Future of Furniture and Textiles in the Circular Economy

CIRCULAR ECONOMY IN THE NORDIC - BALTIC REGION: HOW FAR HAVE WE COME?

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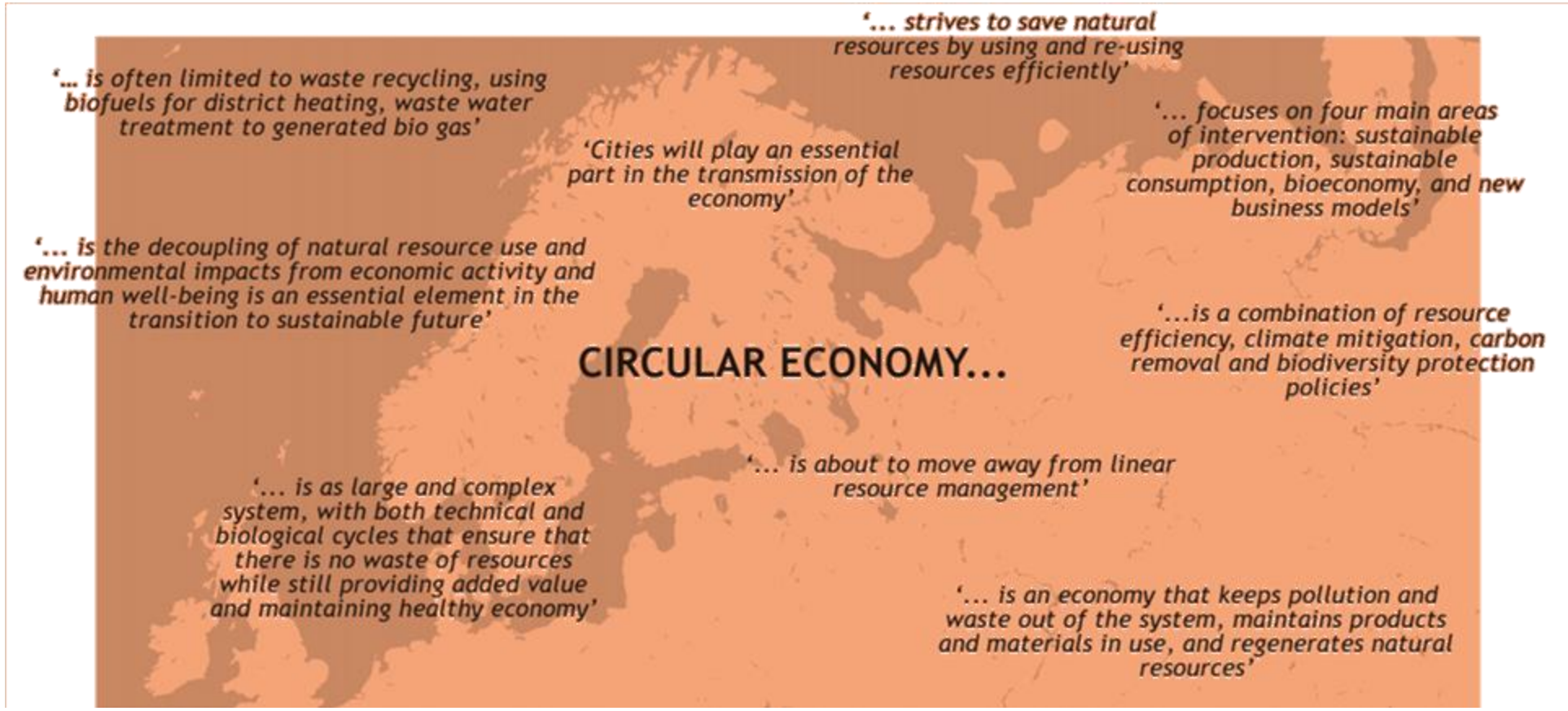
Riga, Latvia 10 September 2019

EU thematic areas in circular economy

- **Production and consumption** - two main spheres to “organise” circular economy patterns and link to SDGs
- **Waste management and recycling** – closing material (& nutrient) loops
- **Secondary raw materials** – encouraging markets for recycled materials
- **Competitiveness and innovation sphere** - to stimulate private investments, jobs and gross value added

The circular economy’s trends are closely interlinked with key Baltic States priorities on jobs and growth, investments, the social agenda and industrial innovation

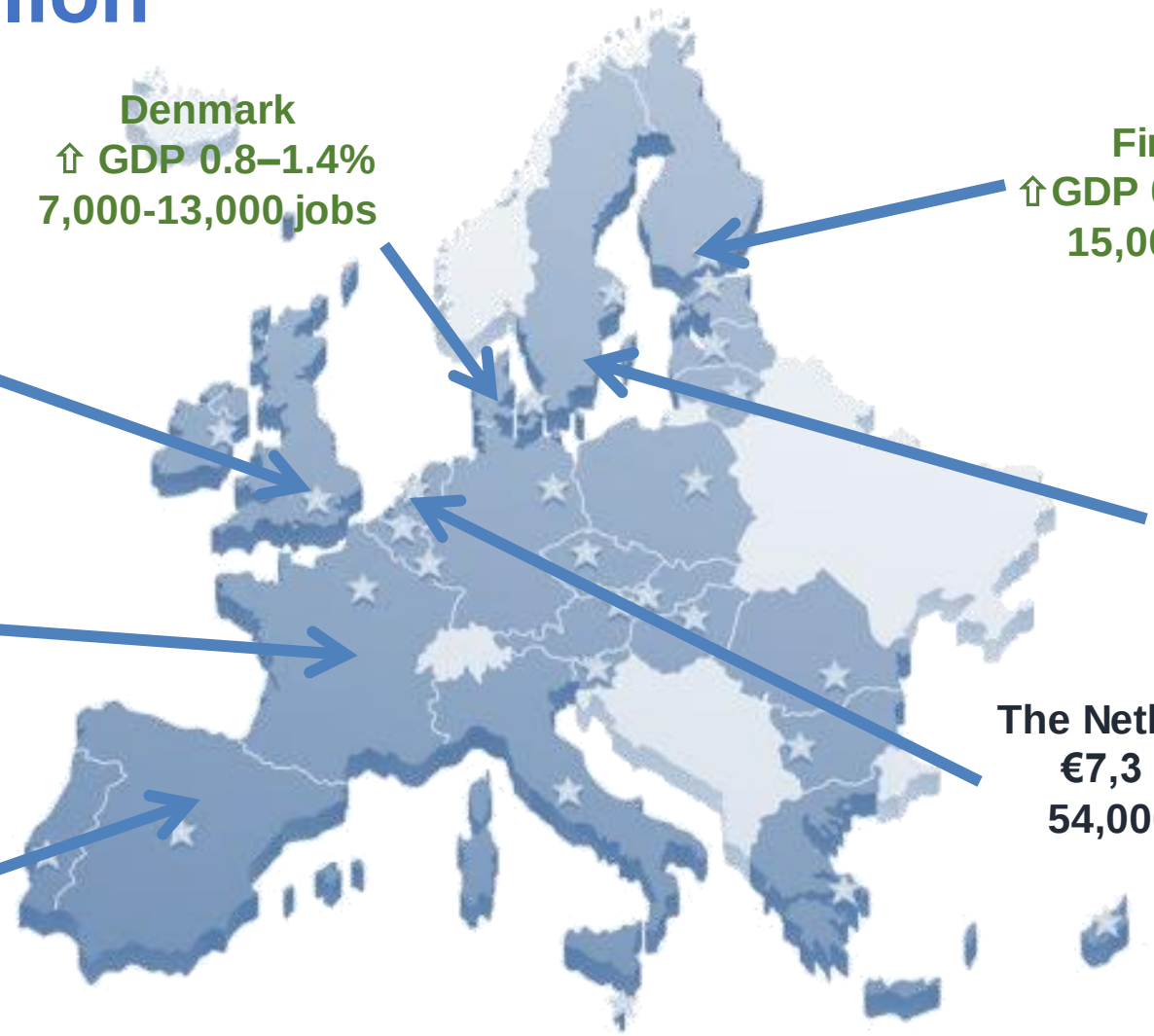
Voices from the Baltic Sea Region



participants of the Baltic 2030 Capacity Building Programme (Circular Baltic 2030, 2019)

EU benefits of Circular Economy

European Union € 324 billion



Denmark
⇧ GDP 0.8–1.4%
7,000-13,000 jobs

Finland
⇧GDP 0.33-0.66%
15,000 jobs

United Kingdom
~€30 billion
⇧200,000 jobs

Sweden
⇧3% trade balance
15,000 jobs

France
⇧GDP 0.33-0.66%
100,000 jobs

The Netherlands
€7,3 billion
54,000 jobs

Spain
⇧GDP 0.33-0.66%
100,000 jobs

Sources: EU, Ellen McArthur Foundation, Club of Rome, TNO, WRAP, www.rebus.eu

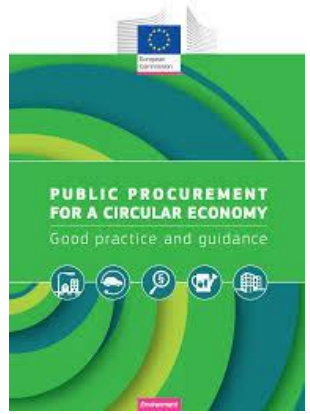
SDGs, circular economy & procurement

Sustainable Development Goals

SDG12

Circular Economy

EU Circular Economy Package



Circular Procurement Delivery Mechanism

Circular procurement themes

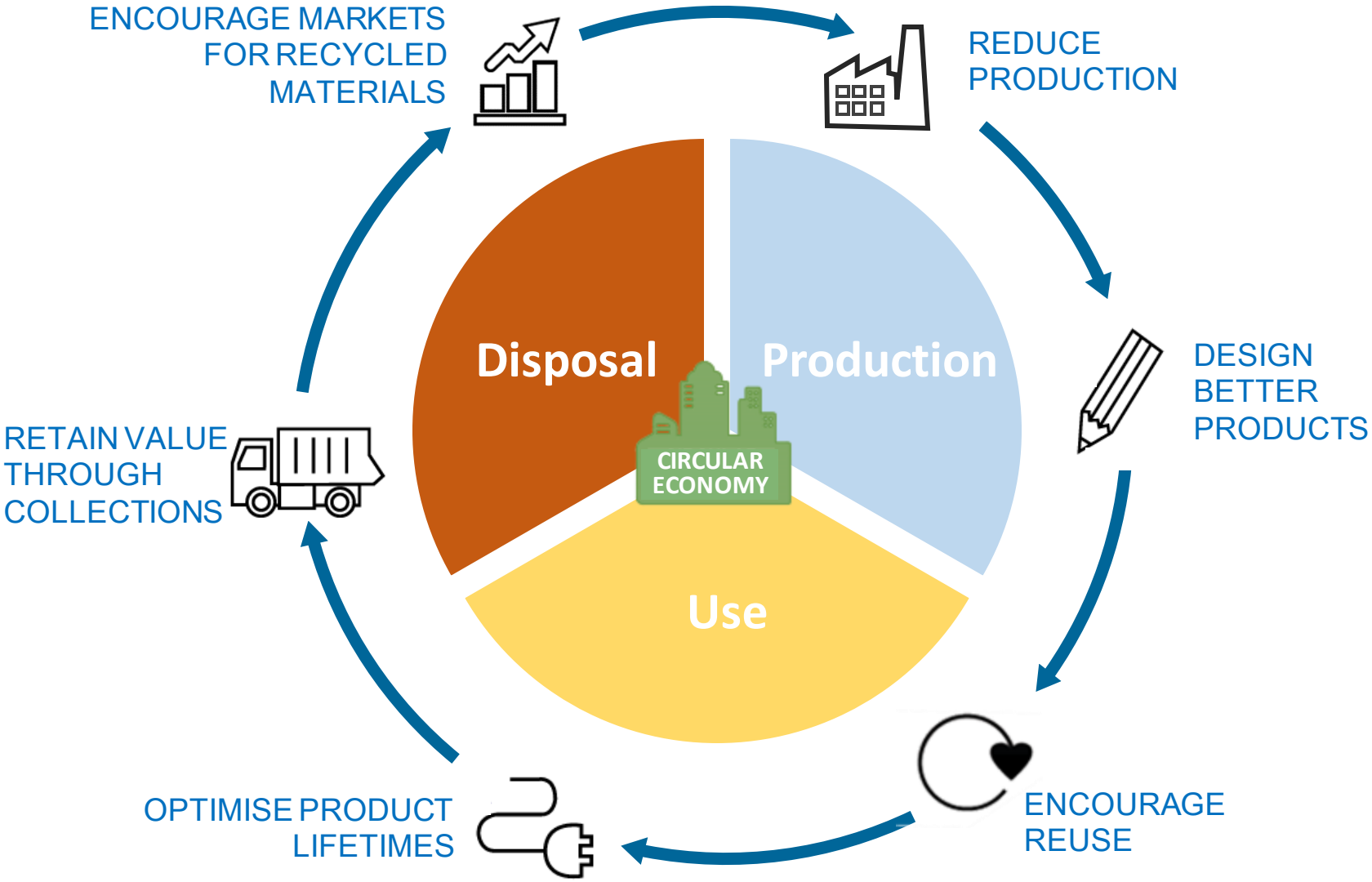
65% of 169 SDG targets will not be reached without the commitment of local and regional governments who are responsible for ~60% of all public investments in the OECD area and ~40% worldwide.

This highlights the important role that local and regional authorities have in the work on reaching the SDGs.

CP elements:

- (SP & GPP principles)
- **Utilisation** (lifetime optimisation)
- Maximising value retention through **disposal** choices and routes

Circular opportunities



Sourcing

Recycled content

80% recycled military uniforms compared with a non recycled yarn

- reduced water consumption: **87%**
- decreased energy use: **42%**
- reduction in CO2 emissions: **33%**

Circular furniture procurement - Wales

- Furniture
  - 486 items
- Carpets
  - 1213 m^2
  - 44% reuse & recycling
- Impacts
  - 33 tonnes CO_2e
    - 20kg saving per chair
  - 10.5 tonnes landfill diversion
  - 6 new jobs 3 temporary jobs
  - Transportation ↓77%

Innovation & design

Nurses uniforms - Rawicz Hospital, Poland

- Design - lyocell (cellulose pulp fibre)
- Market engagement
- User testing
- Whole life costing

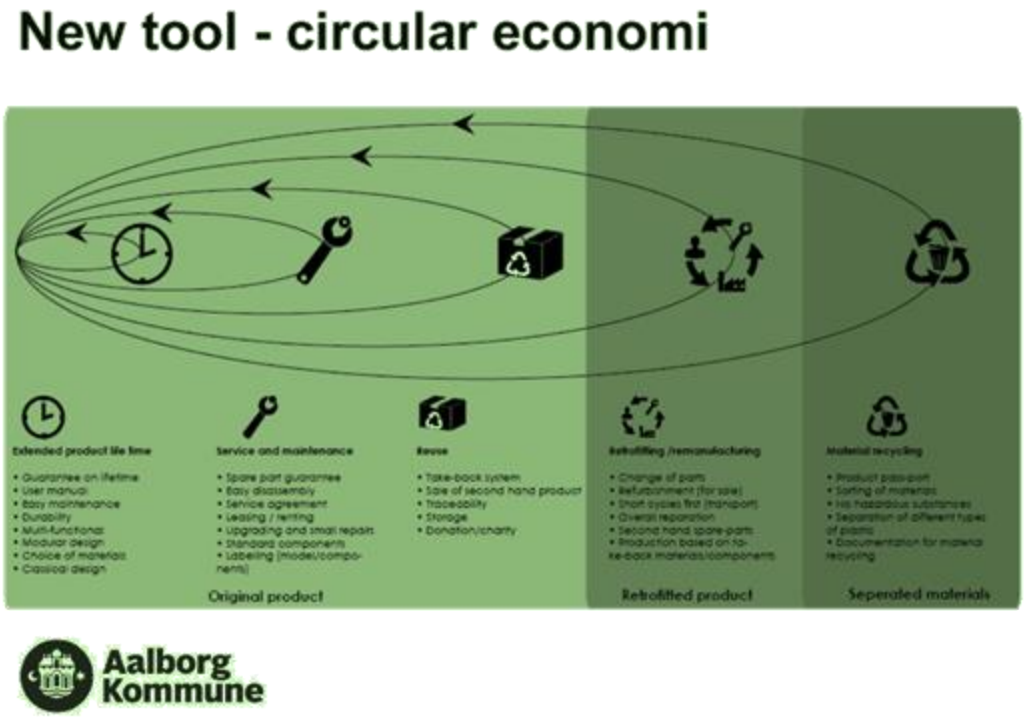
Business models - leasing workwear

- As part of a commitment by the Dutch Government to achieve maximum re-use and recycling, Rijkswaterstaat set up a pilot, within the REBus project to explore the potential for remanufacturing workwear.
- The main question was; can used clothing be 'dematerialised' successfully back into its component materials – and then be used to create new clothing?
- 50 lock stewards were issued with caps, polo-shirts, raincoats and fleece jackets made of 100% recyclable polyester materials.
- All of the clothing was successfully recycled, although the raincoats needed additional material added for remanufacture into new items.

Utilisation

Furniture CE benefits

- Environmental impact of furniture linked to the materials that are used in the production.
- Schools are one example where furniture has a short lifespan due to heavy use.
- Not only is purchasing new furniture expensive, it is also not environmentally sustainable. But, as the actual use of furniture results in virtually no environmental impact (unlike textiles), extending the lifespan has a direct environmental benefit. Prioritising reuse and refurbishment over purchase of new furniture, is a more holistic and circular approach to meeting furniture needs.



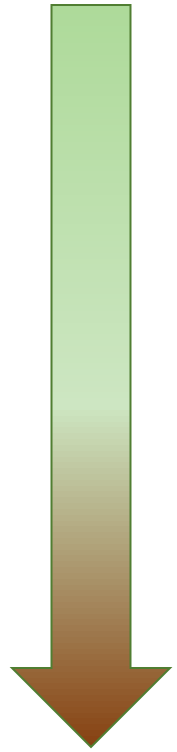
Optimising existing assets - Malmo, Sweden

1. Utilise the furniture available internally in Malmo City Council
   a) If found, can it be renovated internally
   b) or can be renovated externally by contract supplier?

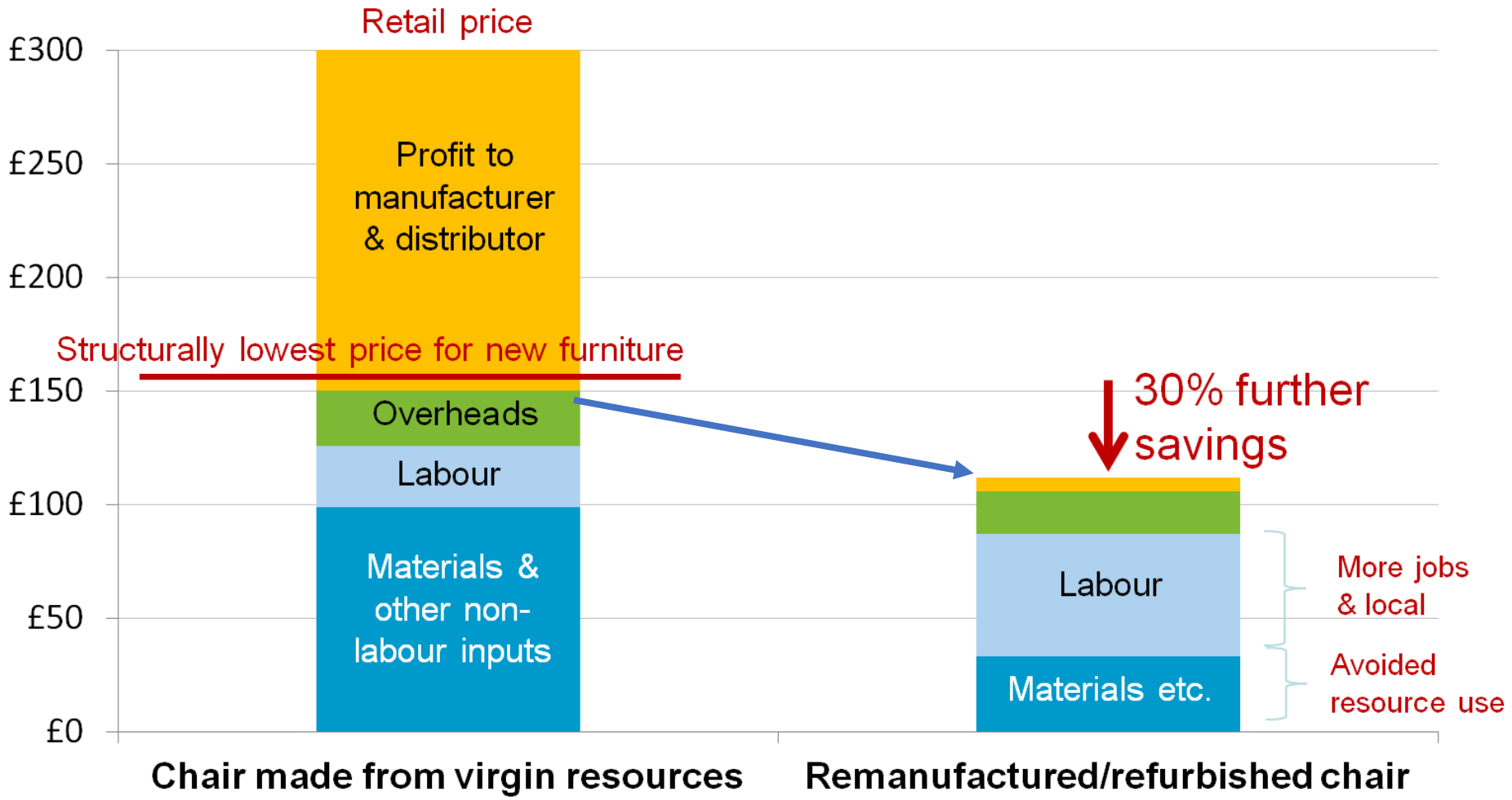
2. If no internal reuse furniture is reused furntiure available from contract suppliers?

3. If no reused furniture internally or externally, purchase new furniture with circular specifications through new framework?

4. Furniture disposal – if no usable resale value then recycel - this is the last step of the furniture lifecycle and should be avoided as far as possible.



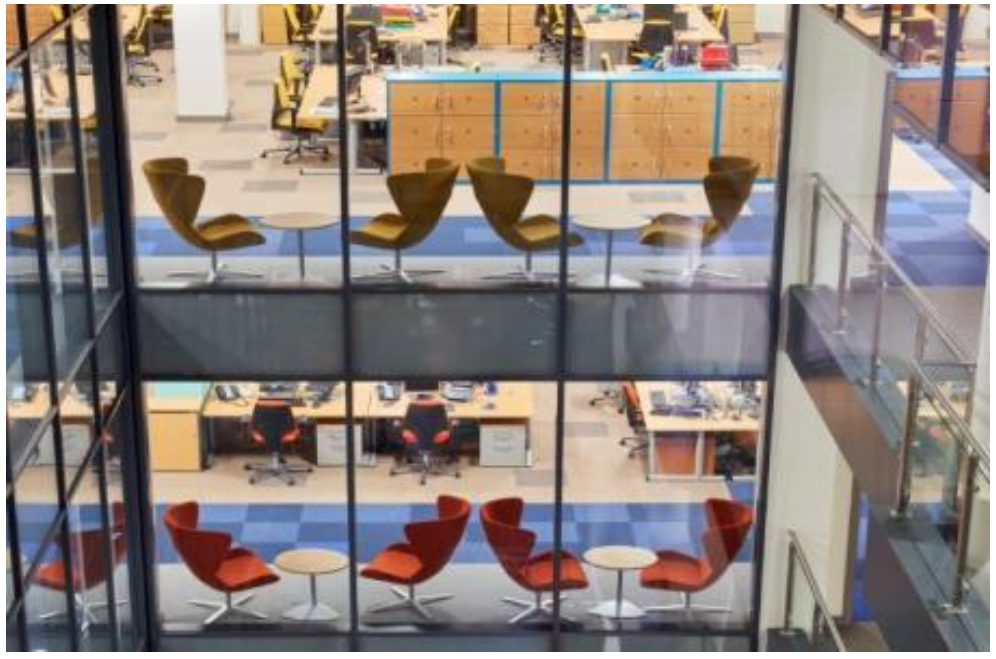
Remanufacturing life cycle costs in furniture



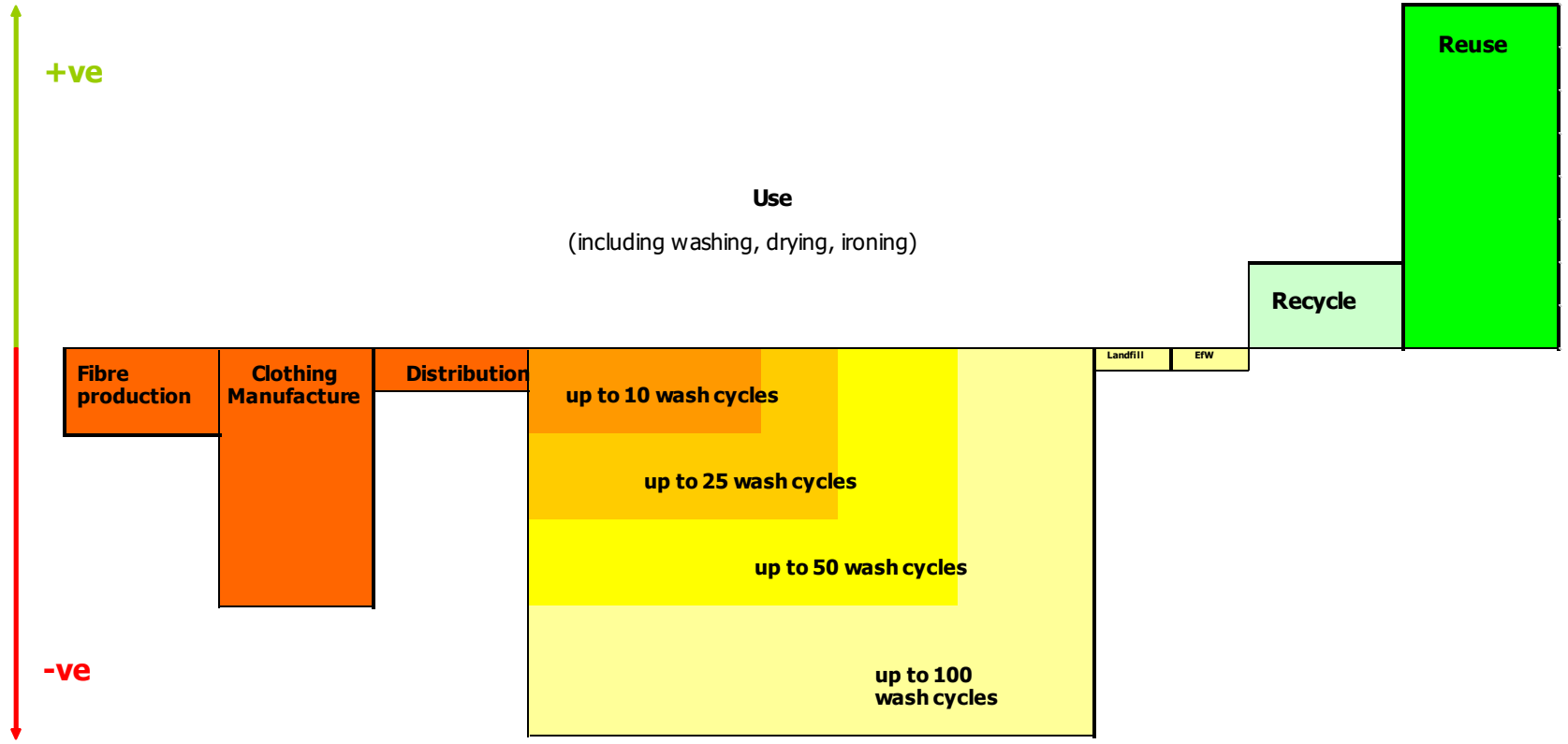
Data from Rype Office Furnishings

Utilisation

- Cost savings from reducing office space - gross square foot per person ↓ more than 55% below industry average in 2012
- Microsoft Sweden reduced office space by 27% whilst adding 1,500 additional seats
- Swansea City Council – agile working reduced space needs by 25%. Additional space now provides rental income
- Gwent (Wales) Police HQ reduced footprint by 33% using flexible space principles, saving materials and construction costs



Carbon Impact of the Clothing Lifecycle



Source: Based on Defra (i), Marks and Spencer (ii), Woolridge *et al* (iii)

(i) "Impact of Energy from Waste and Recycling Policy on UK Greenhouse Gas Emissions", Defra, November 2005
(ii) "Streamlined Life Cycle Assessment of Two Marks and Spencer plc Apparel Products" ERM Ltd for Marks and Spencer, 2002
(iii) "Life Cycle Assessment for Re-use/Recycling of Donated Waste Textiles Compared to Use of Virgin Material: A UK Energy Saving Perspective" Woolridge, A.C. et al, Resources, Conservation and Recycling 46 (2006) 94-103

Consumer reuse of clothing & furniture

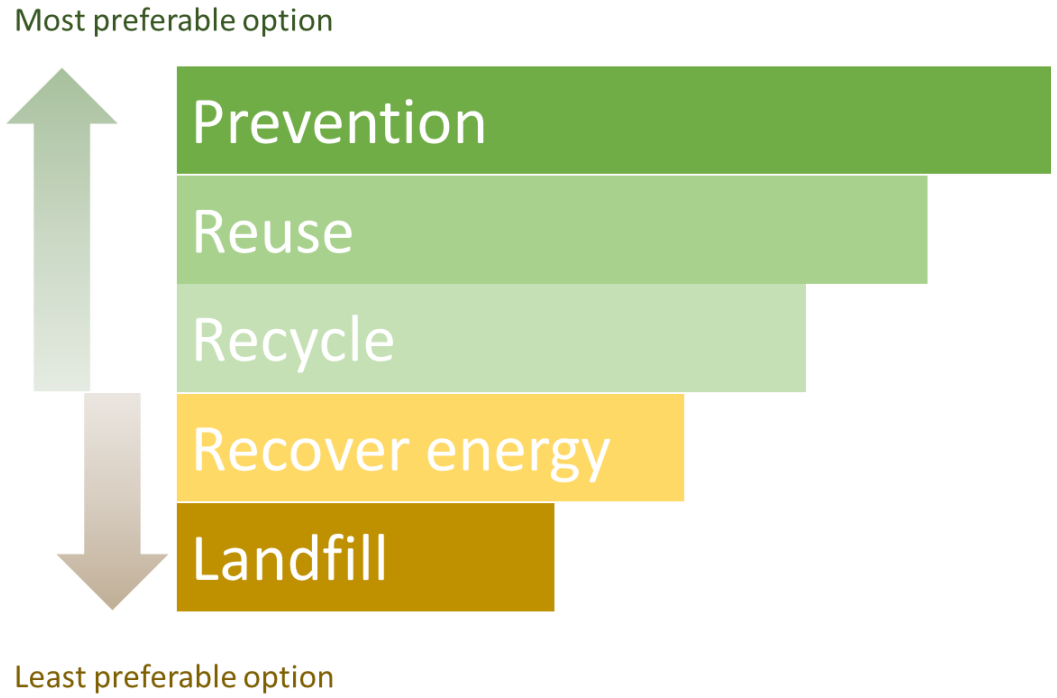
ReTuna Återbruksgalleria (ReTuna Recycling mall), Finland

- The world's first reuse and recycling mall, revolutionizing shopping in a climate-smart way.
- Old items are given new life through repair, reuse and upcycling.

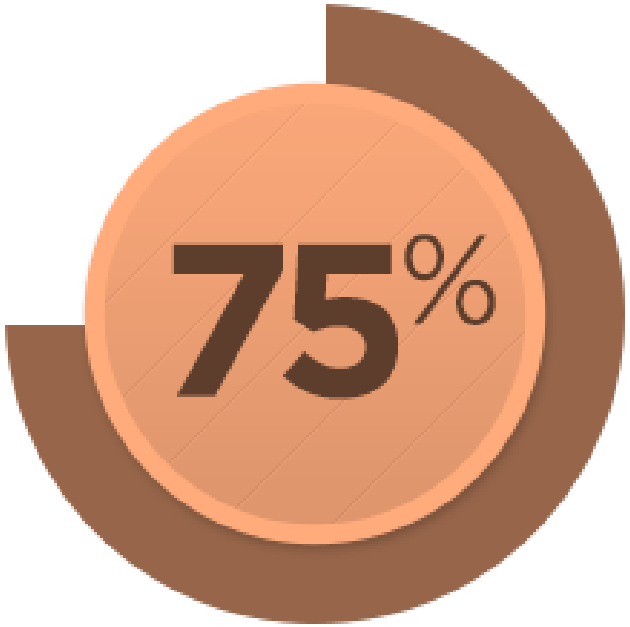
Disposal

Disposal

- Disposal options should be considered in the initial procurement
  - But rarely are – often another person, role and another budget
- Contracting for disposal can be included in the primary contract
  - But rarely is – not necessarily a barrier as long as there's a robust sustainable procurement policy in place
  - **Collection** for **reuse is different to** collection for **recycling**

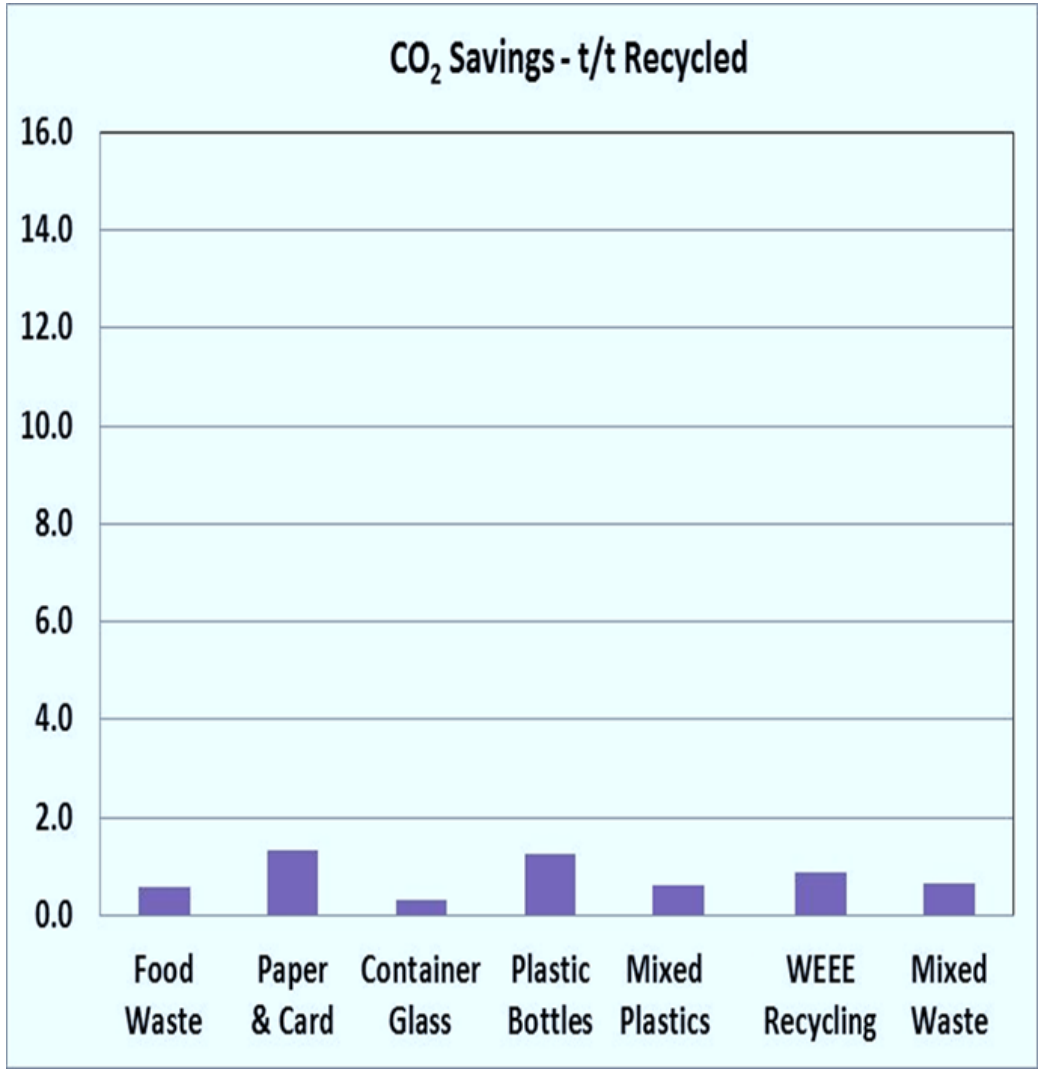


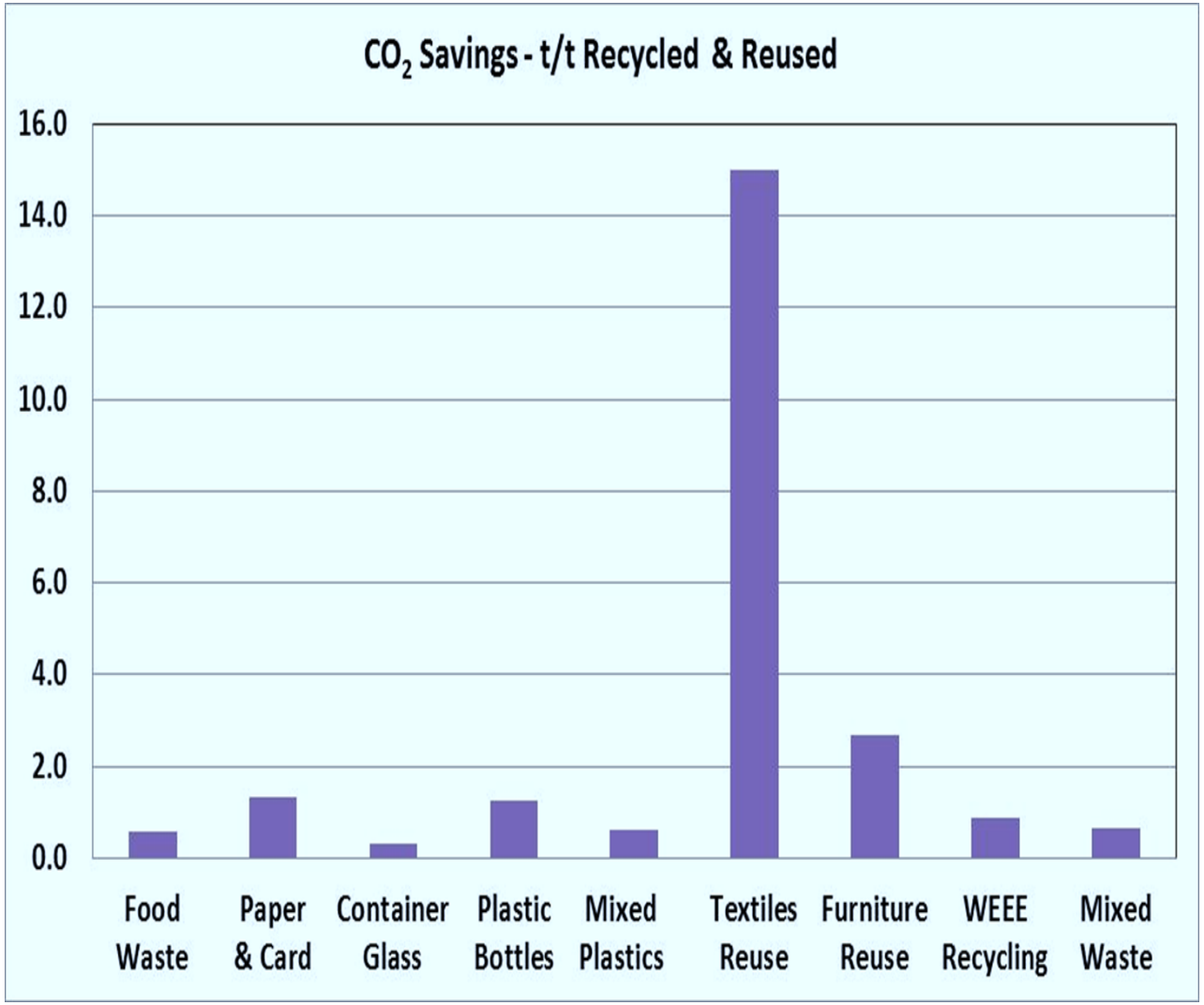
Facts



- *In EU, approximately 75% of used textiles ends up in landfill/incineration*
- *In NL 30 Kt of workwear and uniforms are annually thrown away by companies and governmental organisations*
- *Used uniforms have higher quality then a new pair of jeans*

LCA of lifetime optimisation





Dutch Ministry of Defence

Lieutenant-Colonel Rob van Arnhem on site

- Dutch MoD collects all their workwear
- Social benefits - people at distance to the labour market
- **Towels: 36%**
  Overalls: 14%

Circular procurement principles

- Use Fewer Resources
- Reduce use of Consumables
- Longer Lifetimes
- Recover end-of-life Materials

3 main concepts:

- buy-sell back

- buy-resell

- product service systems

(Furniture & textile) markets and CE

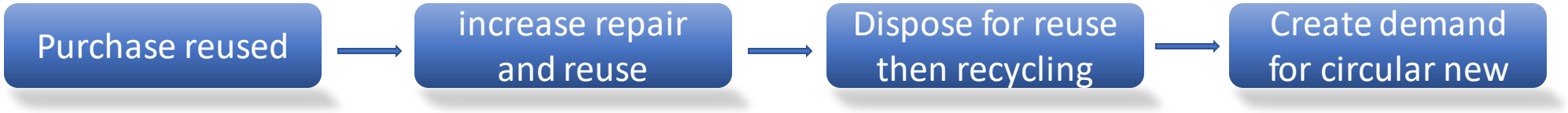
Starting point and perspective is crucial:

- Mature markets harder to get transformational change so focus on incremental
- Less mature markets can be both incremental and transformative depending on risk
- Niche markets (and new entrants) focus on disruption so transformative

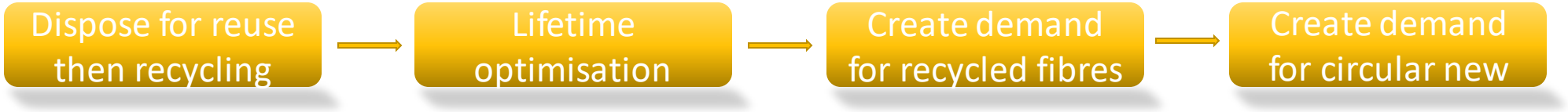
- Roles –
  - public sector
  - private sector
  - consumers

Possible CE future for…..

Furniture



Textiles



low market maturity → high market maturity

Rijkswaterstaat
Ministry of Infrastructure and the Environment

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Interreg
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EUROPEAN UNION
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