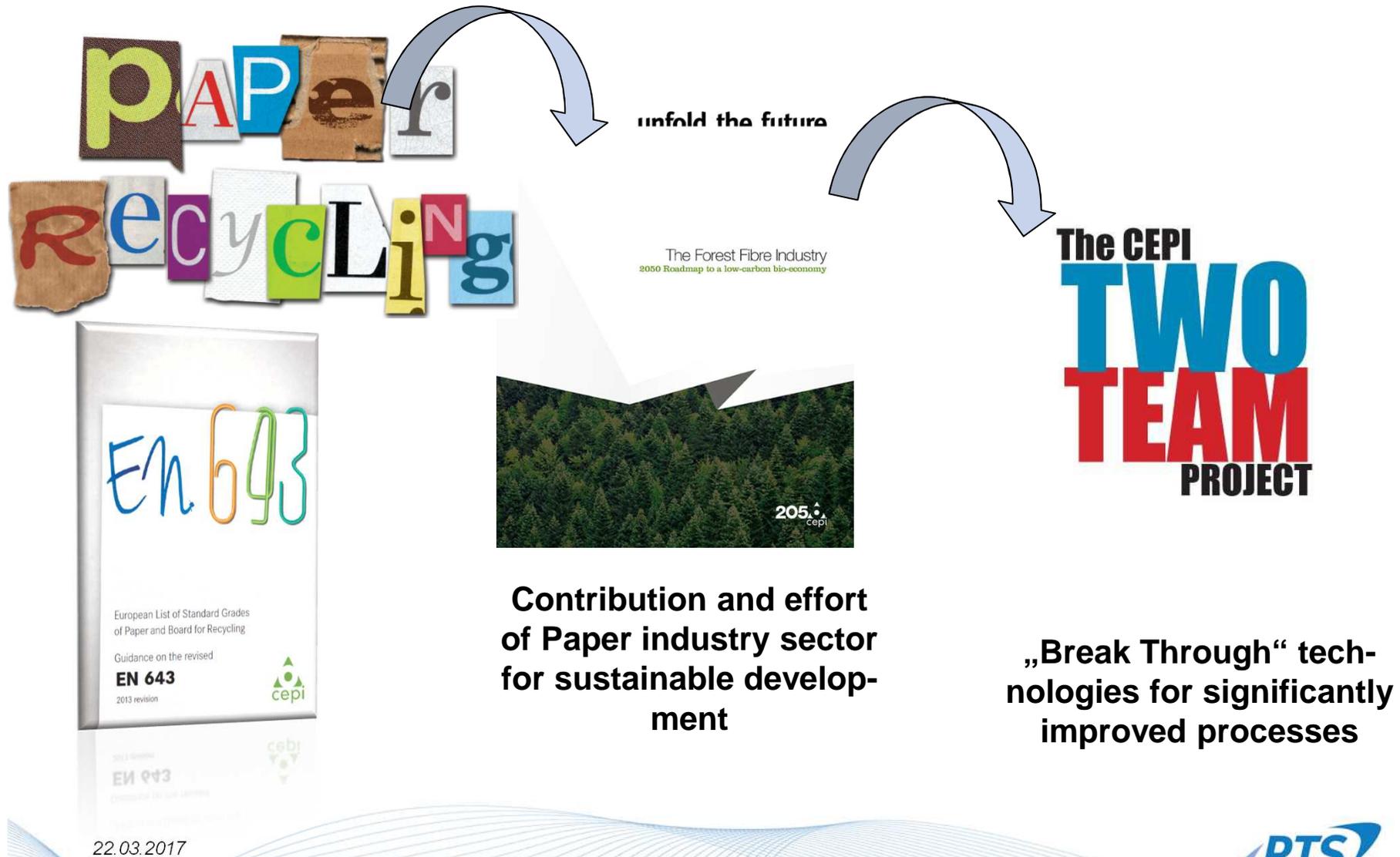


**Finance for Innovation Workshop  
Brussels, March 23, 2017**

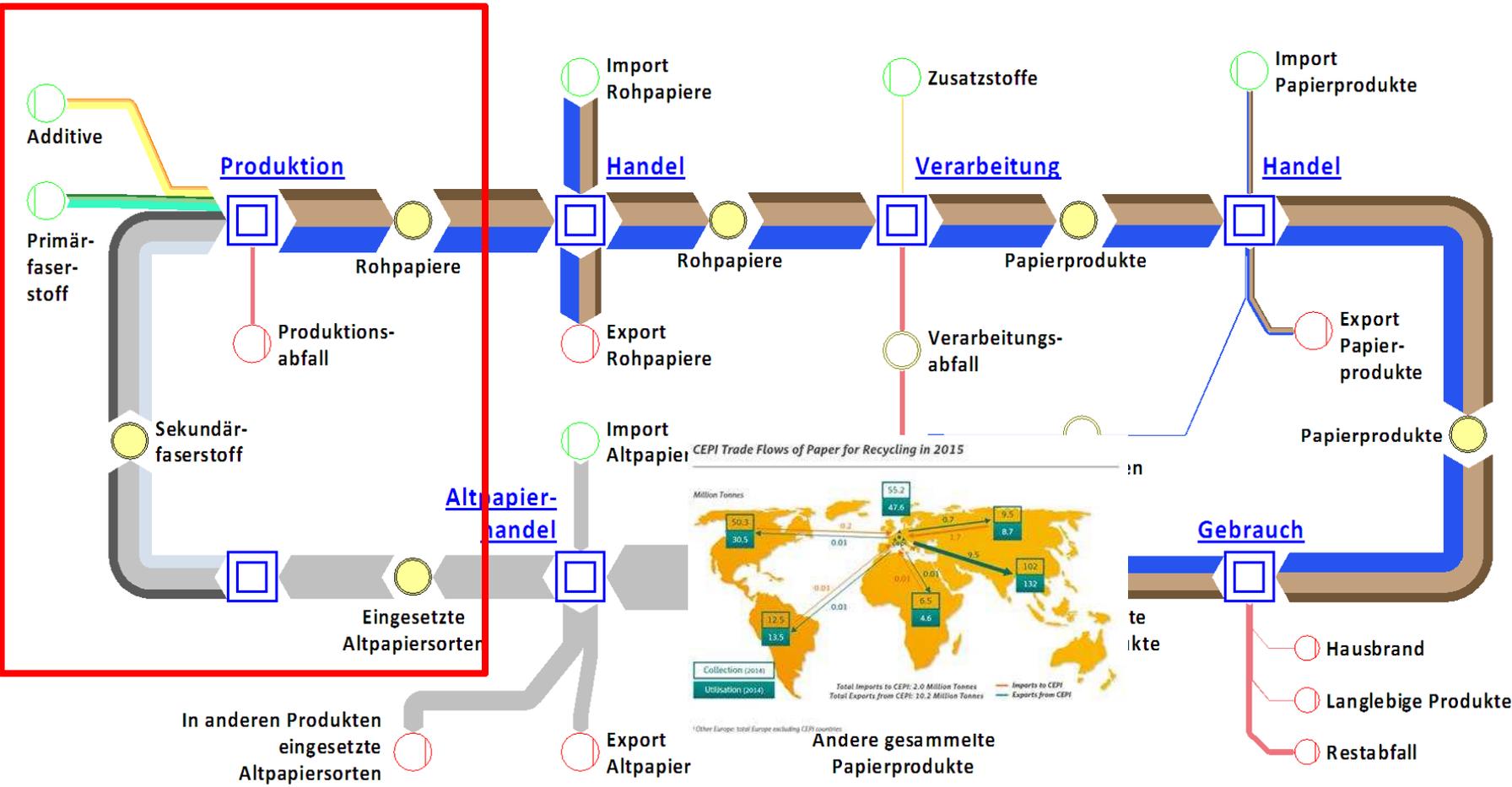
**Circular Economy by new Recycling  
of paper**

Frank Miletzky, PTS, Germany

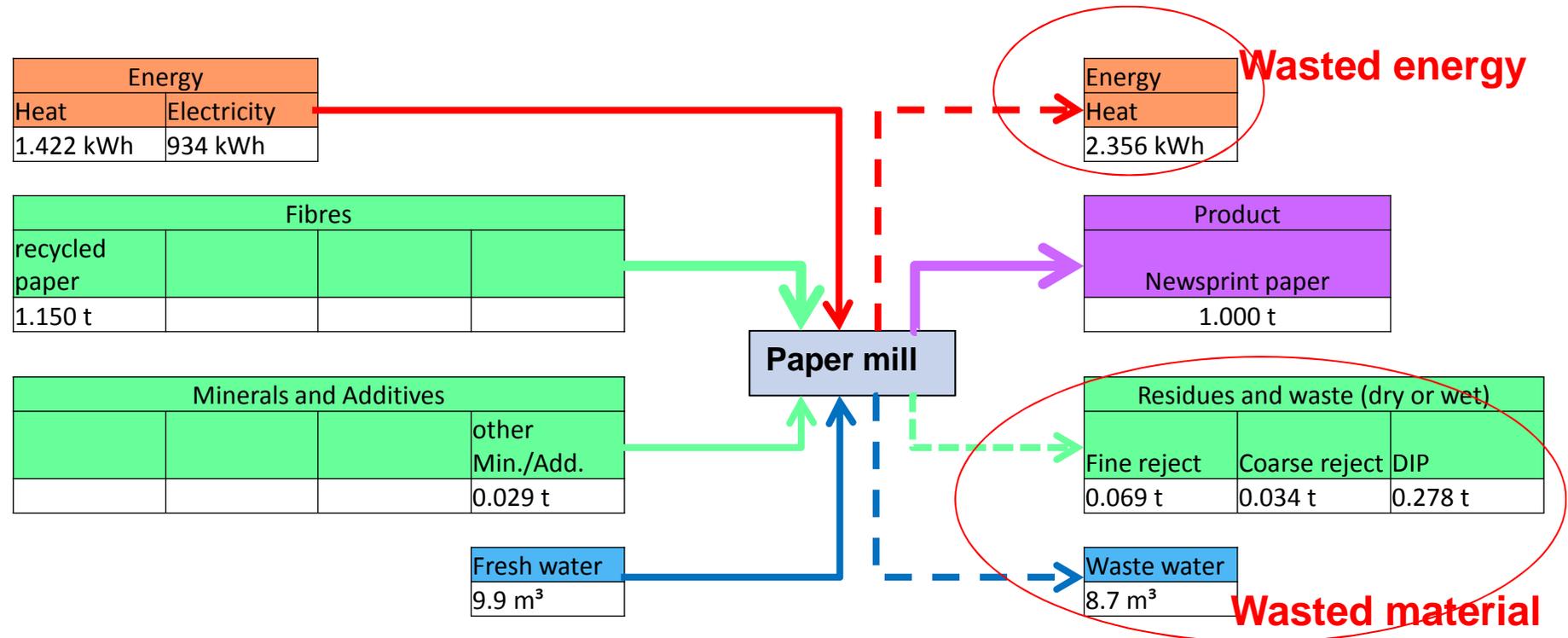
# The strategic approach of the paper sector in Europe



# The fragmented paper loop



# Mass & Energy Input/Output of a Newsprint paper mill

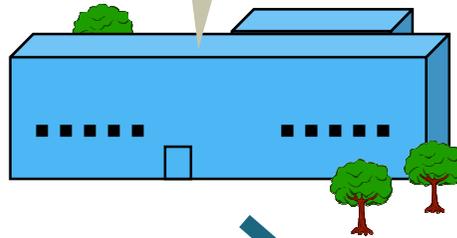


- Wasting about 20 % of the input material plus wasting energy gives serious concern in terms of sustainability
- Revenue from commodity product Newsprint paper has to pay all cost for losses and treatment of residues
- Appr. 40 % of total investment dedicated to handle complexitiy

# Urban refinery – one key element of Circular Bioeconomy

- ⚙️ New refining, cleaning & fractionation technologies
- ⚙️ Utilization of all components (NO WASTE)
- ⚙️ Elimination of contaminants
- ⚙️ Cross-system data management & control (I4.0)

Standard PfR and ... →  
Paper composites →  
Urban collection close  
to mill  
(Urban Symbiosis) →  
Local commercial  
wastes  
(Industrial Symbiosis) →



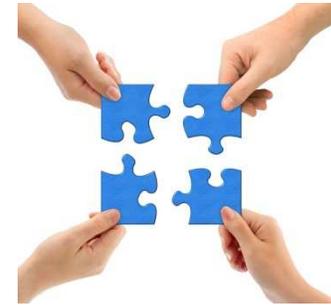
RCF pulp types:

- Use-oriented  
(e.g. ±ash ±lignin ±kraft)
- Well-defined,  
guaranteed quality
- Certified for conformity

NO! By-products but dedicated  
Recycling and Biorefinery of all  
components including energy

# Urban Refinery – Benefits for paper sector

- ✓ More added-value from Paper for Recycling
- ✓ Integrated process – instead of fragmented machining
- ✓ Paper mills: Focus on core business, less capital bound, less energy invest
- ✓ Energetic and economic optimum through
  - Best-suited technologies in a reasonable scale
  - Cross-process control
  - Added value from all products and energy integration
  - Best use of fibres available & new fibre sources
- ✓ Boosting a Europe-wide circular economy

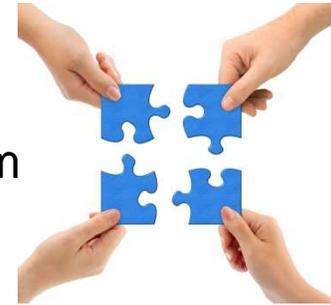


# Urban Refinery

## Major steps forward

- ✓ **Business Model**

Main driver, participants, possible joint benefits from the system  
I4.0 aspects; Licencability & regulatory aspects (systems engineering, waste regulations a.o.)



- ✓ **Technology plan**

Assembling economic feasible technological steps from mature and innovative solutions; Pilot Plant construction & operation

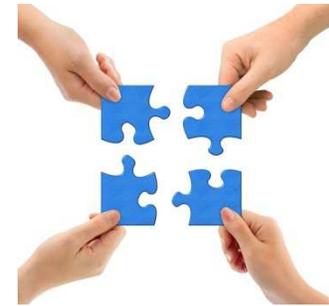
- ✓ **Certification system**

develop & establish a certification approach for well defined quality and conformity

# Urban Refinery

## Major steps forward

- ✓ Business Model  
1 year / 1 m€ major part from public funding
- ✓ Technology plan  
3...4 years / 2 m€ + 15 m€ for Pilot plant, PPP
- ✓ Certification system  
1 year / 1 m€, PPP



# Papiertechnische Stiftung ...



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Thank you for your attention!

22.03.2017