Saskia Manshoven | 17 October 2019 | Stockholm

Textiles and the environment:
From a linear to a circular economy

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Outline

1. The textiles consumption and production is globalised and highly linear
2. High environmental and climate impacts from textiles
3. New business models and regulation can help move to a circular textiles economy

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1. Textiles consumption and production is globalised and highly linear

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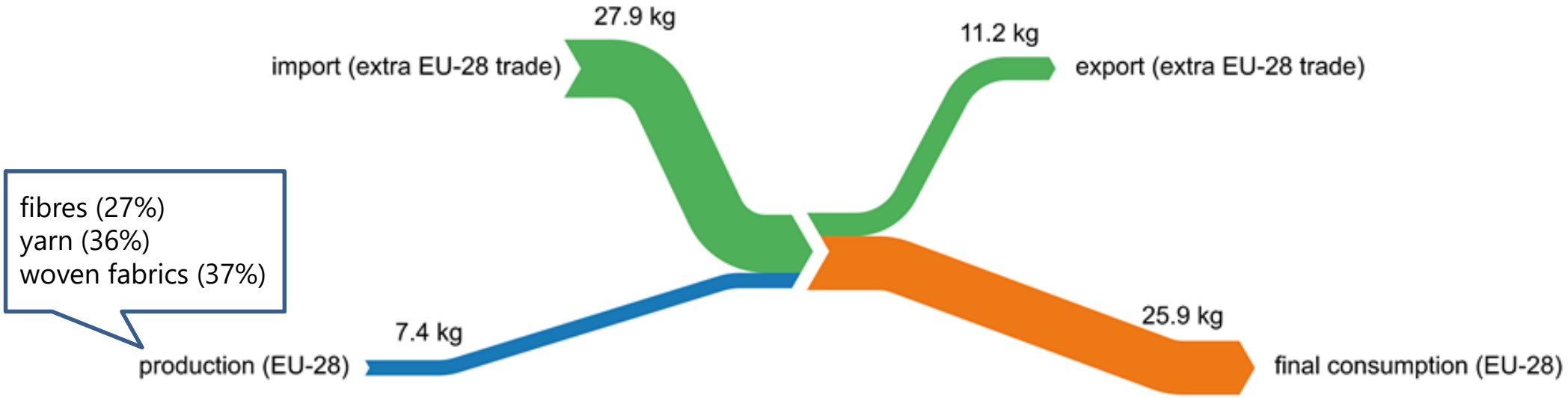
Imports and exports of textiles

Import, export, production and consumption flows of textile products, EU-28, 2017, kg per capita.



Data source

- Eurostat Comext Trade Data [2017 data]
- Eurostat Prodcom Production Data [2017 data]
- Exiobase HSUT v3.3.15 [2011 data converted to 2017, using conversion factors]

Source: preliminary results from EEAs ETC/WMGE

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Production of textiles in Europe (2018)

- 171,000 companies in textile and apparel industry
- 178 billion EUR turnover
- 1.7 million employees
- Mainly SMEs (<50 employees)
- Mainly central and Eastern Europe, and Turkey
- Specialised in technical textiles and non-wovens, high quality garments and design

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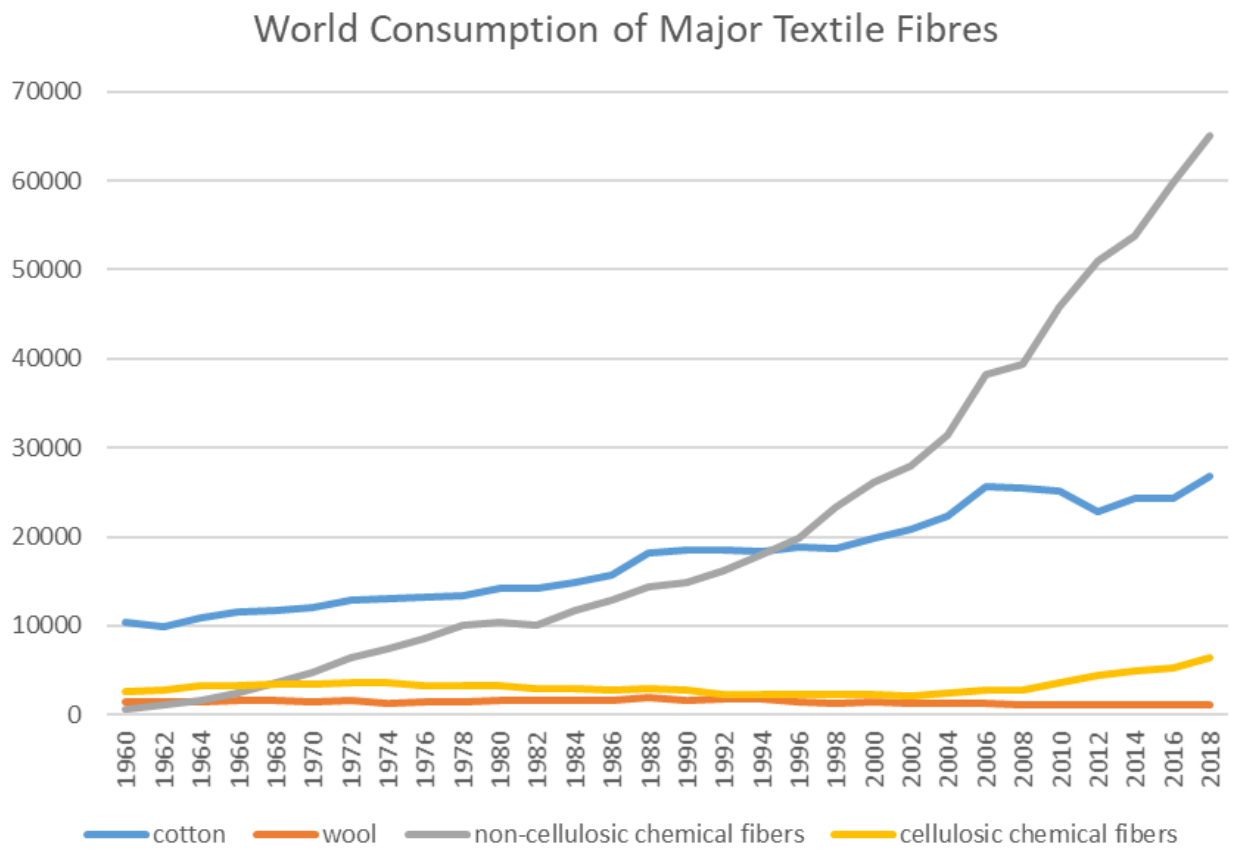
Global textile production

- Tripled since 1975
- Overall:
  - 60% synthetic fibres
  - 37% cotton fibres
- Application dependent:
  - Clothing: 54% natural
  - Household textiles: 30% natural
- Composite yarns



World consumption of major textile fibres between 1960 and 2018 (source: ICAC)

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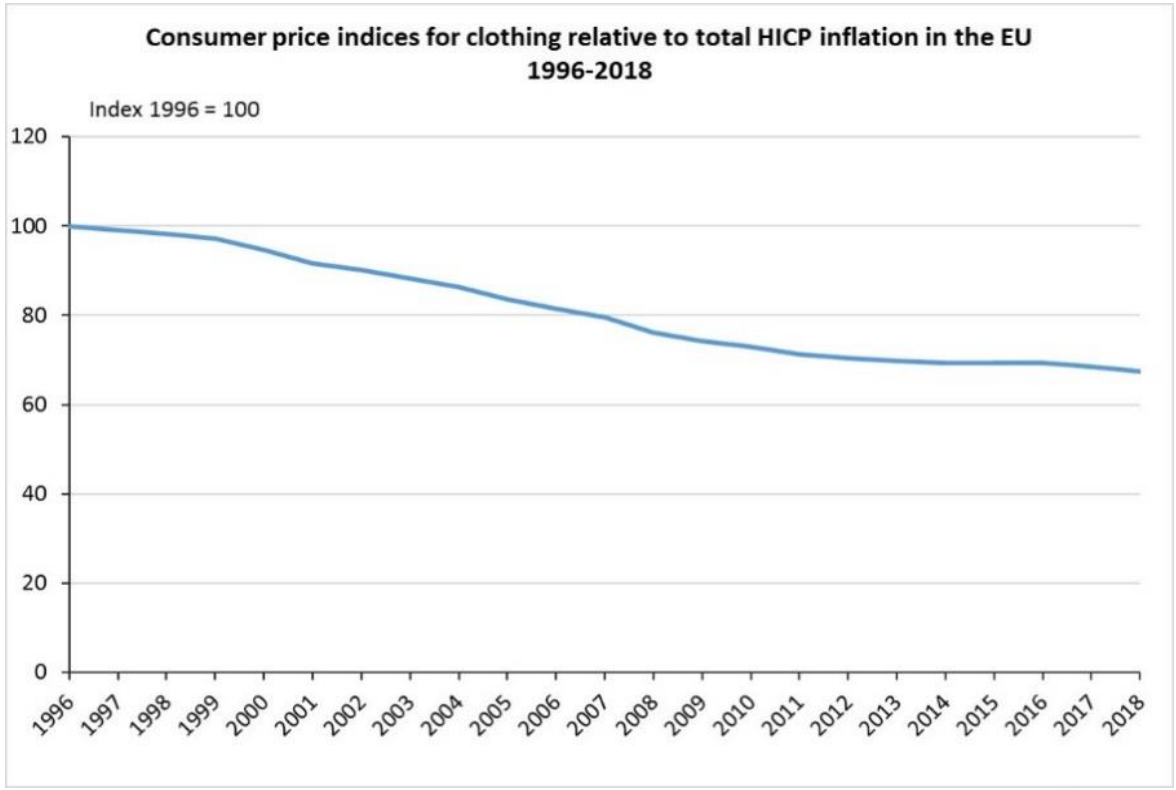
Consumption of textiles

- Yearly expenditure (EU, 2017): 871 EUR pp, 5% of disposable income
- Total number of clothing items consumed has increased 40% between 1996 and 2012
- Clothes are getting relatively cheaper: prices dropped by 30% between 1996 and 2018
- Clothes used less times on average (worn 7-8 times, kept 2.2-5 years)



Source: preliminary results from EEAs ETC/WMGE based on Eurostat data

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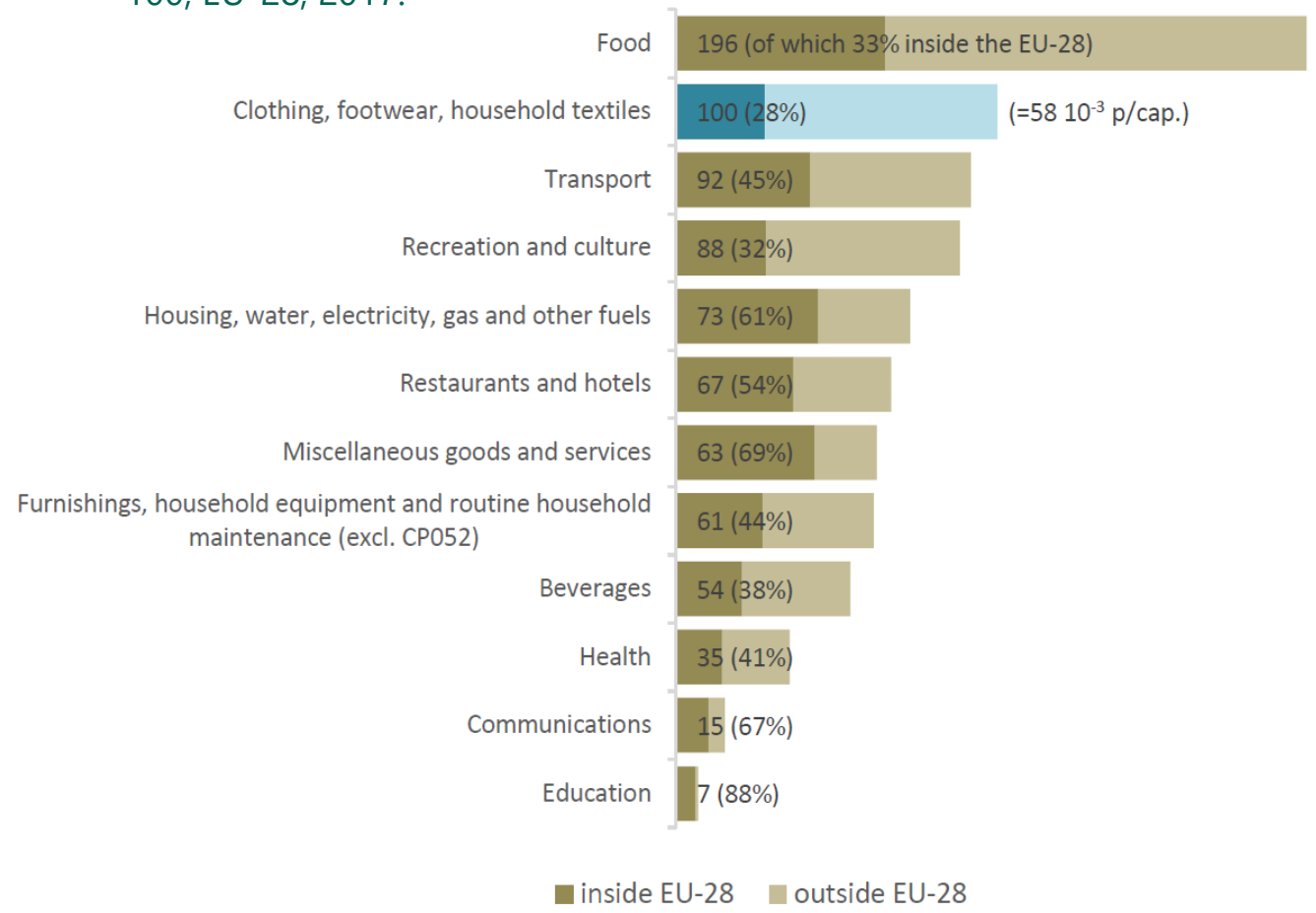
Employment in textile value chain

- Labour-intensive sector
- Only 28% in Europe,
  56% in Asia & Pacific
- 40% female (75% in reality?)
- 89% low/medium-skilled
- Average hour wage € 3.44

The use of employment in the upstream supply chain of EU-28 household consumption domains, indexed values with textile consumption equaling 100, EU-28, 2017.



Source: preliminary results from EEAs ETC/WMGE based on Exiobase 3.4 data

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High environmental and climate impacts from textiles

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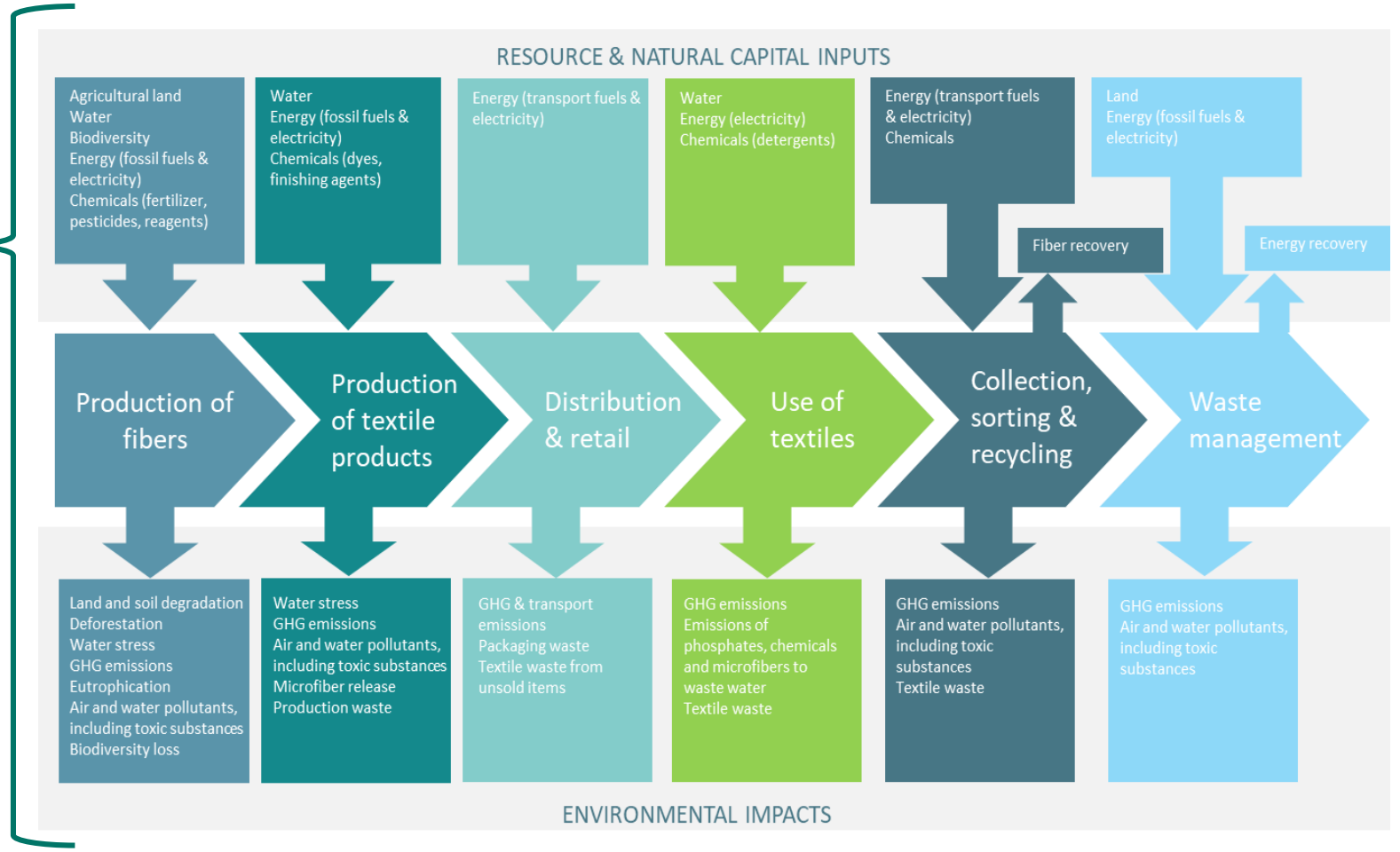
Environment and climate impacts from textiles

- Impacts from all stages of the value chain
- Hot spots: carbon emissions, resource use, water, land use, chemicals and microplastics



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Primary resource use

- 675 million tons of primary materials used
- 1,321 kg resources per capita
- 85% of material and energy use outside Europe

- 53,000 million m^3 water
- 104 m^3 per capita
- 92% of water use outside Europe

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Land use

- 703 m^2 land use per capita
- 93% of land use outside Europe
- Global cotton production > 31 million hectares (2.4% arable land)
- Deforestation and competition with food crops

Greenhouse gas emissions

- 334 million tons of CO_2 eq emitted
- 654 kg CO_2 eq per capita
- 75% of emissions outside Europe

- 51% production, 44% use, 5% transport
- 15-35 tons of CO_2 eq. per ton of textile produced

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Chemicals and microplastics

- ~3500 substances used in textile production, of which 10% are considered to be of high potential concern to human health or the environment (KEMI, 2014).
- Damage to workers' health and allergic reactions
- 20% of water pollution caused by dyeing and finishing treatment of textiles production (Kant, 2012)
- Many are banned by the EU (certain phthalates, azo colours and dyes, perfluorooctanoic acid (PFOA), chromium VI, dimethylfumarate (DMF))
- Microplastics released to water environment from washing of textiles

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New business models and regulation can help move to a circular textiles economy

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Vision on a circular textiles system

"A circular textiles system should provide access to high-performing textiles, fit for a wide variety of applications, and to high-quality, affordable clothing, in line with people's individual preferences."

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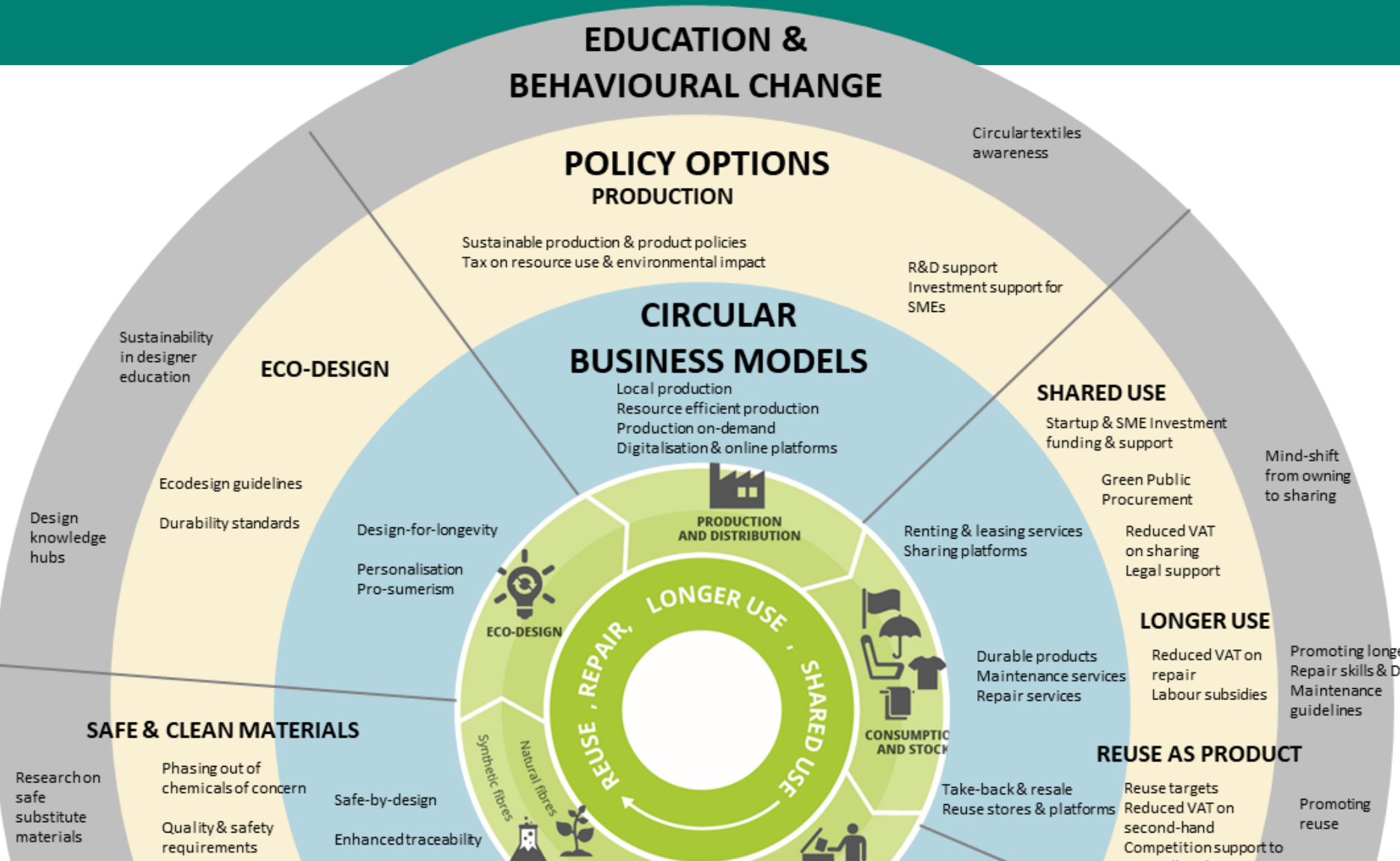
Business models, policy options and education for circular textiles system



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Sustainable material choices & Ecodesign

- Safe-by design
- Use of recycled materials
- Design-for-longevity
- Durability & sustainability standards
- Ecolabelling

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Shared use, Longer use and reuse

- Renting/leasing/sharing models
- Longer use and reuse
- (online) platforms

- Green public procurement
- Reduced VAT or taxes on repair/reuse/sharing
- Investment funding for start-ups/SMEs
- Mindshift (owning → sharing, fast fashion→ longer use/reuse)

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Way forward – key take aways

- Everything starts with conscious design choices, taking into account material safety and end-of-life options
- Business models need to be scaled to make an impact and this will require a full system change
- Policy is needed to support the transition by promoting sustainable choices/models over unsustainable choices/models
- To spur behavioural change education is needed (awareness), together with economic and innovation support (incentives) and regulations (obligations)

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