learnings today

**16:30 – 19:00**

Mingle & cocktails



# Environmental standards with a focus on public tenders

What environmental standards apply today, and what will come next?





*Recycling*  
*And*  
**GIVING**  
**BACK**

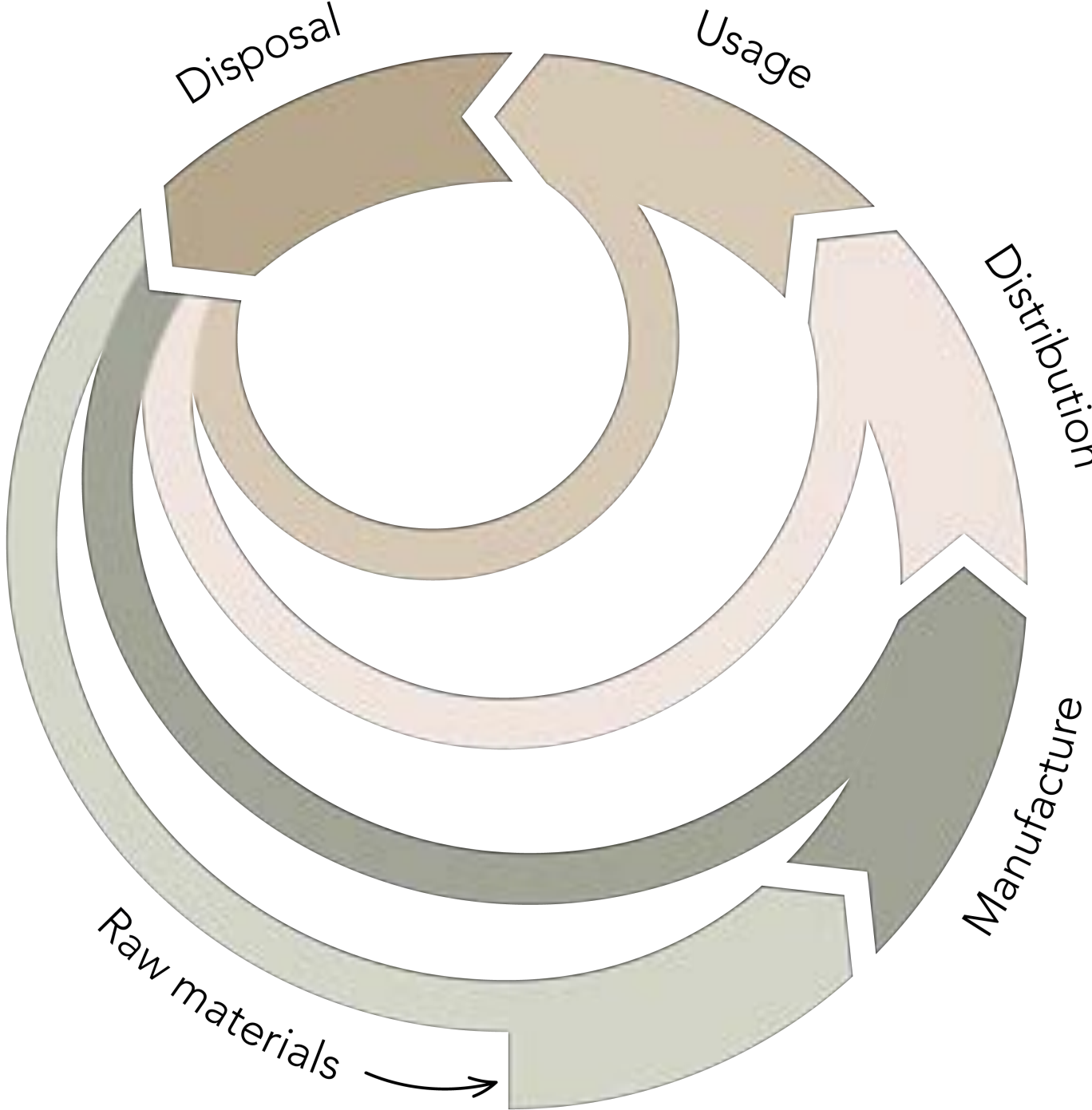
## What does the circular economy involve?

- Using resources in such a way as to minimise waste
- 55 %: Switching from fossil energy to fossil-free energy
- 45%: Circular material flows



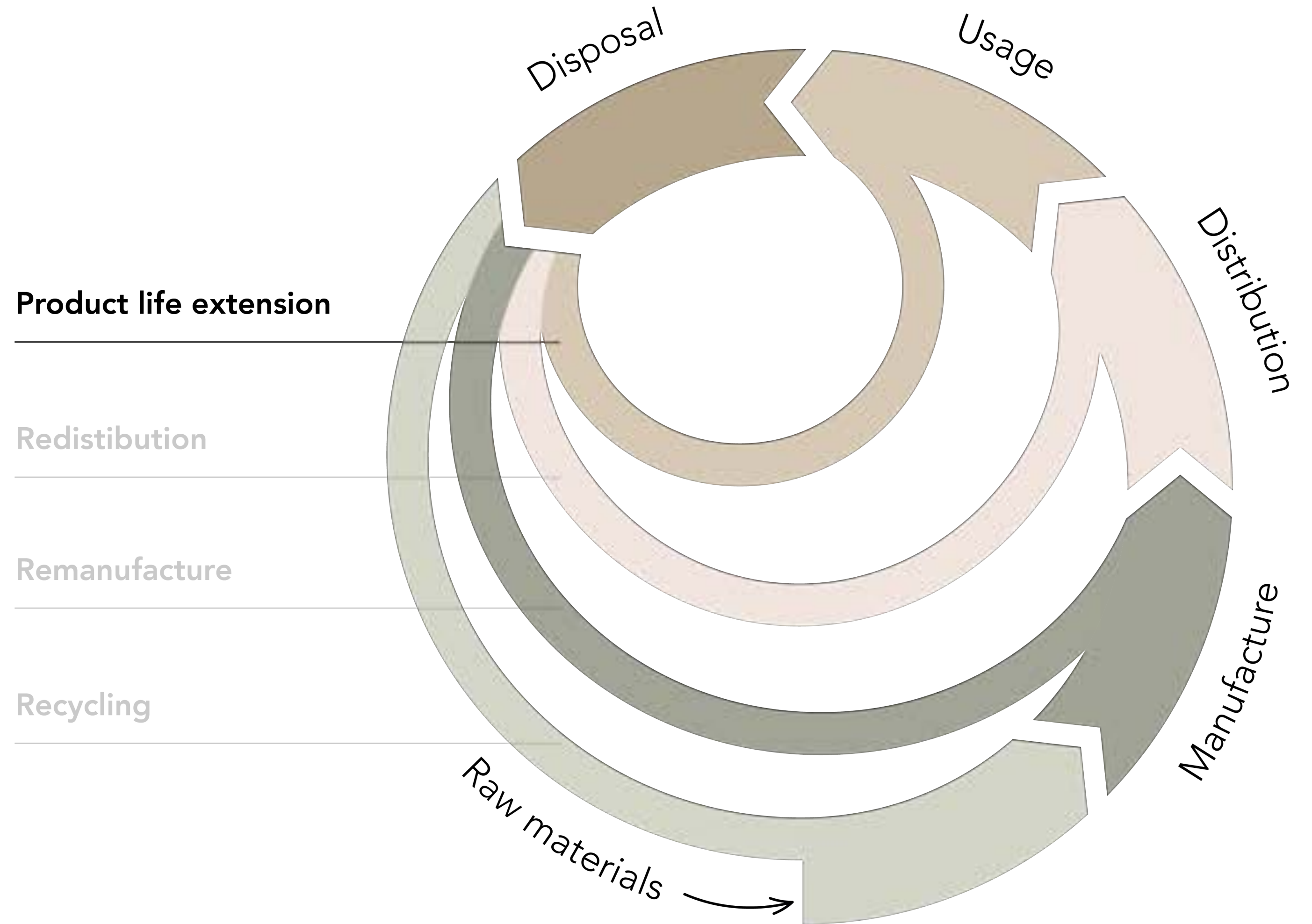
# Linear vs Circular economy







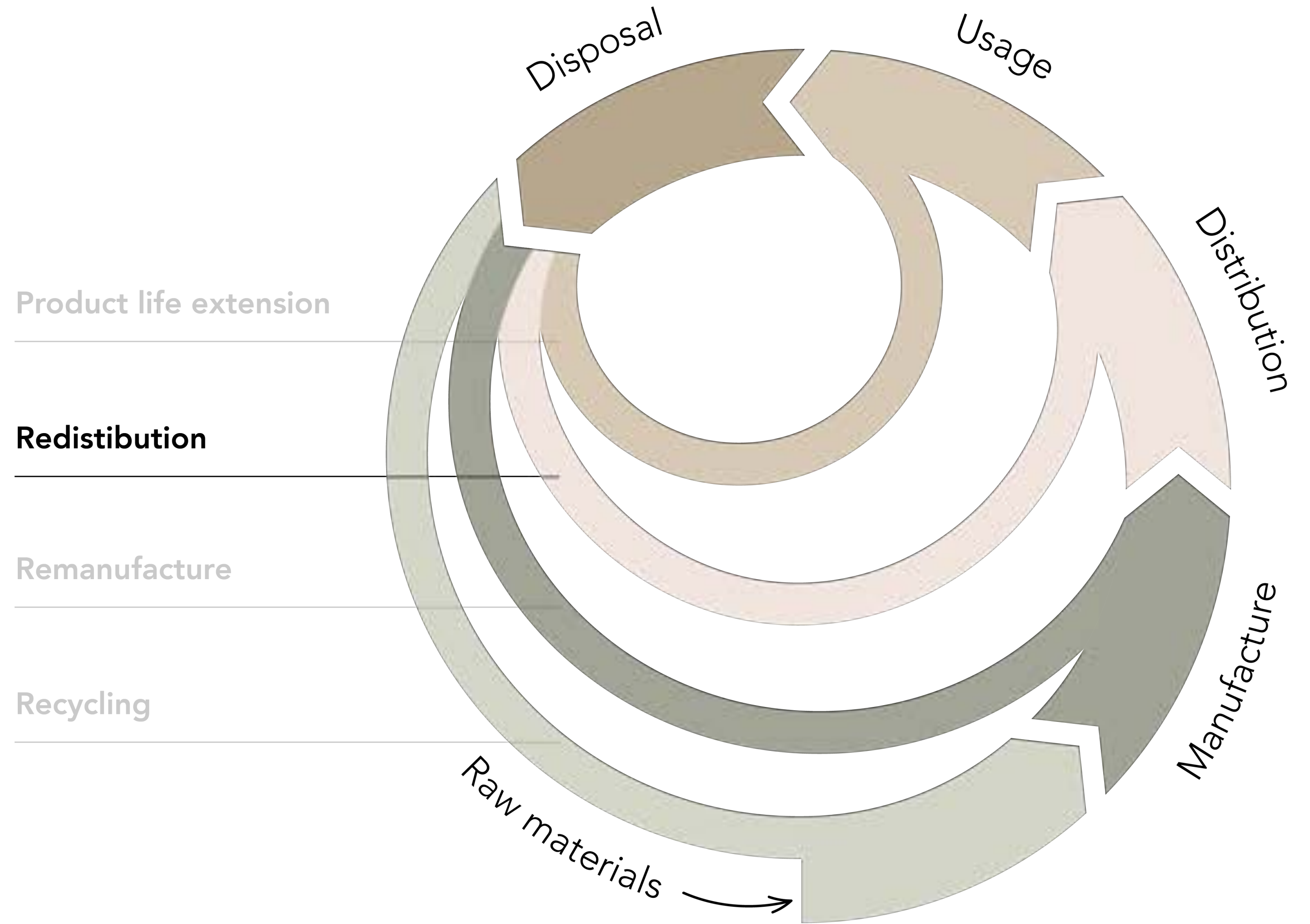
# Product life extension



Source: Ellen MacArthur Foundation

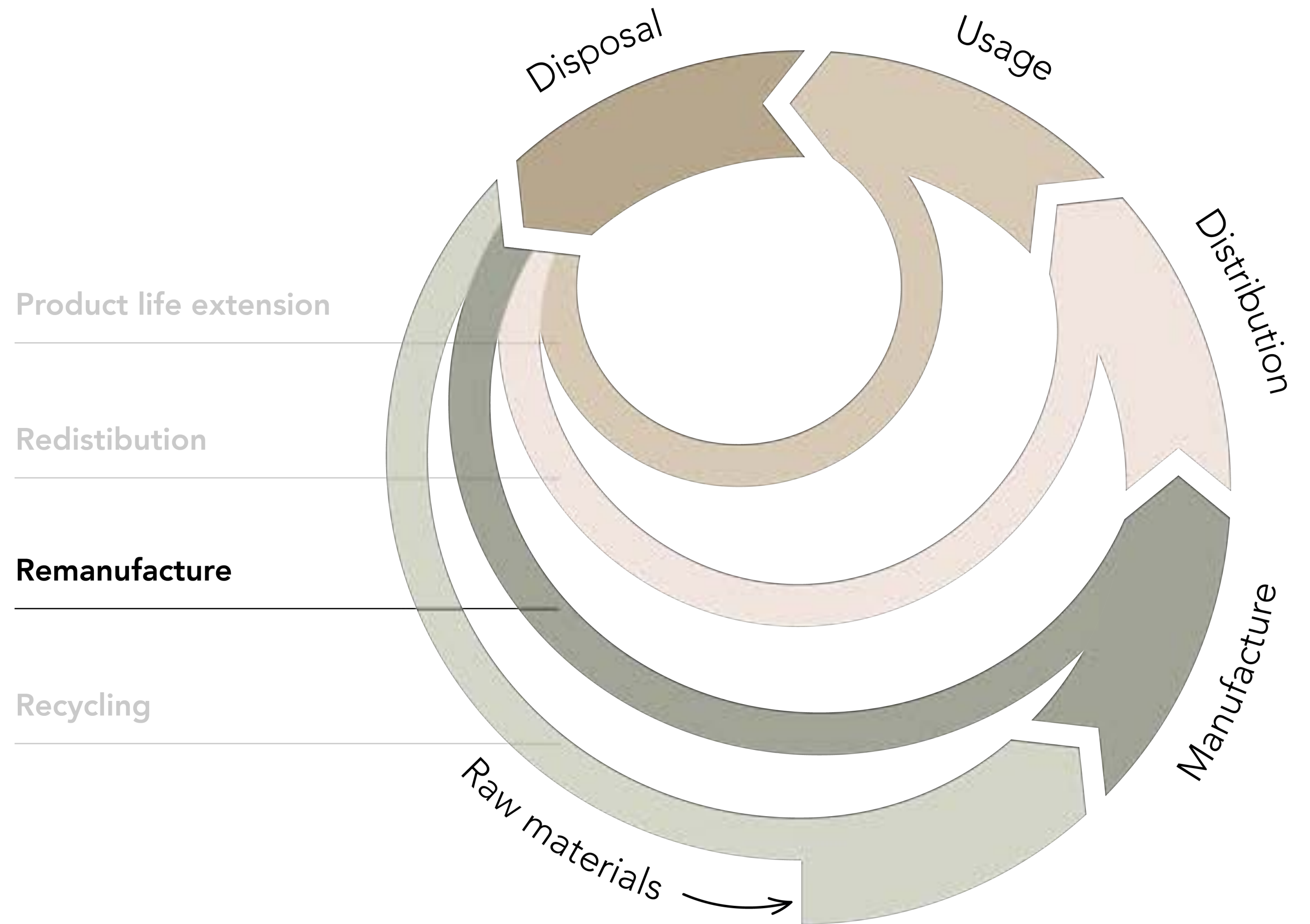


# Redistribution



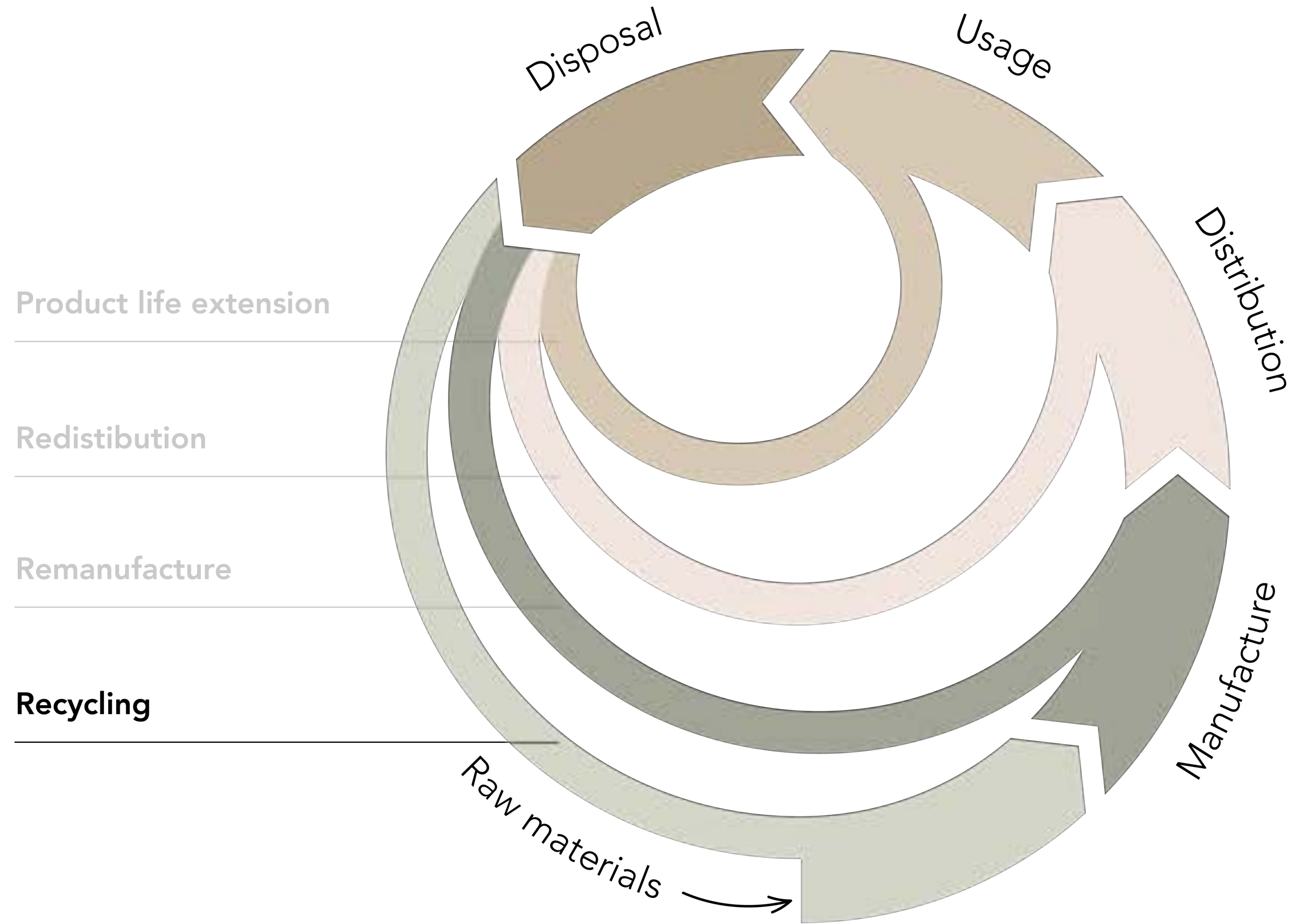


# Remanufacture





# Recycling





# Circularity requirements in Swedish tenders

- Used furniture = Good, but we should impose environmental and quality requirements
- The buyer should not have to accept inferior furniture just because it's used
- There is no definition for used furniture







# Tender requirements for new furniture

with 4 circularity criteria:

- 1. Extended product life**  
Quality requirements for long life, repair and maintenance, reuse
- 2. Non-toxic product cycle**  
By restricting substances that are harmful to the environment and health
- 3. Resource-efficient use**  
Requirement for care and maintenance instructions
- 4. Recyclability of materials**  
Recycled and renewable materials, designs that promote dismantling and restoration



# What circularity requirements can we expect in the future?

- Development of a standard for circularity (prEN 17902)
- Work in progress at CEN
- New points system for rating furniture

**Future:** Tenders will probably use the new standard and the rating system to set circularity requirements

**Short term:** Less extensive circularity requirements to be introduced for tenders, e.g. Nordic Swan (version 5)







## Supply chains

- Social and ethical requirements are common in tenders
- The Swedish Kammarkollegiet and Adda have such requirements
- Norwegian DFØ has recommended requirements in the field of human rights
- The Swedish UHM has recommended ethical requirements

*Möbelfakta's requirements are synced with UHM's requirements*



# Test requirements & reports





## International standards on three levels:

1. ISO (International Organization for Standardization) – Global standards

2. EN (European standard) – Standards at the European level

3. SFS (Suomen Standardisoimisliitto SFS ry) – Finnish standards

- The quality test is the cornerstone in EFG's sustainability management. Makes sure products are of high quality, safe and durable
- Tested first in-house in EFG's test lab
- Furniture quality tested by RISE (accredited laboratory)



# EPD and eco-labels







## EPD requirements

- Demand for EPDs is emerging in tenders
- Enhances the ability to compare and select the best furniture in terms of the environment
- LCAs and EPDs are costly for small manufacturers



# Eco-labels

## in Swedish tenders

- Swedish public tenders have no requirements for eco-labelled furniture
- There is still an advantage as the tender's environmental requirements can be verified by Möbelfakta/Nordic Swan
- Adda emphasises eco-labelled furniture
- Today, most Swedish tenders have the same environmental requirements, in line with Möbelfakta







# Tendering requirements for office furniture

By Senate Properties  
19.10.2023

Marianna Loikala  
Product Manager, architect MSc  
[marianna.loikala@senaatti.fi](mailto:marianna.loikala@senaatti.fi)







## Senate Group

- The state's **real estate expert** and administration's work environment partner.
- Senate is one of the largest public procurement organizations in Finland.
- Now: Implementation of a network of **shared work environments** in about 25 locations in Finland by 2029.
- As a basis for responsibility and environmental work, Senate uses a certified **ISO 14001** environmental management system.




# Hansel, Senate's procurement partner

- the state and municipality owned procurement office.
- A supplier of Hansel DPS (dynamic procurement system) must fill certain environment, social and financial responsibility requirements.
- Senate utilizes Hansel DPS for Office furniture 2021–25 as the basis of our tender competitions.







## Minimum product requirements / Hansel DPS (extract)

### Standards required for the purpose of use

The products must meet the EN standards required for their purpose of use.

### Origin of wood, wood material and wood-based boards

All wood material must originate of the EU Parliament and Council regulation on legally felled timber.

### Formaldehyde emissions and coatings

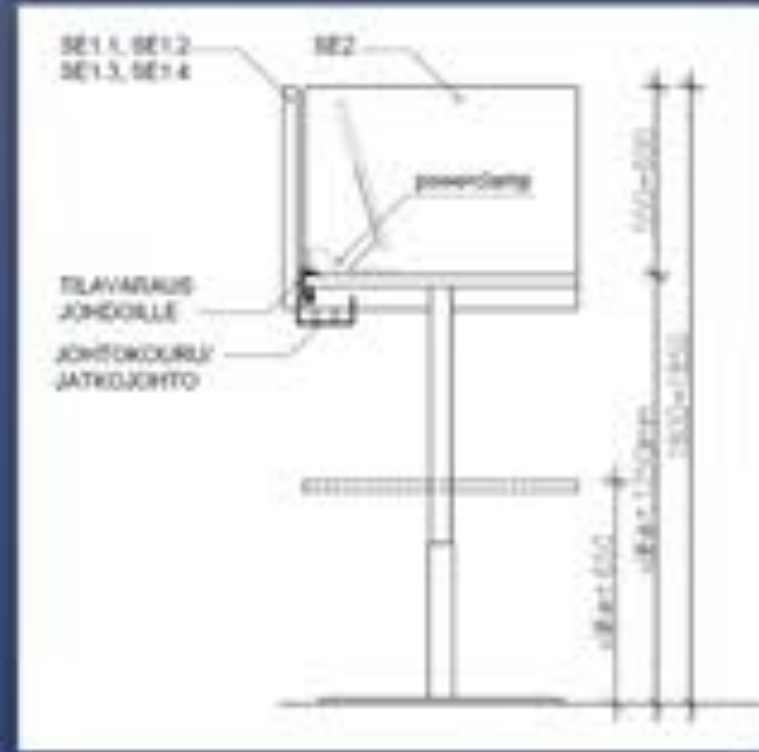
Wood-based boards with formaldehyde-based substances must fall below the E1 limit values / standard EN 717-1.

### Foaming agents for cushions and plastic parts

Halogenated organic compounds must not be used as a foaming agent (ISO 14024 or equivalent label).



# Senate's tendering requirements and the process (internal tendering of Hansel DPS)



## 1. Product features, specification

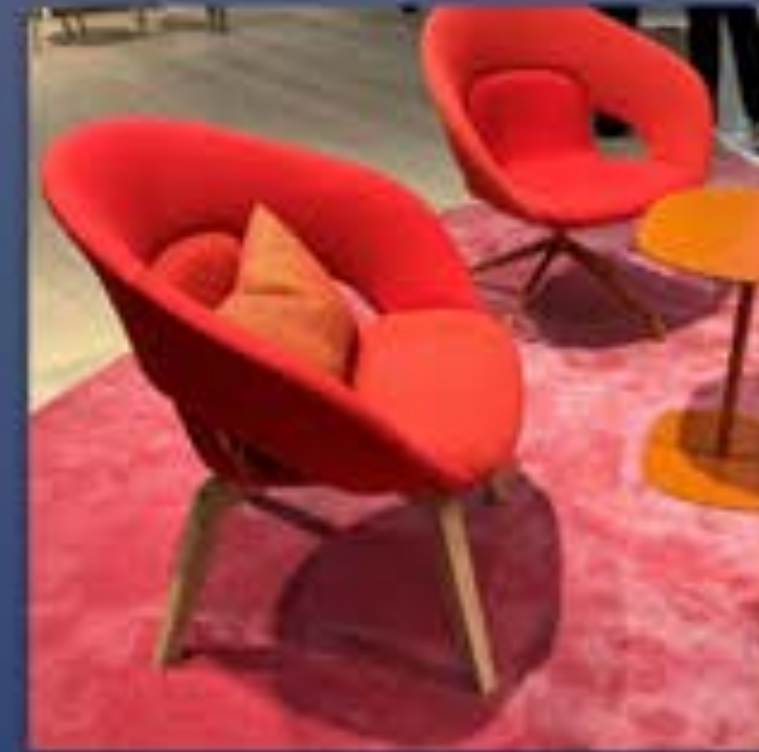
Defining the measures, materials, color options and standard equipments of the product.



## 2. Quality and safety standards

Electric height adjustment in accordance with the **EN527-1 standard**.

The product must have a **CE mark**.



## 3. Weight values, the price + quality

The tender valuations for functional furniture with large order quantities:

**Price 60%+ quality 40%**



## 4. After receiving the tenders

Checking which tenders meets the tendering requirements.

After the quality tests the procurement decision is made.

Hansel DPS requirements for office furniture



Making the tenderings more sustainable by

- Using different types of tender competition (such as competitive negotiation procedure) to find fresh, durable solutions with recycled, low emission products
- requiring the contents of relevant certificates (such as Cradle-to-cradle) + the description of next life cycles and recycling possibilities for most products



Summary

1. Procure wisely and only for need.
2. Prepare and supervise the tender competition carefully (supply chains, verifications).
3. Favor renewable materials and buy products that can be renovated, upholstered, renewed, recycled (with easily removable parts).





**SENAATTI**

Thank you!



# Tender requirement – market comparision

## **Code of Conduct:**

- UN principles and ILO eight fundamental concentions
- Conflict minerals

## **Environment:**

- Wood
- Chemical
- Textiles
- Packaging

## **Quality:**

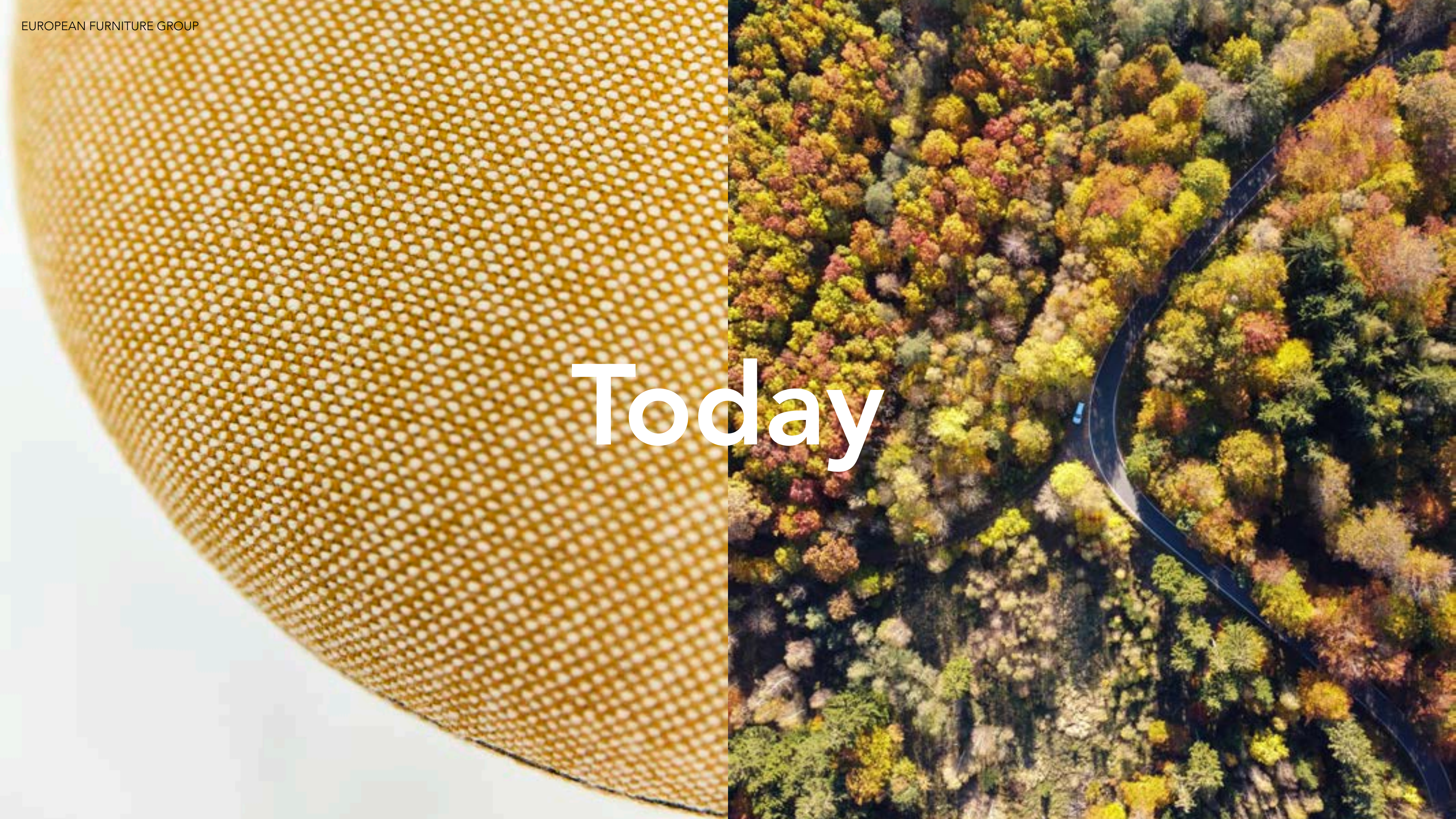
- EN standards



# Summary



# Today





# Tomorrow





## QUESTION:

How many of you feel confident in choosing sustainable products and know what to look for?



## QUESTION:

What have you learned today?

What do you take with you from today?





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# Sustainability Academy

Furnishing for the future



EUROPEAN  
FURNITURE  
GROUP

19 OCT 2023



**Thank you for your time and attention!**