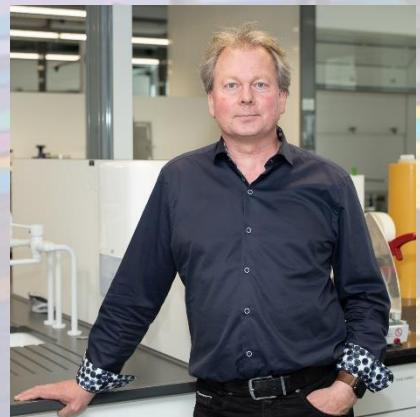




European trends in adhesive tapes: towards a **sustainable** industry



Dr. Evert Smit
President, Afera



The European Adhesive Tape Association

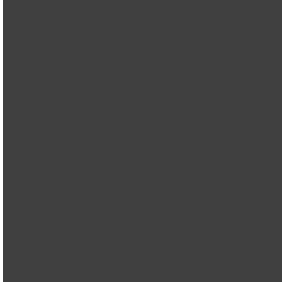
Agenda



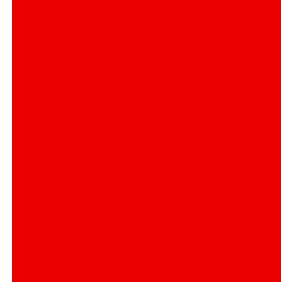
1. Afera at a glance



2. Tape market: global and E.U.



3. E.U. regulatory update



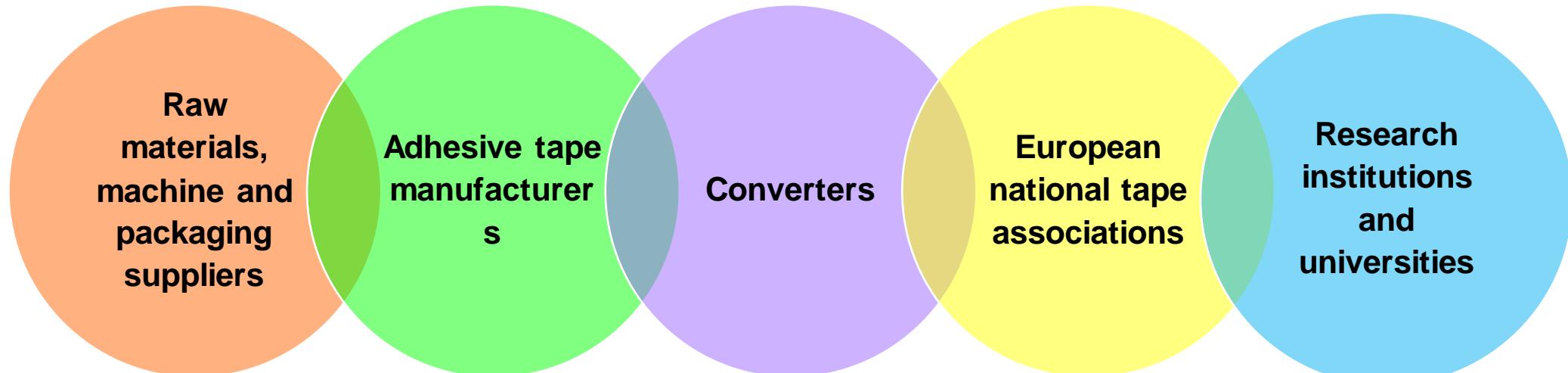
4. The future: sustainability and AFSP

The heart of the European tape network



Who we are

Afera is the European Adhesive Tape Association, a not-for-profit trade organisation representing the interests of 100+ best-in-class businesses within the adhesive tape value chain



Who we are

- Adhesive tape manufacturers with coating facilities in Europe and their non-coating subsidiaries
- Suppliers of raw materials, machines and packaging
- Converters, specialty non-graphic die cutters
- Distributors
- European national tape associations and groups
- Research institutions and universities



Our global and regional counterpart organisations in the GTF



Fellow members of the Global Tape Forum

- ✓ North America (PSTC, The Pressure Sensitive Tape Council)
- ✓ Japan (JATMA, The Japanese Adhesive Tapes Manufacturers Association)
- ✓ China (CATIA, The China Adhesives and Tape Industry Association)
- ✓ Taiwan (TAAT, The Taiwan Regional Association of Adhesive Tape Manufacturers)



Teaming up with associations in adjacent technologies



To learn, network and build influence in public affairs

- FEICA, The European Adhesive and Sealant Industry Association
- IVK, The German Adhesives Association
- ISGATEC, The International Sealing, Gasket and Adhesive Technology Knowledge Platform and Network
- FINAT, The European Self-Adhesive Label Industry Association
- Cefic, The European Chemical Industry Council
- CheMI, The European Platform for Chemicals Using Manufacturing Industries
- ERPC, The European Recovered Paper Council
- RadTech Europe, The European UV/EB Curing Technology Association



European Platform for Chemicals Using Manufacturing Industries



CheMI

European Platform for Chemicals Using Manufacturing Industries



Standardisation and harmonisation projects: next-level test methods

Recently adopted by the GTF

- ✓ GTF 6001 (SAFT)
- ✓ GTF 6002 (Thickness)
- ✓ GTF 6003 (Widths & Lengths)
- ✓ GTF 6004 (Measurement of Peel Adhesion)*
- ✓ GTF 6005 (Breaking Strength & Elongation)*
- ✓ GTF 6006 (Static Shear Adhesion)*
- ✓ GTF 6007 (Loop Tack)

* ISO certified

What we're working on

- ✓ Afera 4029 (Determination of Dynamic Shear Strength of Double-Sided PSA Tapes Test Method) – **completed**
- ✓ ISO-certified Peel Adhesion TM – **revising**
- ✓ CEPI Lab TM on recyclability of fibre-based packaging – **modifying**
- ✓ time-to-failure TM – **developing**



Afera events

Networking | Education



COMING
SOON

- **Afera Committee + Sustainability Project Meetings**

24-25 September | Thessaloniki, Greece

- **67th Afera Annual Conference**

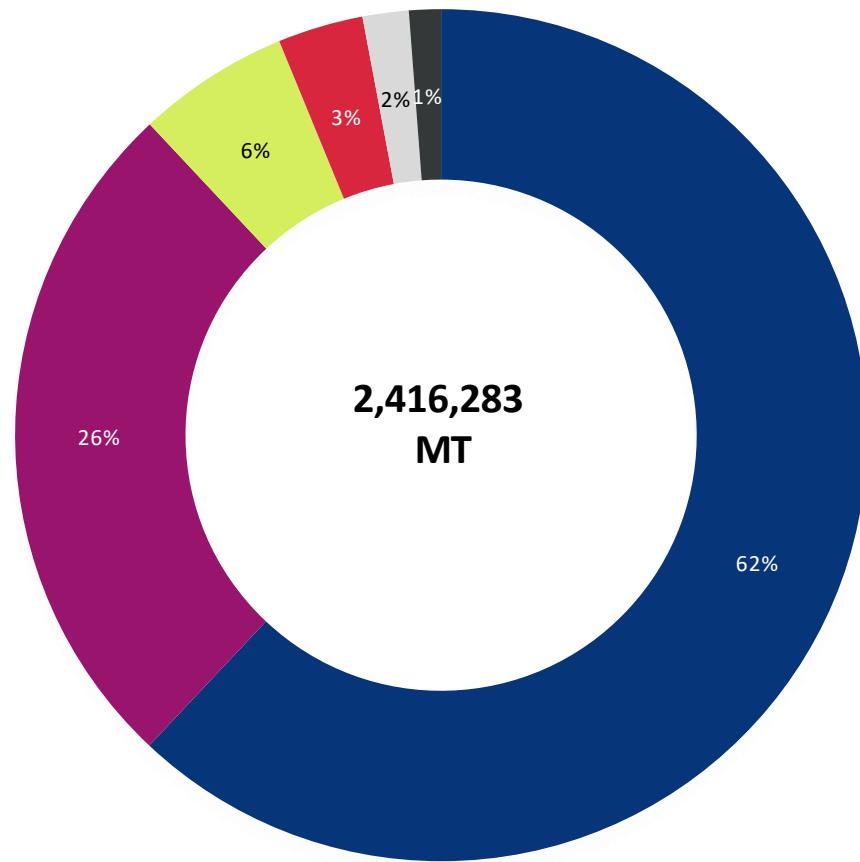
25-27 September | Thessaloniki, Greece

- **Afera Annual General Assembly 2024**

November | TBA



Pressure sensitive adhesives use per segment



- Tapes
- Labelstock
- Hygiene
- Graphic Films
- Medical
- Other

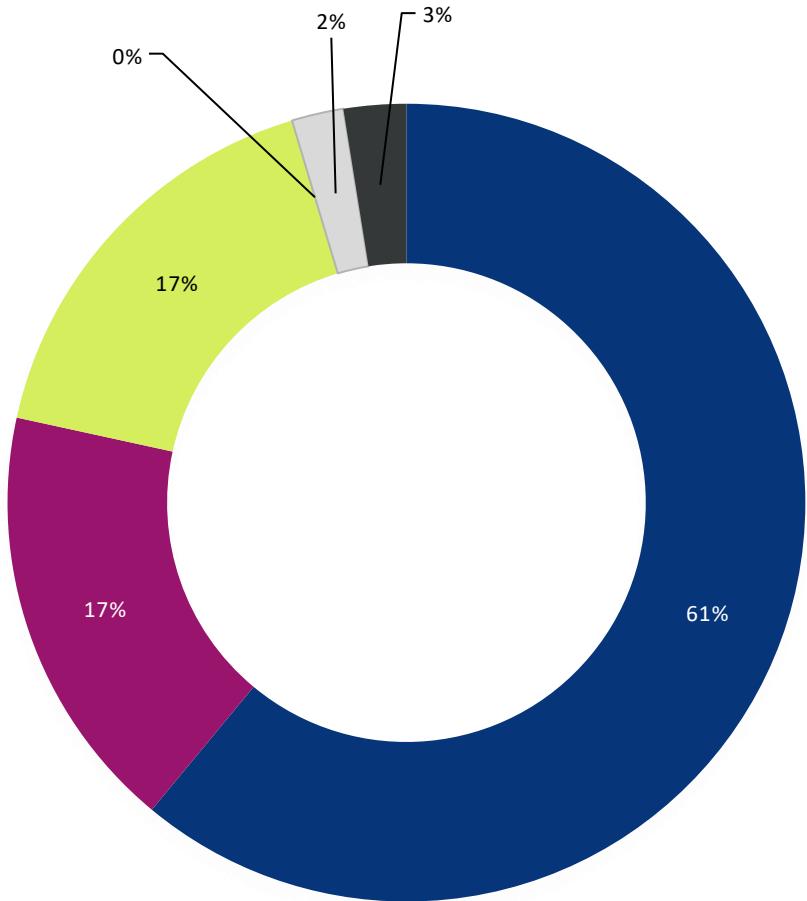
| End-use | Dry Tonnes |
|--------------------|------------------|
| Tapes | 1,498.397 |
| Labelstock | 628.334 |
| Hygiene | 139.675 |
| Graphic Films | 78.401 |
| Medical | 42.216 |
| Other | 29.260 |
| Grand Total | 2,416.283 |

Used with permission:

AWA

Alexander Watson Associates

PSA use Europe: 538 kT



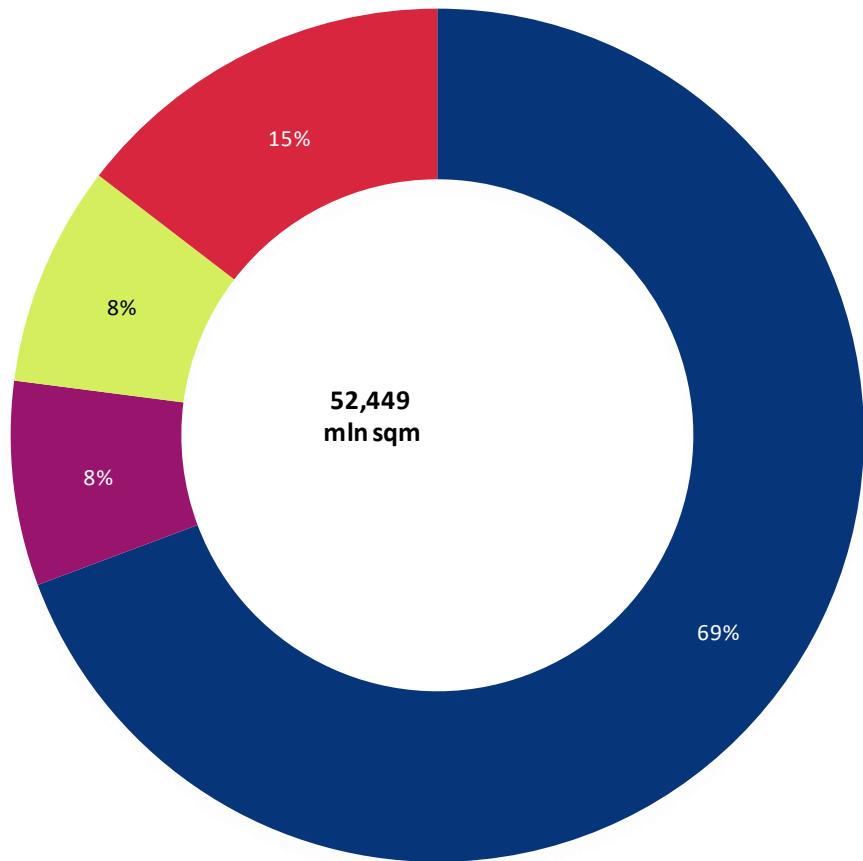
- Tapes
- Labelstock
- Hygiene
- Graphic Films
- Medical
- Other

| End-use | Dry Tonnes |
|--------------------|----------------|
| Tapes | 274.774 |
| Labelstock | 175.638 |
| Hygiene | 50.747 |
| Graphic Films | 19.087 |
| Other | 11.535 |
| Medical | 6.514 |
| Grand Total | 538.294 |

15,872 mln sqm

Used with permission:

Tape market (global)



■ Packaging Tapes

■ Masking Tapes

■ Consumer/Office Tapes

■ Specialty Tapes

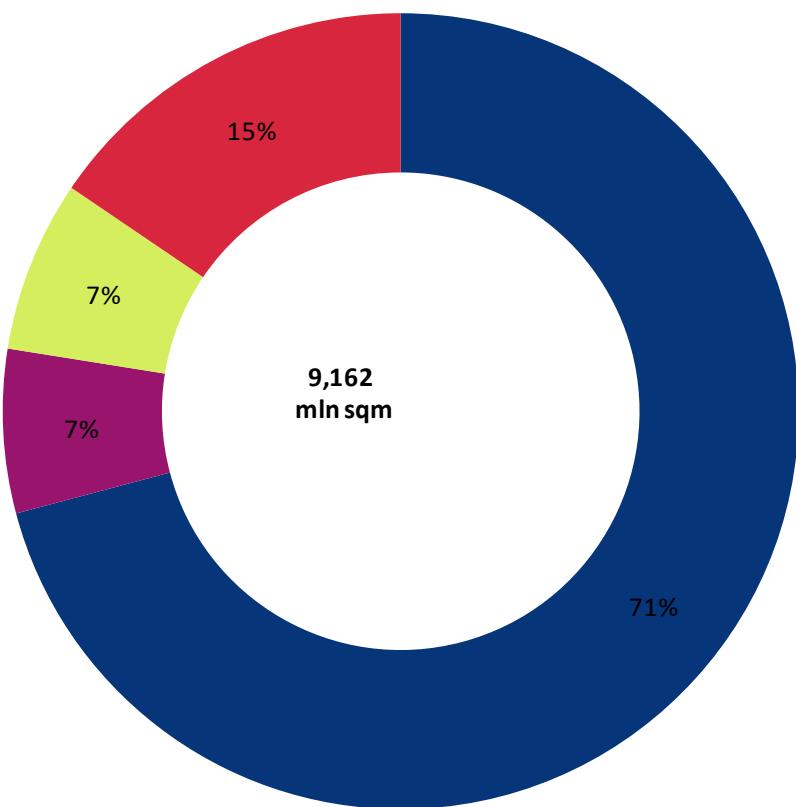
| Product Type | Mln Sqm |
|-----------------------|---------------|
| Packaging Tapes | 36.346 |
| Masking Tapes | 4.065 |
| Consumer/Office Tapes | 4.392 |
| Specialty Tapes | 7.647 |
| Total | 52.449 |

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AWA

Alexander Watson Associates

Tape market (Europe)

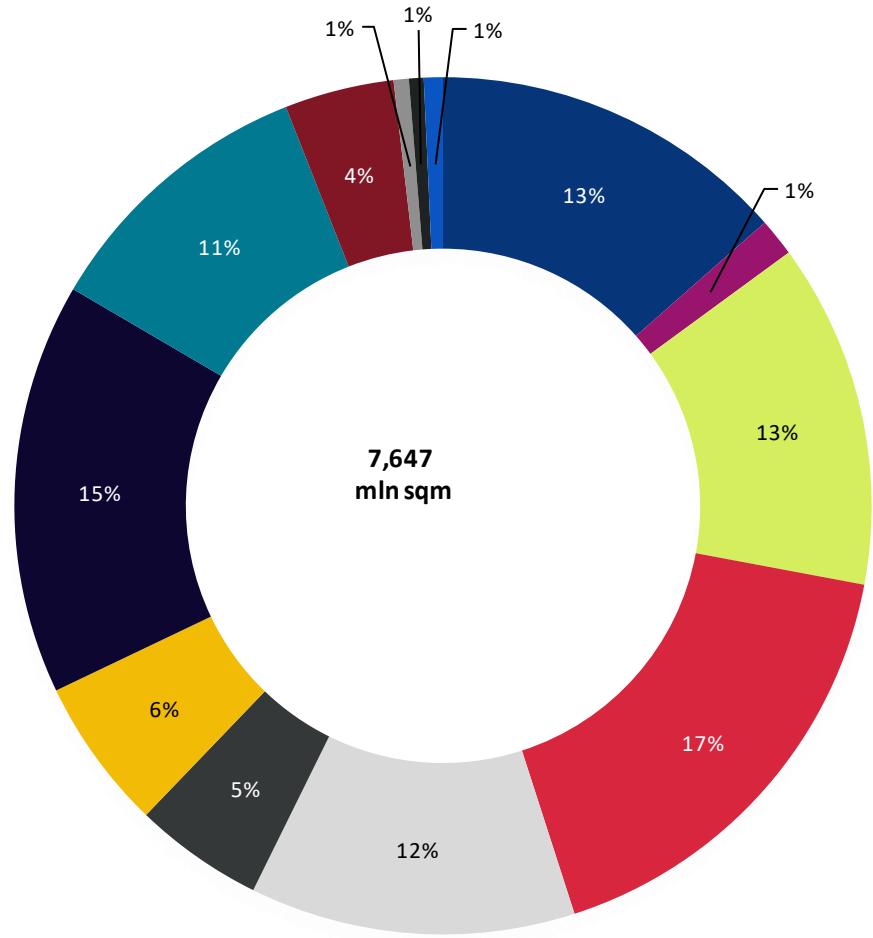


- Packaging
- Masking
- Consumer/Office
- Specialty

| Product Type | Mln Sqm |
|-----------------|--------------|
| Packaging | 6.493 |
| Masking | 610 |
| Consumer/Office | 639 |
| Specialty | 1.421 |
| Total | 9.162 |

Used with permission:

Specialty tape market (global)

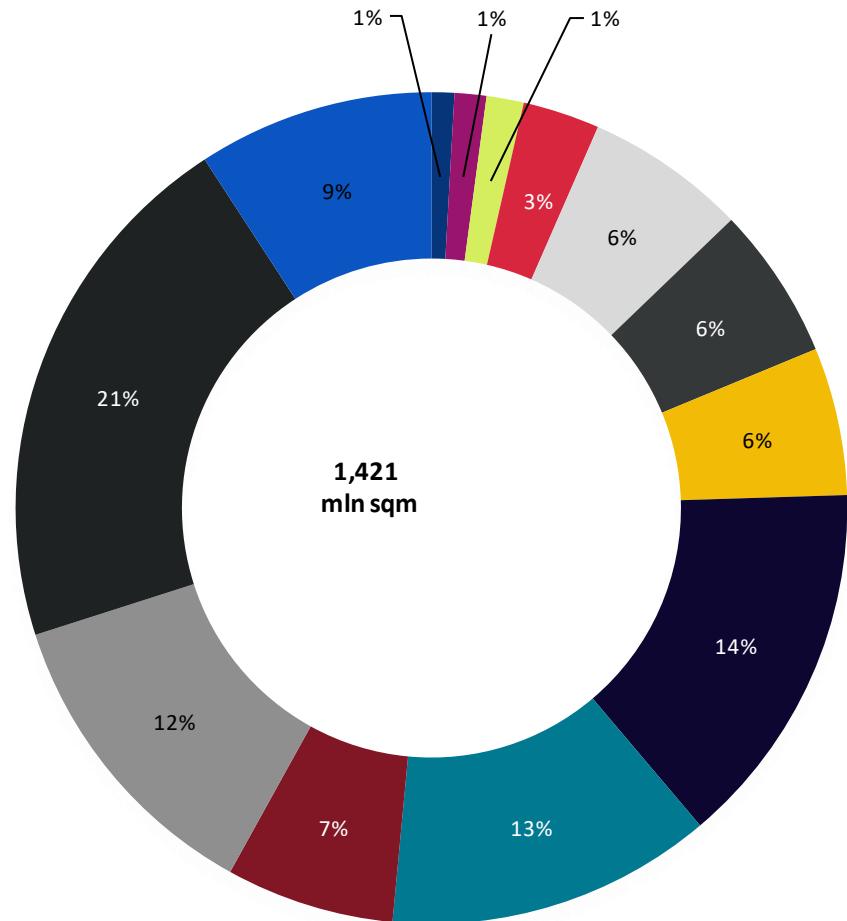


- Automotive
- Aerospace
- White Goods
- Electronics
- Electrical
- Building/construction
- Paper/printing
- Medical
- Hygiene
- Retail/Graphics
- Defense/military
- Sports/entertainment
- Miscellaneous

| End-use | Mln Sqm |
|-----------------------|--------------|
| Defense/military | 44 |
| Sports/entertainment | 42 |
| Miscellaneous | 55 |
| Aerospace | 109 |
| Retail/Graphics | 316 |
| Building/construction | 373 |
| Paper/printing | 438 |
| Hygiene | 810 |
| Electrical | 938 |
| White Goods | 995 |
| Automotive | 1.033 |
| Medical | 1.187 |
| Electronics | 1.307 |
| Total | 7.647 |

Used with permission:

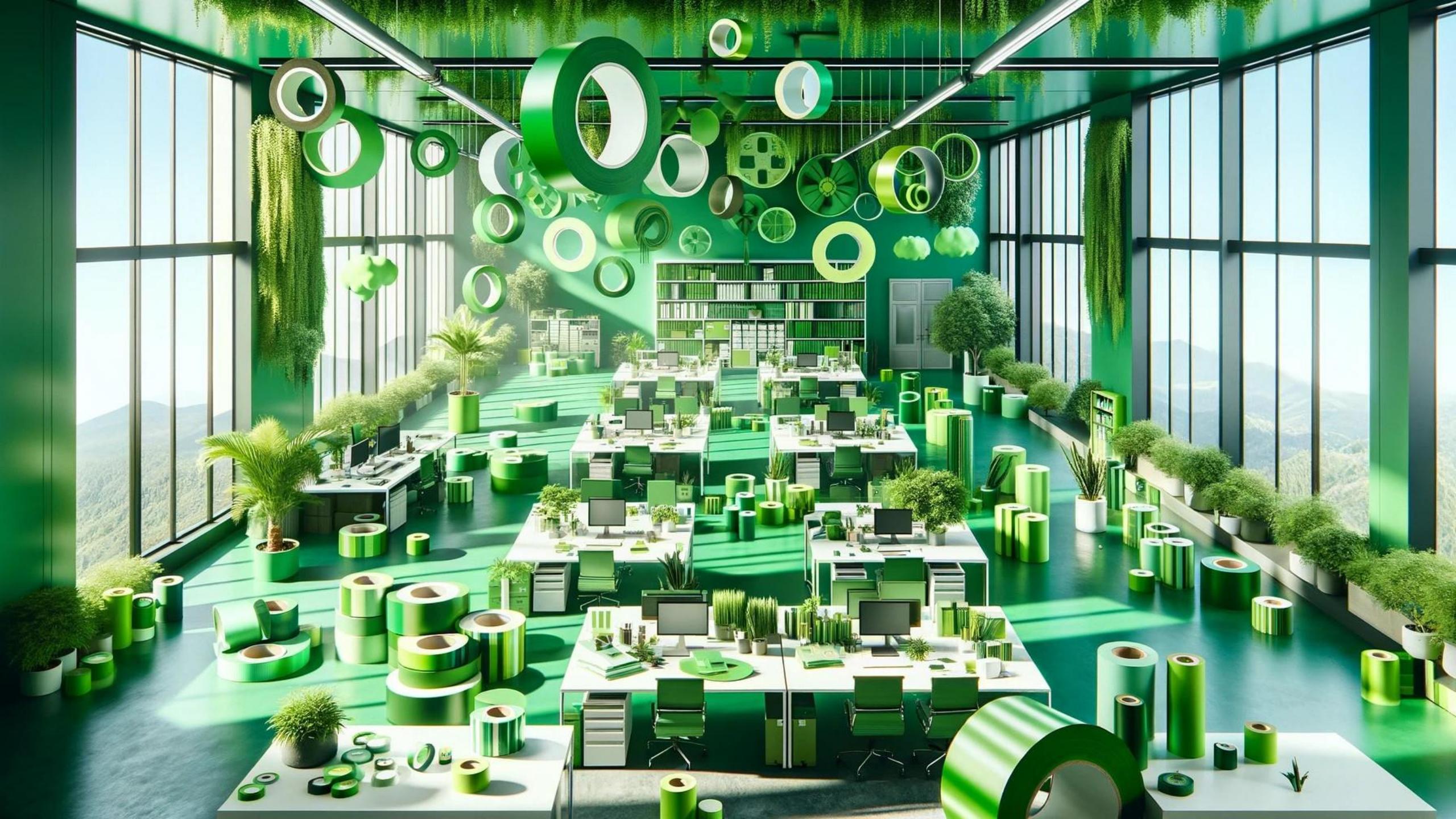
Specialty tape market (Europe)



- Defense/military
- Sports/entertainment
- Miscellaneous
- Aerospace
- Retail/graphics
- Building/construction
- Paper/printing
- Hygiene
- Electrical
- White Goods
- Automotive
- Medical
- Electronic

| End-use | Mln Sqm |
|-----------------------|--------------|
| Defense/military | 13 |
| Sports/entertainment | 18 |
| Miscellaneous | 21 |
| Aerospace | 42 |
| Retail/graphics | 89 |
| Building/construction | 84 |
| Paper/printing | 82 |
| Hygiene | 204 |
| Electrical | 180 |
| White Goods | 93 |
| Automotive | 171 |
| Medical | 295 |
| Electronic | 130 |
| Total | 1,421 |

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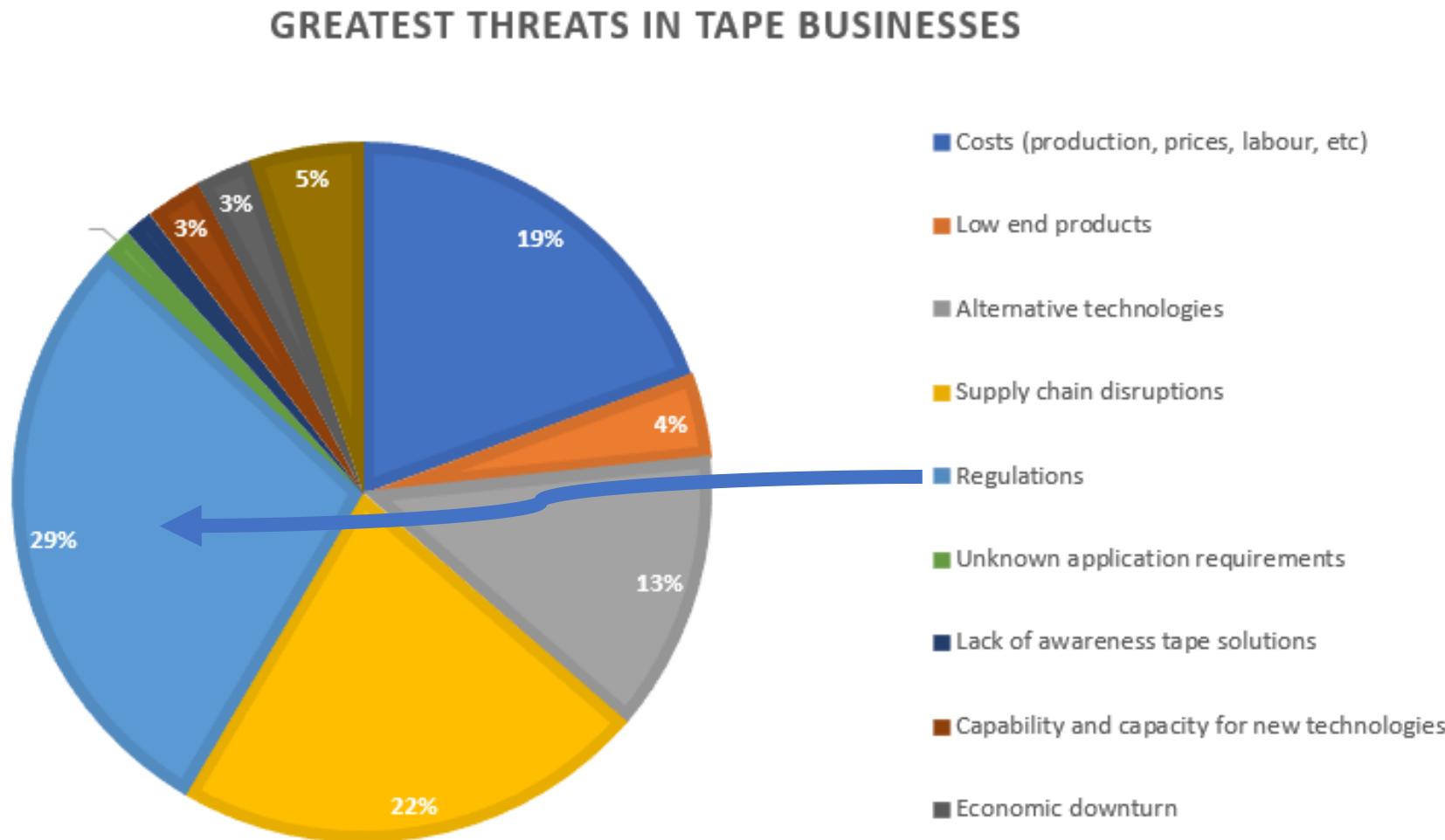


Regulatory affairs

- Actively monitoring and participating in regulatory legislative processes
- A Technical Committee expert group focussed on regulatory affairs, led by Afera Regulatory Affairs & Sustainability Manager Pablo Englebienne
- Leveraging ties with associations in adjacent technologies to increase relevant direct and indirect influence with regulatory bodies
- A Rapid Alert Protocol to notify and act quickly on behalf of Afera Members in the event of a public relations or public affairs crisis affecting the tape industry
- Current focus on Packaging and Packaging Waste Regulation (PPWR), Deforestation Regulation and others



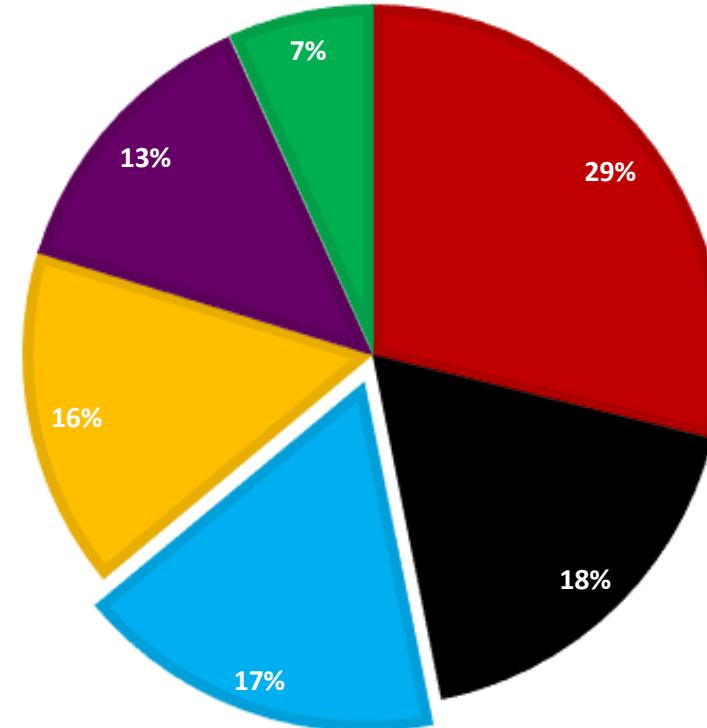
Afera 2023 trend survey results



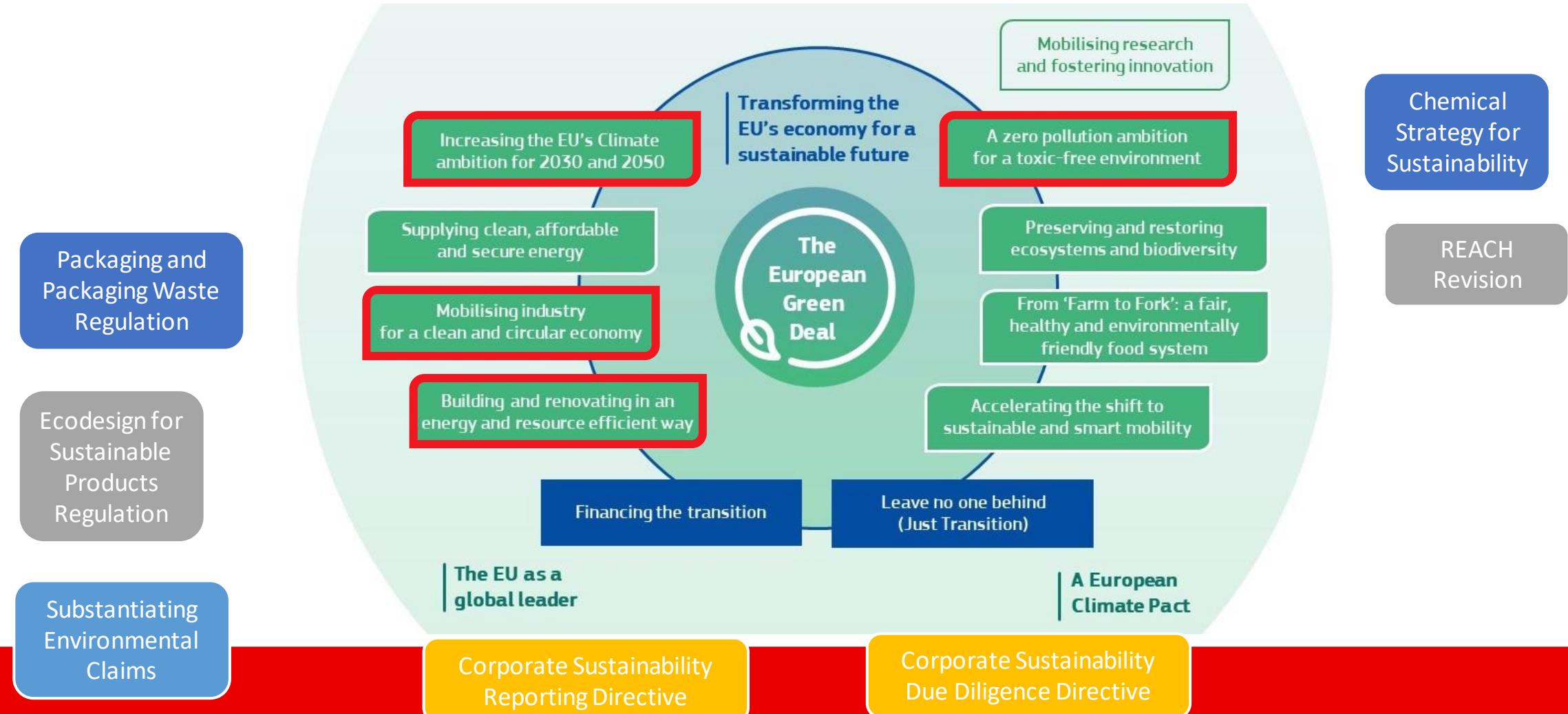
Afera 2023 trend survey results

FOREMOST TRENDS AFFECTING TAPE BUSINESS

- Working towards a circular economy
- Demand for debonding (end-of-life, repairability)
- Dealing with tape waste (complex mixture of non-separate plastics)
- Developing functionalised tapes
- Demand for tape-parts recycling (liner)
- Other



European Green Deal: 2019-2024



Regulatory affairs

Stepping up relevant direct and indirect influence with regulatory bodies re: initiatives and legislation

European Green Deal (continued)

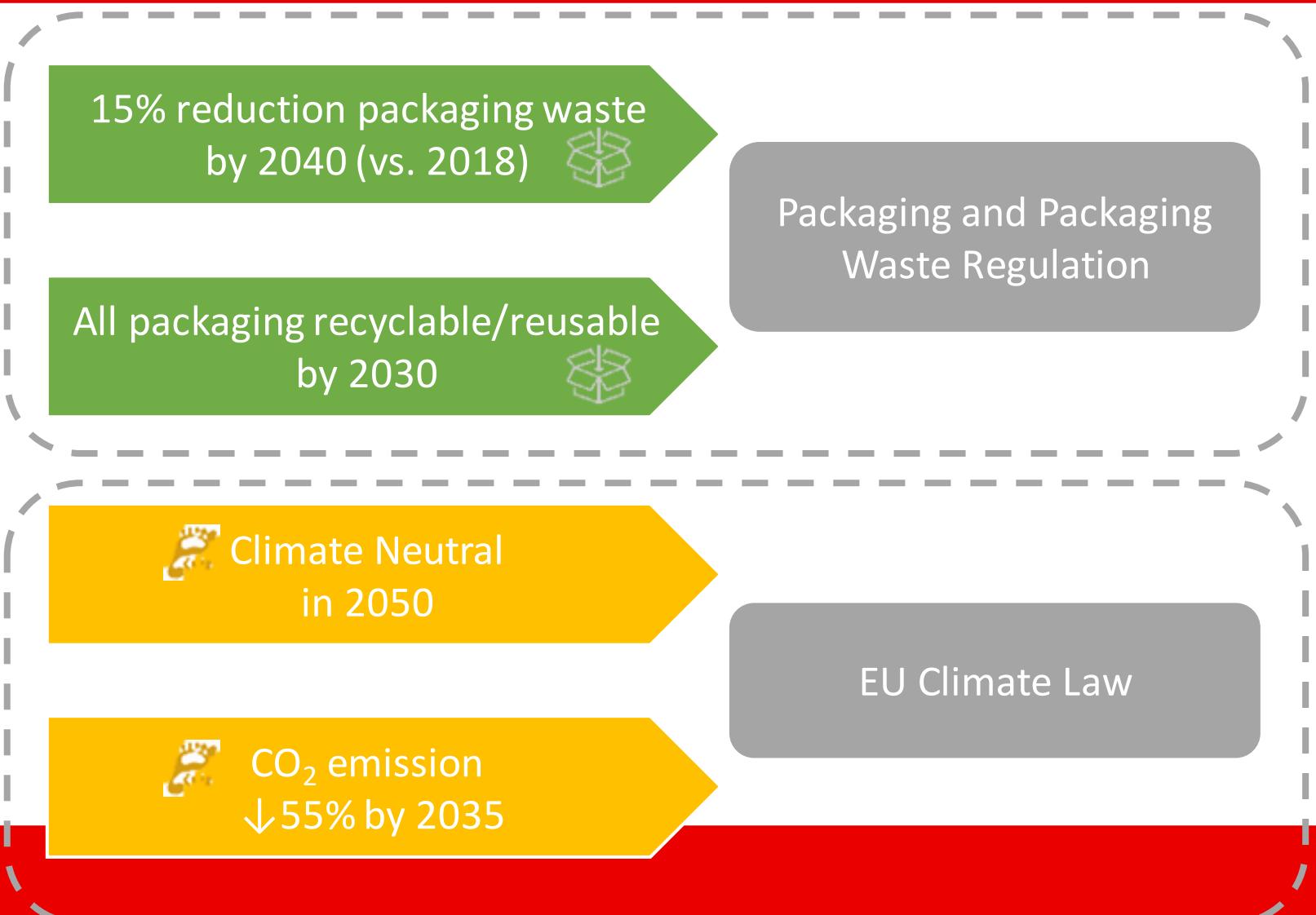
- Chemicals Strategy for Sustainability
 - ✓ REACH revision
 - ✓ Safe and Sustainable by Design
 - ✓ Essential uses for chemicals
 - ✓ REACH Registration of Polymers
- REACH restrictions
 - ✓ Intentionally added microplastics
 - ✓ Secondary microplastics
 - ✓ PVC and PVC additives



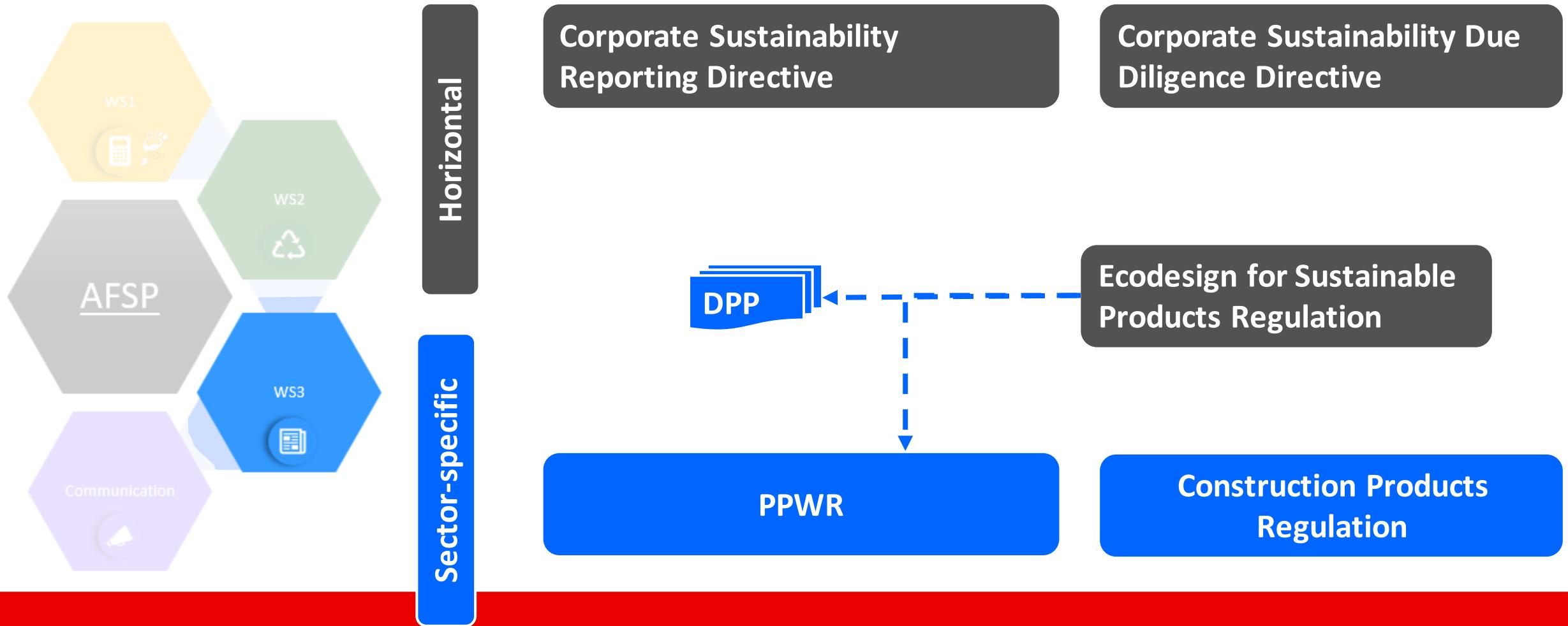
Packaging and Packaging Waste Regulation (PPWR)

- 1 Restrict unnecessary packaging
- 2 Promote reusable and refillable packaging
- 3 Make all packaging recyclable
- 4 Increase use of recycled plastics in packaging
- 5 Harmonize labelling of packaging to support recycling

Waste & CO₂ reduction



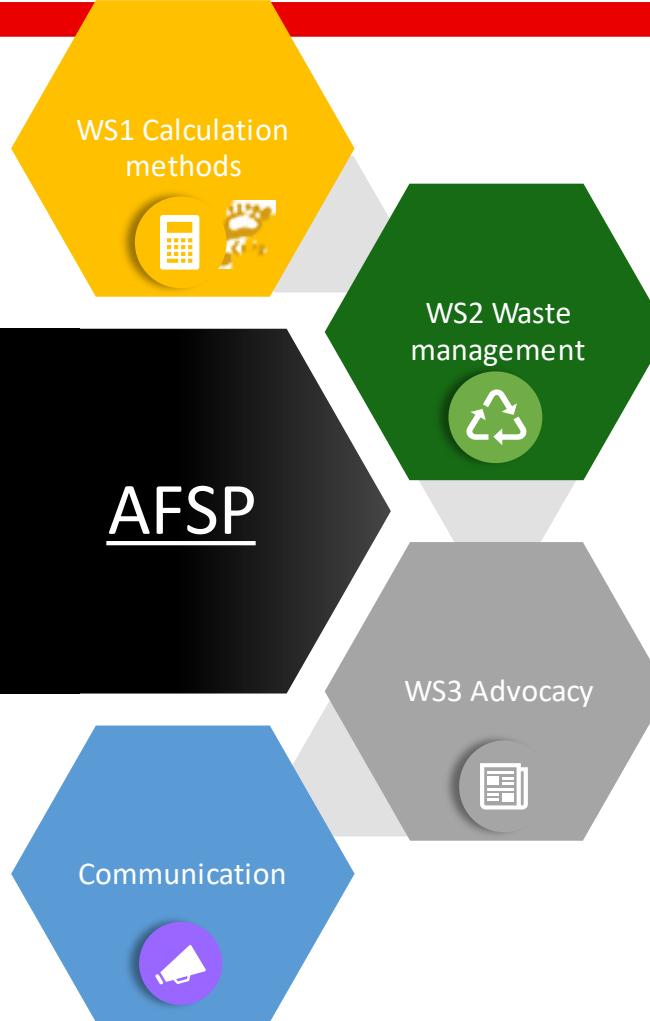
Regulatory requirements



Translating the externalities into Afera

Afera flagship sustainability project

AFSP

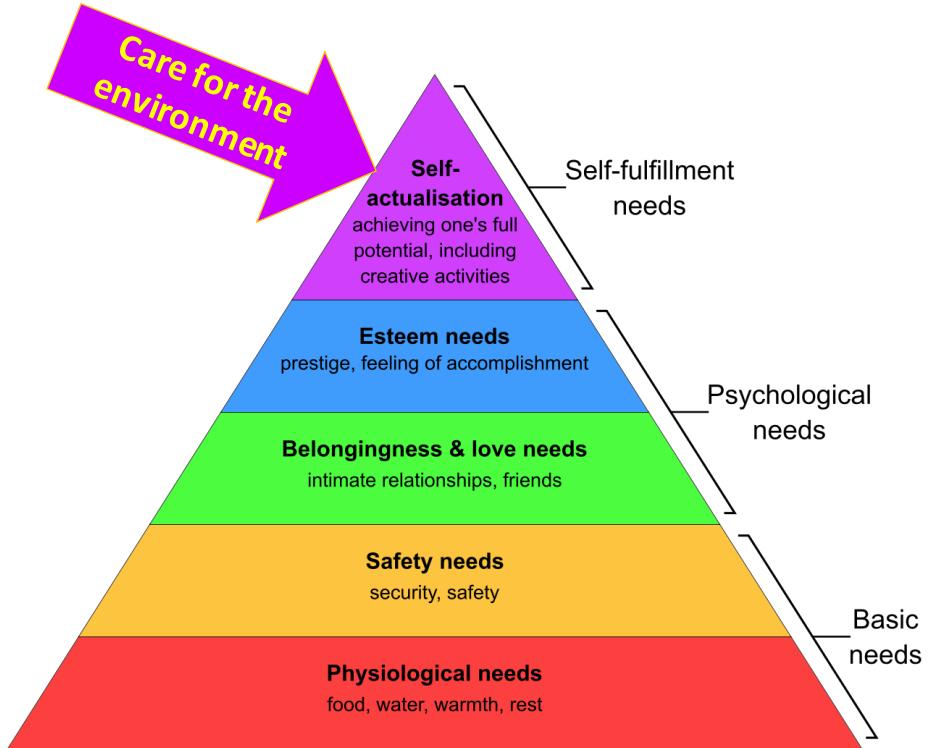


We cannot solve
our problems with
the same thinking
we used when
we created them

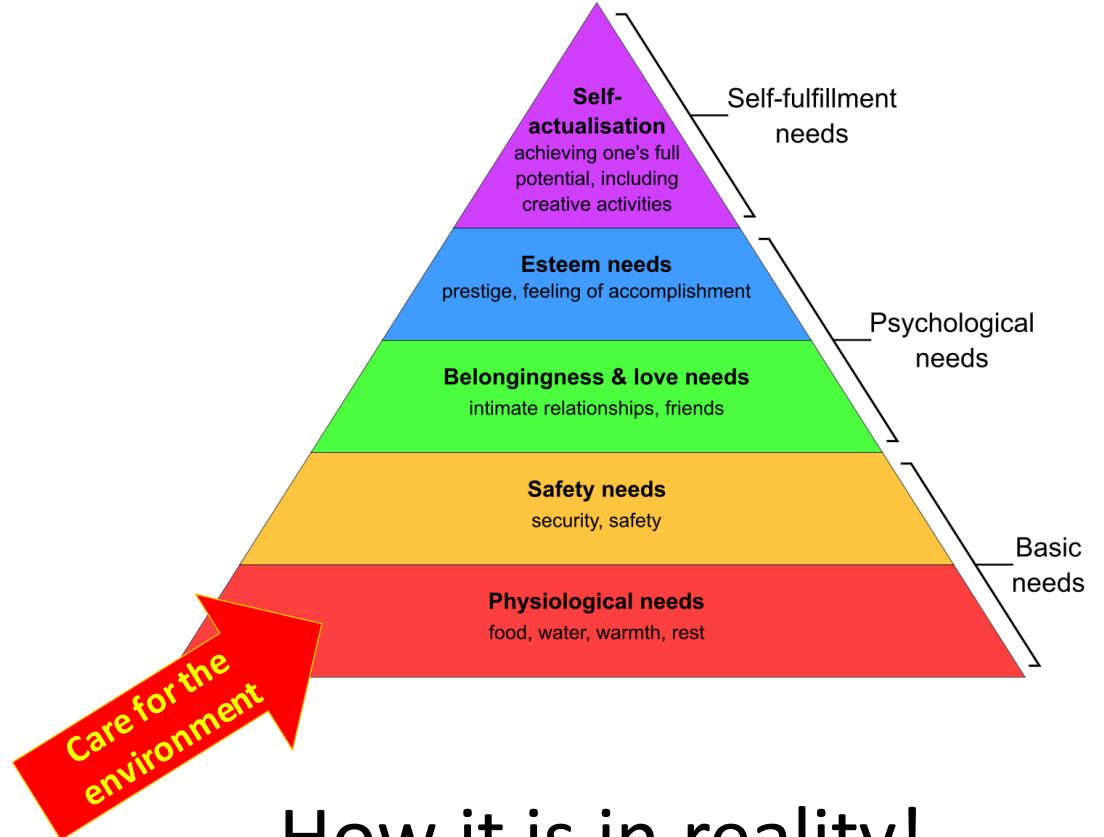
Albert Einstein



Re-thinking the Maslow Pyramid



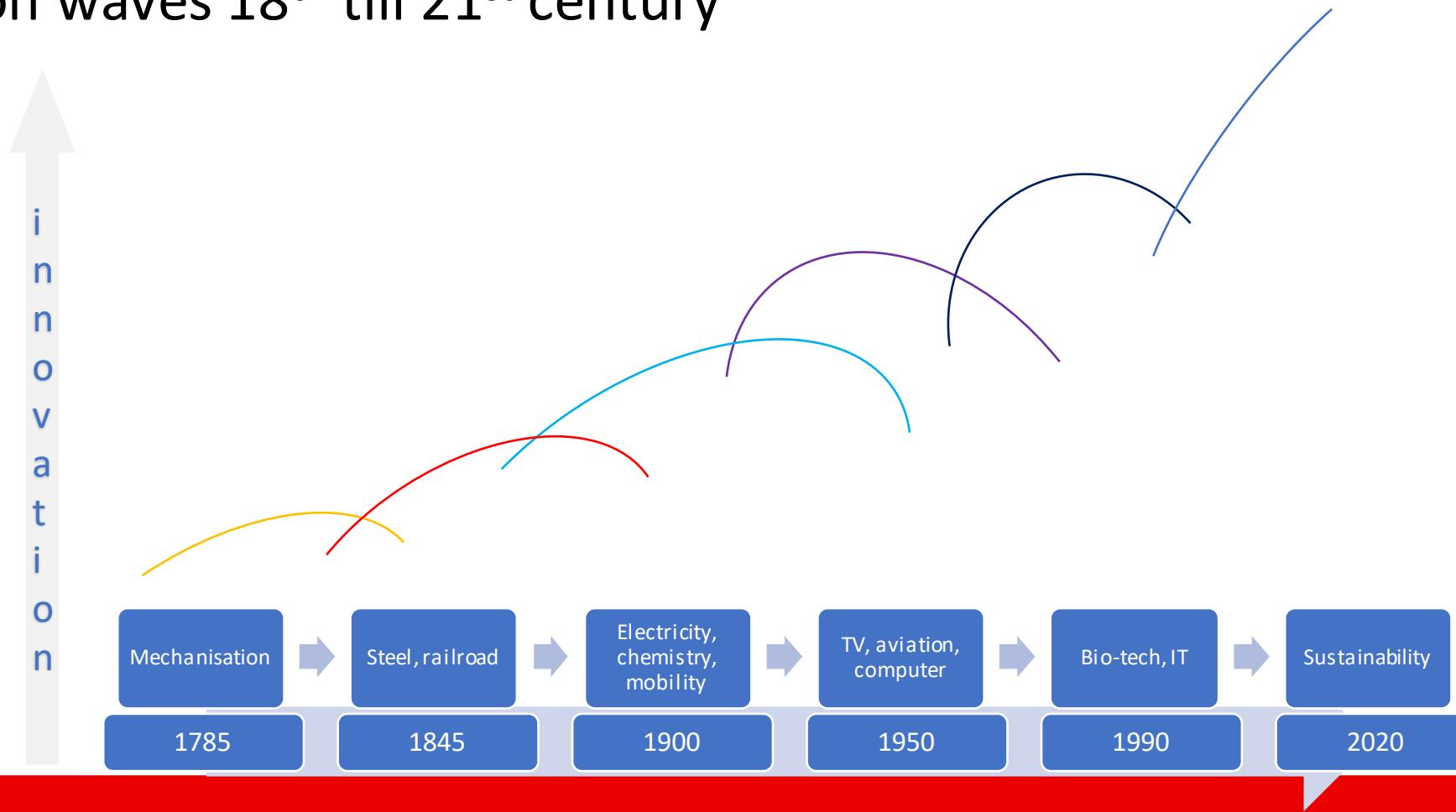
How “we” were raised to think



How it is in reality!

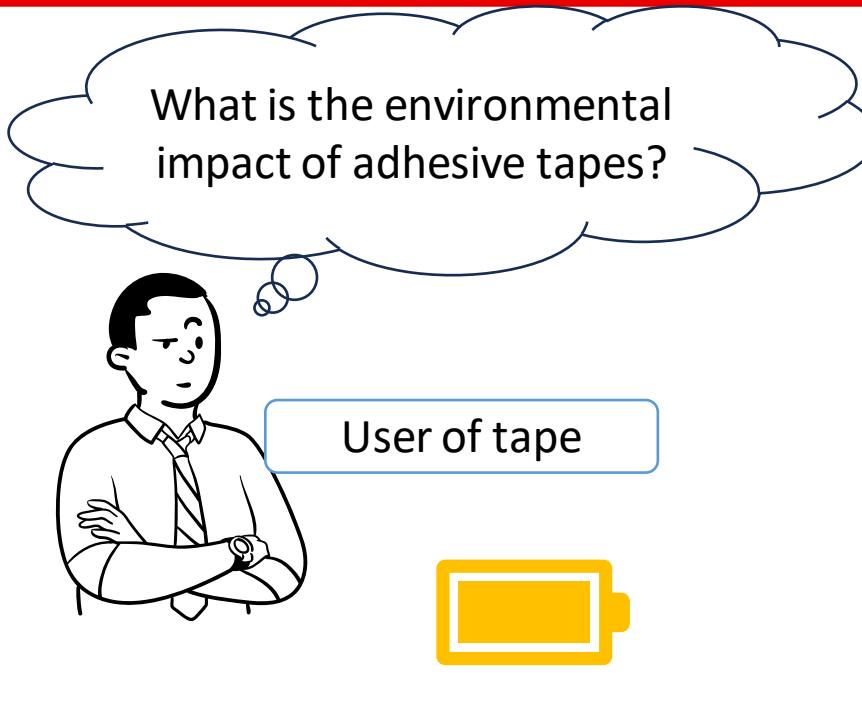
Sustainability as driver for innovations

- Innovation waves 18th till 21st century



Background

2020



Green Claims Directive

Environmental Claims must be substantiated with verified data

Battery Regulation

Information on PCF must be included for placing in the E.U. market

Ecodesign for Sustainable Products Regulation

Digital Product Passports for all products placed in E.U. market

Regulatory affairs: sustainability

Stepping up relevant direct and indirect influence
with regulatory bodies re: initiatives and legislation



Sustainability initiatives

- European Green Deal
- Circular Economy Action Plan
- E.U. Plastics Strategy
- Ecodesign
- Sustainable Products Initiative
- Chemicals Strategy for Sustainability
- REACH Restrictions



Regulatory affairs: sustainability

Creating awareness and providing guidance on sustainability



- Facilitating the promotion of adhesive tapes as sustainable solutions
- A Technical Committee expert group focussed on sustainability, led by Afera Regulatory Affairs & Sustainability Manager Pablo Englebienne
- Monitoring upcoming legislation after issuing Industry statement on European Green Deal (EGD)
- Collaborating with and learning from other organisations

EGD: Regulatory impact on tapes industry

- **What is the biggest roadblock?**

❖ Insufficient co-operation along the value chain of the Industry > resistance to the required changes and necessity of forming alliances



AFSP goal and organisation



Translate the Green Deal to Afera members



AFSP

Our Workstreams include delegates from Afera Member Companies:

- 3M
- A&G Ambalaj
- ATP
- Avery Dennison
- BASF
- CCM
- Certoplast
- Dow Europe GmbH
- DRT
- Eurotape
- FABO
- H.B. Fuller U.K.
- Henkel
- ICAP-SIRA
- IVK/FEICA
- Lohmann
- Loparex
- Mondi Inncoat
- Nitto
- Novacel
- PPI
- Scapa
- Sekisui Alveo
- Supertape
- tesa
- UBIS
- UPM



Afera/IVK PCF tool



Harmonize PCF calculation across the industry

Enable Scope 3 reporting along supply chain

Clear, cost-effective, validated process

Follow global standards ISO, TfS

Use primary or high-quality secondary data

<https://afera.com/adhesive-tapes-sustainability/afera-pcf-calculation-tool/>

Afera/IVK PCF calculation tool timeline



| Year | 2024 | | | | | | | | | | | | 2025 | |
|--|------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb |
| Data Collection: Collect data from companies | | Kick-off meeting | | | | | | | | | | | | |
| Data Collection: Consolidation | | | | | | | | | | | | | | |
| Mapping | | | | | | | | | | | | | | |
| Modeling & preparation of the tool | | | | | | | | | | | | | | |
| Review of the tool | | | | | | | | | | | | | | |
| Implementation of adjustments | | | | | | | | | | | | | | |
| Verification process | | | | | | | | | | | | | | |

Timeline Details:

- Data Collection: Collect data from companies** (Jan - Mar): Kick-off meeting (Jan), Data questionnaires filled in by companies (Mar).
- Data Collection: Consolidation** (Mar - May): Consolidated data final files (May).
- Mapping** (May - Jun): Mapping final files (Jun).
- Modeling & preparation of the tool** (Jun - Aug): Draft of the tool (Aug).
- Review of the tool** (Aug - Sep): Feedback on the tool (Sep).
- Implementation of adjustments** (Sep - Oct): Delivery of tool to the verifier (Oct).
- Verification process** (Oct - Dec): (No specific tasks listed, but implied to be ongoing).

Recycling of tape waste



Release liner

Impact of colour

Closed loop/Open loop

Collection logistics

Quality of waste stream

Tape

Mechanical recycling

Chemical recycling

Composition

Volume

Data collection



WS1



AFSP



Communication



WS2



WS3

Manufacturer, Other

Does your company generate liner waste from pressure sensitive adhesive tape?

No, 16.67%

Yes, 83.33%

Are you interested in participating in the sorting and collection of tape liner waste for recycling purposes?

Would like to do it, 56.67%

16.67%

Plan to do it soon, 13.33%

No, 10.00%

Already do, 3.33%

Statistics on tape waste

| | Production volume (t/y) | Waste volume (t/y) | Recycled/recovered volume (t/y) |
|-------------------|-------------------------|--------------------|---------------------------------|
| Single-sided tape | | | |
| Double-sided tape | | | |

| | Incorporated in products (t/y) | Waste volume (t/y) | Recycled/recovered volume (t/y) |
|---------------|--------------------------------|--------------------|---------------------------------|
| Release liner | | | |

Converters

Does your company generate liner waste from pressure sensitive adhesive tape?

Yes, 100.00%

Are you interested in participating in the sorting and collection of tape liner waste for recycling purposes?

Would like to do it, 60.00%

Already do, 20.00%

Plan to do it soon, 20.00%

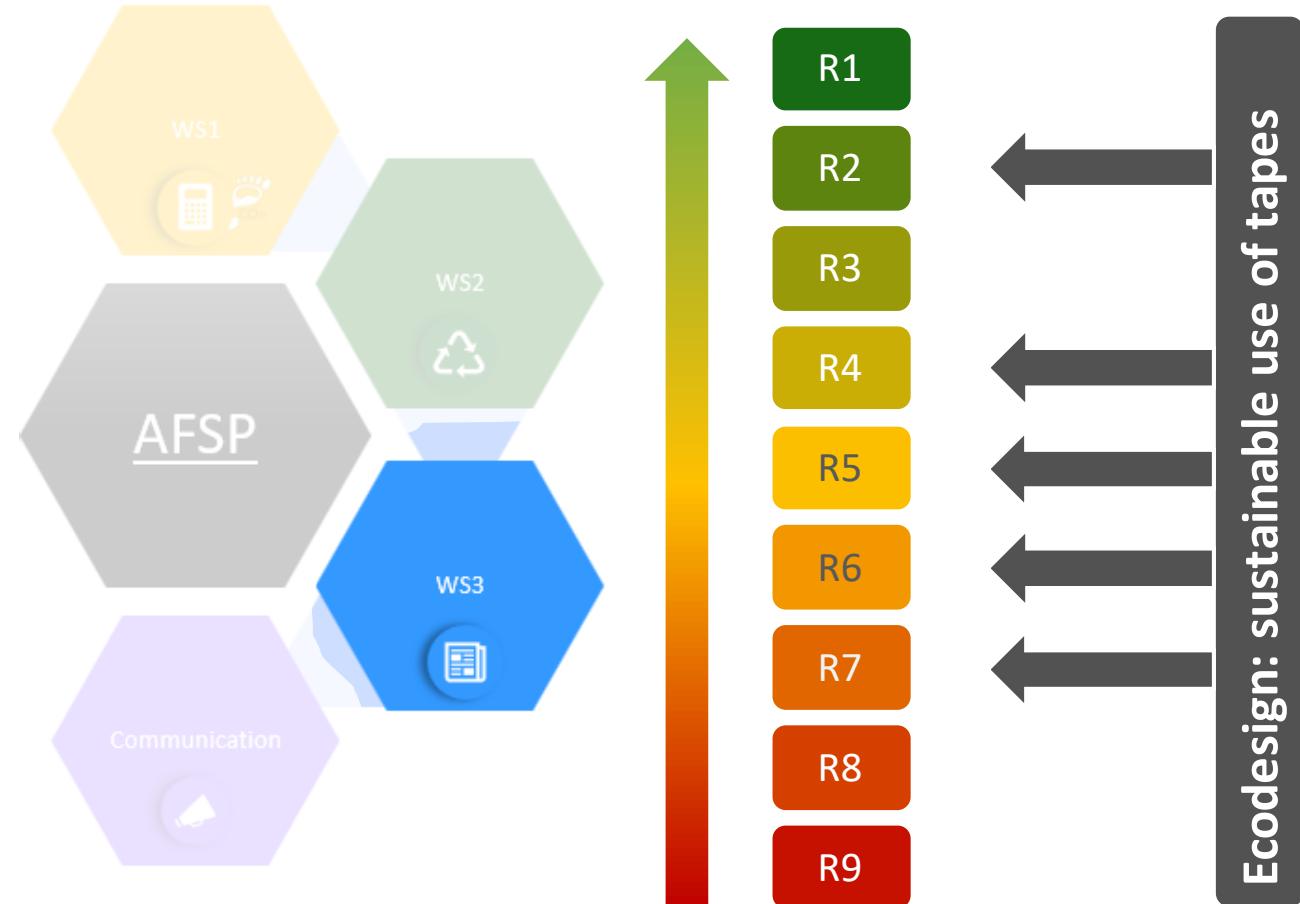


Recycling/recovery of tape waste beyond RL

Workshop December 2023



Tape industry advocacy

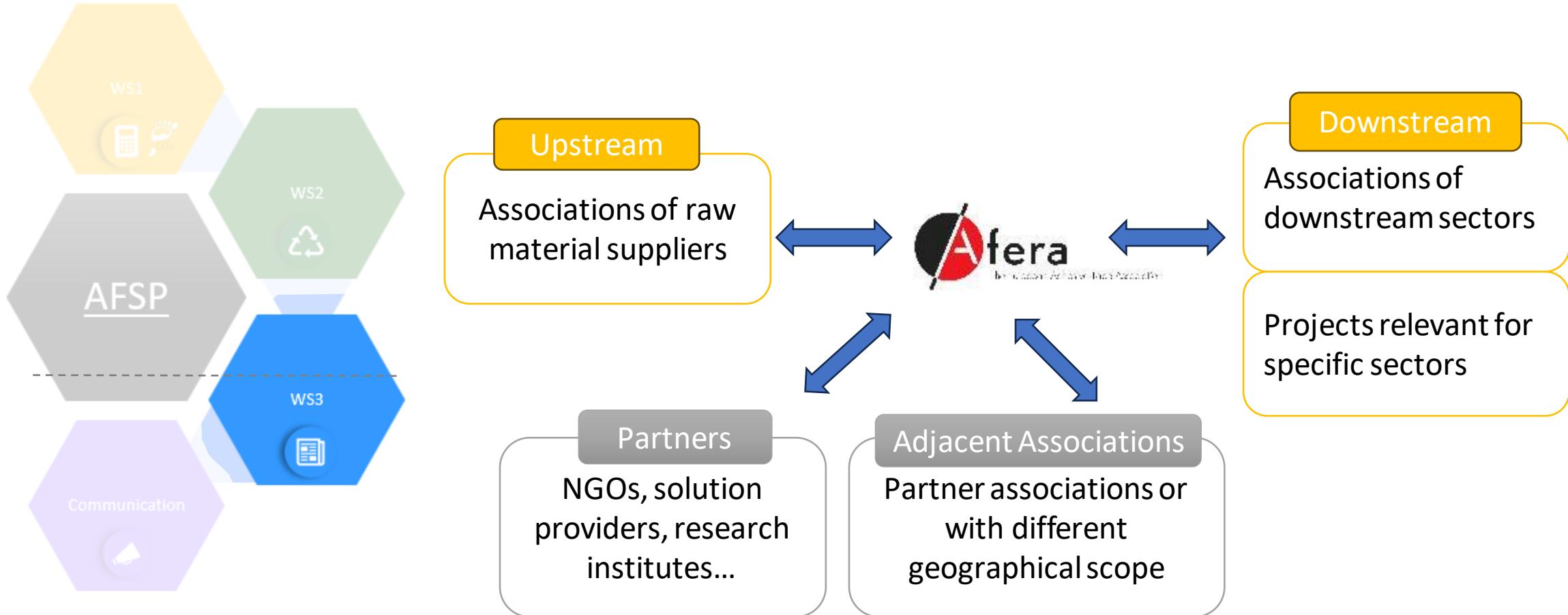


**Certification of tapes with
recycled & bio-based content**

UK PPT

ES PPT

Stakeholder mapping



Stakeholder mapping

Downstream

Upstream

| Association | Description |
|-----------------|---|
| IRLA | International Release Liner Association |
| FEICA | European Adhesive Association |
| SiEU | Silicones Europe - CEFIC sector group |
| EPRC | European Paper Recycling Council |
| CEFIC | European Chemical industry association |
| CEPI | European Paper Industry |
| Plastics Europe | European Plastic industry association |
| EDANA | European Non-wovens association |
| VinylEU | Vinyl plastics producers |

AFSP

ws3



Adjacent Associations

| Association | Description |
|-------------|--|
| FINAT | European Self-adhesive label association |
| PSTC | US Tape Association |
| CATIA | Chinese Tape Association |
| JATMA | Japan Tape Association |
| TAAT | Taiwan Tape Association |
| FEICA | European Adhesive Association |
| IVK | German Adhesive Association |
| ASEFCA | Spanish Adhesive Association |
| Assogomma | Italian Rubber Association |
| FIPEC | French Adhesives and Paint Association |
| FESPA | Graphics Events Association |

Communication



| Association | Description |
|-------------|----------------------------|
| ACEA | Automotive |
| Batt EU | Battery manufacturers |
| APPLIA | White good appliances |
| EUROPEN | Packaging |
| eIT | Food for packaging |
| UNESDA | Soft drinks association |
| | Medical devices |
| | Pharmaceuticals |
| CICA | Construction |
| ASD | Aeronautics |
| | Marine |
| | Logistics centre providers |
| | Retailers and distributors |

Project

| Association | Description |
|-----------------------|---|
| AEPW | Alliance to end plastic Waste |
| CELAB | Develop recycling of release liner and matrix waste from self-adhesive labels |
| 4evergreen | Develop recycling of fibre-based packaging |
| RecyClass | DfR guidelines for plastics |
| CEN | European Standardization |
| EPRC | European Paper Recycling Council |
| Packaging Chain Forum | Packaging group |

A few examples

- What is the European tape industry value chain (value circle) doing?
 - ✓ Setting standards
 - ✓ Circularity: plastic waste back into the value circle
 - ✓ Tape waste back to feedstock
 - ✓ Enabling waste sorting with advanced “watermarking”
 - ✓ Promoting liner recycling pathways





Afera Tape College, Brussels, 4-6 April 2022