

**TILBAGE TIL
FLERGANGS**

Center for Bæredygtige Hospitaler
Region Midtjylland

The Plan

- Why multiple use?
- Numbers to back it up
- Cases
- Our steps and experiences
- Bonus case



Rasmus Revsbeck

LCA specialist
Environmental planner

Center for Sustainable Hospitals
Central Denmark Region
Rasrev@rm.dk

Representing 3 colleagues



Maria Højholt Jensen
Textiles



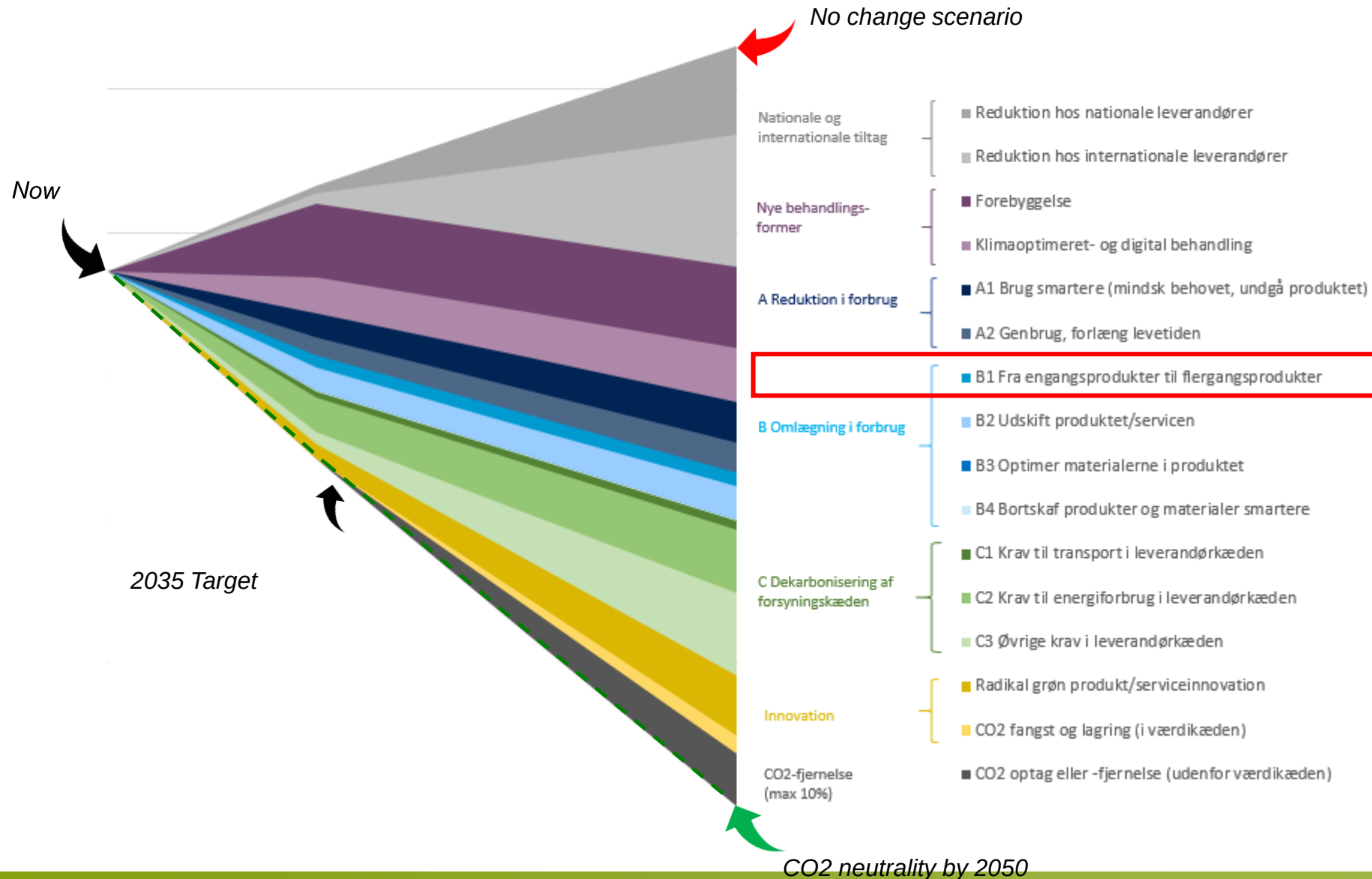
Lærke Dahl Klausen
Clinical & surgical products



Mathias Sehested Hansen
Metal instruments

They know much more

CLIMATE MANAGEMENT MODEL – A ROADMAP



Why multiple use?

VS

Materials
+ Production
+ Sterilisation
+ Transport
+ EOL

Single use

(Materials
+ Production
+ Sterilisation
+ Transport
+ EOL)

number of uses

+
Washing + sterilisation

Multiple use

AND...

Ressource use & Resilience/ less reliance on long supply chains

Product and initiative calculator

Produkt 1										
KODE på produktet:		Leverandør nr:		Varenr:		UNSPSC koder:		GTIN:		
Samlet produkt og emballagevægt [g]:				Producent:						
Materialer Produkt	Materiale	Type	Produktionsland	Bortskaffelse	Materialevægt [g]	CO2 faktor [g CO2/g]	CO2 emission [g CO2]	Bortskaffelse [g CO2]	Datakvalitet 1-5	Bemærkninger - evt produkt del
	Plastik	PE-LD	Amerikas Forenede Stater	Forbrænding	1.0	4.2	4.2	1.18		
Materialer Emballage	Materiale	Type	Produktionsland	Bortskaffelse	Materialevægt	CO2 faktor	CO2 emission	Bortskaffelse	Datakvalitet	Bemærkninger
Har du husket alle materialer og delkomponenter?					1.0	4.2	1.2			
Nej, du mangler noget										
Produktion "samling" af materialer	Produktionstype	Hvor er produktionen?	CO2-faktor [g CO2/g]	Effektivisering [%]		Ny CO2-faktor [g CO2/g]	CO2 emission [g CO2]		Datakvalitet 1-5	Bemærkninger
		Amerikas Forenede Stater								
	Scope 1		2.3151			2.32	2.3			
	Scope 2		6.88			6.88	6.9			
	Scope 3		1.74			1.74	1.7			
					10.9					
Transport, beregnes automatisk)										
Transport	Vælg her									
	Fragtskib [km]	Lastbil fjern [km]	Lastbil til region [km]	CO2-faktor Fragtskib [kg CO2/tkm]	CO2-faktor Lastbil [kg CO2/tkm]	CO2-faktor Lastbil DK [kg CO2/tkm]	CO2 emission [g CO2]			Bemærkninger
Samling - forbruger	8,323.27	2,242.21	490.00	0.01	0.19	0.22	-			
Transport (samling-forbruger)	Transportform	Hvor starter dette transporttrin?			Transport afstand [km]	CO2-faktor [kg CO2/tkm]	CO2 emission [g CO2]		Datakvalitet 1-5	Bemærkninger
Intern transport (scope 1)	Lastbil					0				
Transport sum					0					
Brugsfasen	Type	Mode								
	Vælg her	Vælg her								
	Vælg her	Vælg her								
Andre variabler	SBTi	Miljømærkninger	Certificeringer	Faktor						
	Vælg her	Vælg her	Vælg her	Vælg her						
I alt:	Materialer (produkt)	Materialer (emballage)	Produktion	Transport	Brugsfasen	Bortskaffelse	Andre variabler	Produkt	Emballage	
16	4	0	11	0	n/a	1	Genanvendelses andel	0%		

CDR'S PRODUCT CO₂ CALCULATOR

← Rediger CO₂-tal

Maske anæ luftcuff Eco str. 4 1515000

Indkøb & Medicoteknik

Forsyning og Service

Oprettet 23/10/2023 09:09

Senest opdateret 04/02/2024 15:41 af HEHOPT

I alt

1.837,46g

CO₂-ækvivalent

CO₂-nedbrydning

Produktion

Materialer

Emballage

Transport

Bortskaffelse

Forbrænding

Genanvendelse

Klinisk risikoaffald

Datakvalitet

Gennemsnit

Produktion

Den udledning der kommer fra selve fabriks/virksomhedsdriften.

Datakvalitet

Data mangler

Produktvægt

41g

Produktionstype

Medicinsk

Produktionslokation

Det Forenede Kong...

Producent

Vælg fra liste

Energi

Transport

Andet

I alt

391,55g CO₂e

396,06g CO₂e

500,22g CO₂e

1.287,83g CO₂e

Materialer og materialeproduktion

Vægten af de enkelte materialer findes ved simpel vejning af produktet.

Datakvalitet

Data mangler

Element

Maske

Slet element

Bortskaffelse

290,85g CO₂e

Materiale

PVC

Lokation

Ved ikke

Materialevægt

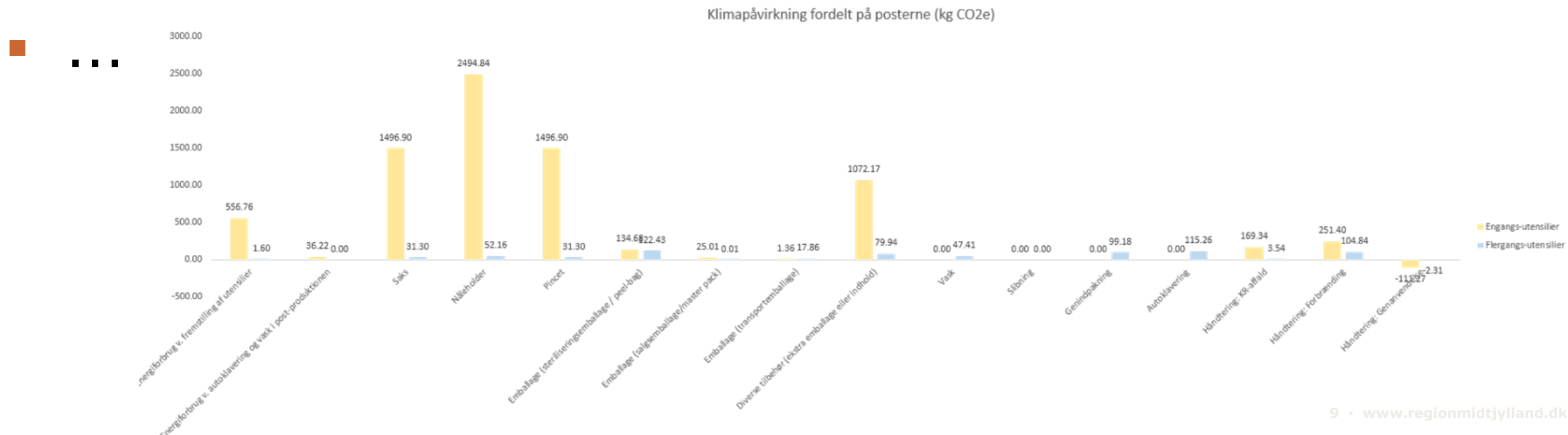
8,2g

51,29g CO₂e

Intern

Our climate related results

- Metal instruments ~ 90% reduction
- Clinical warming jacket ~ 30% reduction
- Anaesthesia masks ~ 70% reduction



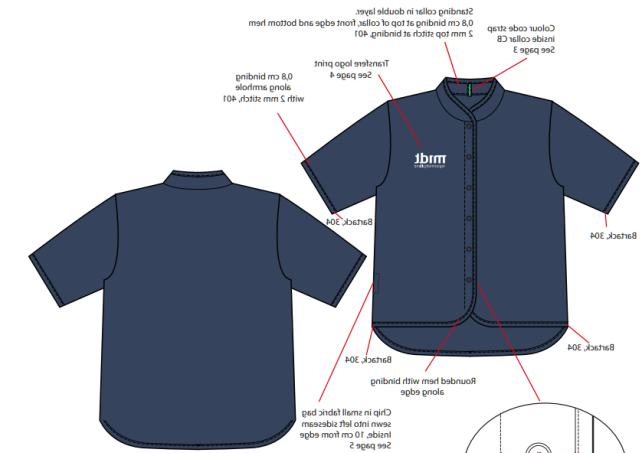
Surgical textiles

- No PFAS
- Lifespan
- Water resistance
- Cleaning process
- Sterilisation a challenge



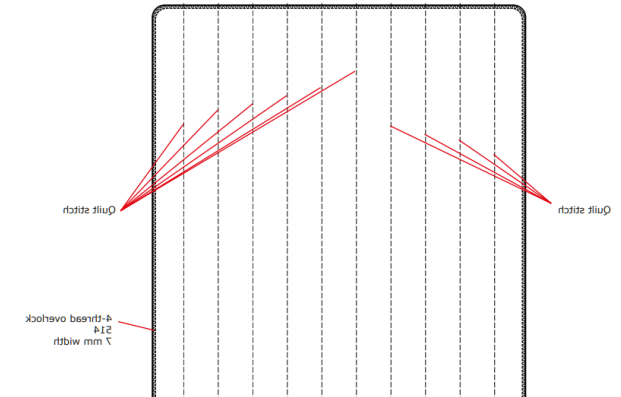
		Technical sketch and info Size: XS(2), M(4), XL(XXL), 3(4XL) Date: 20.04.2024 Page: 1 of 2 Product type: OP-Varejæske
		midt regionmidtjylland

Not to scale



		Technical sketch and info Size: 142 x 202 cm Date: 11.06.2024 Page: 1 of 6 Product: Multi Teepee
		midt regionmidtjylland

Not to scale



- Tech Packs
 - find them here:

[Tekstilprojektet - Center for Bæredygtige Hospitaler](#)

Metal instruments

- 112.000 per year
- Paid back within 1-2 years



Changes in Progress

Clean surgical textiles

- Surgery heat jacket - done
- Surgery blanket - done
- Surgery hat cosack - tested
- Surgery helmet - testing may
- Sterial products - unsterile tests this year

Metal instruments

- Sutursæt
- Suturfjerningssæt
- Fødesæt
- Sårskiftesæt
- Sakse, peanger, pincetter

Others

- Kidneydish
- Breathing system for anaesthesia - in progress
- Anaesthesia face masks
- Tourniquet

Potential multiple use products

- Single use product is unloved
 - *"TEMU instruments"*
- Multiple use exist
 - *"What we used to do"*
- Clinicians contact us – *a lot!*



Feasibility analysis

- Comparison of between systems
 - Safety(patient and clinician), logistics etc.
 - CO₂ emissions
 - Cost incl. time
 - Capacity of hospital logistics
 - Sterilisation, distribution, cupboard space ...

- Test in a ward

Implementation - *This takes time!*

- Bottom up volutariness
 - Easy way to start
 - Iron out the bumps
- Top down leadership
 - Efficient
 - Still not complete adoption

Need:

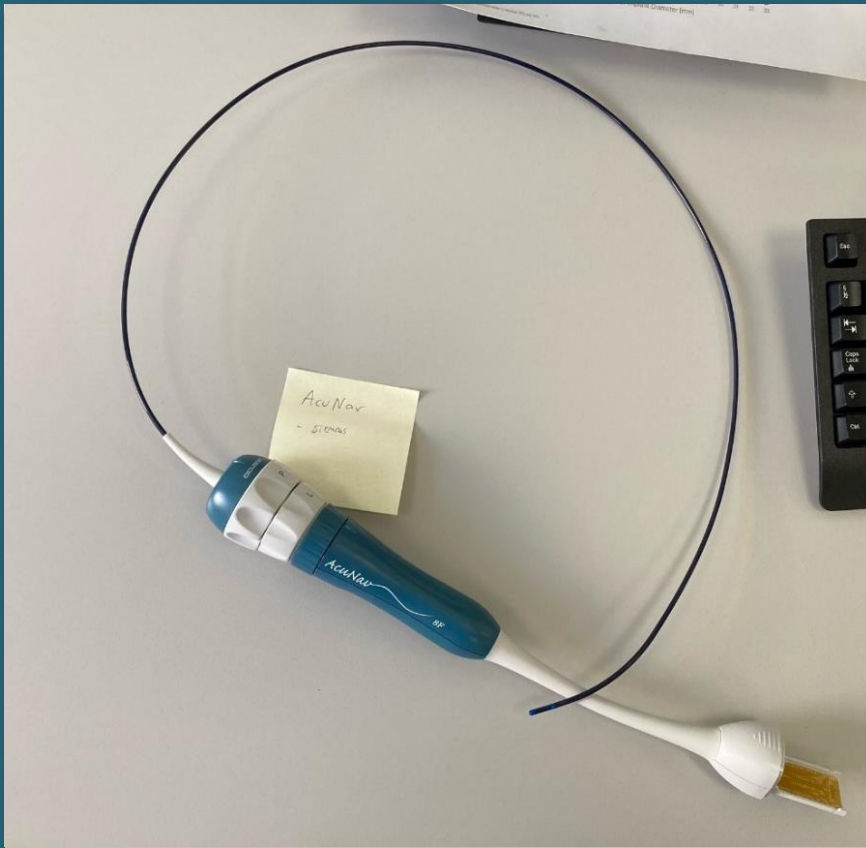
Dedicated project
manager

Backing of leadership

Challenges

- Capacity in logistics
- Quality of products – *Ukraine war*
- Acquiring new habits – *don't discard multiple use*
- Clinical requirements – hygiene etc.
- Getting the idea across

Remanufacturing of singleuse equipment



MDR – art. 17 chap. 3

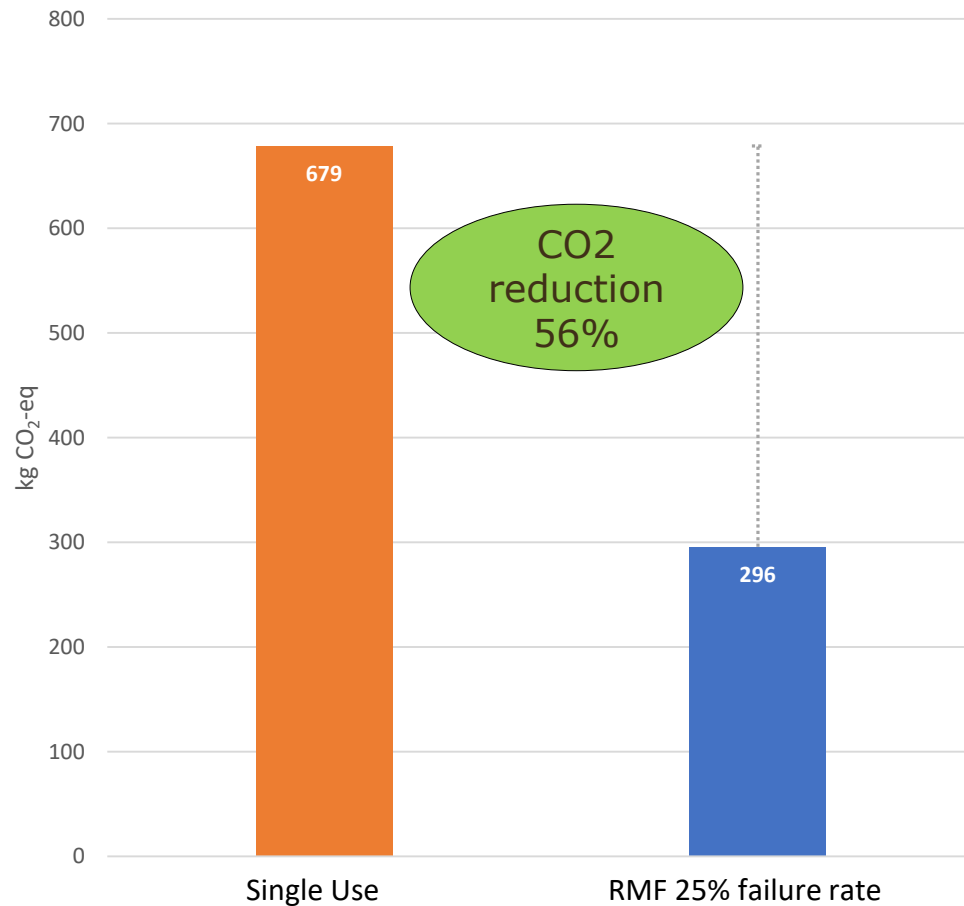
Highly specialised equipment – must represent a high value

Used to do – will soon do again

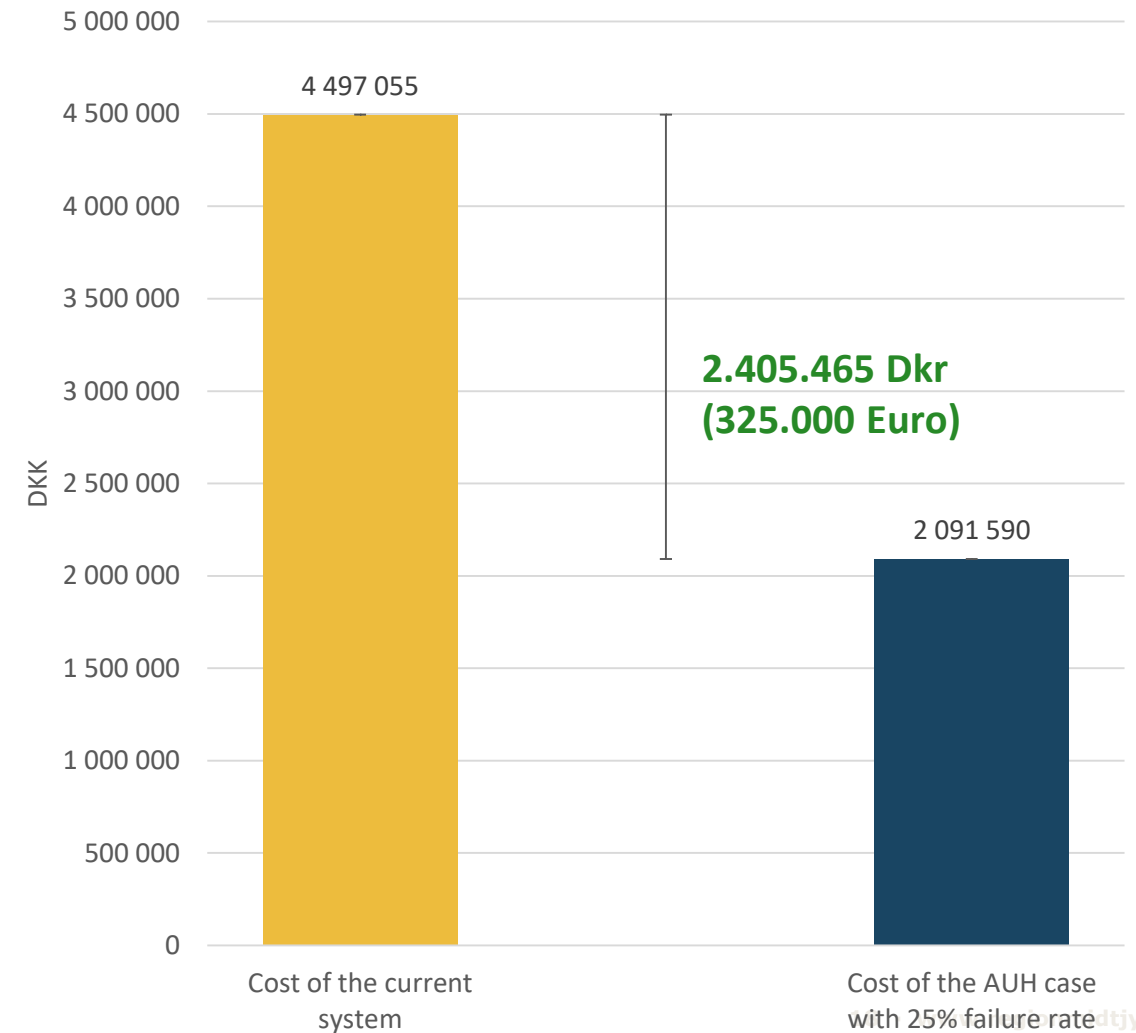
Casestudy – LCA & TCO

Aarhus University Hospital, Department for Heart Diseases
Remanufacturing of heart cathedars

Potential CO₂-reduction with a 25% failure rate



Price difference for one year with a 25% failure rate



Thank you for your time