

# Paper Innovation

Reaching its limits or just getting started?

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The Royal Swedish Academy of Agriculture and Forestry



# OUTLINE

- The Ahlstrom-Munksjö company
- The world of Specialty Papers
- Product innovation supporting growth opportunities
- Innovation to improve the environmental performance of paper based solutions
- Conclusions



## Two leaders becoming one



- A global leader in sustainable and innovative fiber-based solutions
- Leading market positions in several niches
- 6,200 employees
- 41 production and converting sites in 14 countries
- Preliminary combined net sales approx. EUR 2.2 billion



### Munksjö

- Net sales 2015: EUR 1.1 billion
- 2,900 employees
- 15 production and converting sites in 7 countries



### Ahlstrom

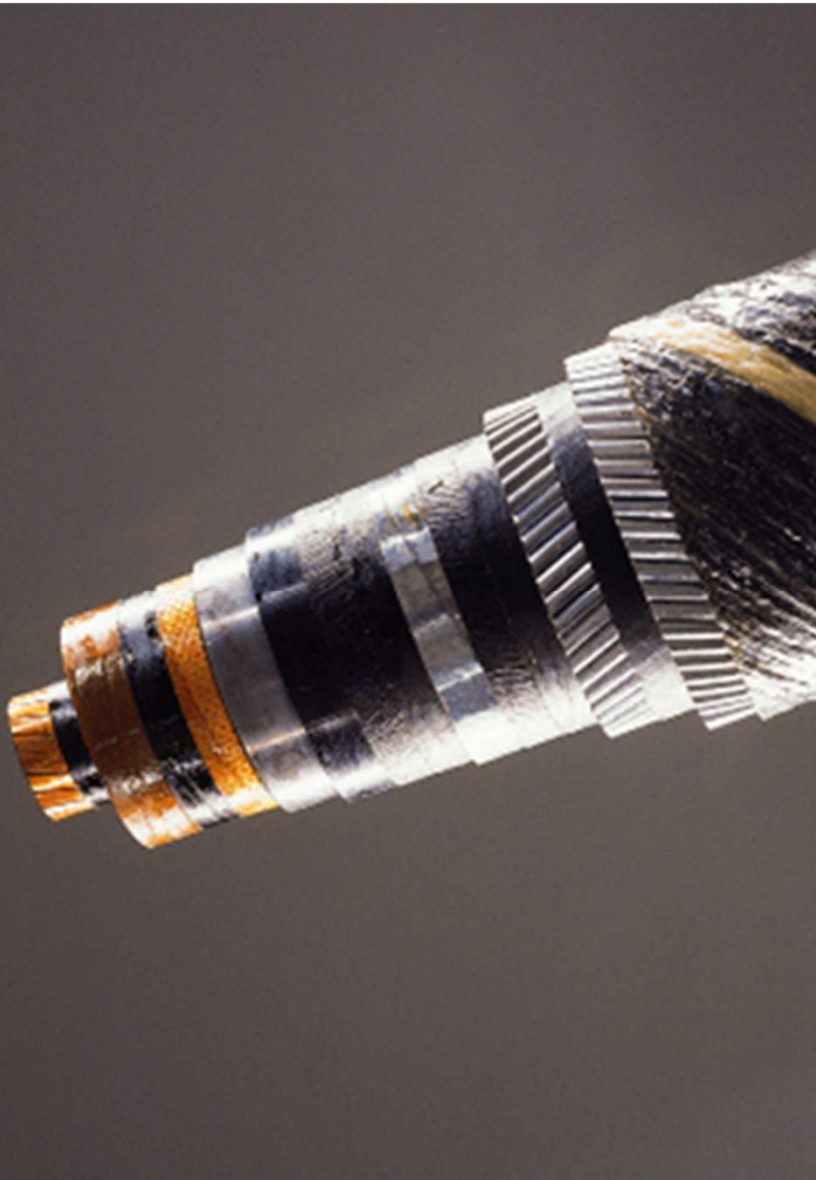
- Net sales 2015: EUR 1.1 billion
- 3,300 employees
- 26 production and converting sites in 12 countries



# Our business areas

PRODUCT AREA	DECOR	FILTRATION AND PERFORMANCE	INDUSTRIAL SOLUTIONS	SPECIALTIES
SHARE OF COMBINED NET SALES (2015)				
EXAMPLES	<ul style="list-style-type: none"> <li>• Decor paper</li> <li>• Thin print papers</li> </ul>	<ul style="list-style-type: none"> <li>• Oil filters</li> <li>• Fuel filters</li> <li>• Air filters</li> <li>• Gas turbine filters</li> <li>• Industrial filters</li> <li>• Glassfiber materials</li> <li>• Wallcovers</li> <li>• Nonwovens</li> </ul>	<ul style="list-style-type: none"> <li>• Abrasive backings</li> <li>• Electrotechnical insulation</li> <li>• Release liners</li> <li>• Thin papers</li> <li>• Specialty pulp</li> <li>• Balancing foils</li> <li>• Fine art and printing papers</li> </ul>	<ul style="list-style-type: none"> <li>• Food and beverage packaging</li> <li>• Graphical papers</li> <li>• Metallized labels</li> <li>• Medical fabrics</li> <li>• Tape</li> <li>• Laboratory filters and life science diagnostics</li> <li>• Water purification</li> </ul>

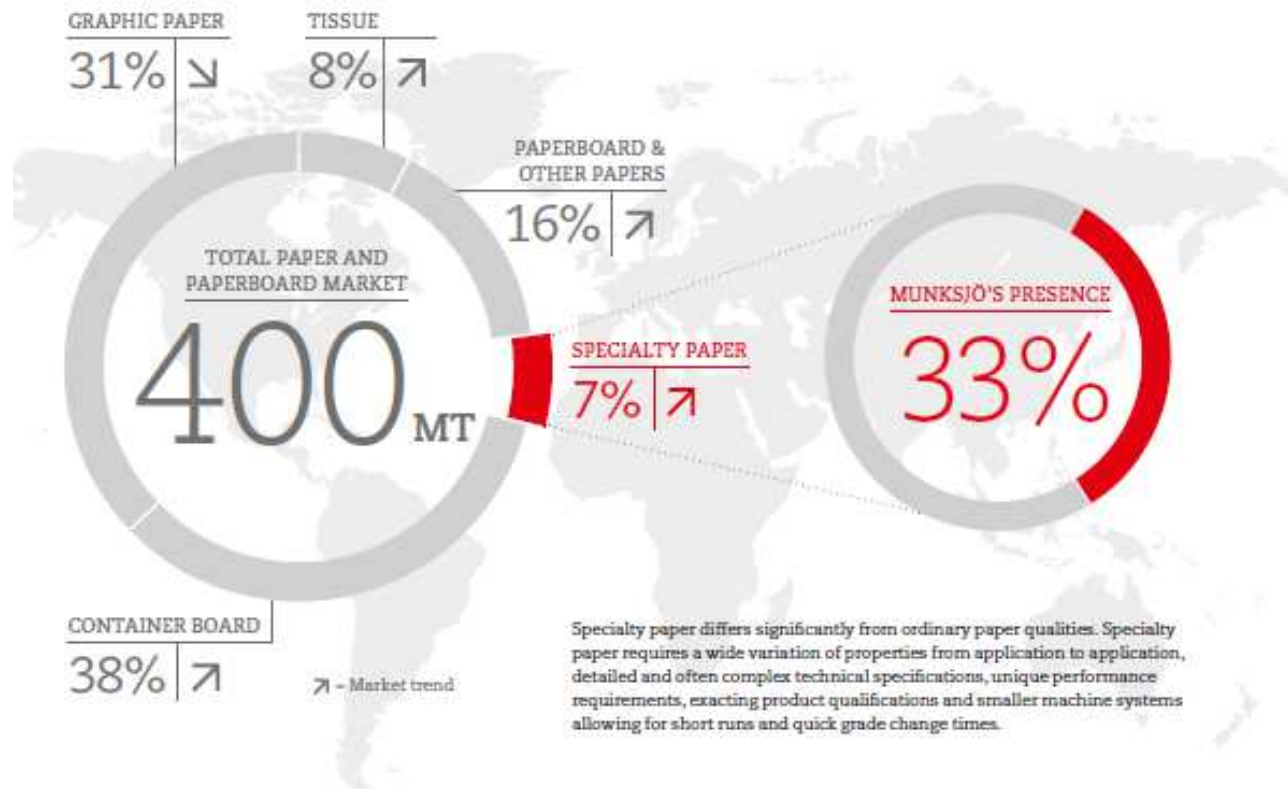




## The world of Specialty Papers



# Munksjö in the specialty paper market



## Focus on attractive niches within specialty papers

- Transformer insulation
- Industrial release papers for i.e. composites
- Decorative papers for furniture/flooring industry
- Low basis weight and barrier packaging papers
- Heavy weight abrasive backing papers





## Commitment towards sustainability

- 80% of Munksjö raw materials are cellulosic fibres (620,000 tons of pulp and 545000 m<sup>3</sup> of pulp wood per year)
- About 50% of papers contain more than 95% cellulosic fibers
- The other papers can be composed of a significant part of pigments and/or binders
  - Continuous efforts to improve environmental benefits
- Munksjö produces 252,000 tons of specialty pulp for external and internal customers



# Four megatrends driving the global market demand and Munksjo growth



## DEMOGRAPHY

- ▶ Rapid population growth
- ▶ Increasing middle class
- ▶ Urbanization
- ▶ Ageing population
- ▶ Changing consumption habits
- ▶ Changing lifestyles
- ▶ Changing household configurations



## GLOBALISATION

- ▶ Increasing cross border interdependence
- ▶ New supply chains
- ▶ New value chains
- ▶ New markets
- ▶ Growing mobility
- ▶ Greater access to new technology and innovations
- ▶ Networked society



## SUSTAINABLE SOCIETY

- ▶ Increased environmental awareness
- ▶ Resource scarcity
- ▶ Growing waste concerns
- ▶ Increased focus on efficiency improvements
- ▶ Increased focus on reducing the environmental impact
- ▶ Increased safety and quality awareness
- ▶ Increased focus on sustainable R&D



## DIGITALIZATION

- ▶ Big data analysis
- ▶ Internet of Thing
- ▶ Cloud services
- ▶ Next level of automations
- ▶ Optimized processes
- ▶ New services anywhere in the value chain
- ▶ Smart infrastructures



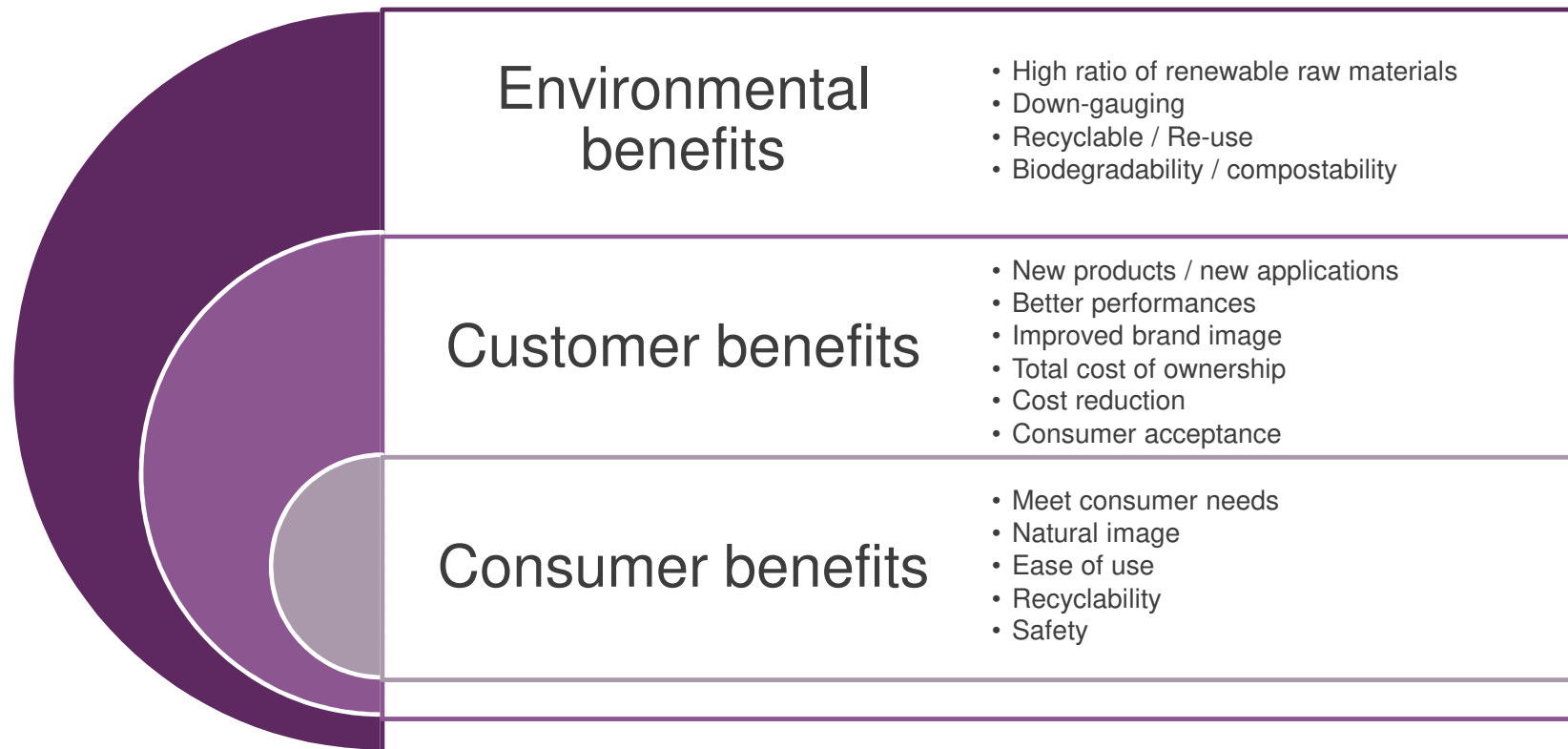


Product innovation supporting growth opportunities



# Growth opportunities for paper solutions in various fields

## Market requests:



## Translation of market requests:

### New cellulosic fibers

- MFC/NFC
- Easier to refine
- Stronger
- Functionalities

### Bio sourcing

- Fossil-based products replacements
- Renewable resources all along the value chain

### Manufacturing & Environmental performance

- Energy consumption
- Emission to water/air
- Water consumption
- Landfilled waste

### New process technologies

- To form
- To dry
- To assemble
- To dissolve
  
- To recycle
- To down-gauge



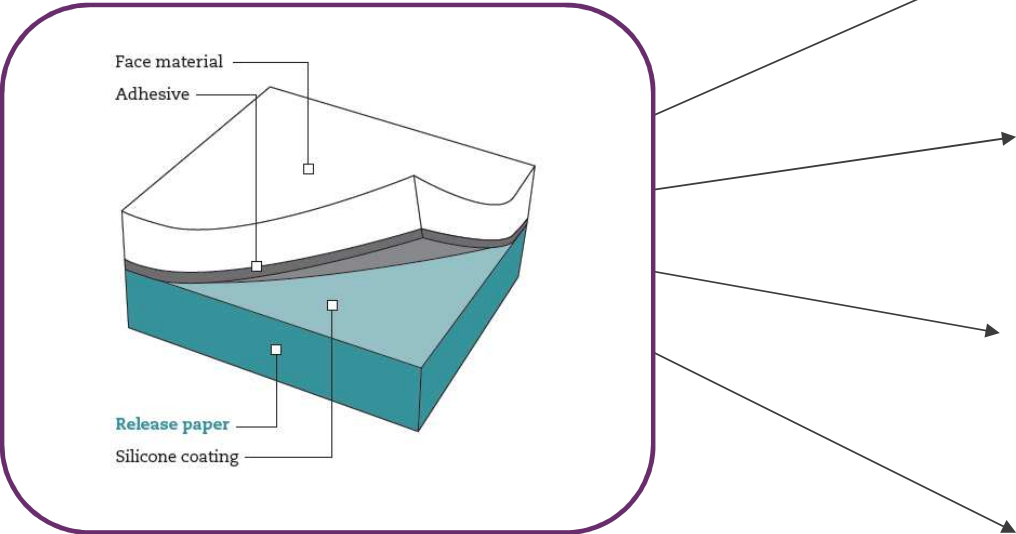


## Innovation to improve the environmental performance of paper based solutions





- 3 examples



# 1 - Release paper function and main applications



80% of substrates used in the global release liner market is based on paper (AWA Global Release liners 2017)

	<b>LABELSTOCK</b>
	<b>TAPE + MEDICAL</b>
	<b>INDUSTRIAL + COMPOSITES</b>
	<b>GRAPHICS</b>

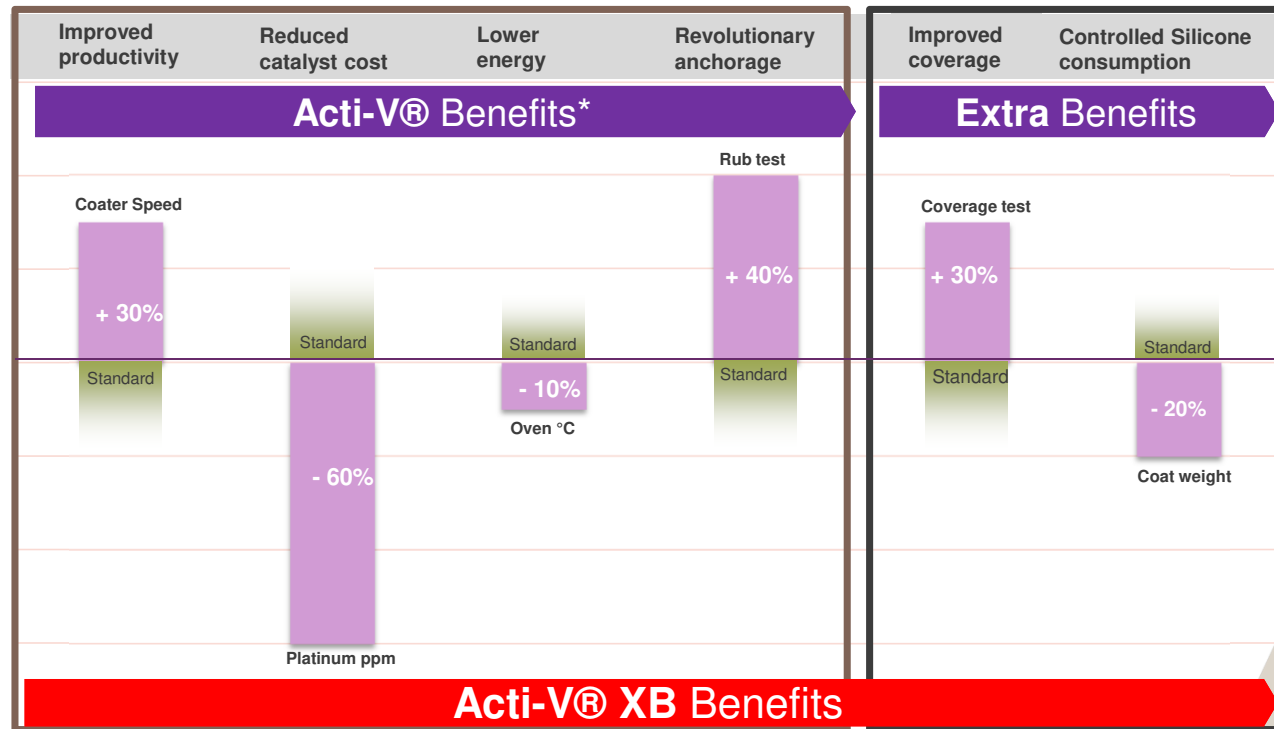


# 1 - Acti-V® - Supercalandered release paper

With Acti-V®, the release paper **plays an active role in silicone curing and anchorage.**

- Curing is faster and requires less catalyst.
- Anchorage is stronger and more stable even in challenging environments.
- Choice of silicone is broader

With Acti-V® XB, the quality of the silicone coverage is enhanced.



\*Based on high speed trials up to 1200 m/min and below 20 platinum ppm



unfold the future

# The Age of Fibre

The pulp and paper industry's most innovative products



## 1 - Acti-V® recognized for innovation and sustainability



### Acti-V® among most innovative paper products at European Paper Week

The Acti-V® family of release papers for silicone coating based on Munksjö patented technology has expanded with the launch of Acti-V® XB. The new product - showcased at Labelexpo Europe in September 2015 - combines the consolidated performances of Acti-V® functionality with new benefits through an enhanced surface barrier that improves the silicone hold-out.

In 2015, Munksjö Acti-V® was selected by CEPI, the Confederation of European Paper Industries, as one of Europe's most innovative paper products. The short list of the most innovative paper products was presented at the European Paper Week in November 2015.

According to Marco Mensink, Director General of CEPI: "The European paper industry is inventing more convenient, more sustainable, more enticing products every day. CEPI celebrates the industry's achievements with some of the most innovative new products. Full of science, but no longer fiction, the unthinkable is becoming real!"



CEPI celebrates some of the most innovative new products. Full of science, but no longer fiction, the unthinkable is becoming real!

Marco Mensink, Director General of CEPI - Confederation of European Paper Industries

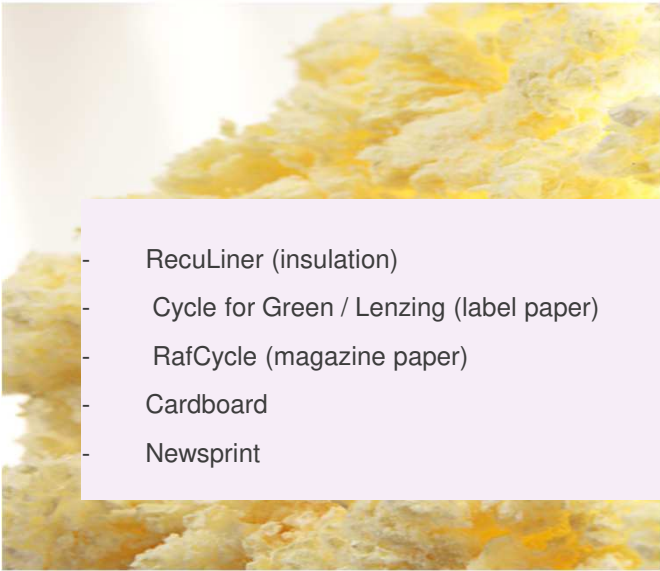
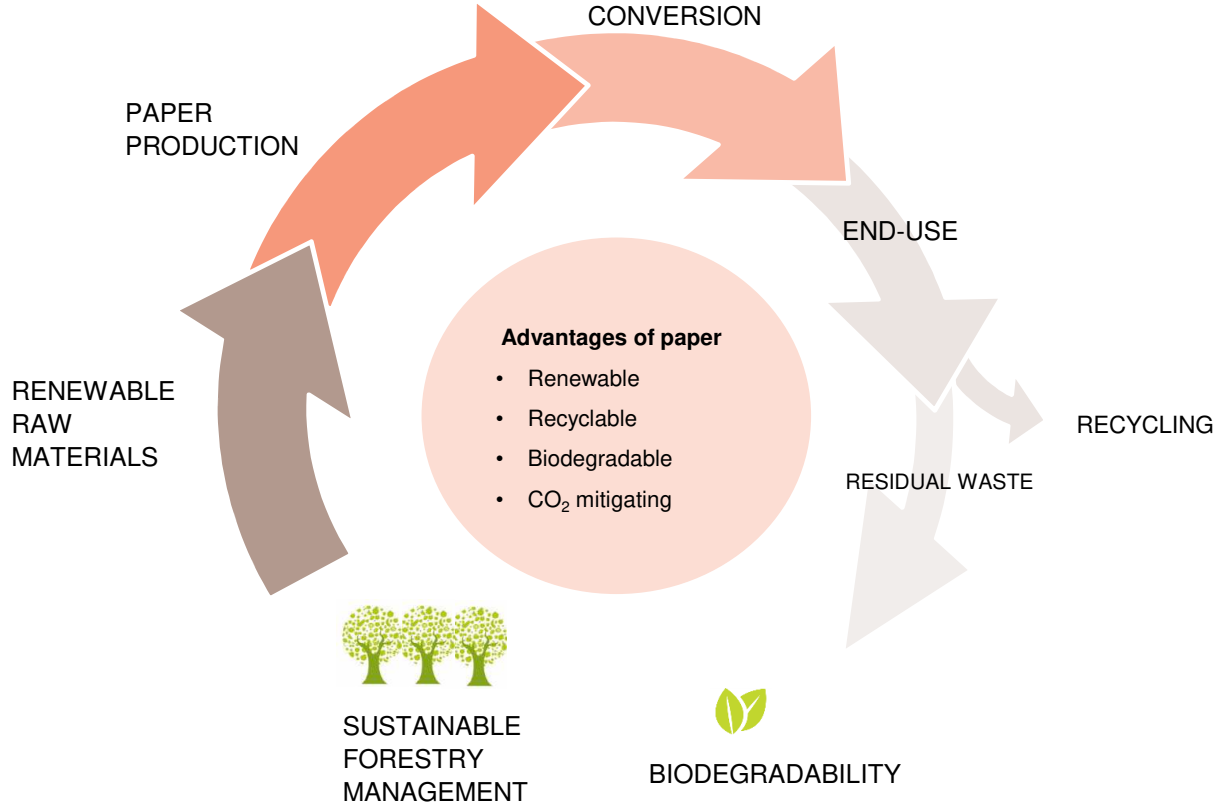
### Environmental award

Munksjö was recognised "Best Supplier 2014, Sustainability" by Avery Dennison during the company's annual supplier recognition ceremony held in its European headquarters in Oegstgeest, The Netherlands, on March 24, 2015.

The award went to both Munksjö and silicone supplier Wacker for their joint efforts in the development of a low-platinum solution for silicone coated paper release liners.



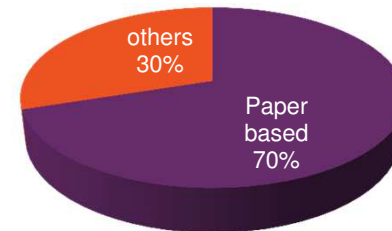
# 1 - Sustainable release liner value chain





## 2- Decorative paper for the surfacing Industry

- Global decorated wood based boards (as particle board / medium-high density fiberboard) with coating materials is about 21 billions m<sup>2</sup> in 2015\*
- Decorative paper is a significant part of the surface coating materials for furniture and flooring\*

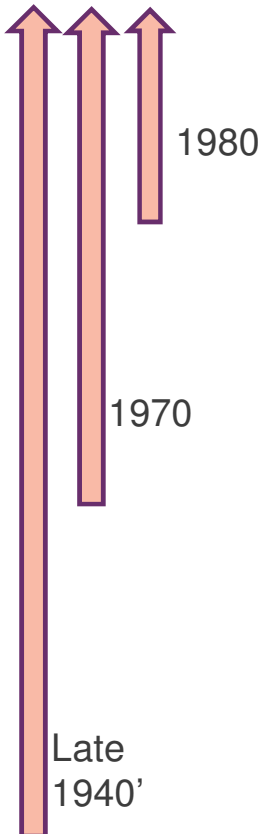
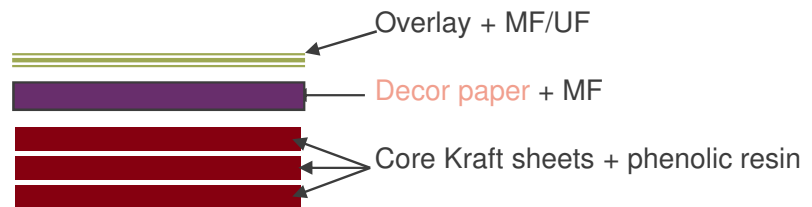
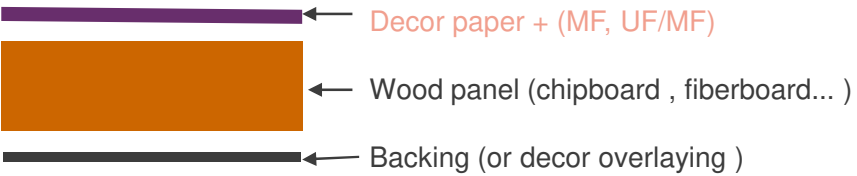
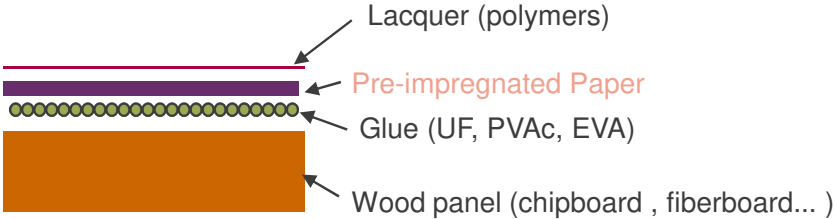


- Distribution of surface coating materials (without China) per laminates technologies :
  - LPL + films (~72%)
  - Pre-impregnated foils (~15%)
  - HPL/CPL (~13%)

\* Jaakko Pöyry, TCM conference, Hamburg March 2017



# 2 - Decorative paper for the surfacing Industry Laminates technologies



Pre-impregnated foil base paper

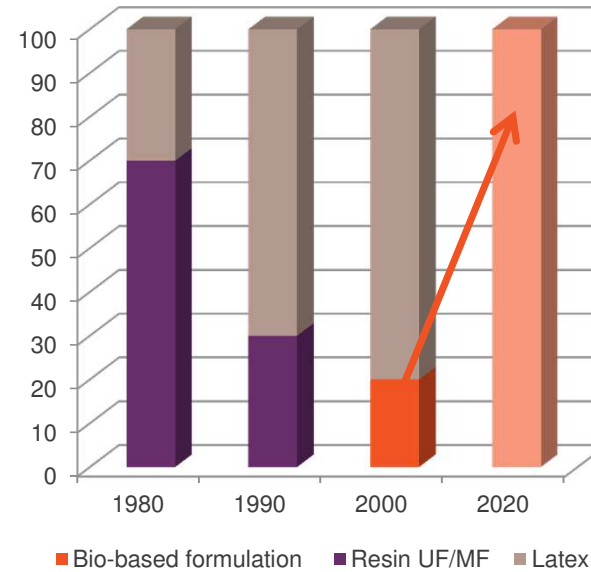
LPL: low pressure laminates

HPL /CPL : High pressure Laminates





## 2- Greener pre-impregnated foil base paper



How much ?

- Formaldehyde free impregnation formulation
- More bio-sourced solution
- Performance / Cost ratio efficiency

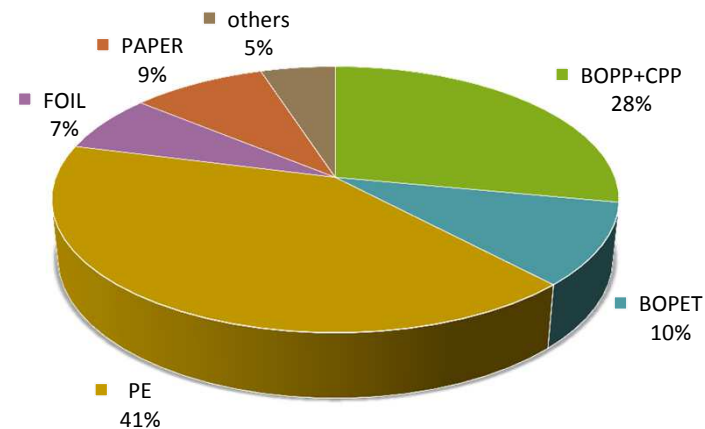
Made possible also with evolution of lacquers





### 3 - Flexible Packaging

- Consumer flexible packaging consumption by substrate World 2015 (Smithers PIRA)



- Brand owners objectives: sustainable packaging by combining renewable fibers and (bio) polymers



### 3 - Paper innovation challenges in Flexible packaging

- **Paper** represents about 10% of substrate consumption for Flexible packaging in 2015
- **Barrier properties** needed to meet market requirements
  - Moisture barrier
  - Grease barrier
  - Mineral oil barrier
  - Gas barrier (O<sub>2</sub> in particular)
- Combined with **heat sealable properties**.
- And ....**same run ability** on converting lines.
- While being (more) sustainable and preserving **the natural image of paper**





# Conclusions



# Bio sourcing for tomorrow's growth

Availability

SUSTAINABILITY

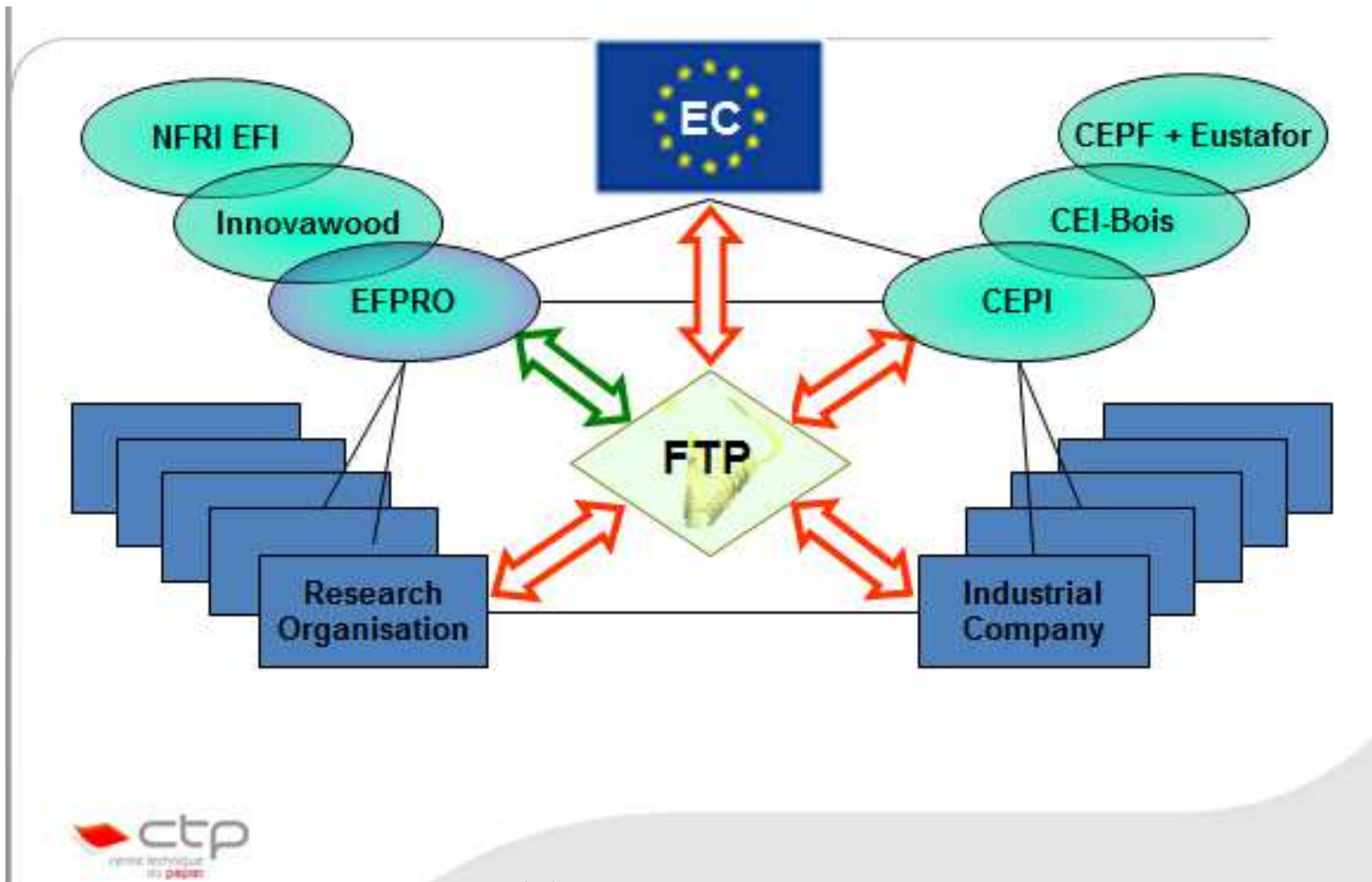
Performance

Cost efficiency



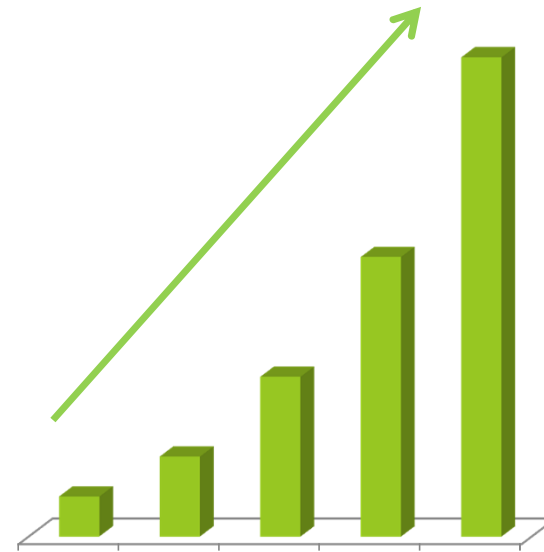
# Transition to a more sustainable society and growth

## Some key initiatives



# Paper Innovation: Reaching its limits or just getting started ?

- Paper is naturally sustainable and is a fantastic asset for a growth in a more sustainable world
- Numerous opportunities exist and the development of alternatives to fossil-based raw materials will open doors to new markets for paper
- Today's limits will be tomorrow's innovations.
- Paper future is boundless!





AHLSTRÖM  
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