



Fibres & Paper 2030 – A successful journey to an industry's future

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Fibre-based solutions for successful innovations



Founders

- VDP – German Pulp and Paper Association
- HPV – German Employers' Association of the Paper, Board and Plastics Converting Industry
- FPT – Paper Technology Research Association

Facts

- Founded in 1951
- 100 employees
- Munich and Heidenau/Dresden
- Independent and neutral

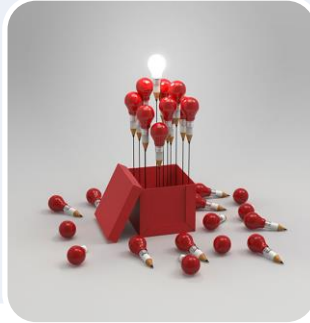
The PTS business units

Fibres & Composites



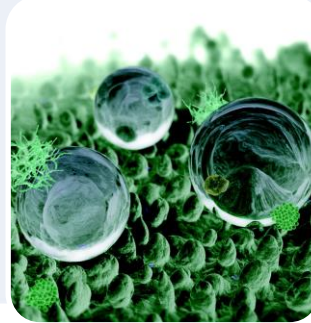
Efficient paper manufacturing
Semi-finished products and biocomposites
Developing new markets

Packaging & Conformity



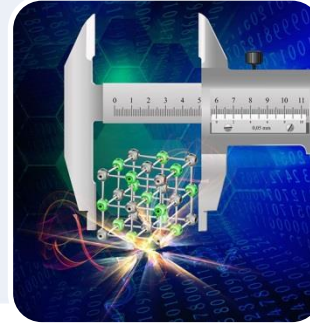
Coated barriers
Packaging with novel functions
Contact-free production processes

Printing & funct. surfaces



Functionalisation of web-shaped materials
Optimisation of printability and runnability
Surface assessment

Industry 4.0



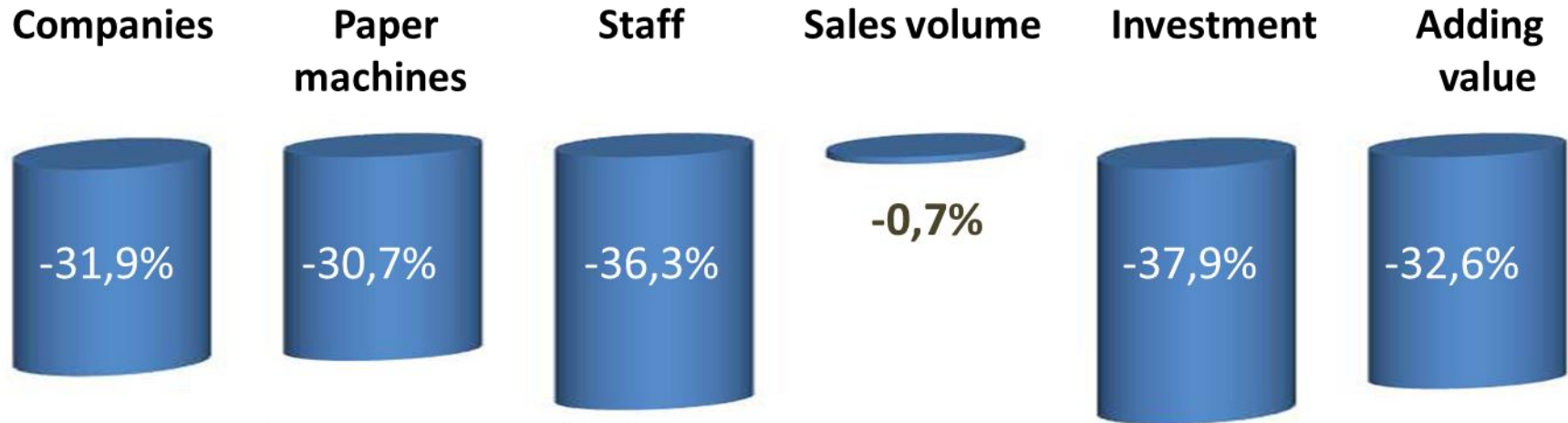
Introduction of Industry 4.0 projects
Quality assurance solutions
Automation and measuring technology solutions

Materials testing & Analytics

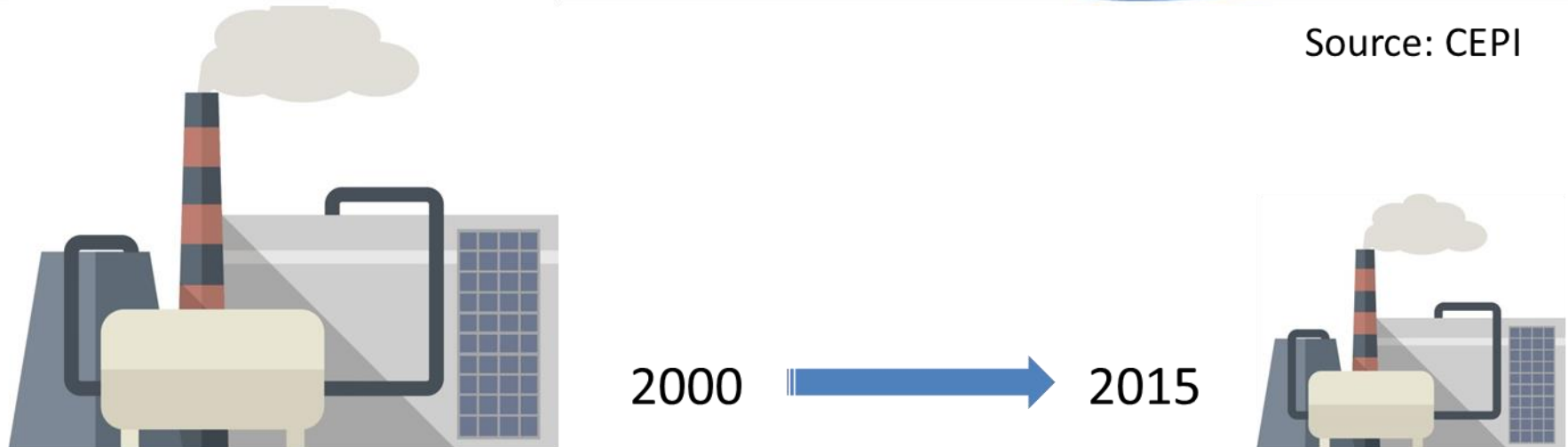


Testing services for paper and board
Handling of Complaints
Assessment of product performance

Stagnation in the european paper industry



Source: CEPI



The differentiation of segments is increasing

2014 → 2015

-3,8 %



+2,2 %

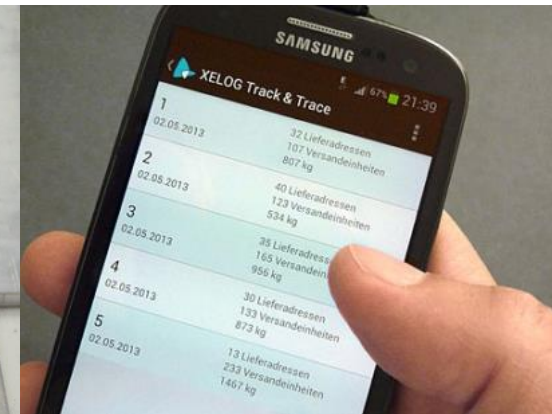
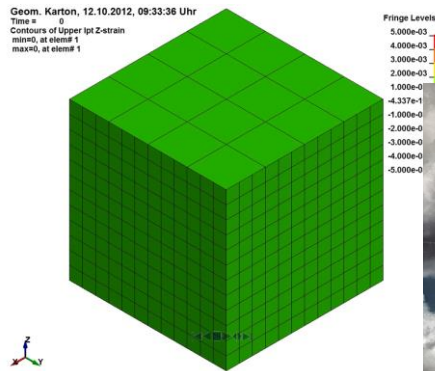


+2,6 %



Innovations in traditional applications: Corrugated board

- Increase of dimensional stability
- Development of lightweight papers
- Smart packaging with anti-theft protection and Track&Trace functions
- Modern Packaging coding (Datamatrix-Coding, 3D-Coding, ...)



“Fibres & Paper 2030” – A joint project for the future

Paper & Fibre World 2030 A joint project for the future

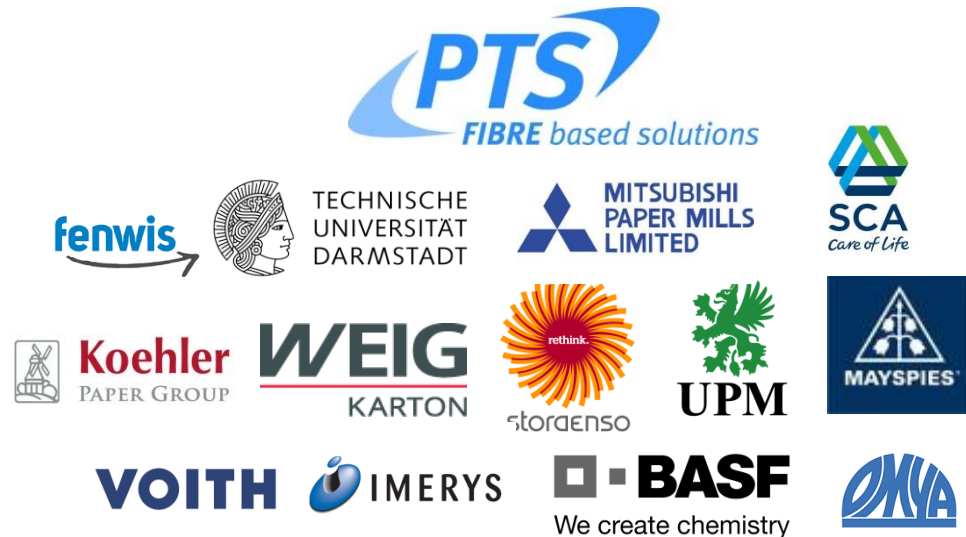


Best conditions: In a future global bio-economy, the demand for sustainable, bio-based economic concepts will grow steadily!!

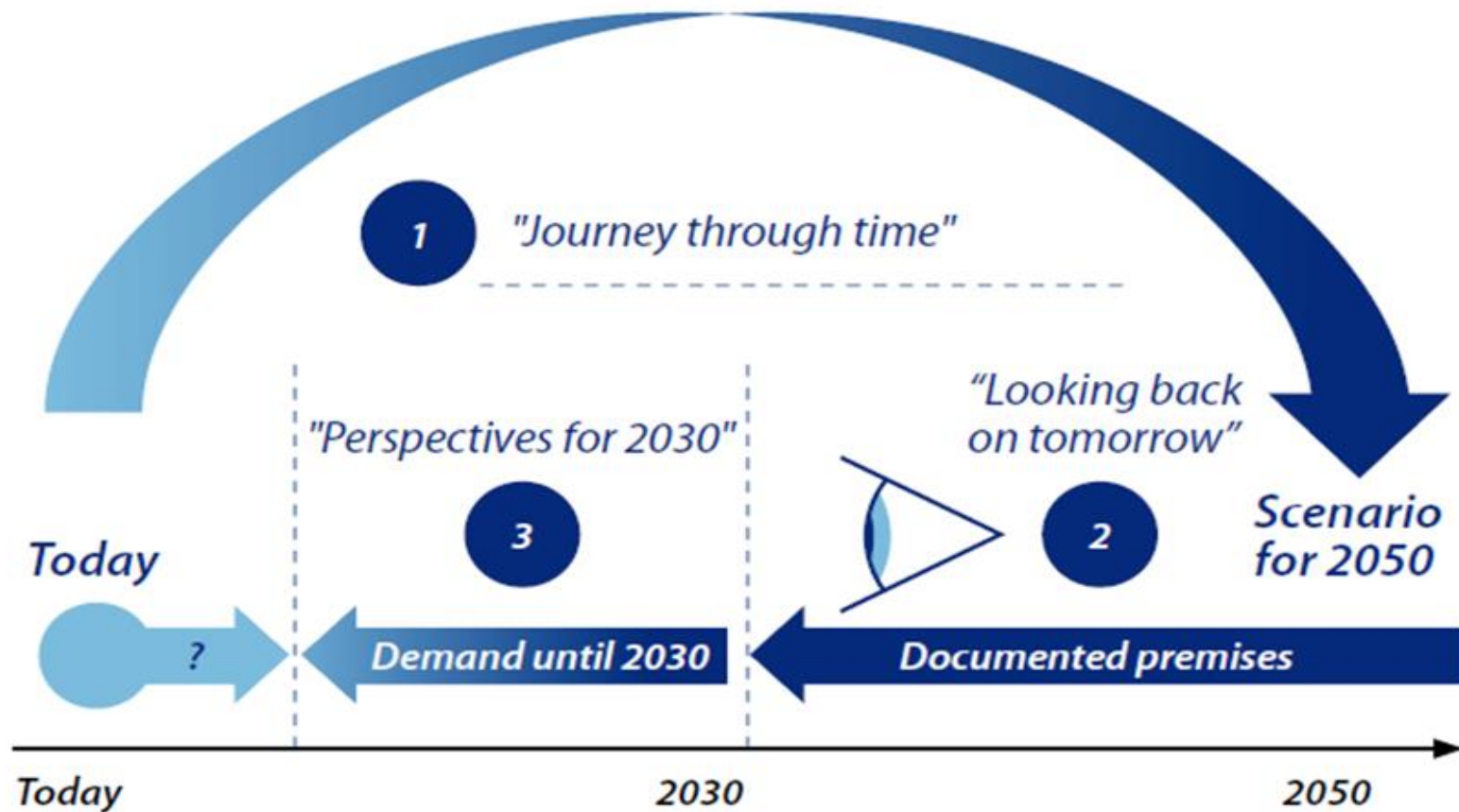
Project team:

Project objectives:

- Shaping the future with paper
- Planning ahead for tomorrow's customer requirements
- Identifying new high future value-added markets and business segments for fiber-based materials



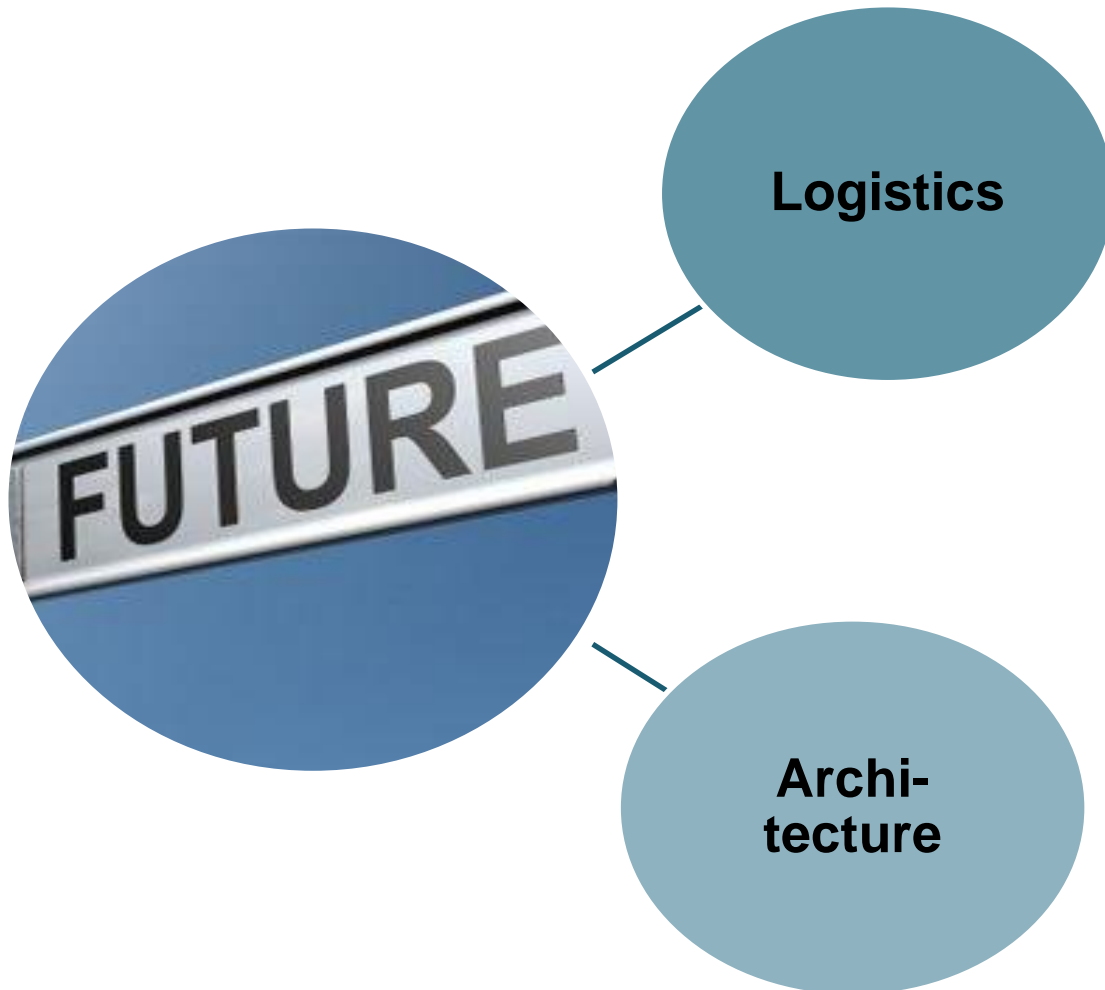
Method of retropolation: Travelling through time to the day after tomorrow to look back on tomorrow



8 thematic areas for the „paper of the future“

Nutrition	General conditions	Living & working
Health & Hygiene	8 thematic areas	Future cities & Architecture
Mobility	Information, communication, education, knowledge (ICEK)	Logistics

The first PTS-steps towards fibre-based materials of the future

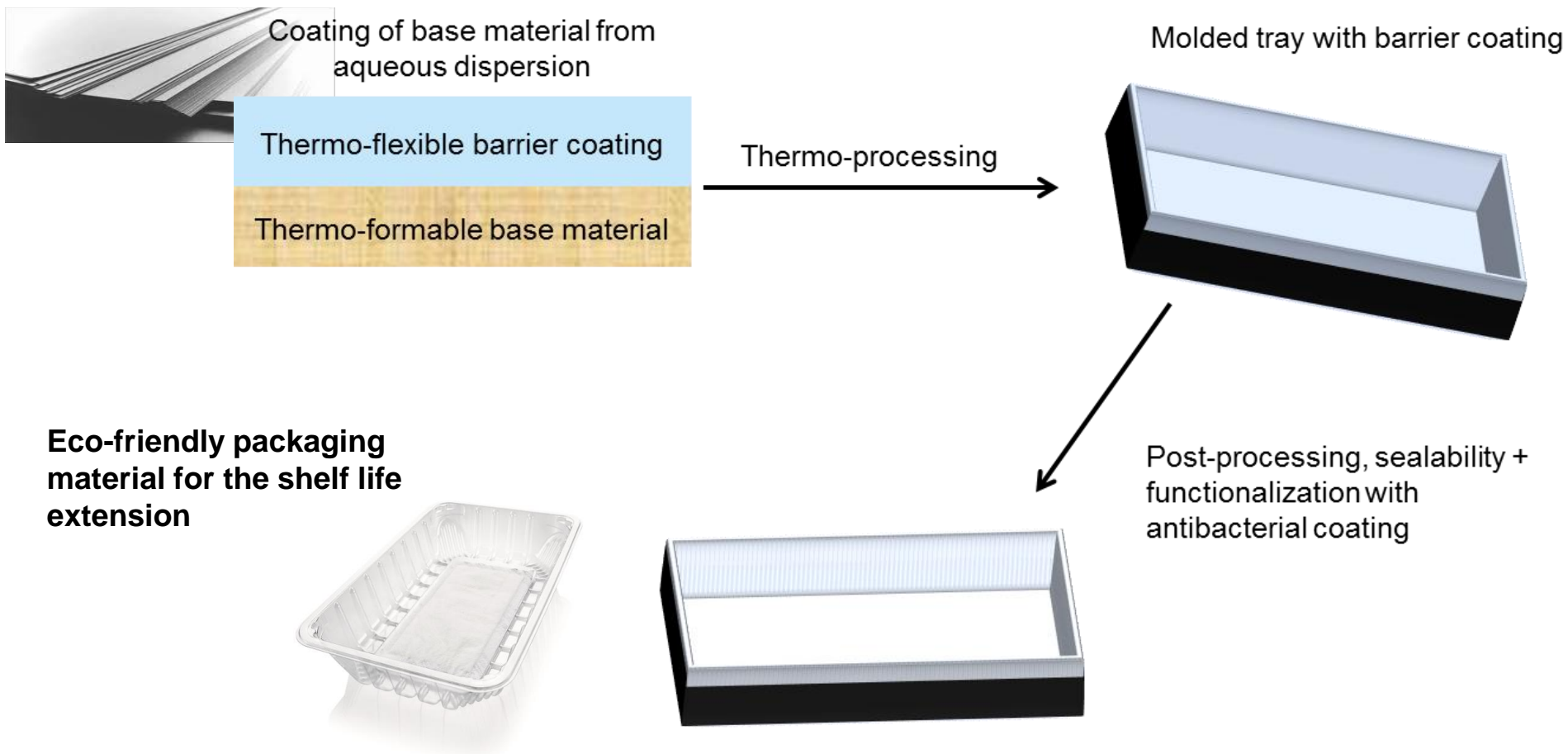


Thematic area “Logistics”

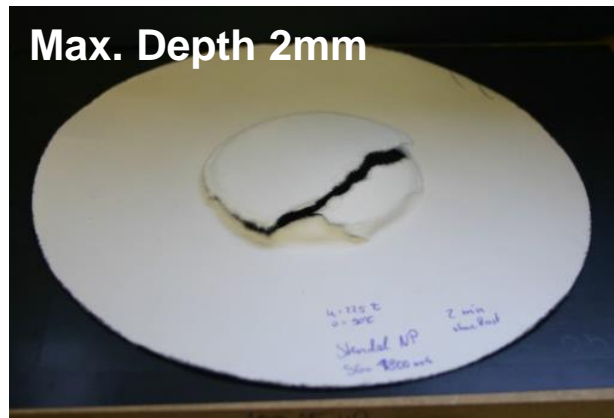
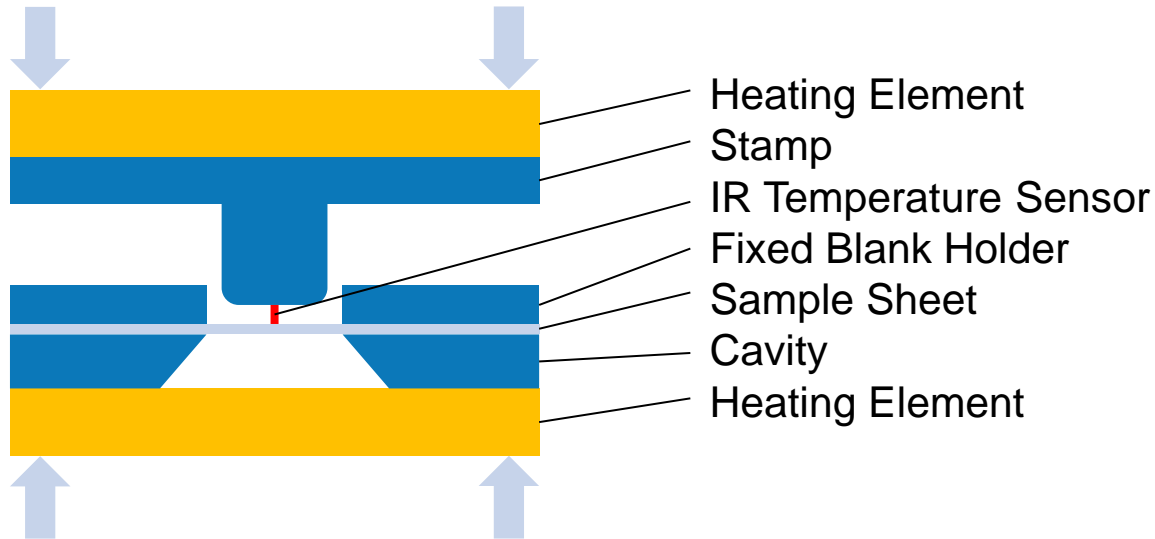
- **Product/brand-specific use of multisensory packages (appearance, feel, fragrance, acoustics).**
- **Socio-demographic trends have made convenience a key quality criterion in packaging.**
- **Modular and functional packages with extra (SMART) functions like freshness sensors and indicators, antibacterial surface finishes, cooling effects or RFID tracing functions.**



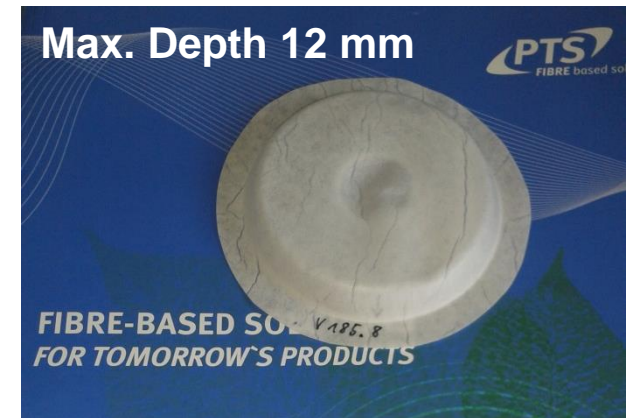
ACTIPOLY: Development of thermo-formable packaging materials




Thermoforming of Chemically Modified Paper



Chemical Modification



Surface upgrading with barrier layers

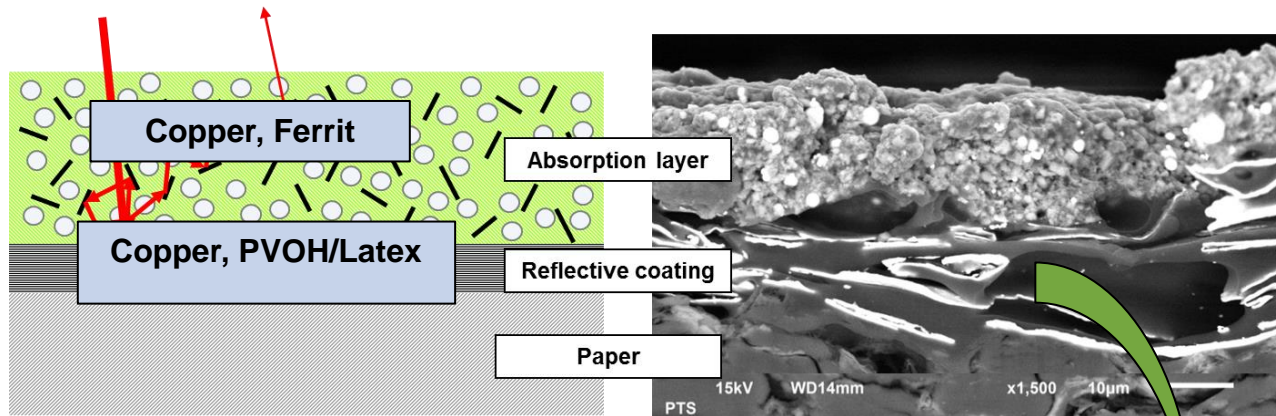
- 
- **Single-layer structure**
(water, oxygen and oil barrier in one layer)
 - **Two-layer structure**
(1. Layer: water barrier; 2. Layer: oxygen barrier; 1. and/or 2. Layer: oil barrier)
- => EVOH, Wax Dispersions, Starch, Acrylat-Dispersions, ...

Thematic area "Future cities & Architecture"

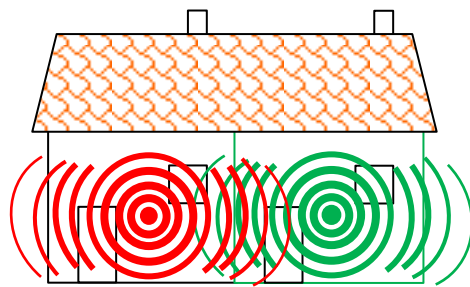
- **Megacities are most efficient living spaces – thanks to their modern mobility concepts, high energy efficiency and degree of land utilisation.**
- **Sustainability considerations have led to increased rainwater use, separate supply systems for drinking and process waters, geothermal power generation in buildings.**
- **Buildings and infrastructure are important elements of local energy generation from renewable resources – e.g. photovoltaic arrays, wind power and algae production on or in facades.**



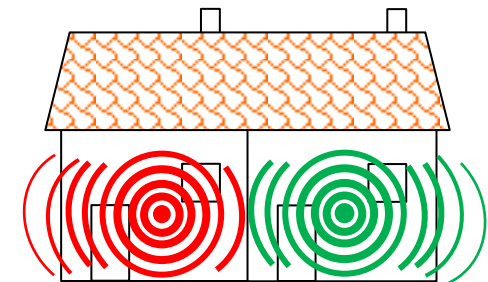
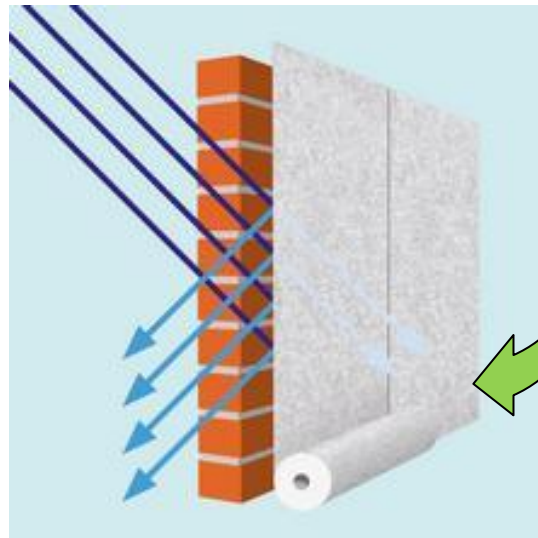
Development of shielding papers (1/2)



- Price: < 3 €/m²
(commercial copper wallpaper ≈ 22 €/m²)
- Shielding ≤ -50 dB

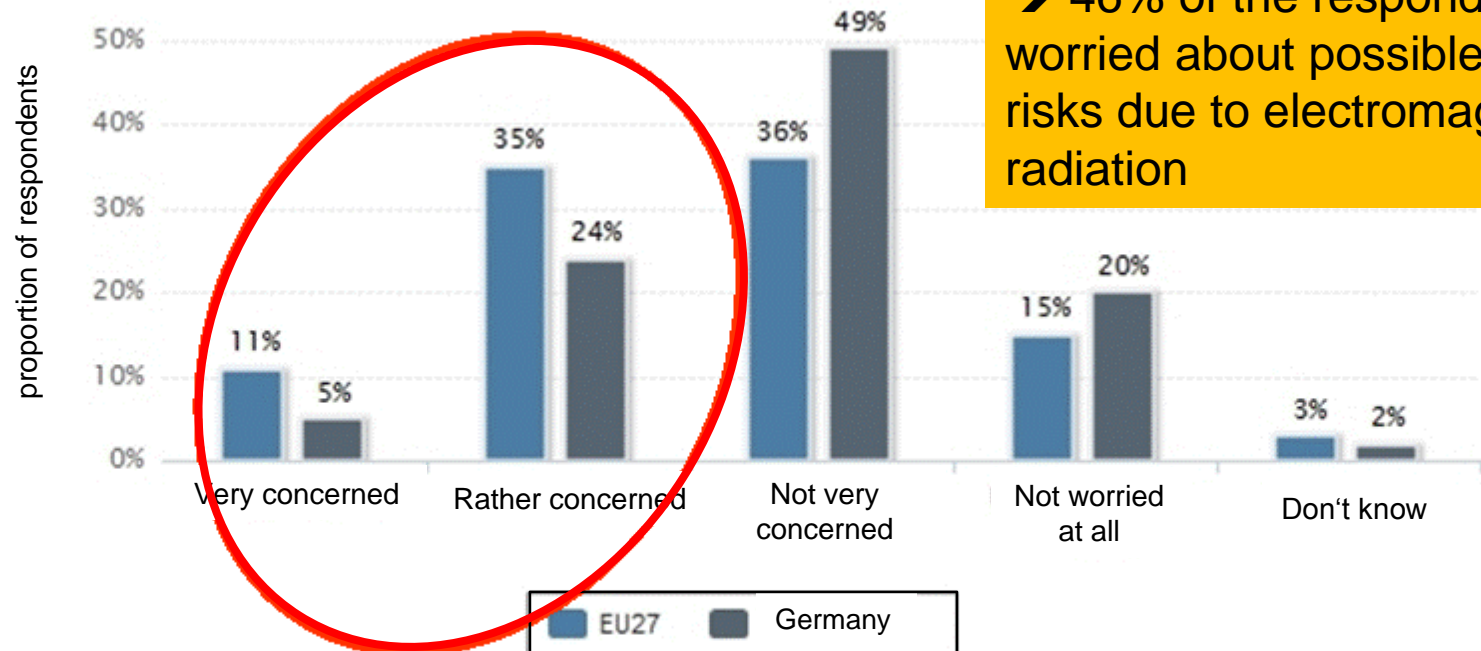


Without shielding:
Wi-Fi signals interfere
→ Worse Wi-Fi reception



With shielding:
Wi-Fi signals cannot interfere
→ Good Wi-Fi reception

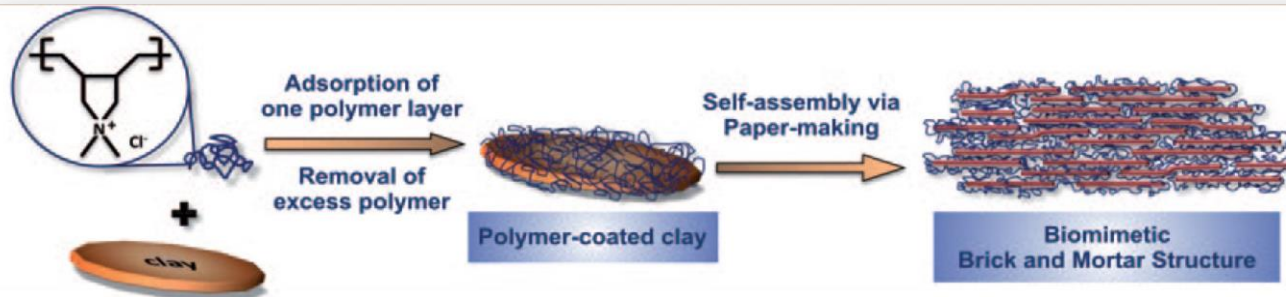
Development of shielding papers (2/2)



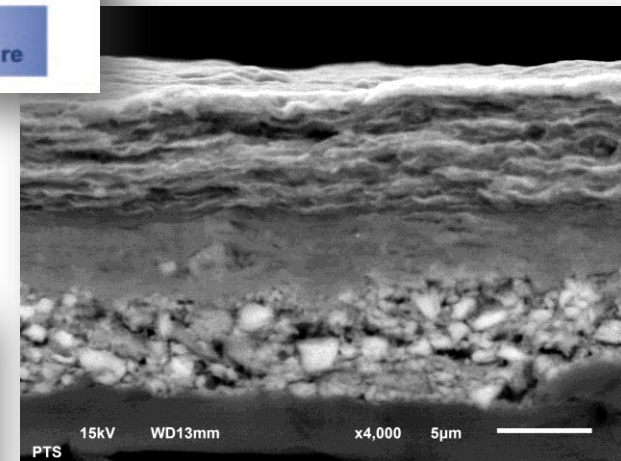
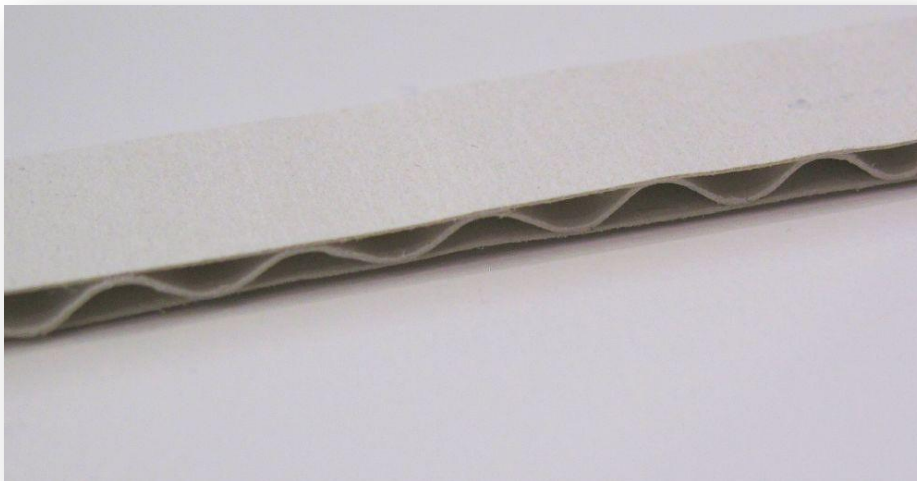
Europe; age of 15 up; 26.602 surveyed persons;
TNS Infratest; 12.03.2010 till 01.04.2010

Source: European Commission

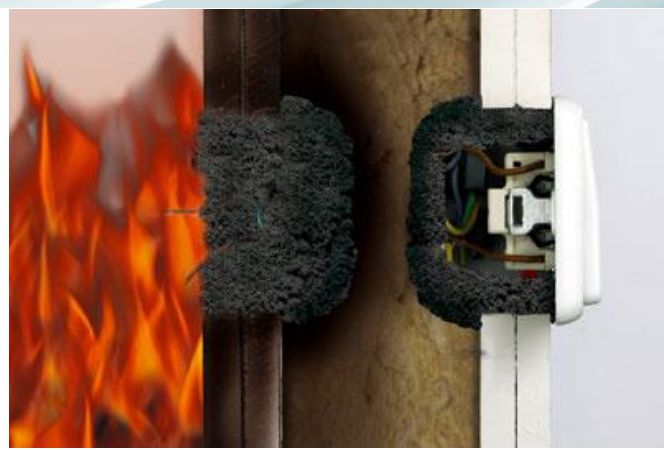
Development of non-flammable corrugated boards (1/2)



Development of non-flammable corrugated boards with intumescent, flame-retardant and heat protective layers



Development of non-flammable corrugated boards (2/2)



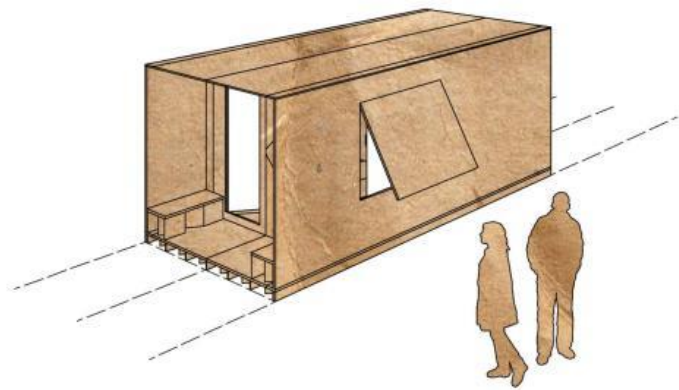
Fire barriers between walls



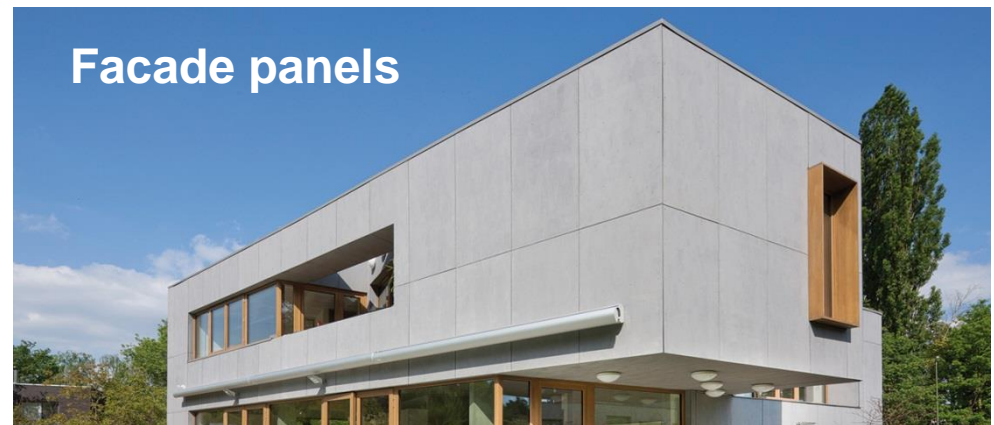
Ceiling linings



Partition walls



Instant Homes



Facade panels

Future preview 2030...is it really possible?



FIBRES & PAPER 2030
Shaping a sustainable future



<http://www.fibre-paper-2030.com/>

- Publications in national and international paper-based journals
- Intersectoral PR campaign
- Networking



München und
Oberbayern

bayern  innovativ

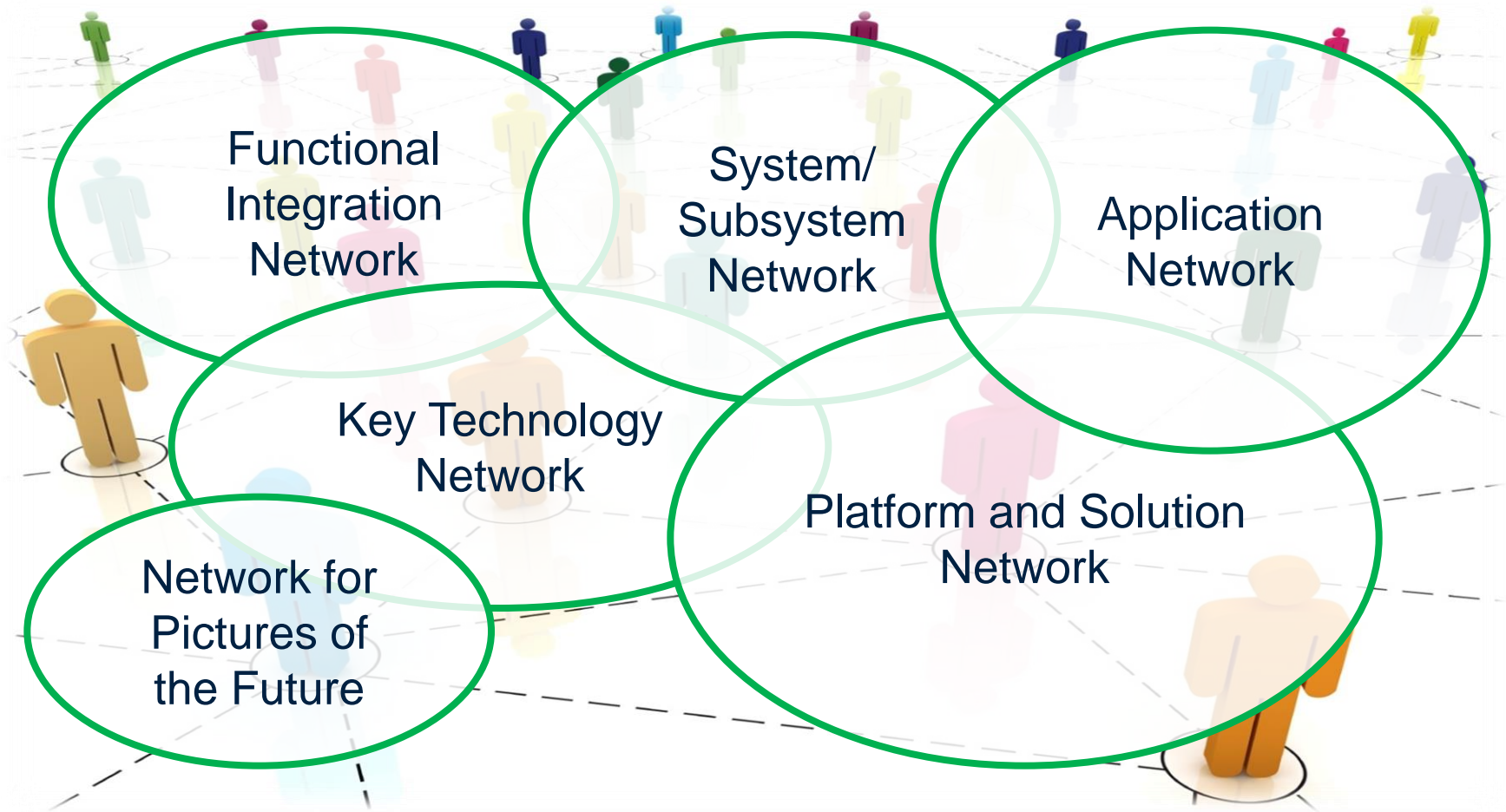


HESSEN

TRADE & INVEST

Maxim: „Doing what's thinkable instead of thinking what's doable“

Successful network activities will be multi-dimensional



Source: <http://www.kilory.com/wp-content/uploads/2012/02/sharing.jpg>

Seven conclusions for future-proof enterprises

- **Think in future scenarios** – to discover more opportunities than risks
- **Leave the comfort zone** – long before you are forced to do it
- **Use concepts of functional integration** to establish new customer benefit
- **Use networks and multidisciplinary** as drivers for innovations
- **Prepare cooperations** with system partners, suppliers, researchers
- **Create advantage in knowledge** to discover profitable niche markets
- Play an **active role** to ensure the **future availability of skilled labor**

Motto: Realize visions ... for a sustainable future ...!

Summary

- “Fibres & Paper 2030“: **Important impulses** for the paper industry
- Paper as an innovative material will form an **integral part** of everyday life!
- PTS is working on **innovative solutions** towards architecture, logistics and other thematic areas:
 - *Thermo-formable packaging materials*
 - *Shielding papers*
 - *Non-flammable corrugated boards*
- You are invited to **join our steps in the future!**



Thank you for your attention!

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