



Expected benefits of innovative tools implementation for a paper company

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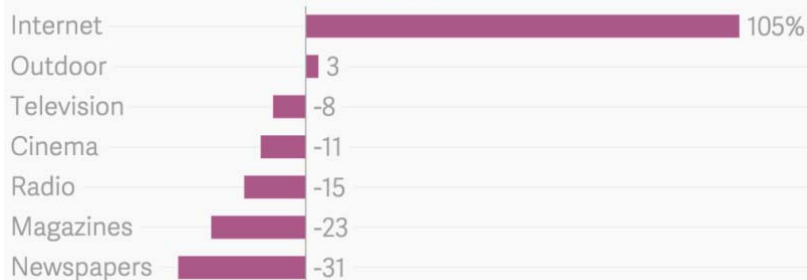
Workshop on 6th of October 2015,
Valencia, Spain



Challenging future for paper in media

Change in average daily media consumption

2015 vs 2010



Quartz | qz.com

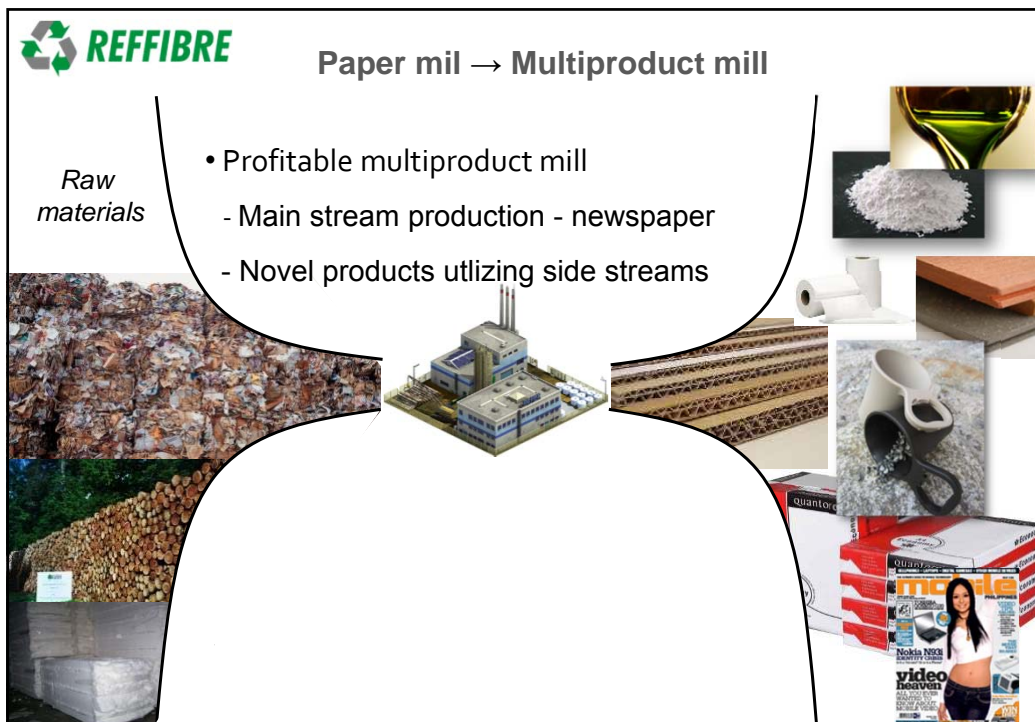
Data: ZenithOptimedia

June 2015: Print readership is still plummeting, and paywalls aren't really helping,
<http://fortune.com/2015/06/01/print-readership-paywalls/>

ZenithOptimedia says that it expects consumption of print newspapers will continue to drop by almost 5% per year over the next several years, and magazines almost as much.

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Paper mill: Main stream and Sidestreams

MAIN STREAM products

Fibre age most probably will increase → Increased costs?

Current incomes from the SIDE STREAMS?

Novel products using sidestreams?



Market dynamics?

Value chain partners?

Necessary investments?

Production costs vs. Incomes?

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IMPACT: The results of this project will help to

create the conditions that will enable complete value chains of **HOLMEN MADRID MILL**

- To decrease their overall waste production and improve resource efficiency,
 - Better runnability, zero waste – waste converted to novel products
- increase competitiveness and
 - Multiproduct mill concept, novel products
- approve with a standardised way that the final impact on the environment is reduced.
 - Methodologies for pulp and paper applications will be developed, e.g. how to allocate the burdens between different life cycles

Source: VTT/Ulla Forsström

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Holmen expectations:

Reduction of overall waste production and improvement of resource efficiency

- Improved quality of the secondary raw material (paper for recycling) achieved by dry-sorting or fractionation / separation in wet stage contributes to final product quality and improves resource efficiency.
- Benefits of adoption of separation/fractionation of material resources for efficient application and novel applications of by-streams.
- Reduction of the amount of waste produced → Side streams are turned into products.

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The goal of the Reffibre project is, e.g.

- To increase the added value and competitiveness the paper and board industry needs to boost the multi-product paper mill concept with changes in its production process and mind-set regarding the by-streams.

Holmen reflection:

- Reffibre's final outcome be a guide for practical implementation of the indicators of resource efficiency at industry level?

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Holmen expectations – Case 1

- Optimal linkage of production design and the process modelling tools to find business opportunities to create a multiproduct mill.
- Material and energy balance – e.g. DRYING COST?
- Investment costs estimate for e.g. side-stream-composite plant
- Composite production integrated with Holmen Paper mill?
- To reflect uncertainties:
 - The variety of possible end products is huge
 - Only rough price estimate of composite
 - Production capacity based on sludge available is large
 - Most probably there are not current markets for all of the sludge

Source: VTT/Juha Hakala and Marja Nappa



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Future activities

- To implement REFFIBRE indicators based on online data and process models in the most effective way. When?

Source: Bumaga

- Determine new business opportunities for Holmen Madrid mill and find the right partners in order to realise them.

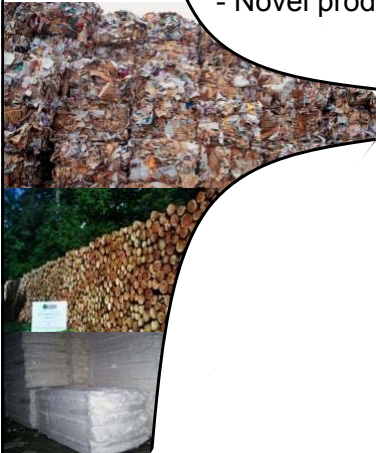
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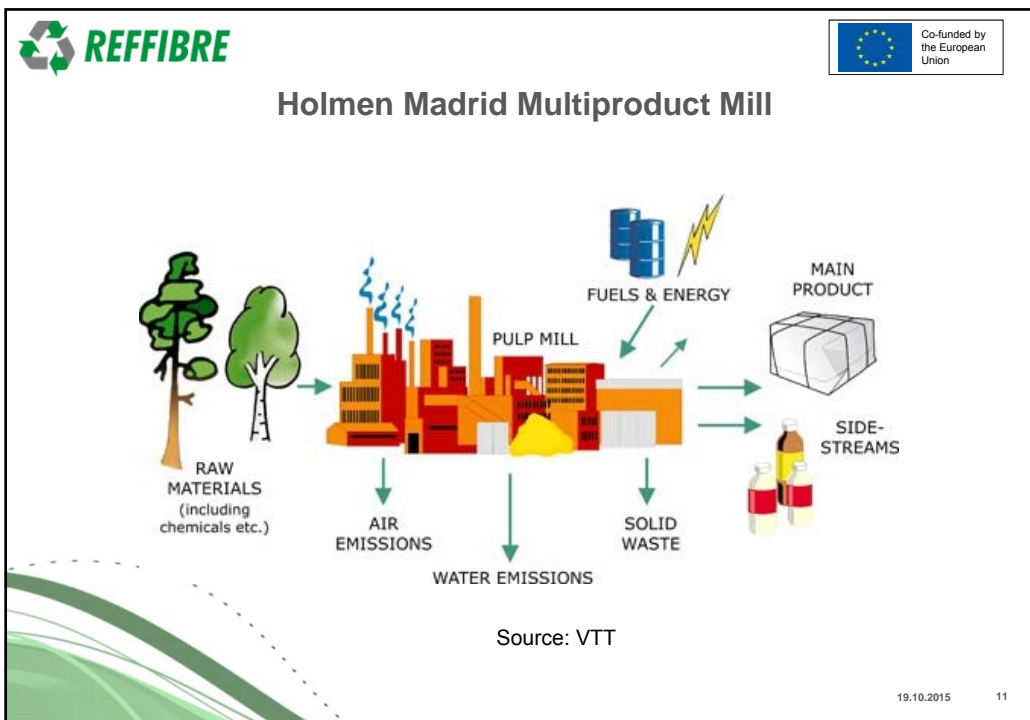
Near future: Holmen Madrid multiproduct mill

Raw materials

- Profitable multiproduct mill
 - Main stream production - newspaper
 - Novel products utilizing side streams







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The REFFIBRE team members.

Thank you for your attention / Muchas gracias por su atención.

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