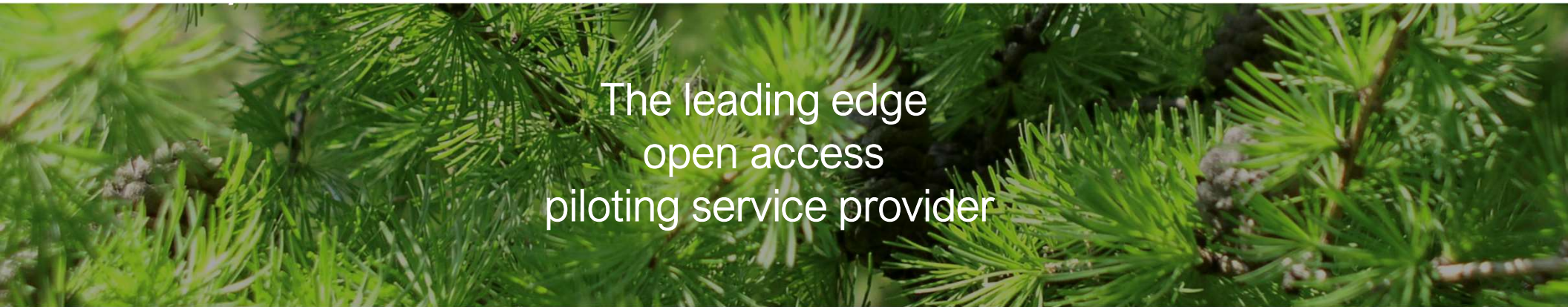


# KCL Scaling up capabilities in dispersion coating

Mikko Mensonen



The leading edge  
open access  
piloting service provider

100+ years in green transition pioneering

# AGENDA



- KCL's role in the fiber-based packaging materials development frame
- Scale up platform for the dispersion coating
- Competences through own expertise & partner network
- Latest news from KCL



## Inquiries

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# Fiber-based packaging materials development frame and KCL's role

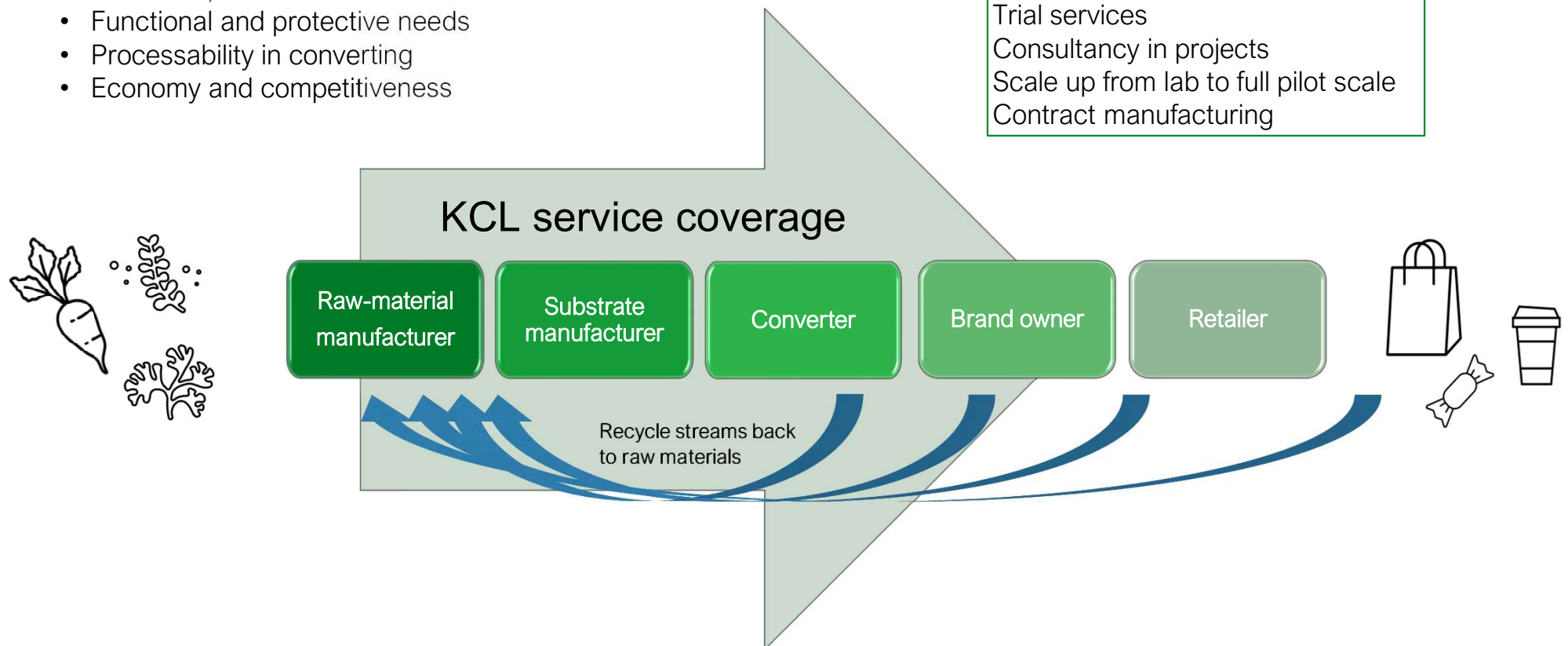


## Reasons for material development

- Regulation and brand owner / retailer requirements driving for paperization
  - SUPD, PPWR
- Functional and protective needs
- Processability in converting
- Economy and competitiveness

## KCL service models

Trial services  
Consultancy in projects  
Scale up from lab to full pilot scale  
Contract manufacturing



# KCL Scale-up platform for dispersion coating



## Industrial scale pilot

- Speed up to 3000 m/min
- Web width 600 mm
- IR and air flotation dryers



Film / Hard nip size / Spray



Roll / Jet coating



Curtain coating, 1-3 layers



## Semi-pilot

- Speed 40-100 m/min
- Web width 380-400 mm
- Various drying techniques



Flexo, sheet fed



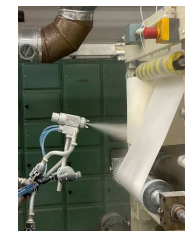
Flexo, reel fed



Roll + rod



Gravure & reverse



Spray



## Lab scale

- Speed 5-100 mm/s
- Paper size 510 x 255 mm
- Oven drying



Draw down coating



Lab scale curtain

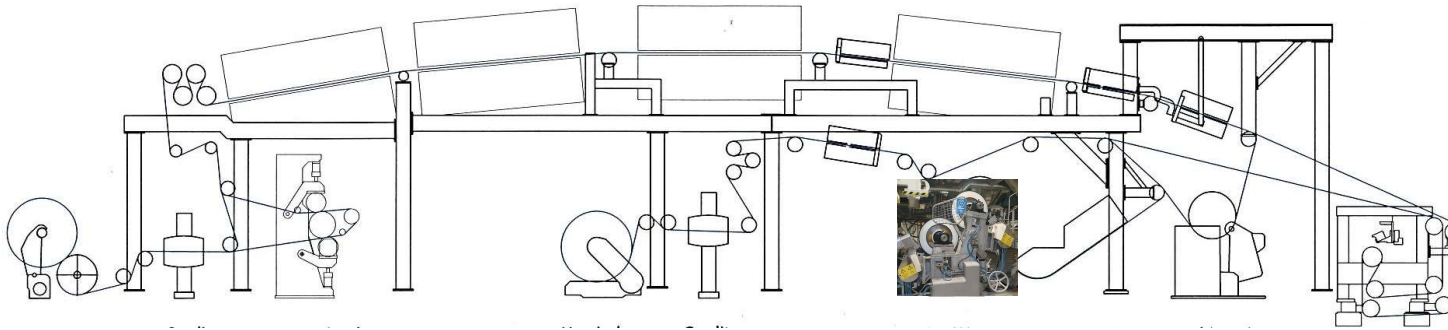


Hand spray gun

## Supported with

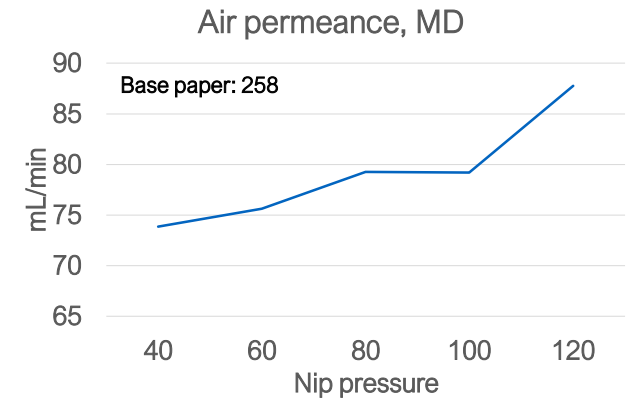
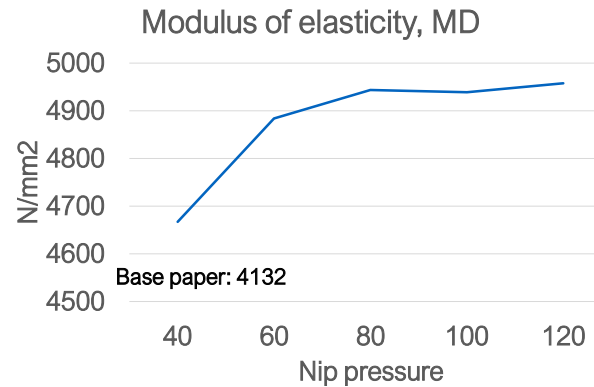
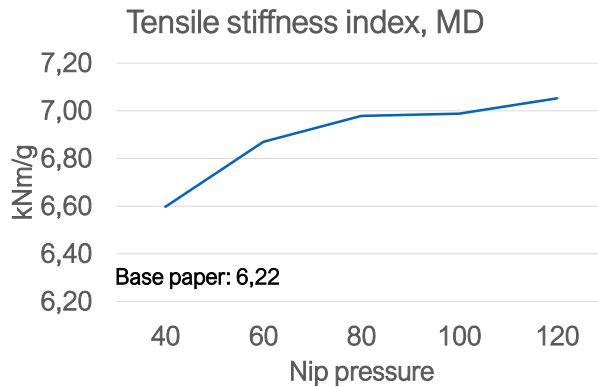
- Comprehensive laboratory testing
- Finishing: slitting of reels, sheets in custom sizes, remoistening
- Extrusion coating and lamination
- Printing

## Hard nip sizer – case example



### Trial content

- Hard nip sizer trial; nip pressure increased from 40 to 120 kN/m
- Double side application, 1,5 gsm per side
- Wheat starch, solids 22 %
- 120 gsm recycled liner base paper





# KCL – Your partner in fibre-based innovation

Competences to support coating development projects and trials



Eva Sandås

- Lic.Tech.
- Low consistency refining of fibers
- Wet end chemistry
- Board and paper structure optimization
- Trouble shooting of board and paper processes
- Laboratory management



Watti Lehtimäki

- MSc. (Tech.)
- Customer service manager
- Dispersion coating chemistry
- Barrier product development
- Paper & board manufacturing



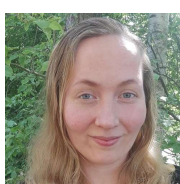
Mikko Mensonen

- MSc. (Tech)
- Printing and converting technologies
- Dispersion coating, finishing
- Paper and board end-use requirements
- Paint industry and end-use requirements
- Project management, sales and business development



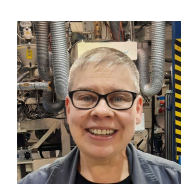
Kaarina Fagerholm

- Phil.lic.
- Chemical analysis for pulp, paper and board industry including recovery process
- Effects of different pulps and fines on the fibre network
- Wet end chemistry
- Dithionite bleaching



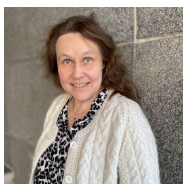
Heidi Kuha

- MSc. (Tech.)
- Project Engineer
- Testing of paper and board
- Laboratory coating
- Application testing of barrier coatings



Marikki Laamanen

- Lic.Tech.
- Paper converting and packaging technologies
- Extrusion coating and lamination
- Dispersion coating and surface treatment
- Packaging materials and structures
- Polymers as raw materials



Anu Kettunen

- D.Sc. (Tech.)
- Chemical and microbiological quality of raw materials, process waters and end products
- Development of analytics
- Project management



Nikolaos Pahimanolis

- D.Sc. (Tech.)
- Strategies for valorization
- Chemical derivatization of biomaterials
- Polymer processing, polymerization techniques
- Composites
- Scaling up from laboratory to pilot



Senja Kekki

- Customer connection for dispersion coating trials
- Process operator for paper & board
- Laboratory technician
- Biomaterial processing and enzyme technologies



Jenni Sievänen-Rahijärvi

- MSc. (Tech.)
- Laboratory refining and pulp testing
- Laboratory papermaking
- Recyclability testing and compostability
- Marketing and communications
- Project management



Minna Hilkos

- MSc. (Tech.)
- Technical sales manager
- Business development and marketing
- Project management
- Paints & coatings, tinting systems

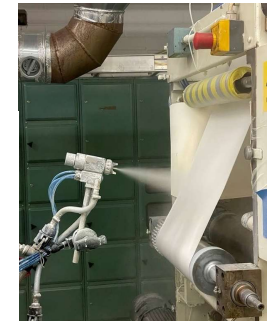
## Partner network playing an important role

- Raw-material suppliers
- Paper and board manufacturers
- Machine manufacturers
- Universities & schools (ÅA, LUT, TAU, BG)
- Laboratories
  - Food Contact Center, Italy
    - New partner offering food contact testing services, certifications, risk assessments of packaging, compliance analysis of materials etc.
  - Kymen Ympäristölaboratorio (e.g. metal analyses)
- KCL is actively participating in conferences and exhibitions, in 2025:
  - Stockholm furniture fair, BIC Match Making Event, Cellulose Fibres Conference 2025 New with Biosynthetics, 4 evergreen meetings, Interzum, European PLACE Conference, World Bio Markets Conference, Specialty Papers Europe, The International Fibre Moulding and Paper Forming Conference, PTS Coating Symposium, Sustainable Packaging Summit





# KCL – Latest News

- **Relocation from Espoo to Lohja – status 6/2025**
  - Laboratory, Coating, Printing and Finishing services already up and running in Lohja
  - Fiber and biomaterial processing services to be relocated by end of July
- **New dispersion coating application techniques**
  - Hard nip sizer in industrial scale pilot coater
  - Spray coating in semi-pilot scale
  - Curtain coating in lab scale
  - Upcoming technology updates coming, planning ongoing
- **New testing equipment**
  - Heat sealing equipment
  - Oxygen barrier testing
  - Micro plastics, method under development
- **Biocomposite granulates – new products available**
  - For large scale additive manufacturing / 3D printing / injection moulding
  - Lignin-free natural fibers -> multiple color options
  - Superior functionality, materials fully recyclable, wood-like post processing
- **Microbiology lab – new service available**
  - Culture independent microbial analysis



## Inquiries

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