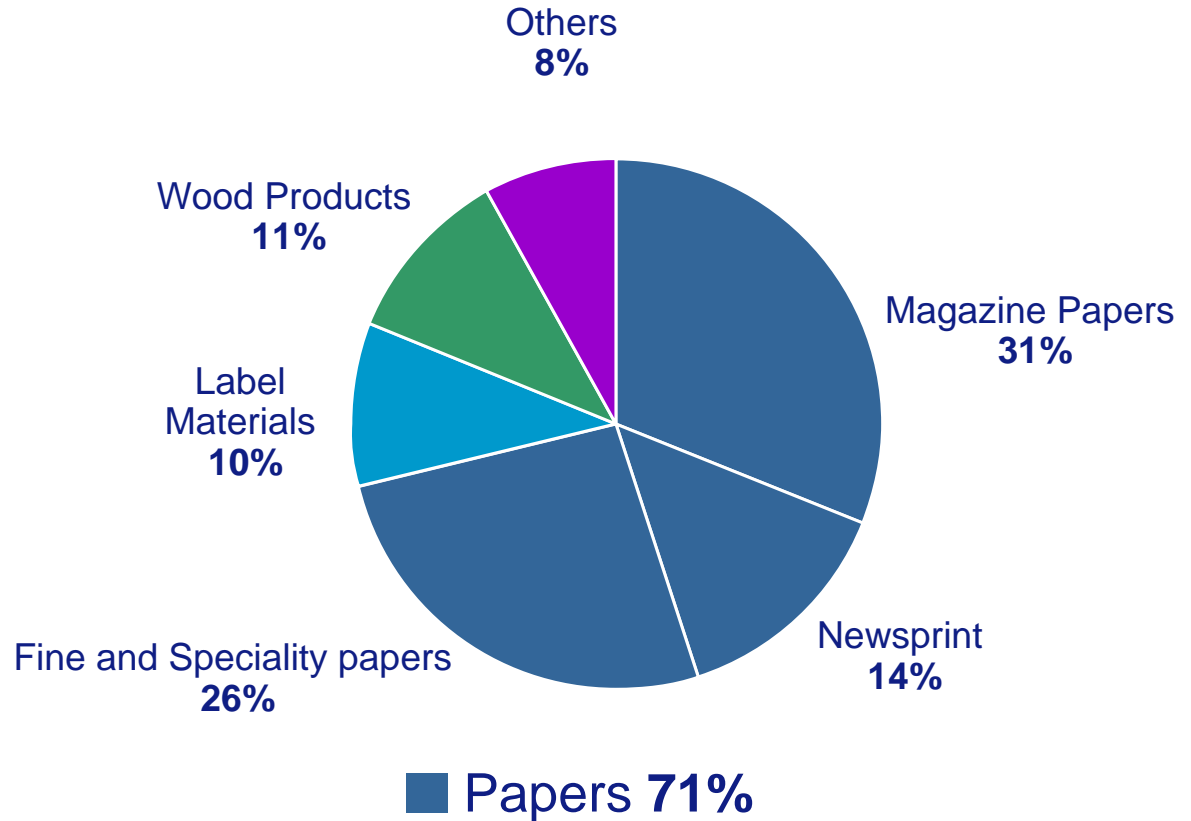


Possible end use areas and products

Timo Koskinen, Director, External relations
UPM-Kymmene Corporation, 14.2.2008

UPM – Sales by division € 10,035 million in 2007

UPM sees that the potential to convert pulp into value added products is enormous.



End use areas and products

Potential end uses

Utilization potential of nanofibrillated cellulose

- own paper products,
- other process industries,
- existing and novel composites
- nanomaterial additives (food, cosmetics, pharmaceuticals)
- porous cellulose materials
 - absorbents
 - insulators
 - filters



End use areas and products

Time schedule

Laboratory scale testing 1-3 years

- Pilot scale production within 3-5 years from now. When pilot scale works well and the most promising applications have been found the next step will be;
- Production of basic nanofibrillated cellulose and tailoring of products to specific applications can be started 5-8 years from now.

