



storaenso

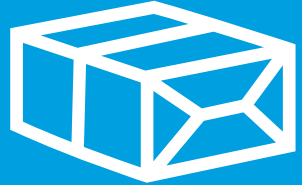
Biomaterials – differentiating and creating new platforms for profitable growth

Juan Carlos Bueno, EVP, Biomaterials

Do you know?



We have the **widest pulp grades portfolio** in the market



Only **18%** of our external market pulp sales are geared to the **graphic paper market**



We are **fully contracted** in **dissolving pulp** for next three years



We are the **largest fluff pulp producer** in Europe



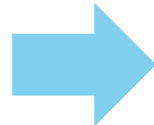
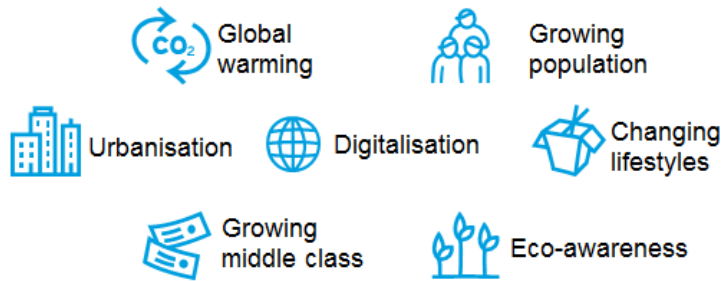
There is much more potential in lignin beyond the resin market



Biomaterials – strengthening current business and creating new profitable growth



Global trends enhance the demand for sustainable pulp fibres



**Textiles, non-wovens
+4.4%/y
(dissolving)**



**Hygiene +3.6%/y
(fluff)**



Tissue +2.9%/y



**Cartonboard
+2.1%/y**



Paper -3%/y

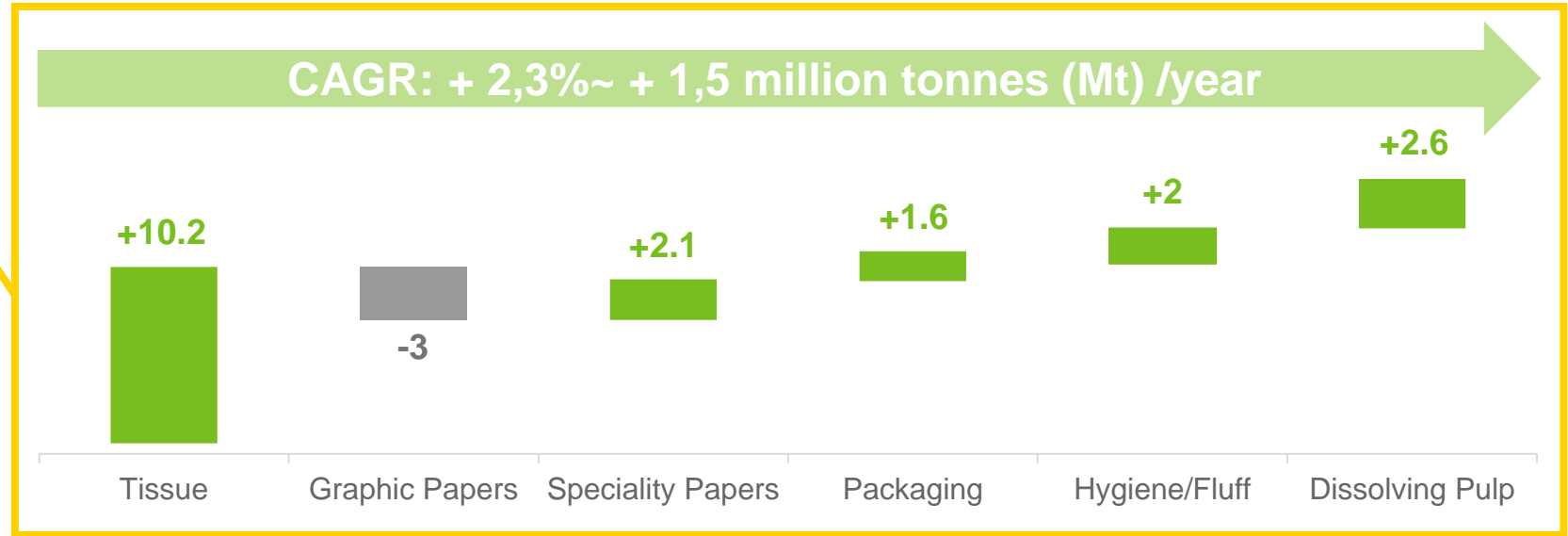
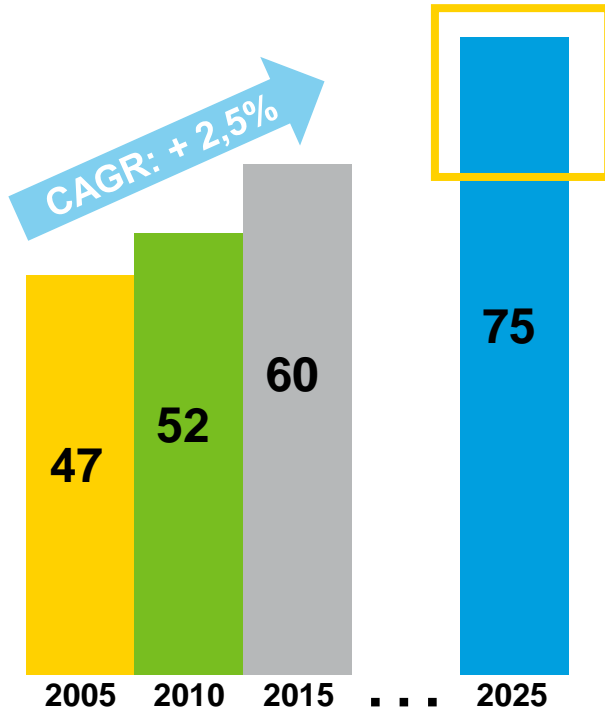
To 2025...

Source: Pöyry Consulting Group, Hawkins Wright, Smithers Pira

Pulp demand keeps growing, especially in segments selected in Stora Enso strategy



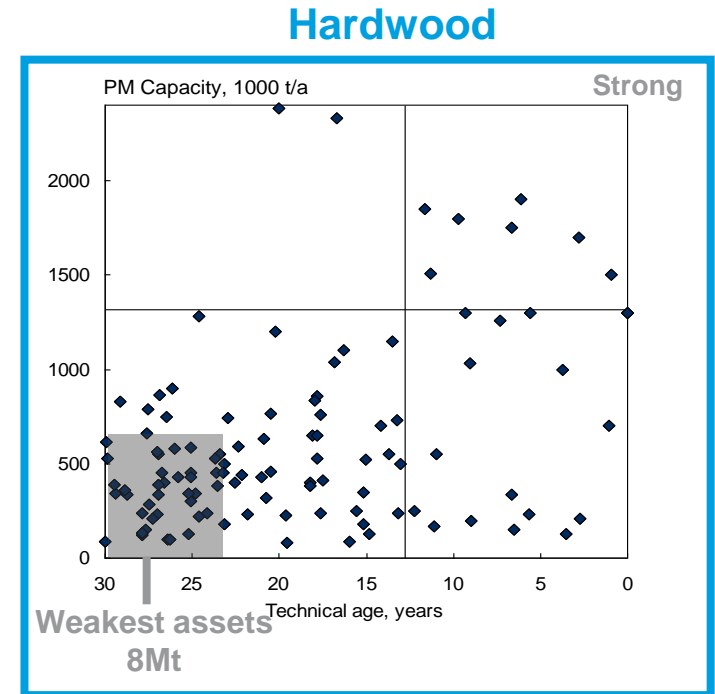
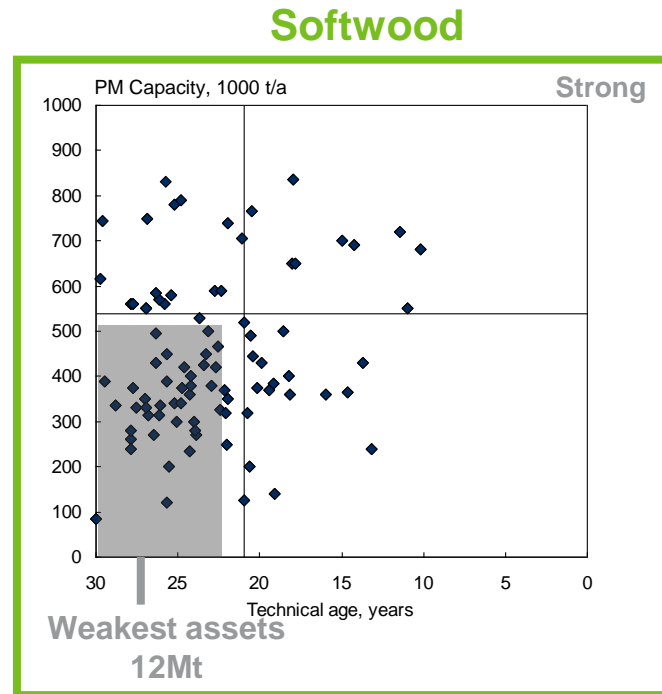
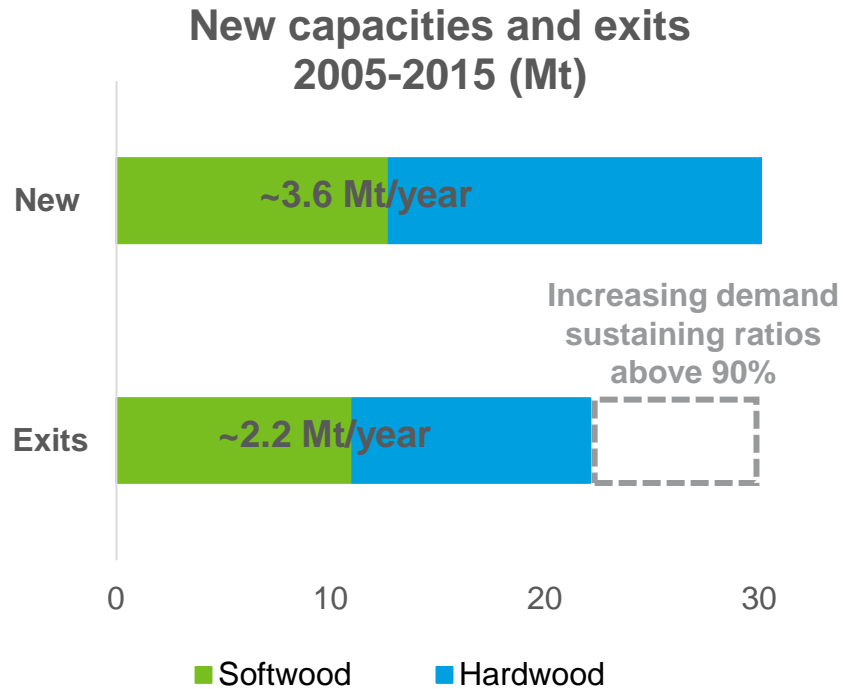
Pulp demand to 2025 in million tonnes (Mt)



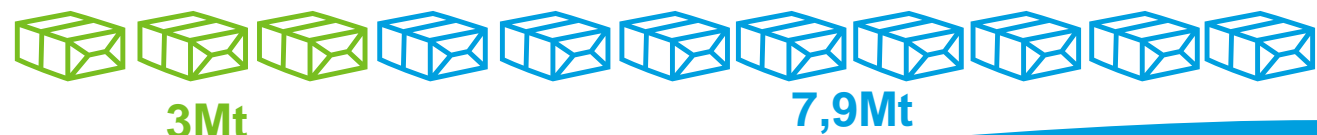
Grade	Mt
Hardwood	9.7
Softwood	1.2
Fluff	2
Dissolving Pulp	2.6

Source: Hawkins Wright, Pöyry, Stora Enso

Pulp market expected to remain balanced – new capacity added, old disappearing



New capacity growth 2016-2020*: 11Mt (2.2 Mt/year)



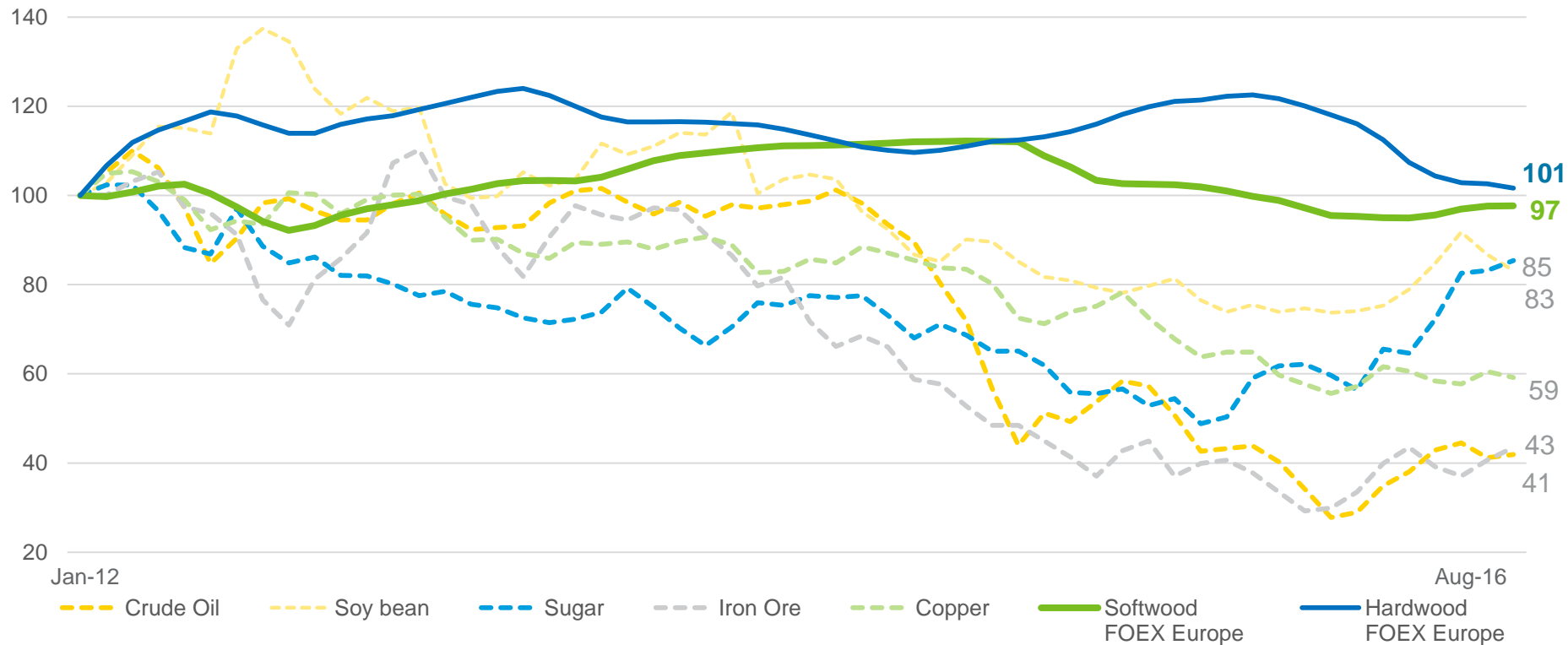
Source: Pöyry, Hawkins Wright, RISI

* Based upon existing capacity announcements

Pulp outperforming other commodities – even with new capacity

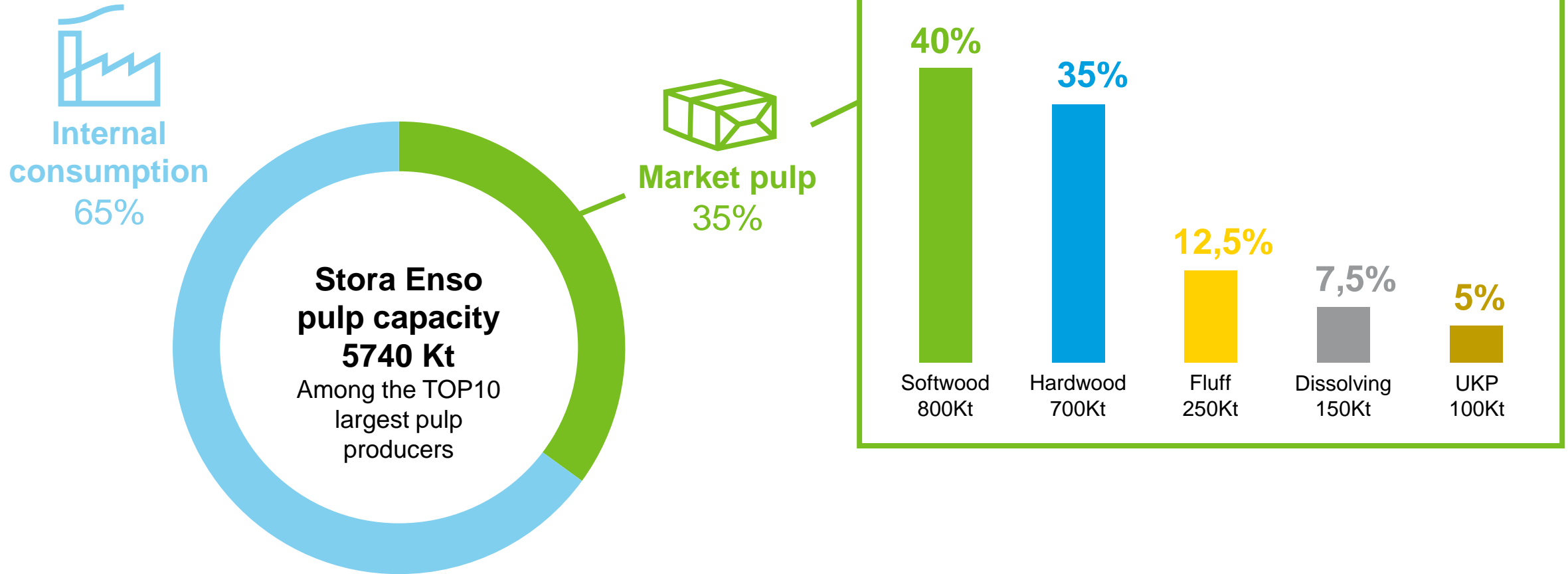


Price index
Pulp vs Commodities

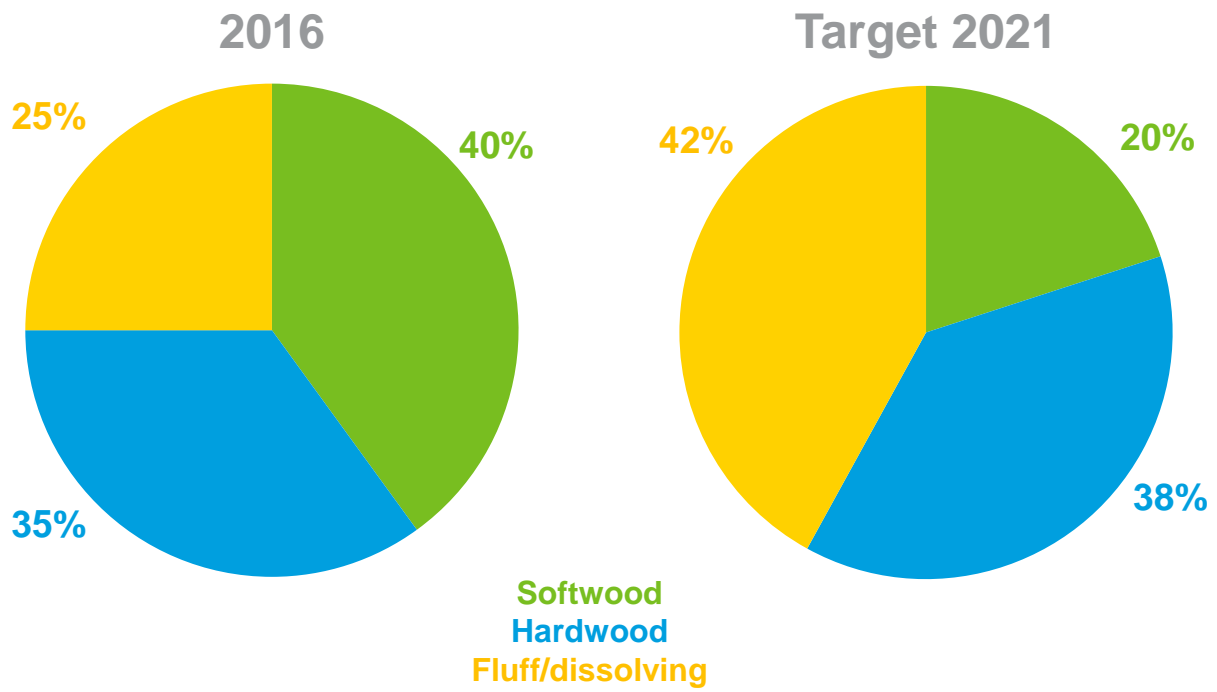


Source: World Bank, FOEX, Pöyry

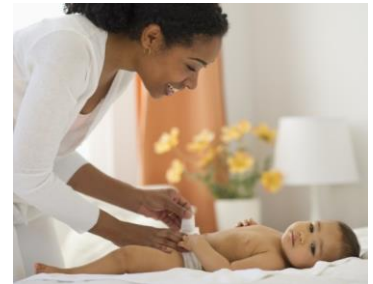
Stora Enso offers the widest pulp portfolio in the market



Strategic direction: Improving our pulp mix to differentiate business and improve margins



Reduce exposure in the **softwood** segment



Grow in the **fluff** and **dissolving** pulp segments through conversions



Extract additional **value** from **hardwood**

From wood to bio-chemicals

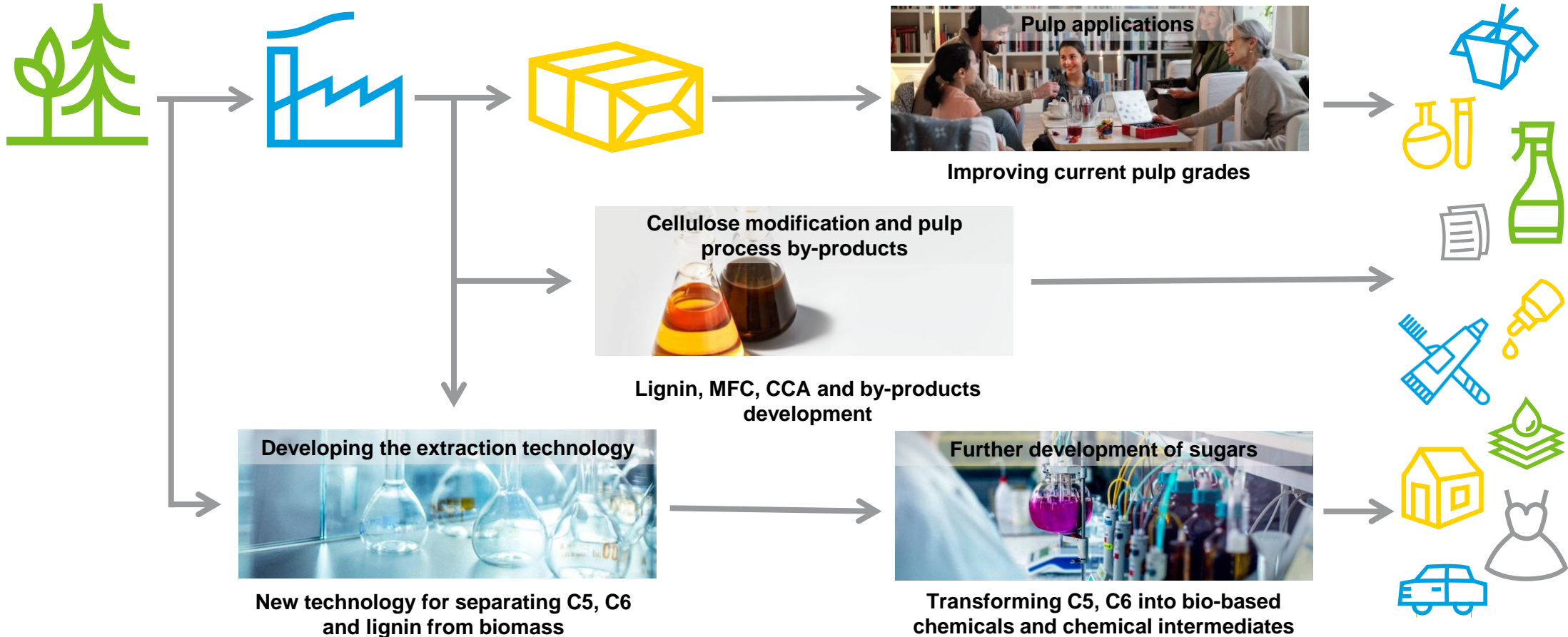


Extraction
and
separation
technologies



Polymers, chemicals, coatings,
adhesives, textiles and food
ingredients

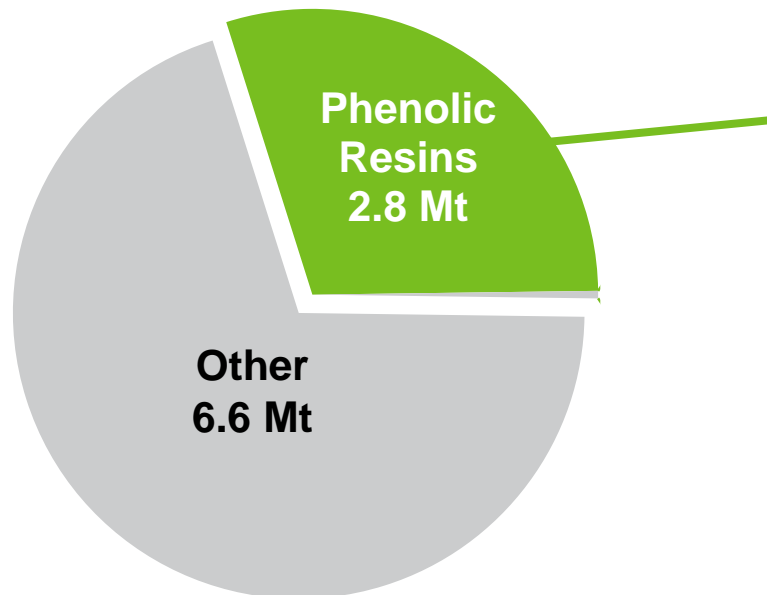
Biomaterials division focuses on four clusters in its innovation work



Lignin as phenol replacement offers us big potential with attractive margins

Example from cellulose modification and pulp process by-products cluster

**Total market for phenols:
9.4 Mt**



LVL
by Stora Enso

Key value proposition:

- **Environmental**
- **Reduction of hazardous material**
- **Cost stability**

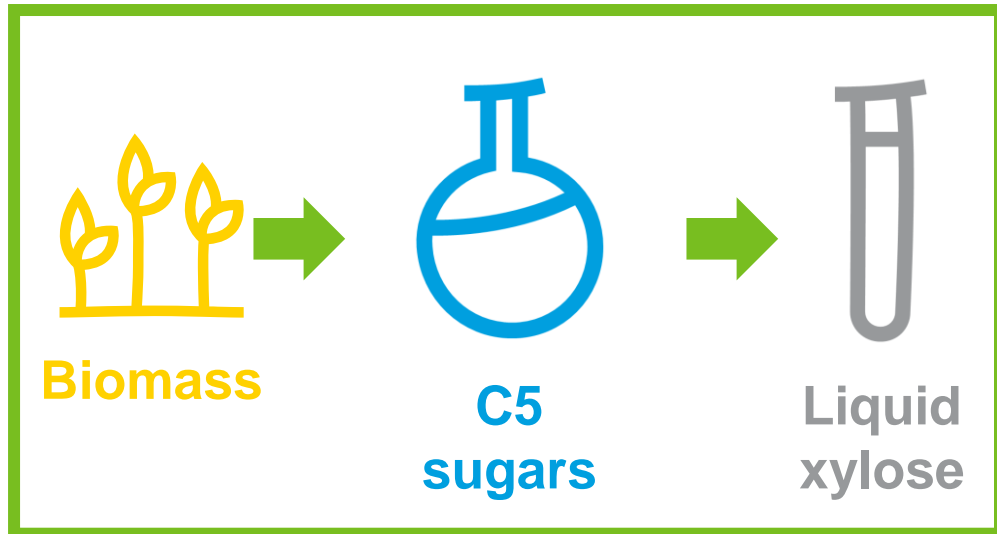
Source: ADL (Arthur D'Little), IHB, McKinsey, Stora Enso Experts

From C5 sugars to xylitol market showing 4-6% CAGR

Example from clusters for extraction technology development and further development of sugars



Stora Enso technology



Our Output: 7 Kt liquid xylose

Xylitol producers



4-6 Kt xylitol

End customers

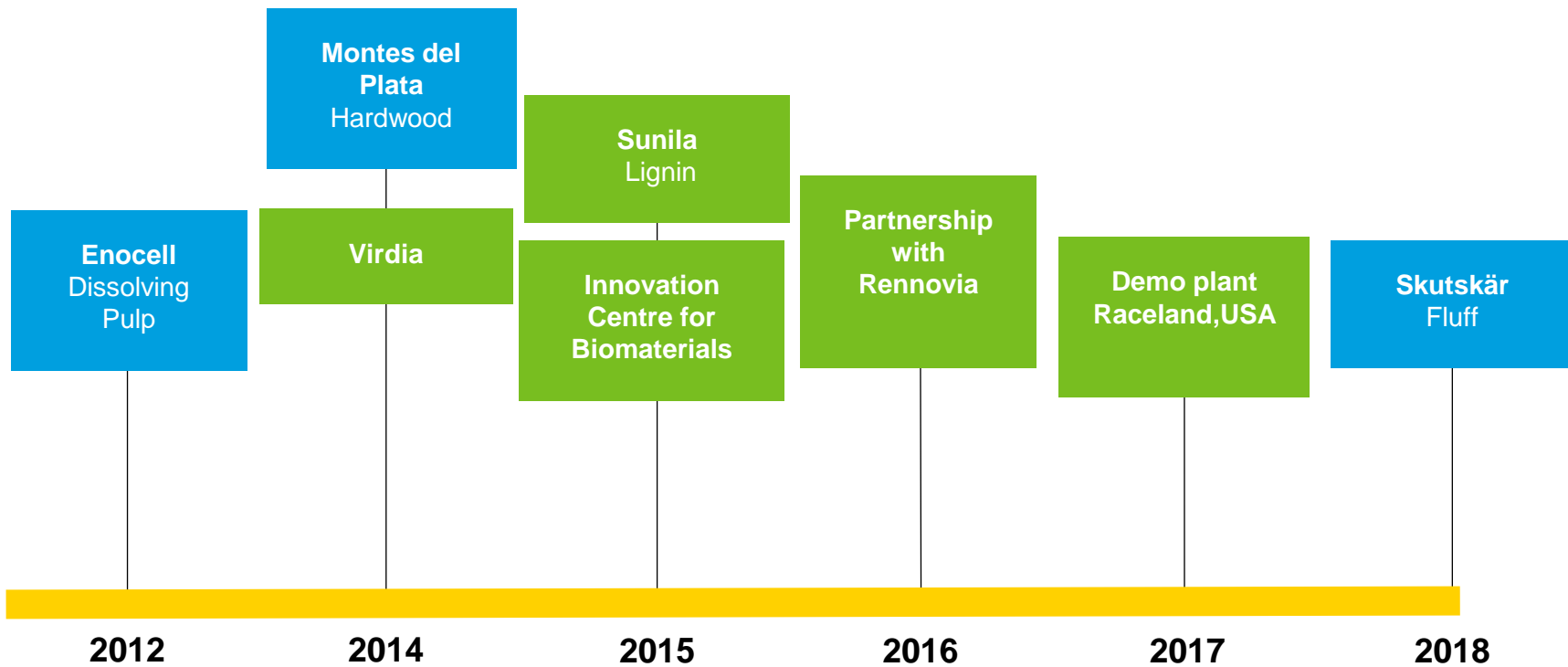


**120 Kt market
4-6% CAGR**

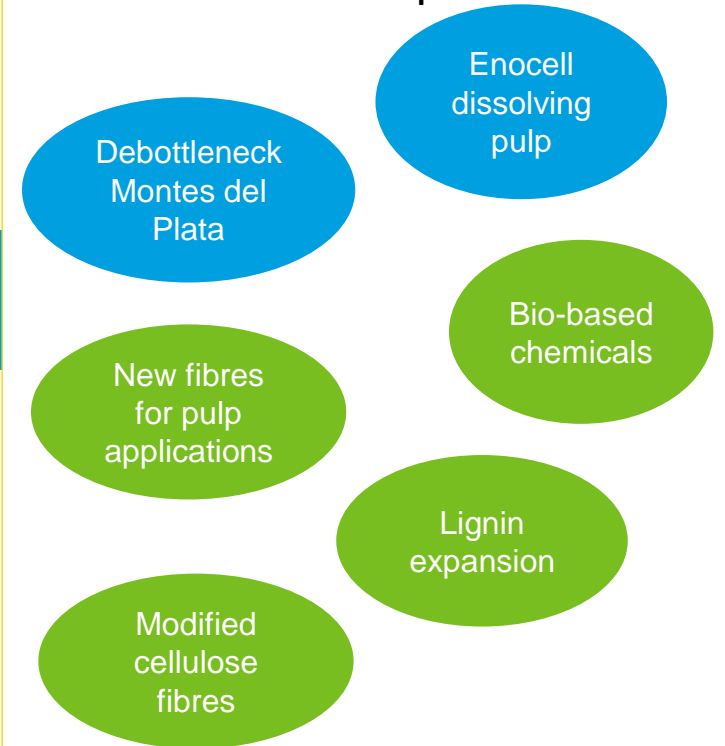
Sources PwC, Kline and Industry experts.

Biomaterials strategic actions from 2012

Differentiate our pulp business - Create new platforms for growth



Future Growth Options



Biomaterials – strengthening current business and creating new profitable growth



Disclaimer



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Thank you!