

Sustainability and the supply chain: Lighting the path forward

Thank you for joining us. The event will start shortly.



Webinar etiquette...



The session is being recorded.

The recording and the slides will be shared after the event.



Be interactive.

Post questions and thoughts in chat, throughout the session.



Questions will be addressed during the panel discussion.

Please put your hand up if you would like to ask a live question.



Our speakers...



Alan Duncan
Senior Director of
Manufacturing Strategy
(EMEA)
Blue Yonder



Jan Godsell
Prof. Operations & SC Strategy
WMG, University of Warwick



Martin Chilcott
Chairman and CEO
Manufacture 2030



Simeon Nachev
Value Chain Manager
Lenzing





Alan Duncan

Senior Director of Manufacturing Strategy (EMEA)

Blue Yonder

Introduction





Jan Godsell

Professor of Operations and Supply Chain Strategy
WMG, University of Warwick

**Sustainability and the supply chain:
Lighting the path forward**

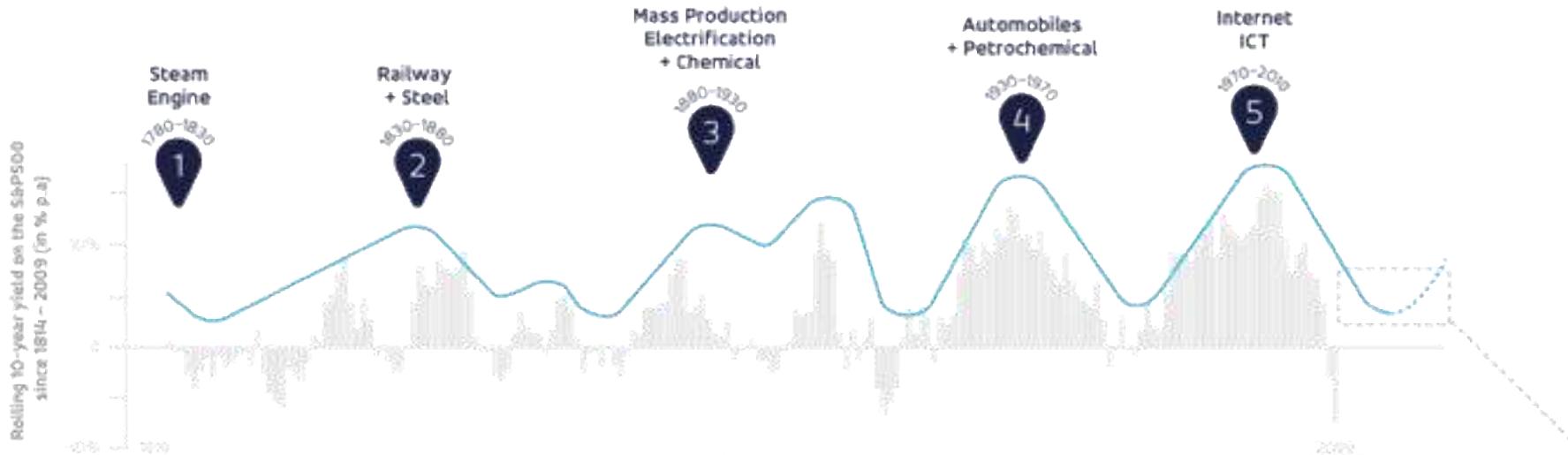


Sustainability and the supply chain: Lighting the path forward

Prof Jan Godsell
8th December, 2020



We are at a Transition Point...



SEAN A. CULEY



Attenborough: 'Curb excess capitalism' to save nature

BBC

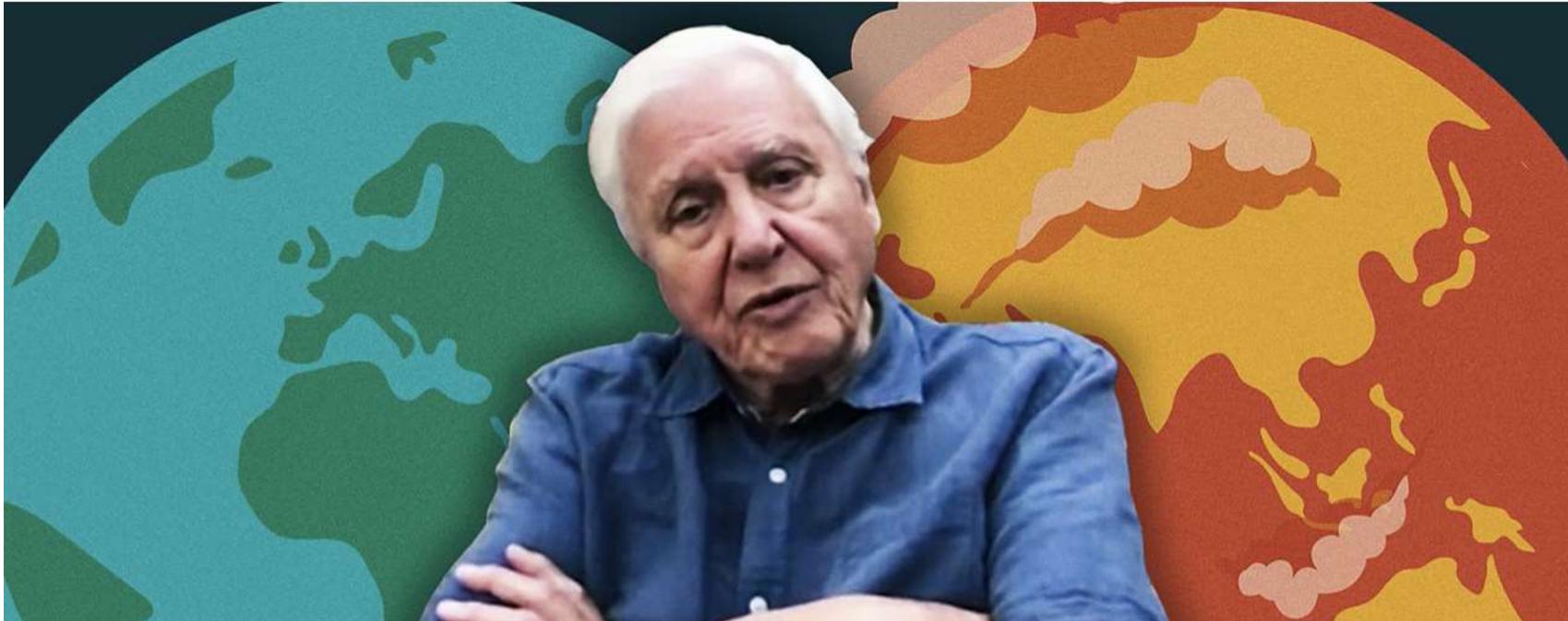
Jan

NEWS

🕒 8 October 2020



🔗 Share



"We are going to have to live more economically than we do. And we can do that and, I believe we will do it more happily, not less happily. And that the excesses the capitalist system has brought us, have got to be curbed somehow."



WMG
THE UNIVERSITY OF WARWICK

A need for more responsible consumption and production...

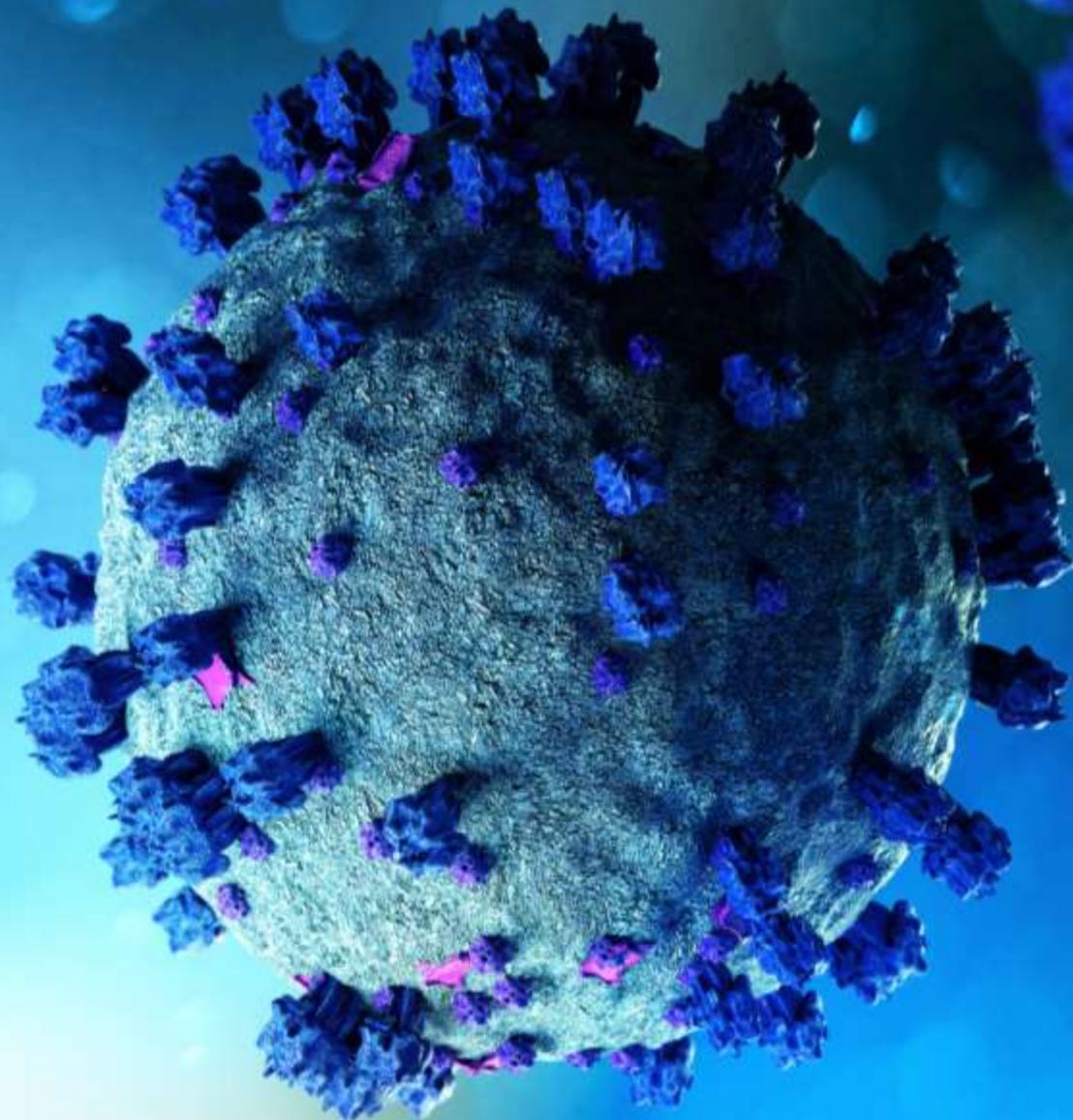
12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Responsible consumption and production about doing more and better with less. It is also about decoupling economic growth from environmental degradation, increasing resource efficiency and promoting sustainable lifestyles.

Responsible consumption and production can also contribute substantially to poverty alleviation and the transition towards low-carbon and green economies.

Covid-19



Build back better...



COVID-19 response



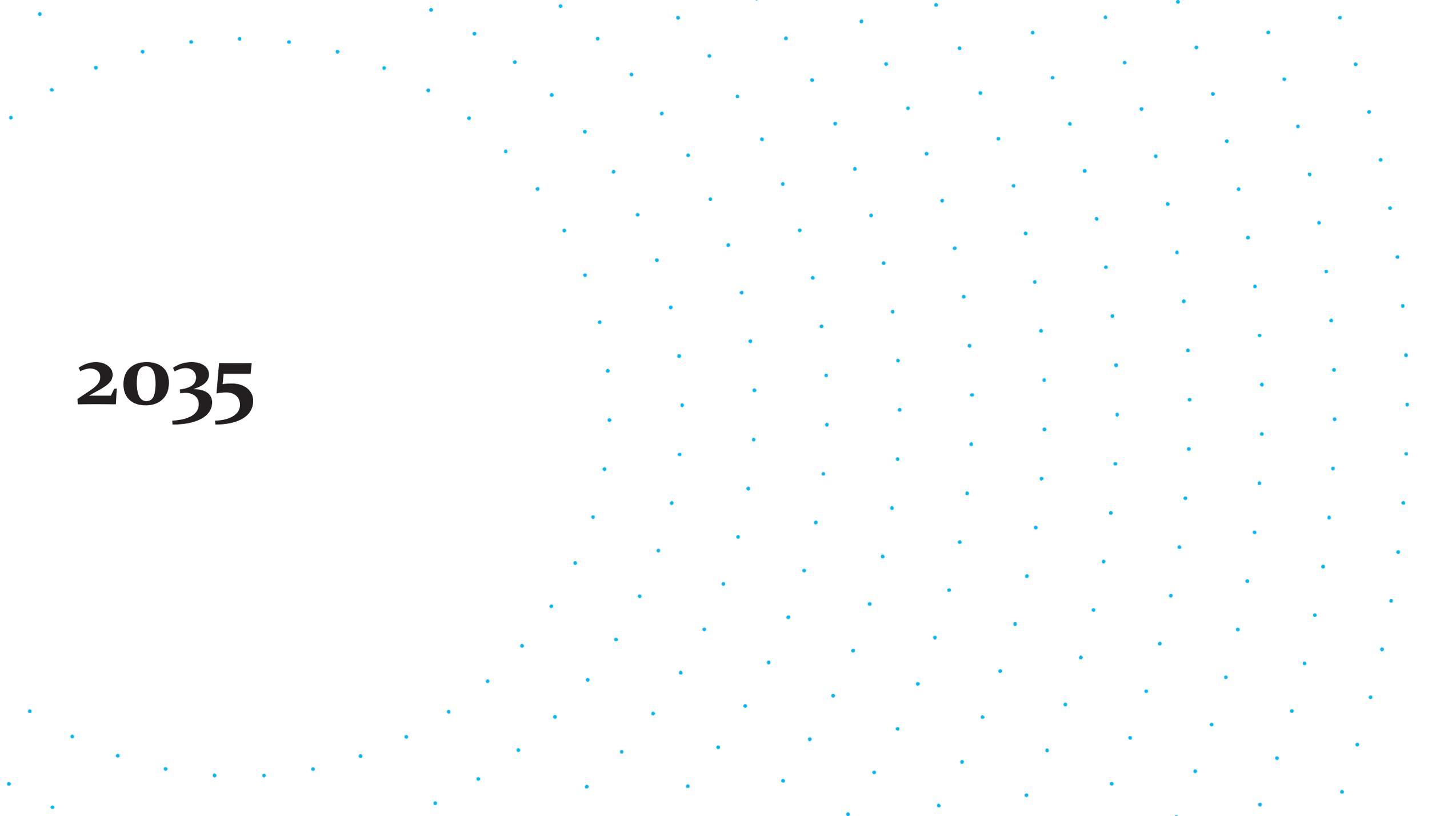
**COVID-19
RESPONSE**

The current crisis is an opportunity for a profound, systemic shift to a more sustainable economy that works for both people and the planet.

The emergence of COVID-19 has underscored the relationship between people and nature and revealed the fundamental tenets of the trade-off we consistently face: humans have unlimited needs, but the planet has limited capacity to satisfy them. We must try to understand and appreciate the limits to which humans can push nature, before the impact is negative. Those limits must be reflected in our consumption and production patterns.

COVID-19 can be a catalyst for social change. We must build back better and transition our production and consumption patterns towards more sustainable practices.

2035

The image features a background of small, light blue dots arranged in a regular grid pattern. On the left side, the year '2035' is written in a large, bold, black serif font.

Spectrum of reality



“We are our choices”
Jean-Paul Sartre



2035: A flourishing world

Main drivers



Sustainable and circular economy practices, policies and regulations



Integration of Advanced technology



Altered consumption model



Collaboration



Worldwide

- Single, global market
- Sufficient raw materials & resources
- Trade flow of finished goods has decreased



Regional

- Competing on sustainability
- High level of regional self-reliance



Organisational

- Manufacturing firms enjoy increased profitability
- Focus on customer value creation
- More attractive cost structures
- Productivity gains



Energy

Cheapest, safest, and most stable electricity production



Mobility

Electric, shared, and autonomous
Emission free transportation



Manufacturing & Supply chains

Regional manufacturing hubs are developed across the UK
Leveraging closed loop models and avoiding risks from resource price fluctuations
Digital transparency



Employment

New jobs in recycling, reverse logistics, secondary markets and upgrade, repair and remanufacturing activities.

Specific drivers

Renewable energy sources
Energy efficiency
Net-zero energy hubs

Policies & regulations for substitution of fossil fuels
Technology maturity

Intelligent manufacturing, AI
Circular economy business models & infrastructure
Customer needs

Investment in CE practices
Increased focus on secondary production
Realising the untapped value for assets and material stocks



2035: A world on the edge

Main drivers

-  Linear Economy
-  Overconsumption
-  Intense competition



Worldwide

- Global trade reduced and fragmented
- Deterioration of quality life
- Socio-political tensions



Regional

- Complicated customs procedures
- Society growth concentrated in few large cities



Organisational

- Disparity between large companies and SME
- Innovation inhibited by restricted access to large organisations



Energy

- Scarcity of natural resources limits renewable energy generation
- Severe pressure on global systems



Mobility

- Partial adoption of electric vehicles
- Disposal of battery modules still a problem



Manufacturing & Supply chains

- Linear economy business models still predominant
- Net-zero agenda pushed back



Employment

- Reduction across low and semi skilled jobs

Specific drivers

Fossil fuels remain the main source

Total cost of electric vehicles ownership higher than expected
Lack of infrastructure

Cyber threats and unreliable connectivity limits adoption of smart manufacturing
Intense competition for raw materials generates price increase

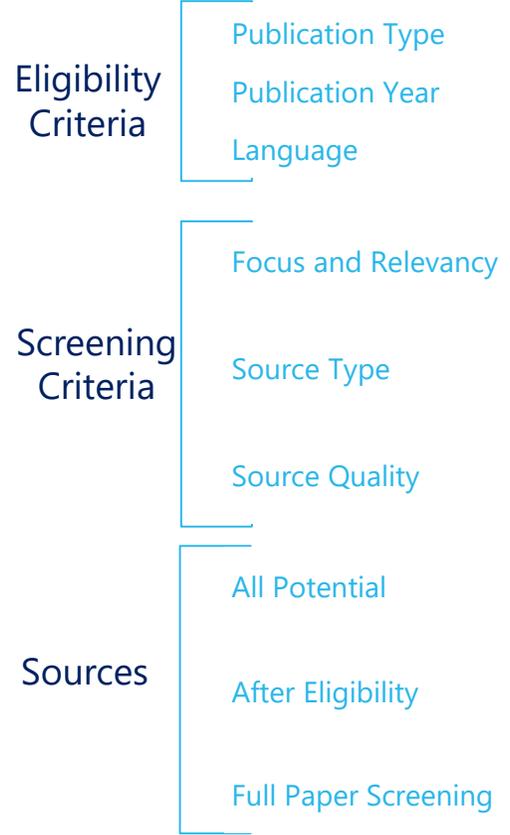
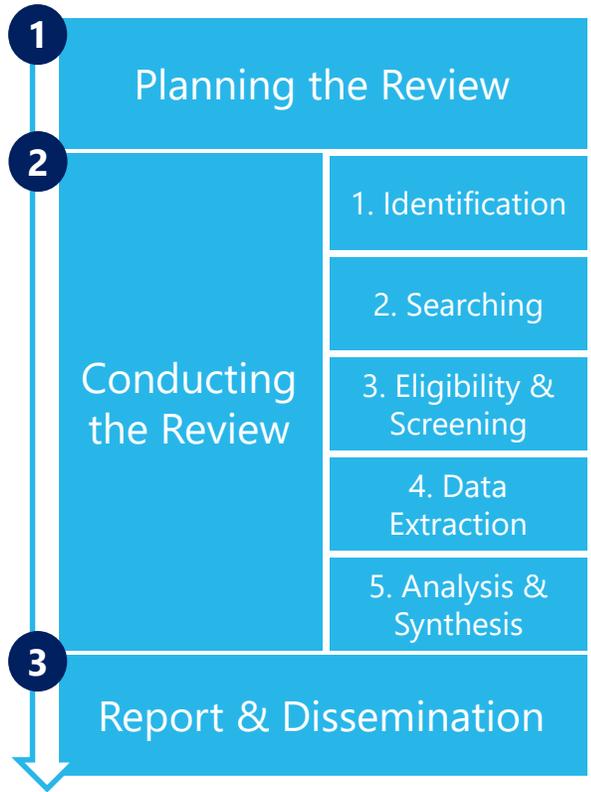
Underinvestment
Worrying and increasing unemployment rates



Approach

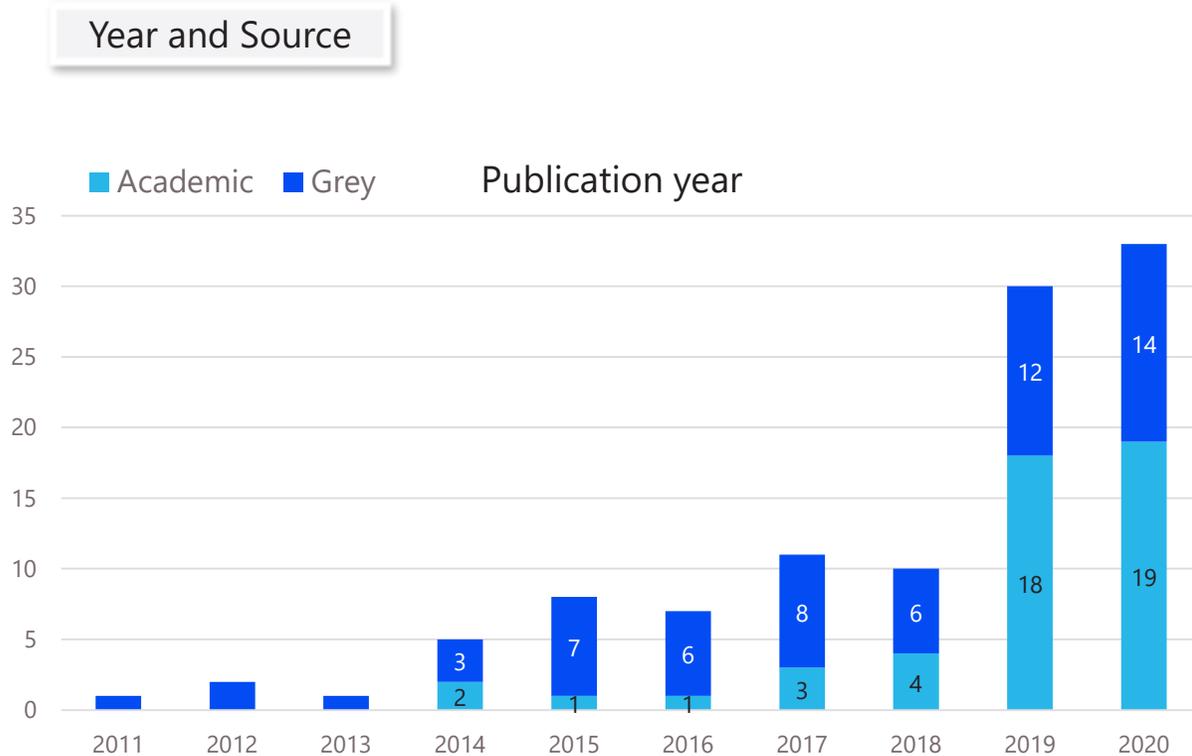


A 3-stage approach, starting with over 607k sources...



| | Academic Literature | Grey Literature |
|----------------------|---|---|
| Eligibility Criteria | Journal articles, Conference Proceedings | Reports and white papers |
| | After 2010 | After 2010 |
| | English | English |
| Screening Criteria | - Focused on Circular Economy and Sustainability topics - Related to the context of manufacturing businesses & supply chains | |
| | Review papers, Recent exploratory papers | Global reports, recent periodical reports, consulting reports |
| | Cranfield SLR protocol | Well-known with international reputation |
| Sources | 603,553 | 4,282 |
| | 12,671 | 200 |
| | 48 | 60 |
| | 108 | |

A subject that has gained popularity since 2019...



Academic Sources (48)

| | |
|---|----|
| Journal of Cleaner Production | 21 |
| International Journal of Production Research | 11 |
| Business Strategy and the Environment | 5 |
| Production Planning and Control | 3 |
| Supply Chain Management | 2 |
| IEEE Transactions on Engineering Management | 1 |
| International Journal of Production Economics | 1 |
| Journal of Business Ethics | 1 |
| Journal of Business Research | 1 |
| Technological Forecasting and Social Change | 1 |
| Transportation Research Part E: Logistics and Transportation Review | 1 |

Grey Sources (60)

| | |
|----------------------------|---|
| EU publications | 9 |
| Deloitte | 8 |
| World Economic Forum | 8 |
| Circle Economy | 7 |
| Ellen MacArthur Foundation | 7 |
| McKinsey & Company | 6 |
| Accenture | 4 |
| WBCSD | 4 |
| OECD | 3 |
| PWC | 3 |
| KPMG | 2 |
| Green Alliance | 1 |
| PA Consulting | 1 |
| WRAP | 1 |

A tipping point for sustainability & circular economy

- October 2018 ○ The New Plastics Economy Global Commitment [initiative](#) launched in October 2018 by the Ellen MacArthur Foundation joined with the UN environmental programme
- November 2018 ○ The European Commission set out its [vision](#) for a climate-neutral EU, looking at all the key sectors and exploring pathways for the transition.
- March 2019 ○ The European Parliament endorsed the net-zero greenhouse gas emissions objective in its [resolution on climate change](#).
- June 2019 ○ UK Net Zero Commitment: In June 2019, the United Kingdom became the [first major economy to commit by law to achieve net-zero](#) greenhouse gas emissions by 2050.
- December 2019 ○ The European Council [endorsed](#) in December 2019 the objective of making the EU climate-neutral by 2050, in line with the Paris Agreement.
- March 2020 ○ The European Commission proposed on 4 March 2020 the first [European Climate Law](#) to enshrine the 2050 climate-neutrality target into law.
- March 2020 ○ The EU submitted its [long-term strategy](#) to the United Nations Framework Convention on Climate Change (UNFCCC) in March 2020.



Circular economy 'number one priority' of European Green Deal and net-zero ambitions

13 November 2019, source: edie newswire

The circular economy, including new waste and recycling laws, will represent "half" of the EU's effort to achieve net-zero carbon emissions by 2050, and will be erected as "the number one priority" of the upcoming European Green Deal, officials have said.



The 2050 climate objective will be "the big highlight" of the Green Deal

Complicated landscape of concepts and terminology...



Using both hemi-spheres...

Strategic philosophy

Supply Chain Management practices

Ecology

Management

Sustainability



With 53 supporting factors...

Environmental

1. Increasing demand for natural resources
2. Exhaustion of resources
3. The harms of increasing modern agriculture
4. Relevant amount of wastes produced
5. Increased carbon footprint
6. Climate change (E)
7. Demand for renewable energy
8. Developing and spreading knowledge
9. Considerations over the overconsumption of resources and energy
10. Considerations over public and animal/nature health/wellbeing

Social

11. Global warming society pressure
12. Population growth
13. Increasing urbanisation
14. Ethical responsibility of generating sustainable value for society
15. Increased sensitivity for the sustenance of this ecosystem for the future generation

Customer

16. Customer demand and expectations
17. Consumer concern/awareness towards sustainable practices
18. End consumers' shift to more simplified lifestyles
19. Pressure from investors

Supply Chain

20. Trust among SC partners
21. Cultural distance
22. Geographical distance
23. Power among SC partners
24. Perceived value among SC partners
25. Involvement of direct supplier
26. Direct suppliers' willingness to disclose sub-suppliers
27. Committed long-term relationship between direct supplier and sub-supplier
28. Sub-supplier's capability to comply with requested sustainability standards
29. Pressure from SC members
30. Position of the firm in the SC
31. Transparency

Market

32. CE-empowered success of competitor
33. Risk of negative publicity
34. Environment-related reputational risk
35. Brand and reputation
36. Industry pollution level
37. Industry dynamism
38. Material criticality
39. Country Development Level

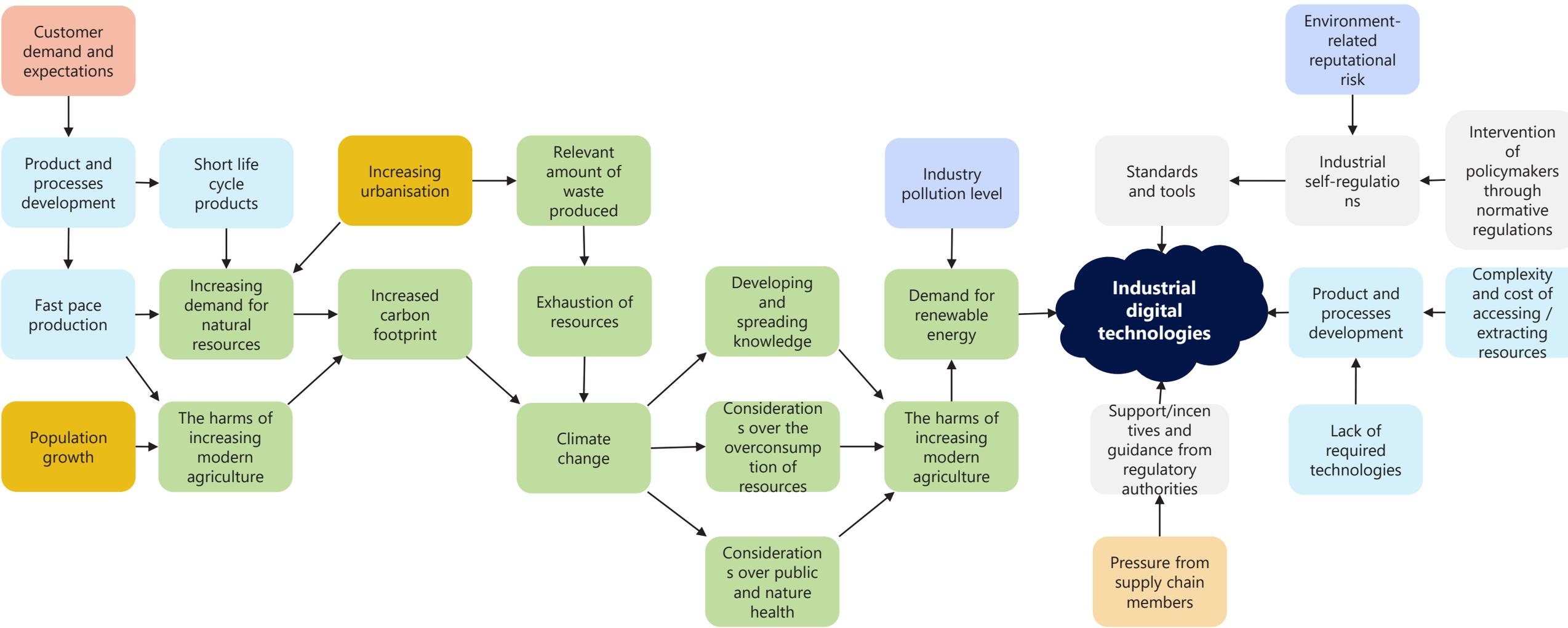
Technological

40. Emerging innovative technologies
41. Product and processes developments
42. Fast pace production
43. Short life cycle products
44. Complexity and cost of accessing/extracting resources
45. Lack of required technologies

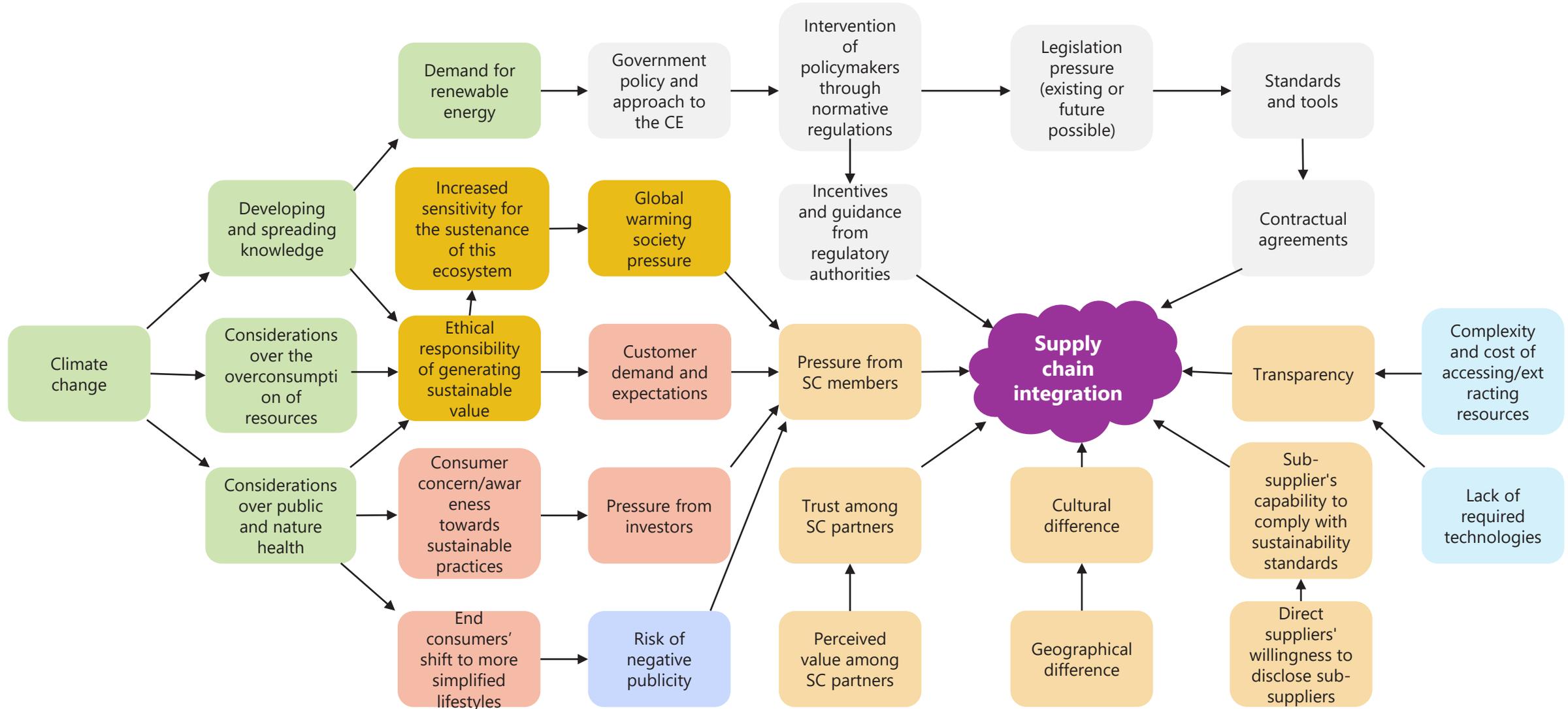
Political and Legal

46. Government policy and approach to the CE
47. Support/incentives and guidance from regulatory authorities
48. Increasing influence of NGOs
49. Contractual agreements
50. Legislation pressure (either existing or future possible)
51. Intervention of policymakers into the industries through normative regulations
52. Industrial self-regulations
53. Standards and tools

Industrial Digital Technologies (IDT) adoption is a key driver...



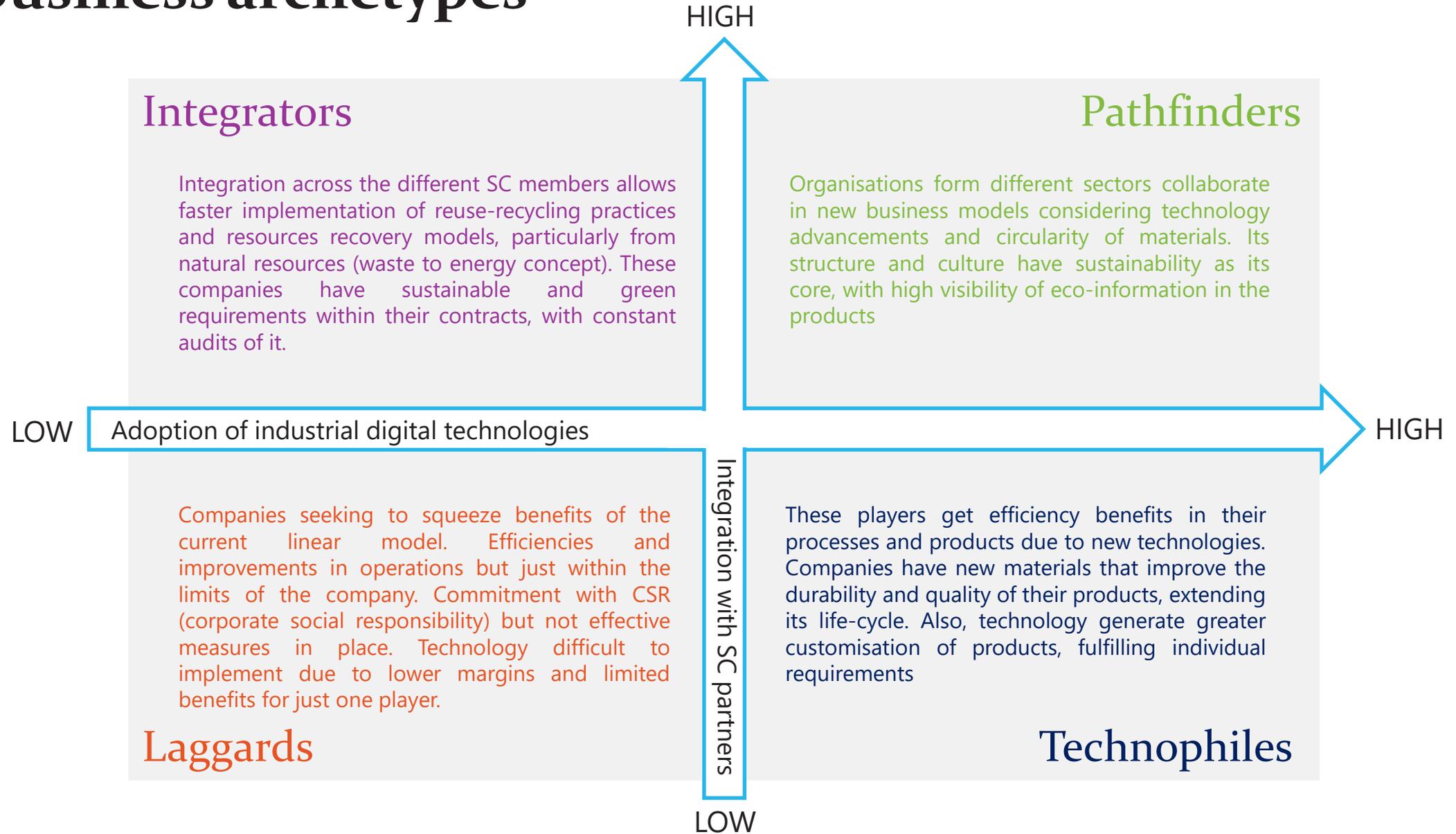
As is supply chain integration...





**Lighting the
path to a
flourishing
world**

4 business archetypes



Laggards

“
Doing the
minimum



Strategy & organisation

- Setting environmental goals
- Pursuing employee wellbeing, diversity and equality



Sustainable Marketing

- Corporate social responsibility through promoting activities in society (sponsoring events, volunteering)
- Eco-labelling of products



Operational Practices

- Efficiencies through reducing product defects and decreasing changeover time
- Repair, reassemble and refurbishing mostly done by second market
- Ensuring supplier's compliance in working conditions (slavery, human rights, pay wage standards, non discrimination) and environmental management and compliance
- Auditing and monitoring resource consumption (energy, materials, transport use)



Integrators

“Bringing everyone on board



Strategy & organisation

- Rewards and incentives for greener activities
- Special training for workers on environmental issues and circular economies (upskill)



Sustainable Marketing

- Dissemination of green good practices to the customers



Operational Practices

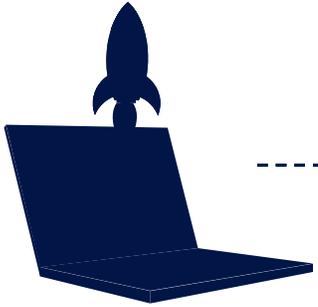
- Reshoring / Nearshoring
- Seeking for sustainable second source alternatives
- Recovery and revalorisation of biomass waste and residues (waste to energy)
- Green and cleaner purchasing (setting supplier sustainability standards)
- Extended Producer Responsibility (EPR)
- Resource sharing and mutual learning as part of supply chain
- User centric design

Example:



Technophiles

“ Making tech work for you



Strategy & organisation

- Asset-specific investments



Sustainable Marketing

- Product attachment through personalisation / designing products for attachment and trust
- Digital passports



Operational Practices

- Reduction in material consumption and packaging
- Better energy efficiency through technology (e.g. replacing wet-machining processes with dry-machining)
- Novel disassembly sequence planning of production
- Dematerialise with digitalisation
- Big data and advanced analytics in supply planning
- Use of digital tools for transparency and traceability of suppliers.
- Development of new / bio-benign materials
- Development and deployment of process technologies (technological innovation)
- Adoption of IoT to enable remote asset monitoring

Example:



Pathfinders

“ Lighting the path forward



Strategy & organisation

- Supporting awareness within supply chain
- Organizational structure and culture for sustainability
- Cooperation with other firms, NGOs, authorities and general public
- Product centric clusters and innovating hubs
- Environmental accounting, aligning indicators with CE across the supply chain



Sustainable Marketing

- Circular business models (leasing, pay-per-use, deposit return schemes)



Operational Practices

- Increased efficiency of IT and data management activities manifested in SC transparency and traceability
- Consumption preference towards circular supplies: use of recycled / recyclable / renewable materials
- Proactive monitoring of natural resources' input, processing and use along different sectoral value chains
- Waste decoupling
- Systemic life cycle design including a cradle-to-cradle approach
- Design for standardisation and compatibility

Example:



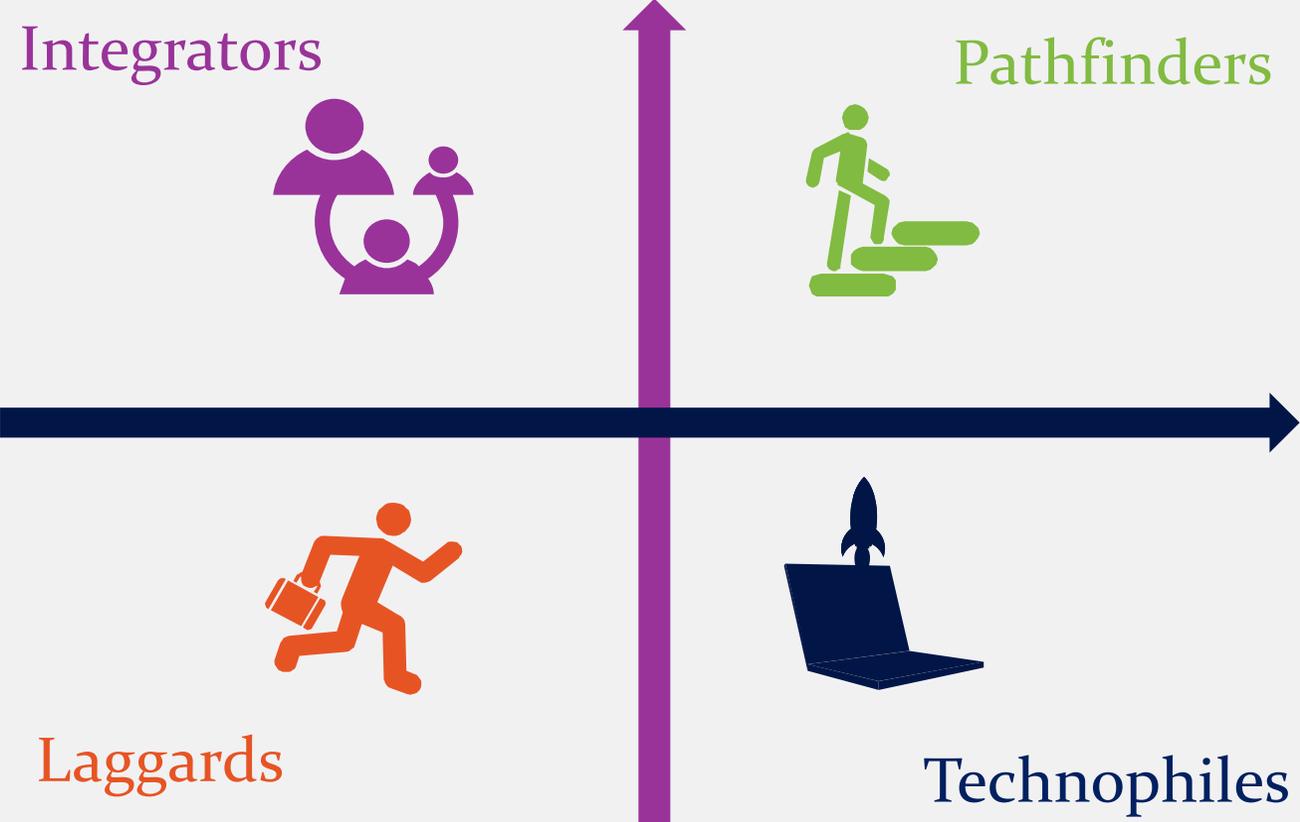
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Practical next steps

Two paths to improvement...

1. Improve IDT adoption



2. Improve supply chain integration

3 ways to improve IDT adoption...

What you need to overcome

- Inability to integrate technologies
- High initial costs
- Financial risks
- Product complexity

3 ways...



- Design for circular economy
- Use 3D concurrent engineering



- Adopt a new approach to assess your investments and to develop the business case
- A shift to OpEx oriented business models



- Create an integrative data backbone
- De-risk your supply chain via SaaS



3 ways to improve supply chain integration...

What you need to overcome

- Unclear vision along the supply chain
- Lack of awareness in partnership and collaboration
- Ineffective internal integration
- Lack of supplier competencies
- Data privacy and security issues

3 ways...



- Embed SCM as an end-to-end business process
- Similarly to NPI and CRM



- Optimise your end-to-end supply chain through an integrative platform, that optimises 4 flows:

- Material, information, cash and carbon



- Overcome trust issues by using a 'neutral' language
- Carbon rather than cash



Which world do you want?



“We are our choices”
Jean-Paul Sartre



Martin Chilcott
Chairman and CEO
Manufacture 2030

Leading lights case study





Manufacture 2030

MANUFACTURE

2030

Warwick University Business School

Classification: restricted

Agenda

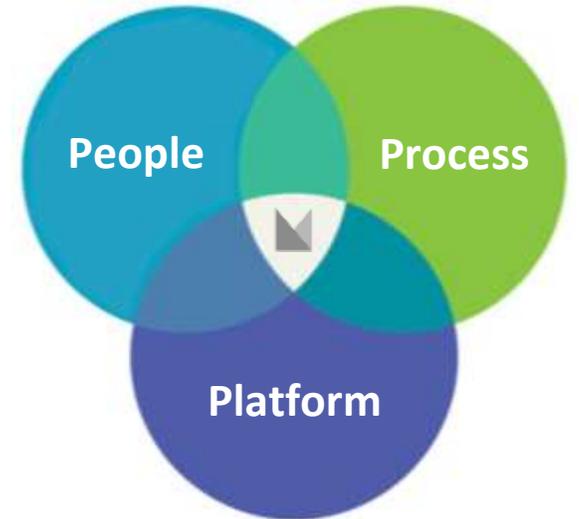
- An introduction to Manufacture 2030
- The world in revolution. Sustainable supply chains move centre stage
- Driving supplier improvement at scale
- The power of our collaborative approach

“

Driving supplier improvement at scale



50+ countries



The world in revolution

**“Sustainability is an investment
priority over China”**

Global Head of ESG Research, Swiss Bank



Opinion

**Could Biden Be the Climate-Change
President?**

Investor interest in ESG



Corporate behaviour (SBTs)



Focus on Supply Chains
(>50% of GHGs)



**Demand for
Sustainable
supply chain solutions**

The Challenge

Suppliers

1. Not a priority
2. Lack the 'know-how' / capacity
3. Lack finance

Customer

4. Visibility
5. Engagement
6. Scale

Driving supplier improvement at scale

The Challenge: reducing scope 3 emissions at scale

-  Buyers make public commitments to reduce CO2 emissions, frequently via the SBTi.
-  CO2 emissions are often located within the supply chain, out of direct control.
-  Getting forward looking CO2 data from suppliers, and driving improvement at scale, is a significant challenge.

CO2 reduction is incremental & localised

Our Solution: driving improvement at scale

Improved Supplier Management

Targeted Support, Engagement, Rankings & Incentives

Improved Supplier Measurement

Site-level, CO2 Cal, Forward visibility, Tracking to Targets

Improved Supplier Capacity

Access to best practice, Know-how, Forums, Webinars

- ✓ **CO2 Reduction at Scale**
- ✓ **Better Business Intelligence**
- ✓ **Time & Cost Efficiency**
- ✓ **Increased Certainty of Hitting Targets**

Corporation 1

Organisations in scope **450**

Organisations contacted **450**

Organisations declined **77**

Organisations maybe **14**

Organisations signed up **335**

Conversion **74%**

Target **60%**

Facilities in progress **0**

Facilities completed **510**

No. of organisations completed **303**

% Orgs completed **67%**

Corporation 2

Organisations in scope **744**

Organisations contacted **744**

Organisations declined **106**

Organisations maybe **44**

Organisations signed up **478**

Conversion **64%**

Target **60%**

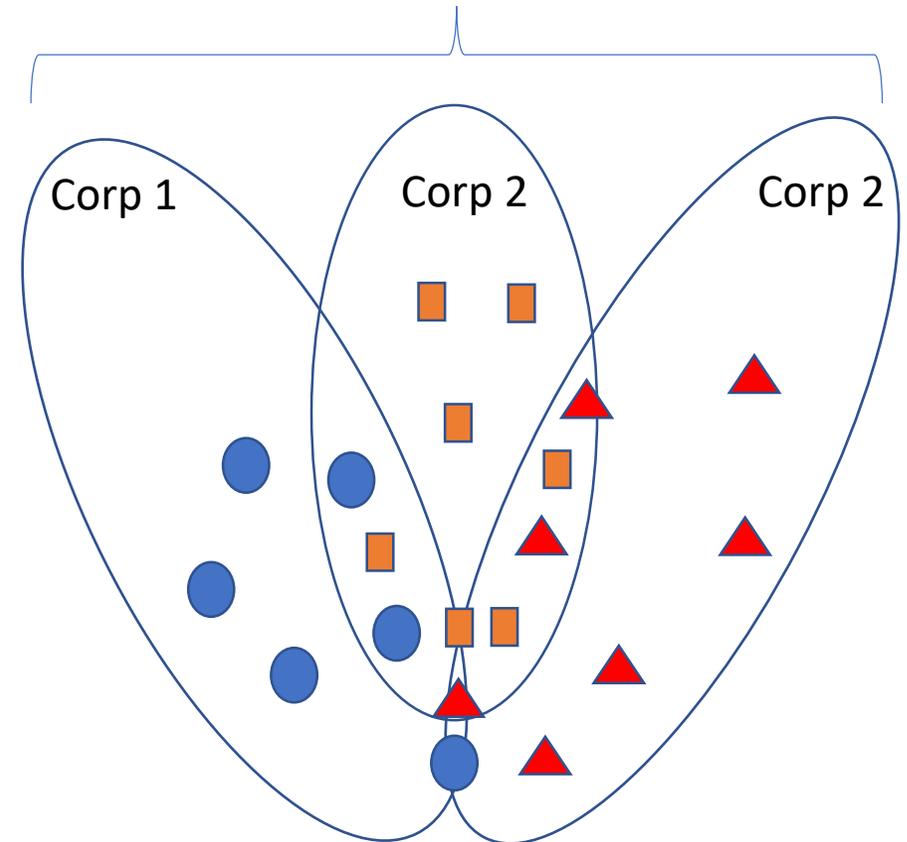
Facilities in progress **0**

Facilities completed **588**

No. of organisations completed **373**

% Orgs completed **50%**

Industry



In Scope

Sign ups

Data Entry

Supply chain owner reports

Co-packer Facilities

Co-packer name

Marsham heath

Year

All

Location

United Kingdom

Category

Co-packer

Planned improvement actions

41

Actions completed in current period

7

CO2

Energy

Water

Waste

CO2 footprint over time



Co-packer CO2 RAG status

CO2

Energy

Water

Waste

Targeted annual CO2 reduction

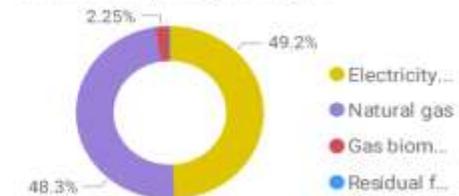
- 1.5%

Current CO2 change from previous year

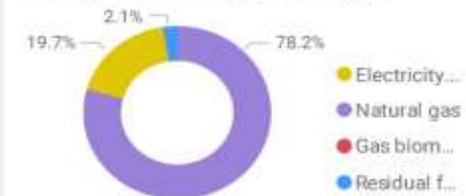
- 0.3%

| Year | CO2 footprint (t) | Target CO2 footprint | Completed action savings (t) | In progress savings (t) | Shortlisted savings (t) |
|------|-------------------|----------------------|------------------------------|-------------------------|-------------------------|
| 2016 | 56,387 | 56,387 | | | |
| 2017 | 58,974 | 55,257 | 1,706 | | |
| 2018 | 55,817 | 54,137 | 3,478 | | |
| 2019 | 56,183 | 53,017 | 568 | 474 | 751 |
| 2020 | 55,879 | 52,873 | | | 1,473 |
| 2021 | 53,372 | 51,724 | | | |
| 2022 | 52,965 | 50,670 | | | |

Current CO2 footprint by resource type:



Current period CO2 savings by resource type:



A photograph of a grand library with high wooden bookshelves and a vaulted ceiling. The shelves are filled with books, and the ceiling features a series of parallel wooden beams. The lighting is warm and focused on the bookshelves. A small teal rectangle is visible in the top left corner.

For more information:
martinchilcott@manufacture2030.com



Simeon Nachev
Value Chain Manager
Lenzing

Leading lights case study



Stand up!

Sustainability and the supply chain: Lighting the path forward in conjunction with Blue Yonder

Simeon Nachev
Value Chain Manager
Lenzing AG

How Lenzing
commits to future
generations



The Textile Industry is facing massive challenges – both from Consumers and Regulators

Climate Change

“I don't want your hope. I don't want you to be hopeful. I want you to panic...and act as if the house was on fire”

Greta Thunberg
Climate activist



Global Apparel and Footwear Industry is responsible for **10% of the Global Carbon Emissions**

Marine Litter



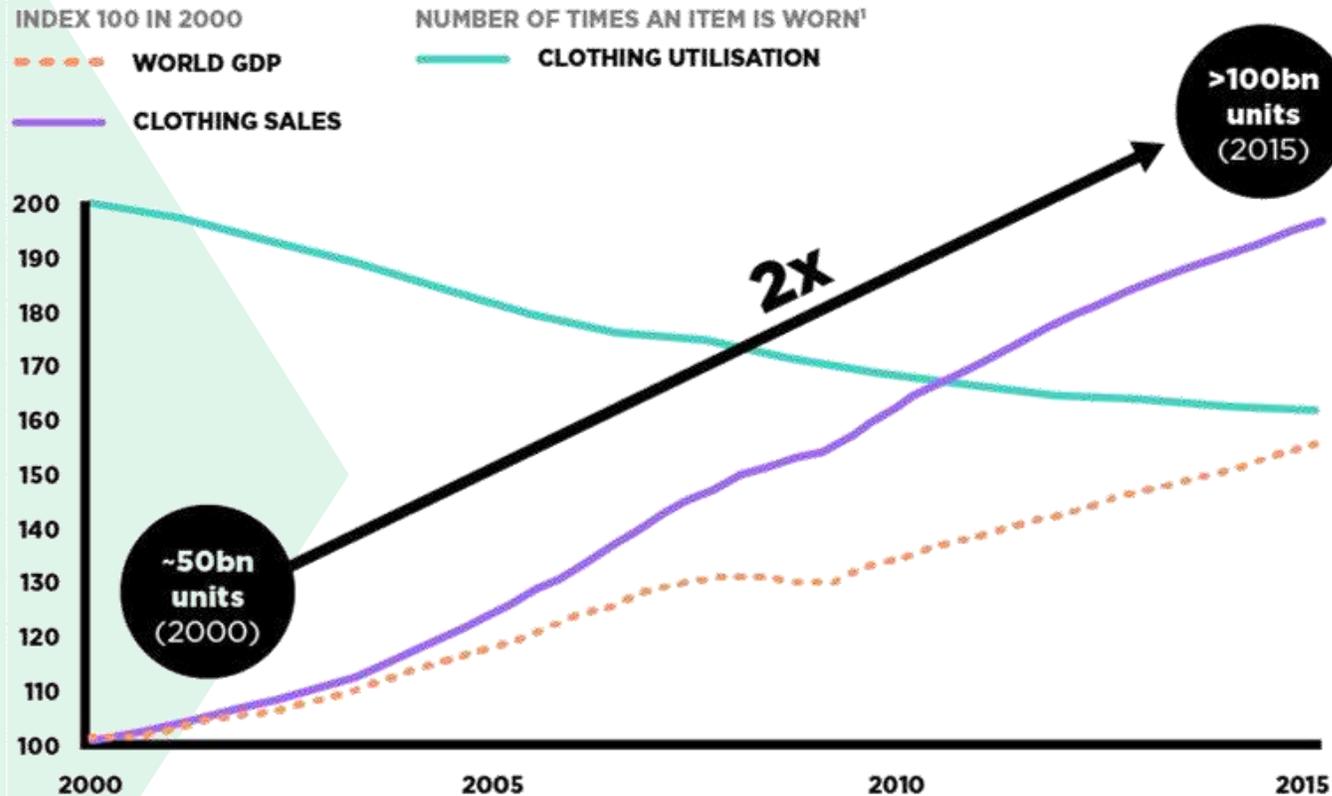
Textile Waste



Transparency



Demand for clothing has doubled in 15 years with a strong decline in utilization



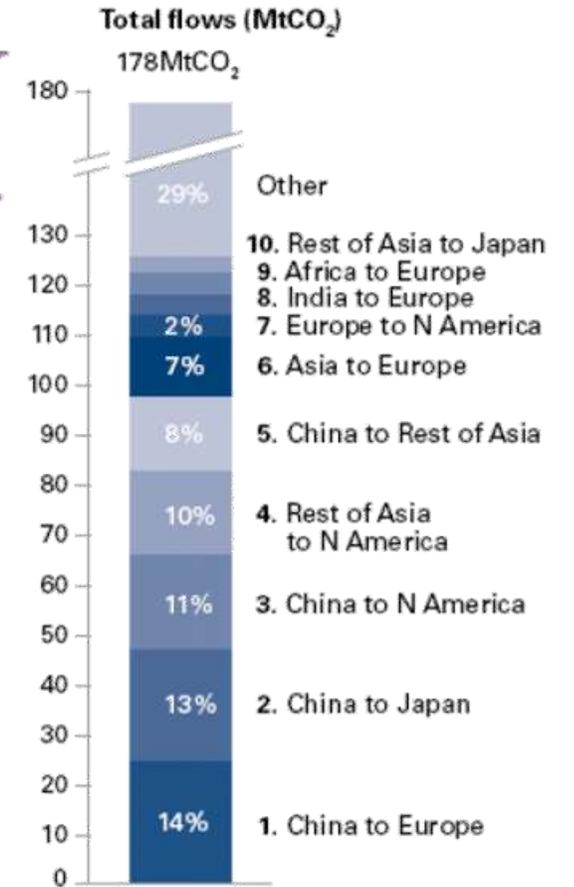
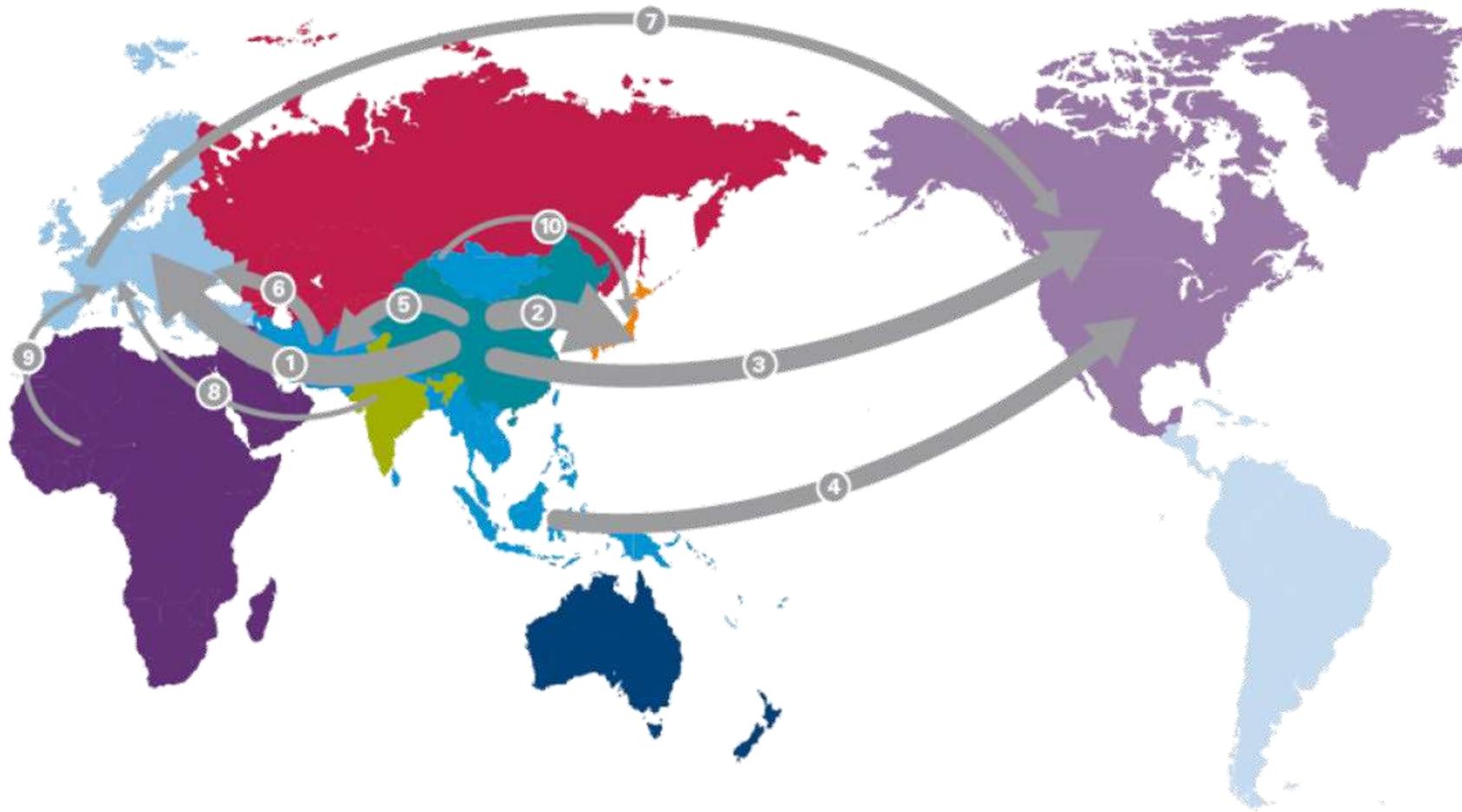
Source: tiny.cc/fashion, The Business of Fashion, July 2019

www.lenzing.com

12/22/2020 - 49

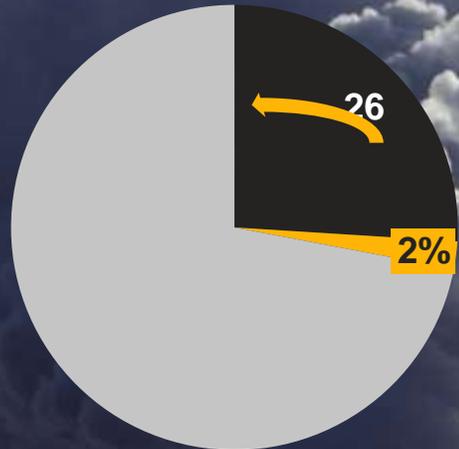


International trade in clothing drives significant CO₂ emissions

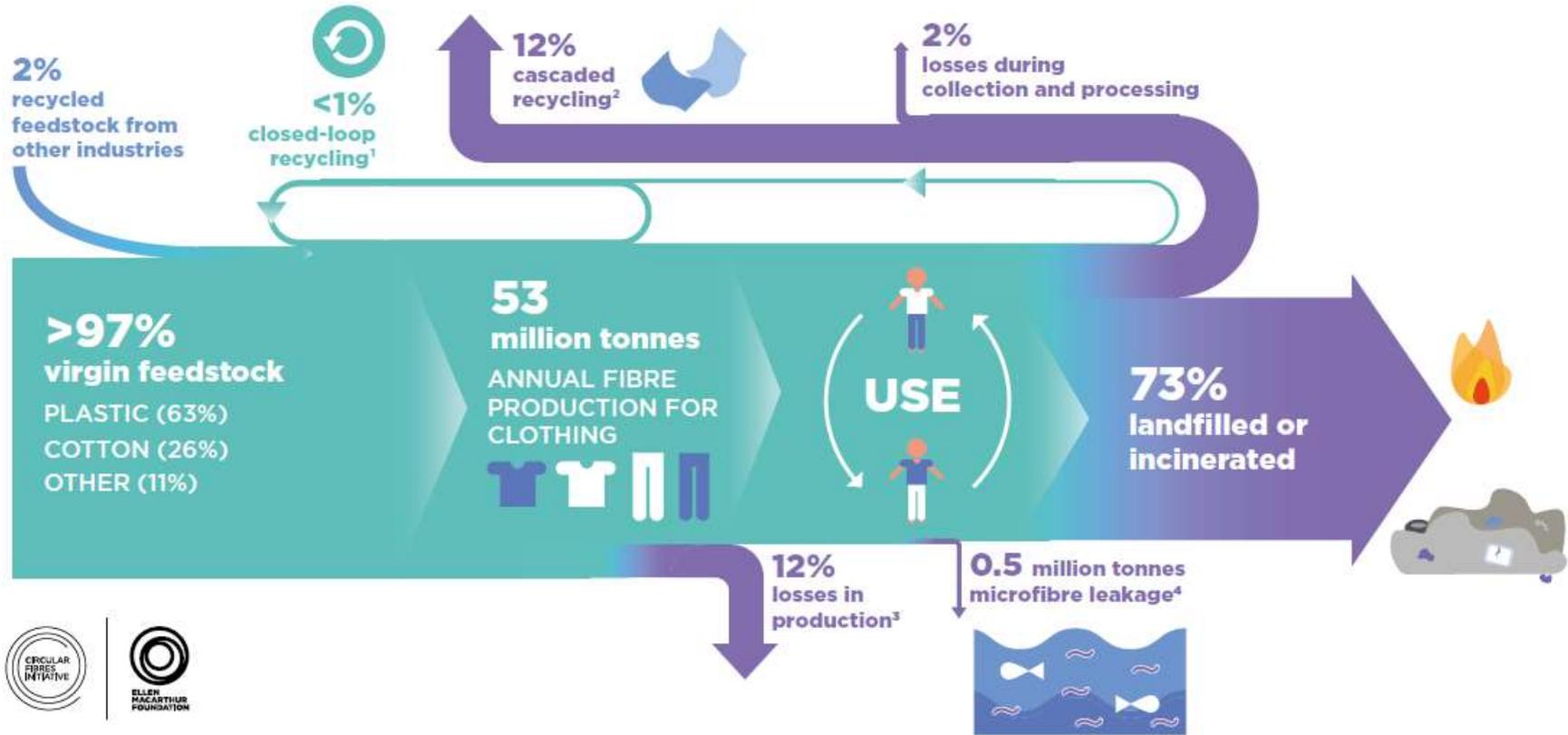


By 2050 the fashion industry could use more than 26% of the carbon budget associated with the 2°C pathway*¹

Would COVID-19 be enough to change the trend?



2050

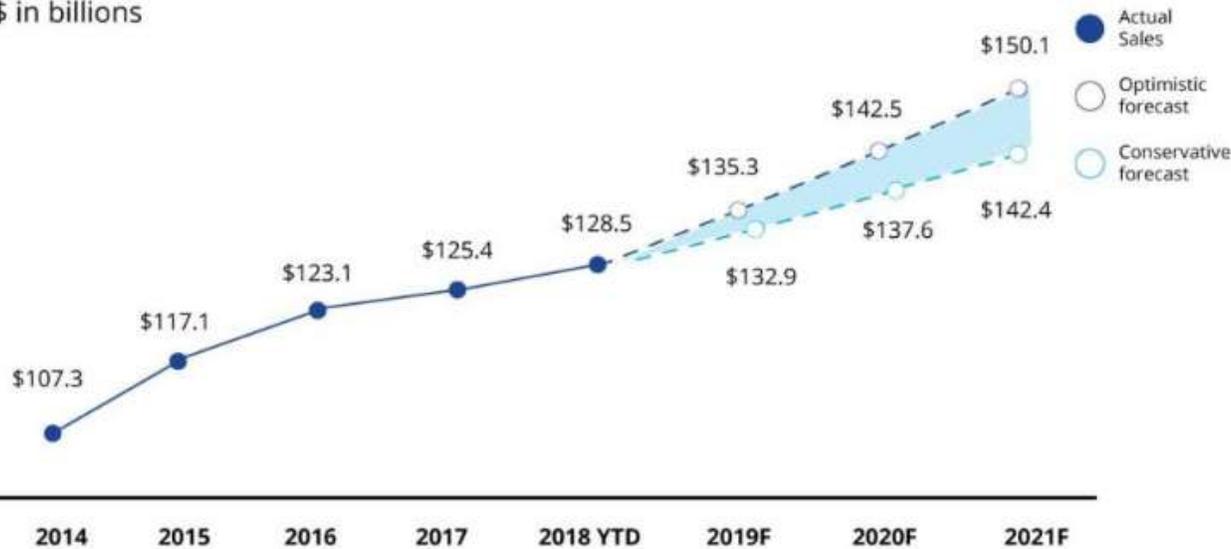


Sustainability can also be good for business

>60% of consumers don't mind paying a premium for sustainable products

SUSTAINABLE PRODUCT SALES IN THE U.S.

\$ in billions



Sustainability combines free from, clean, simple, sustainable and organic labels.

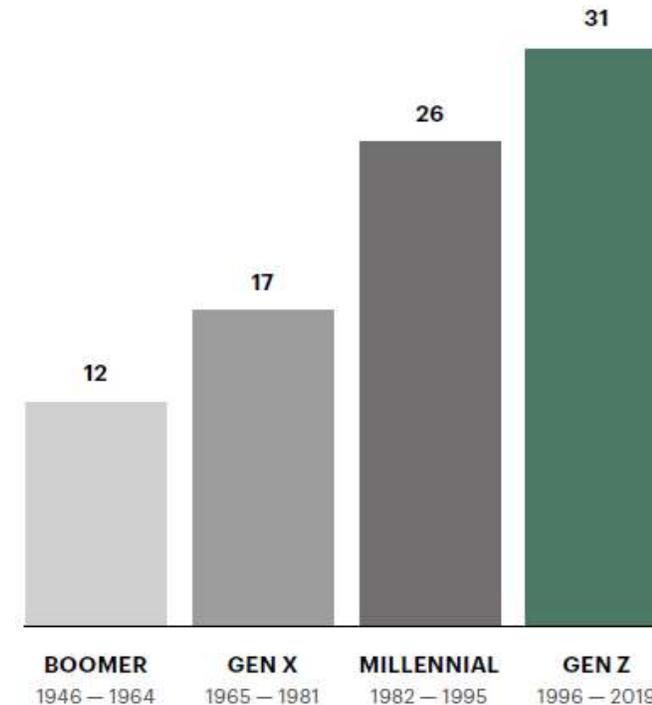
Source: Nielsen Product Insider, Powered by Label Insight, Week ending 10/20/2018, Projections based on 3 and 2 year CAGR

Copyright © 2018 The Nielsen Company (US), LLC. All Rights Reserved



Younger generations increasingly state that they will pay more for products that have the least negative impact on the environment

% OF US CONSUMERS IN 2019 WHO WOULD PAY MORE



SOURCE: MCKINSEY NEW AGE OF THE CONSUMER US SURVEY 2019

Lenzing makes decarbonization a key priority with clear targets and commitments



Lenzing is first wood-based fiber producer with approved science-based targets

A first milestone is set for 2030, when Lenzing plans to cut down on CO₂ emissions per ton of product by 50 percent compared to a 2017 baseline.



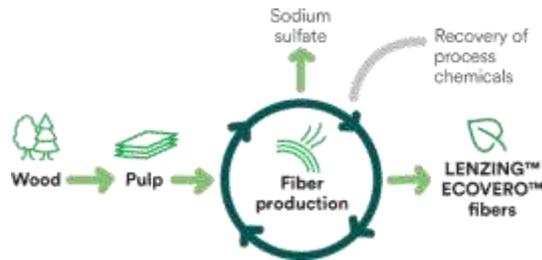
United Nations
Climate Change

The Lenzing Group is a signatory to the United Nations Fashion Industry Charter for Climate Action

Fashion stakeholders created and signed the Fashion Industry Charter for Climate Action which contains the vision to achieve net-zero emissions by 2050.

Sustainable supply chain: LENZING follows a three pillar approach

Identification



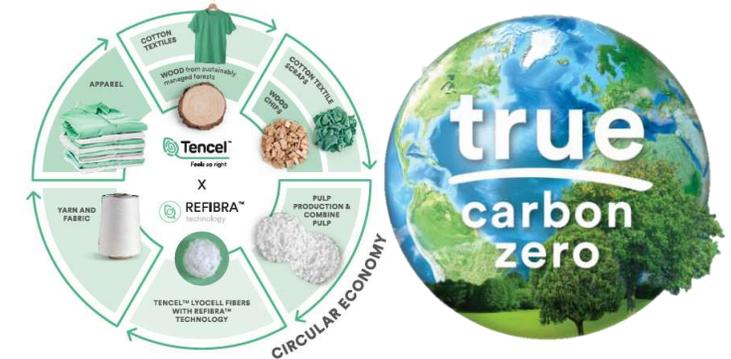
LENZING™
EcoVero™

TENCEL™ x REFIBRA™

Supply Chain Transparency



Innovation



Introducing



with



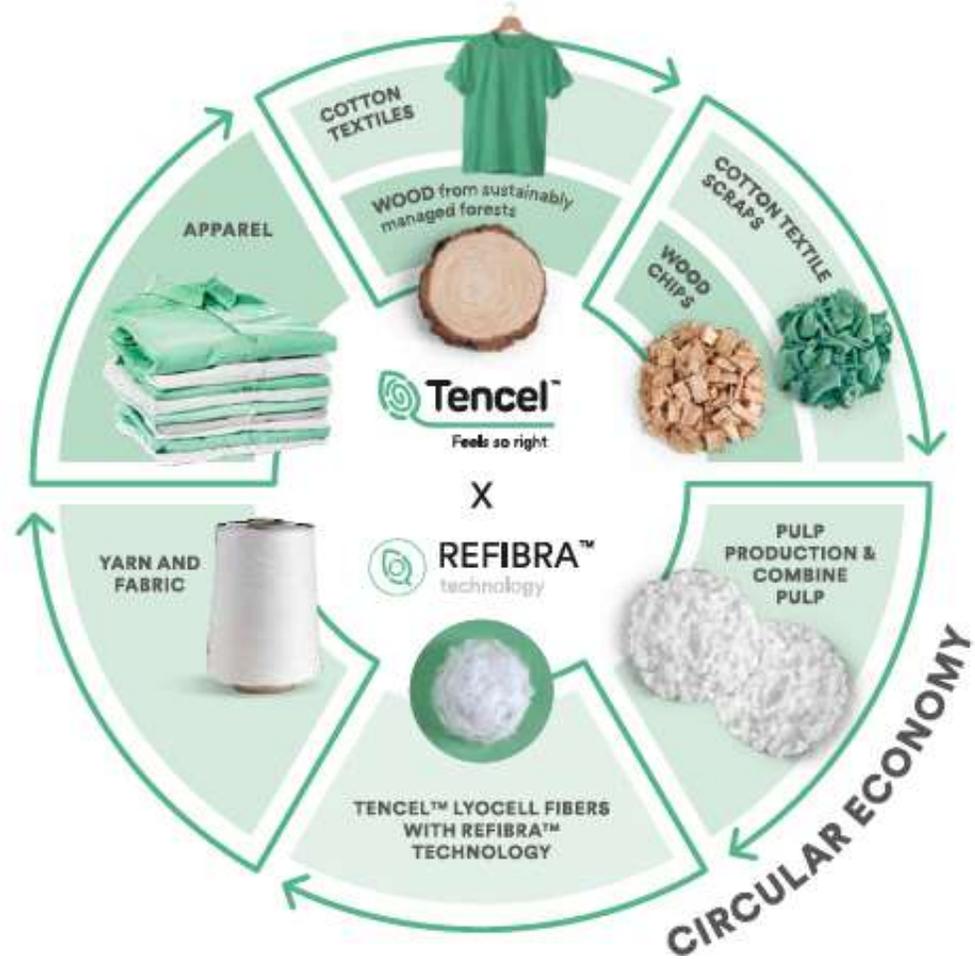
TENCEL™ x REFIBRA™ fibers

Our contribution to circular economy



TENCEL™ Lyocell fibers with REFIBRA™ technology feature up to **30% of recycled raw material content**, from **pre-consumer cotton textile waste**.

Lenzing's **five-year vision** is to raise the industry bar by producing fibers with REFIBRA™ technology by having **up to 50% recycled content from post-consumer cotton textile waste** to make textile waste recycling as common as paper recycling.



What are TENCEL™ x REFIBRA™ fibres?

 **Tencel™**
Feels so right



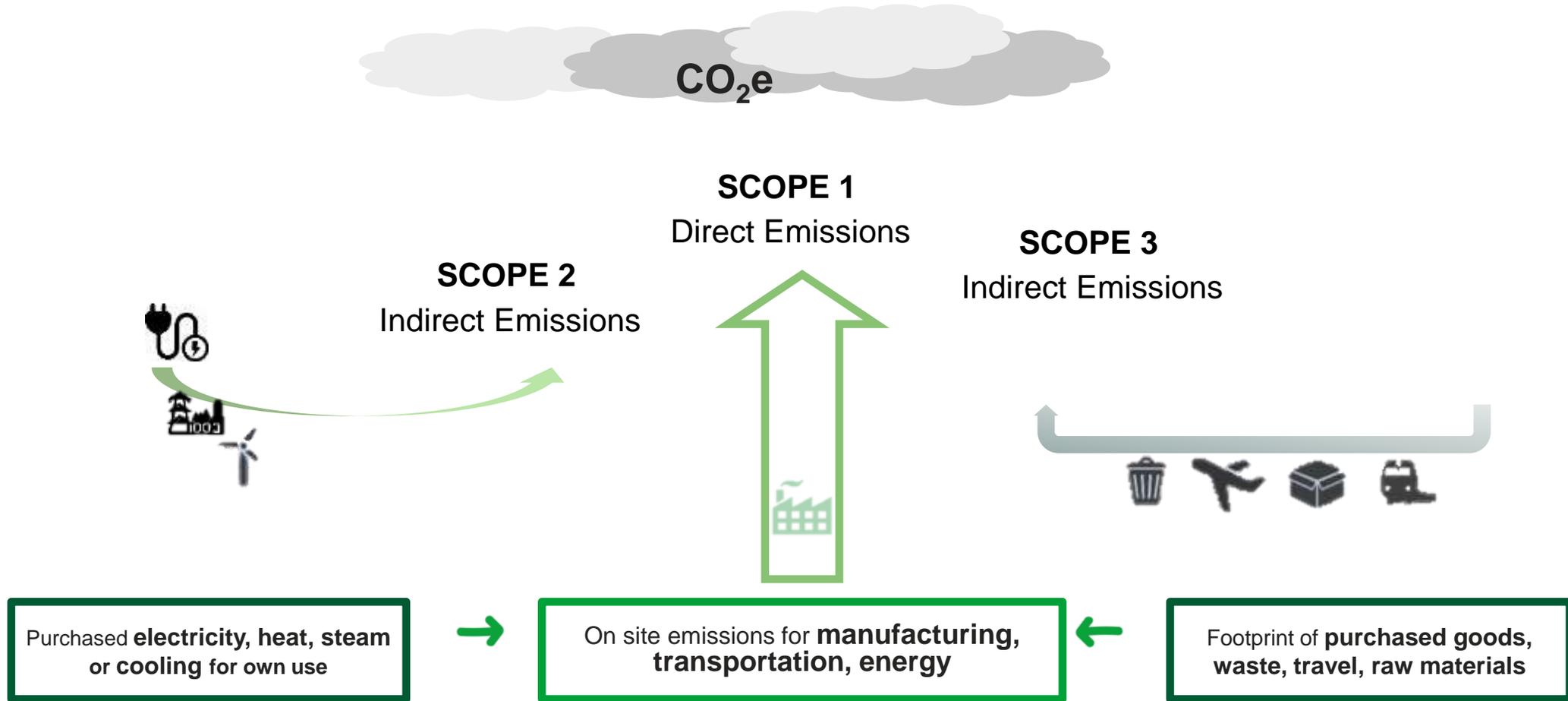
 **Tencel™**
Feels so right

X

 **REFIBRA™**
technology

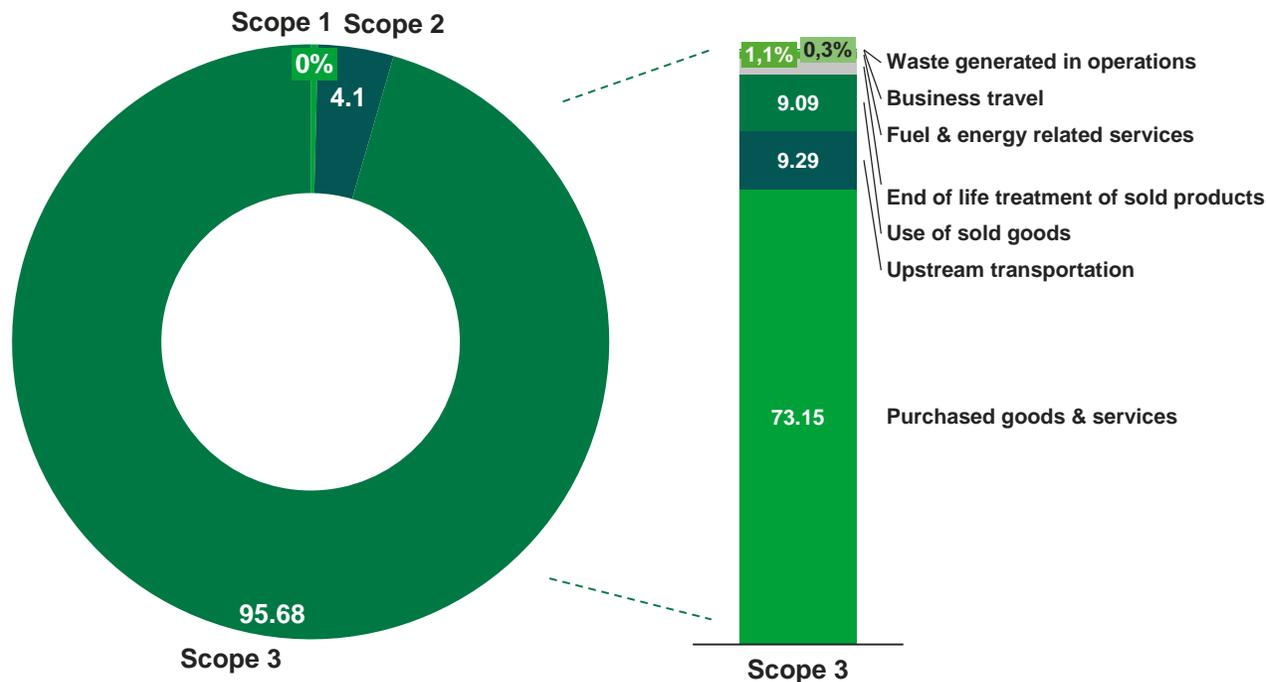


To control emissions you first need to understand where they come from



Split of carbon emissions in the textile industry show need for reduction in Scope 3

Example GHG emissions by scope



- Scope 3 contributes strongly to the overall emissions of brands/retailers
- Textile production steps can be found at ,purchased goods and services‘
- Reducing emissions in the textile value chain – from raw material to product assembly – helps to combat climate change

Source:SBT “Apparel and Footwear Sector Science-Based Targets Guidance” https://sciencebasedtargets.org/wp-content/uploads/2019/06/SBT_App_Guide_final_0718.pdf

The result is our Journey to

true

**carbon
zero**



TENCEL™ is now offering verified carbon neutral fibers which contribute to decarbonization of the textile industry

- A new offer for TENCEL™
- New co-branding & communication possibilities
- Net-zero emissions
- Verified CarbonNeutral®
- Based on scientific-data



with



carbon zero



engaging suppliers

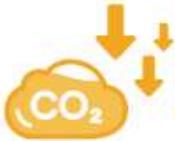


Science Based Targets
commitment

We have developed TENCEL™ fibers with a net-zero footprint by a three step approach

reduce

Our priority is the continuous reduction of carbon emissions through more efficient production methods, using renewable energy sources and embracing new technologies.



... contributing to a carbon neutr
With a vision to have net-zero emissions by 2050, our three-step plan is already in action: reduce, engage and offset. The resulting carbon-zero TENCEL™ Lyocell and Modal fibers are certified

engage

Being the first cellulosic fiber producer to commit to the Science Based Targets initiative allows us to engage and steer our industry to source materials with low carbon footprints and reduce overall carbon emissions.



global standards
of sustainability



offset

We offset unavoidable carbon emissions by supporting verified global carbon reduction projects.



true
carbon
zero



To reduce carbon emissions, we look backwards and forwards

engage

As the first cellulosic fiber producer committed to Science Based Targets initiative, we want to drive the change for a decarbonization within the fashion industry. We are looking for partners that echo our values – implementing carbon neutral practices from cradle to cradle.



The sum of various reduction and engagement actions leads to continuous climate impact improvements

Cleaner Energy

- Increased self-sufficiency for steam and heat production
- Increased utilization of biomass for energy production
- Air purification plant to produce steam that is also converted into electricity
- Renewable grid energy

Efficient Production

- Increased solvent recovery in the Lyocell process
 - Decreased steam demand
- Higher energy efficiency through capacity increase
 - Dope production set-up
- Additional air purification plant to reduce GHG emissions

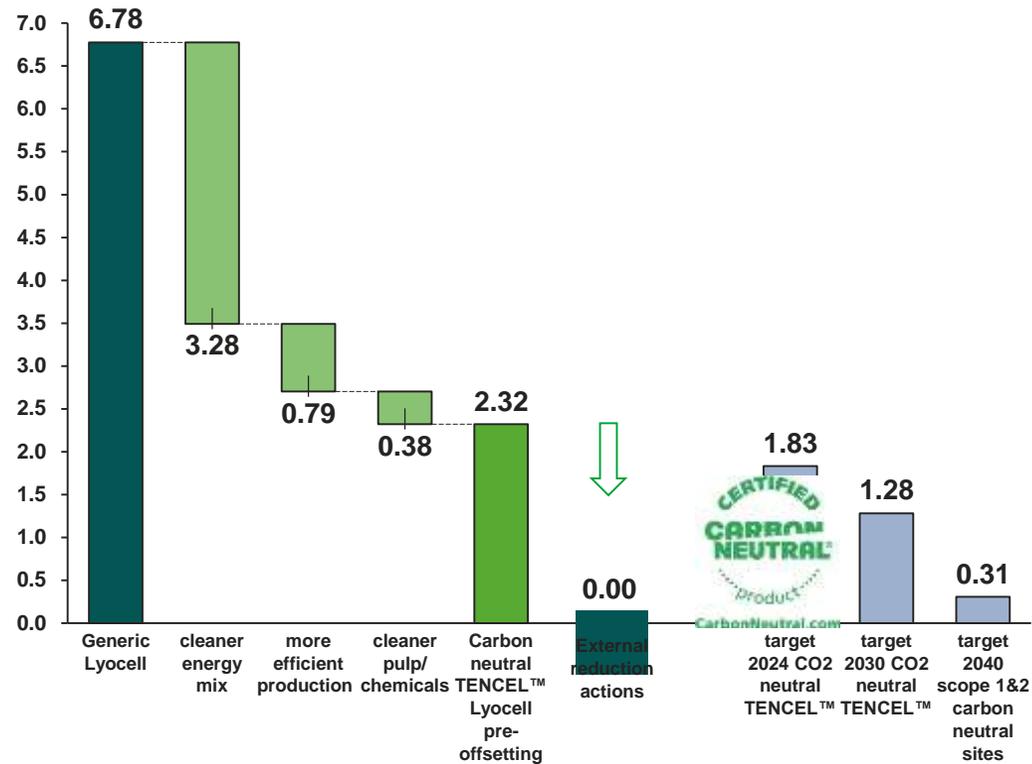
Raw Materials

- Increased pulp integration (cleaner pulp)
 - Investment of 60 Mio Euro
- Supplier engagement reducing carbon footprint for chemicals and raw materials

The sum of the internal and external reduction actions leads to verified CarbonNeutral® products

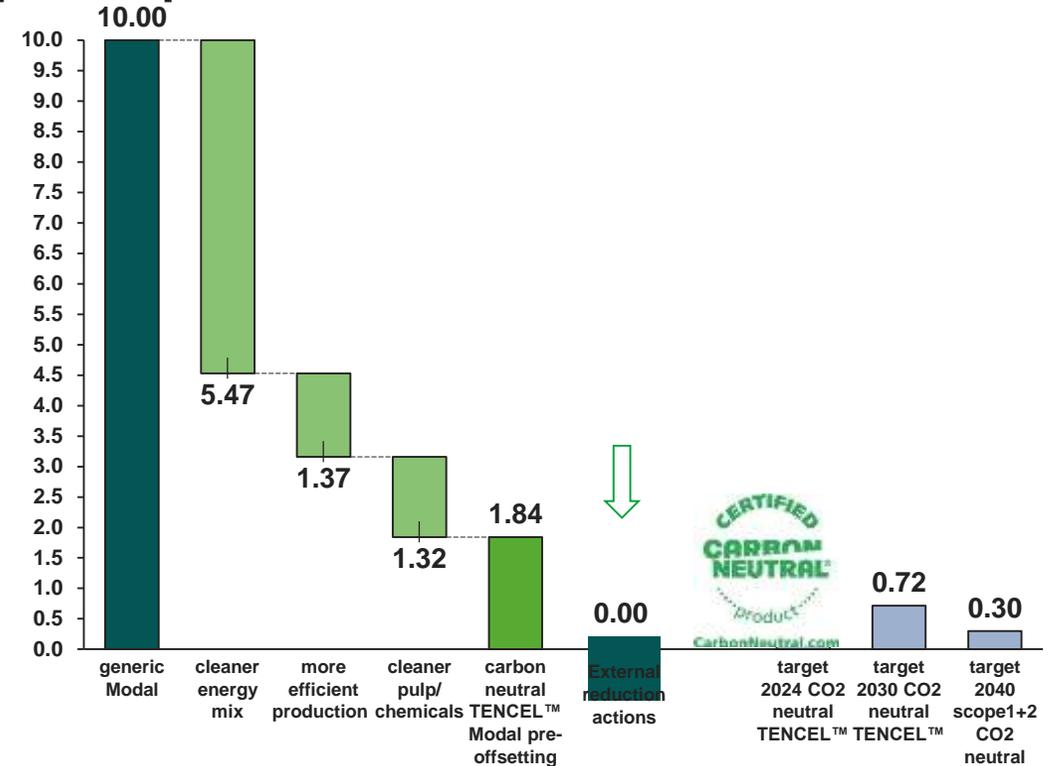
TENCEL™ Lyocell

[t CO2/t fiber]



TENCEL™ Modal

[t CO2/t fiber]



*This calculation includes cradle to gate only – transport to customer (0.22 to CO2eq/to fiber) excluded

Those emissions that we cannot yet reduce are compensated through verified offset-projects

For our carbon-zero TENCEL™ fibers, we are supporting climate protection projects specifically in communities impacted by the textile industry. The projects focus on helping ill-prepared communities become more climate resilient, improving their living conditions and introducing new or more efficient sources of renewable energy.



Solar Water Heating – India

- Install in-house hot water supply fueled by the sun
- Reduce dependency on grid electricity and carbon emissions
- Less spending on energy for households



Improved Cook stoves – Bangladesh

- Locally made improved cook stoves
- Avoid harmful indoor emissions
- Reduce carbon emissions



Landfill Gas to Energy – Thailand

- Utilizing landfill gas to generate renewable electricity
- Avoid harmful release of potent GHG
- Support effective waste management

Fashioning a Transformation

Supply Chains have the power to orchestrate change

Via agile & responsive process enabling:

- Less waste
- Less emissions
- Shared inventory
- Intelligent response
- Increased consumer expectation
-



Lenzing

Innovative by nature

So you **WOOD** like to
know more about us?

Stand
up!

s.nachev@lenzing.com

www.tencel.com



Alan Duncan

Senior Director of Manufacturing Strategy (EMEA)
Blue Yonder

Panel Q&A



**Happy holidays and look forward to seeing you
at our SCIP events in the New Year...**

