Stora Enso investor kit
strategy and market environment, and financial performance
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Stora Enso in brief

Leading global provider of renewable solutions in packaging, biomaterials, wooden constructions and paper

Sales EUR 10.1 billion in 2019

Operational EBIT EUR 953 million in 2019

Some 26 000 employees in 30 countries

Stora Enso shares are listed on NASDAQ OMX Helsinki and Stockholm. In addition, the shares are traded in the USA as ADRs
Our divisions from 1 January 2020 onwards

Stora Enso group 2019: Sales 10 055 MEUR / Operational EBIT 953 MEUR / Operational ROCE 9.8%

Packaging Materials
The ambition of Packaging Materials division is to be a global leader in circular economy with our high-quality renewable packaging materials based on both virgin and recycled fiber. Addressing the needs of today's eco-conscious consumers, we help customers and brand owners to find the best material for their packaging and to replace fossil-based materials with low carbon footprint, renewable and recyclable alternatives. A wide selection of barrier coatings enables the design and optimisation of packaging for various demanding consumer and industrial packaging end uses.

Packaging Solutions
Packaging Solutions division provides fibre-based packaging products and services designed for a wide array of applications. Our renewable high-end packaging solutions serve leading converters, brand owners, and retailers across multiple industries looking to optimise performance and drive innovation.

Biomaterials
Biomaterials division offers a wide variety of pulp grades to meet the demands of paper, board, tissue, textile and hygiene product producers. We also develop new ways to maximise the value extractable from the wood as well as other kinds of lignocellulosic biomasses. The extracted sugars and lignin hold potential for use in a range of applications.

Wood Products
Wood Products division provides versatile wood-based solutions for building and housing. Our product range covers all areas of construction, including massive wood elements, wood components and sawn goods. We also offer pellets for sustainable heating. Our customers are mainly merchants and retailers, industrial integrators and construction companies.

Forest
The new Forest division, which started operations in the beginning of 2020, includes Stora Enso’s Swedish forest assets and the 41% share of Tornator with the majority of its forest assets located in Finland. The division also includes wood supply operations in Finland, Sweden, Russia and the Baltic countries. The division’s key focus areas are sustainable forest management, competitive wood supply to Stora Enso’s mills and innovation. As a major player in the bioeconomy, access to wood is critical for Stora Enso. Today, Stora Enso is one of the biggest private forest owners in the world.

Paper
Paper division provides best-in-class paper solutions for print media and office use. The wide selection covers papers made from virgin wood and recycled fibres. Our main customer groups include publishers, retailers, printing houses, merchants, converters, and office suppliers. We create value for our customers by providing competitive products and services that meet their quality and sustainability requirements.
Our road to success in the bioeconomy

- Introducing new products and services
- Addressing attractive end-use segments
- Delivering sustainable profitable growth
- Generating superior ROCE
Our transformation strategy continues…

…delivering sustainable profitable growth

**Sustainable profitable growth**

- **Customer insight**
  Developing offerings according to customers’ requirements to create value and growth, with sales excellence.

- **Structured processes**
  Clear roles and responsibilities, standardised and harmonised working methods, operational excellence.

- **Motivated employees**
  Focus on inspiring leadership, good communication, performance management and target setting.

- **Innovation**
  Focus on bio-based materials and chemicals, digitalisation, intelligent packaging and new packaging solutions.

**Strategic growth investments**

- Capex at or below depreciation and depletion* over the business cycle.

**Cash flow from operations**

**Dividend**

To distribute 50% of EPS over the cycle. 2015–2018 CAGR 14%.

**Sustainable profitable growth**

Business and CAPEX driven by ROCE.

**Strong balance sheet**

Net debt to operational EBITDA target reduced from 3x to <2x.

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*Operational decrease in the value of biological assets
Innovation never happens in isolation

**Awarded as Finland’s most startup-friendly company**

- Screened ~500 digital start-ups - deeper collaboration with 17
- Sustainable RFID tag technology, ECO™ by Stora Enso
- TreeToTextile partnership

**TRÄ Group** - innovative digital services for wooden buildings

**DuraSense™**

Piloting MFC films

**Lineo™**

Sulapac - renewable and biodegradable straws

**Husqvarna’s most innovative supplier**

14 February 2020

Stora Enso
These are our drivers for accelerating renewable growth

In 2019 7% of our sales came from new products and services

Long-term target 15% of our sales is expected to come from new products and services
# Development of strategic targets

## Group strategic targets

<table>
<thead>
<tr>
<th></th>
<th>Q4 18</th>
<th>Q4 19</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend*</td>
<td></td>
<td></td>
<td>0.50 EUR</td>
<td>0.50 EUR**</td>
</tr>
<tr>
<td>Growth***</td>
<td></td>
<td></td>
<td>5.9% (YoY)****</td>
<td>-3.0% (YoY)</td>
</tr>
<tr>
<td>Net debt to operational EBITDA</td>
<td>&lt;2.0x</td>
<td>1.1</td>
<td>2.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Fixed costs to sales</td>
<td>&lt;20%</td>
<td>25.0%</td>
<td>27.5%</td>
<td>23.6%</td>
</tr>
<tr>
<td>Net debt to equity</td>
<td>&lt;60%</td>
<td>31%</td>
<td>43%</td>
<td>31%</td>
</tr>
<tr>
<td>Operational ROCE</td>
<td>&gt;13%</td>
<td>12.4%</td>
<td>4.2%</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

## Divisional strategic targets

<table>
<thead>
<tr>
<th></th>
<th>Q4 18</th>
<th>Q4 19</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td></td>
<td></td>
<td>11.9%</td>
<td>12.3%</td>
</tr>
<tr>
<td>Packaging Solutions</td>
<td></td>
<td></td>
<td>27.2%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Biomaterials</td>
<td></td>
<td></td>
<td>17.9%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Wood Products</td>
<td></td>
<td></td>
<td>28.1%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Paper</td>
<td></td>
<td></td>
<td>5.7%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

*Annual dividend. **Dividend proposal ***Excluding Paper ****Excluding Paper and Puumerkki
## Capacities by grade

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1 000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>3 290</td>
</tr>
<tr>
<td>Containerboards*</td>
<td>1 410</td>
</tr>
<tr>
<td>Corrugated Packaging</td>
<td>1 370 (Mm²)</td>
</tr>
<tr>
<td>Sawn goods</td>
<td>5.7 Mm³</td>
</tr>
<tr>
<td>Short-fibre pulp</td>
<td>1 050</td>
</tr>
<tr>
<td>Long-fibre pulp</td>
<td>500</td>
</tr>
<tr>
<td>Fluff pulp</td>
<td>350</td>
</tr>
<tr>
<td>Dissolving pulp</td>
<td>250</td>
</tr>
<tr>
<td>Unbleached kraft pulp</td>
<td>50</td>
</tr>
<tr>
<td><strong>Net market pulp</strong></td>
<td><strong>2 200</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1 000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsprint</td>
<td>1 800</td>
</tr>
<tr>
<td>Uncoated Magazine (SC)</td>
<td>1 070</td>
</tr>
<tr>
<td>Coated Magazine</td>
<td>260</td>
</tr>
<tr>
<td>Total Magazine Paper</td>
<td>1 330</td>
</tr>
<tr>
<td>Coated Fine*</td>
<td>800</td>
</tr>
<tr>
<td>Uncoated Fine</td>
<td>1 000</td>
</tr>
<tr>
<td>Total Fine Paper</td>
<td>1 800</td>
</tr>
<tr>
<td><strong>Paper Total</strong></td>
<td><strong>4 930</strong></td>
</tr>
</tbody>
</table>

*Oulu coated fine paper production to continue until end of September 2020. Containerboards capacity to increase by 450 000 t/a after Oulu PM7 conversion. The production of the converted machine to start by end of 2020.*
Global position – capacity and biological asset allocation

- Board capacity by country 2020
- Paper capacity by country 2020
- Chemical Pulp capacity by country 2020
- Biological assets by country as at Dec 2019
- Total assets by country as at Dec 2019

**Paper capacity by country 2020**
- Finland: 49%
- Sweden: 27%
- Poland: 4%
- Brazil: 3%
- Uruguay: 12%
- Other countries: 11%

**Chemical Pulp capacity by country 2020**
- Finland: 54%
- Sweden: 31%
- Poland: 2%
- Brazil: 2%
- Uruguay: 5%
- Other countries: 8%

**Biological assets by country as at Dec 2019**
- Finland: 29%
- Sweden: 34%
- Germany: 17%
- China: 9%
- Other countries: 8%

**Total assets by country as at Dec 2019**
- Finland: 17%
- Sweden: 72%
- Germany: 2%
- China: 4%
- Other countries: 11%
We are perfectly positioned to benefit from the megatrends

- Global warming
- Growing middle class
- Eco awareness
- Changing lifestyles
- Urbanisation
- Growing population
- Digitalisation

Increasing demand for raw material that is **renewable**, **reusable** and **fossil free**
The renewable materials growth company

Everything that’s made with fossil-based materials today can be made from a tree tomorrow
Our business is a net contributor to prevent global warming
13 Mt CO$_2$ = 325 MEUR per year

Substitution is our key competitive advantage

<table>
<thead>
<tr>
<th>2018</th>
<th>Mt CO$_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forests</td>
<td>+ 3**</td>
</tr>
<tr>
<td>Value Chain</td>
<td>- 11</td>
</tr>
<tr>
<td>Substitution</td>
<td>+ 21</td>
</tr>
<tr>
<td><strong>Total climate benefit</strong></td>
<td><strong>+ 13</strong></td>
</tr>
</tbody>
</table>

*of CO$_2$e per year. Source: internal calculations, value chain emissions fully adopted to the GHG protocol including Scopes 1, 2 and 3 According to the current estimates. Data year 2018 ** Accounted as an average between 2008-2018.
Controlling ~30% of wood supply and a #1 Nordic position are competitive advantages

Central Europe, China, Uruguay and Brazil are integrated to business divisions.

We control ~30% of our wood raw material consumption (million m³ sub)

Supply from own sources based on ownership | Long-term supply contracts | Purchased | Sold externally
Wood supply substantially strengthened after Bergvik deal
Total biological asset value in balance sheet ~ 4.4 BEUR

**Swedish forests**
1 408 000 ha of forest land
Fair value: 3.1 BEUR (31 Dec 2019)

**Tornator**
Stora Enso’s share 255 000 ha in Finland, 27 000 ha in Estonia and 5 000 ha in Romania
Fair value: 740 MEUR (31 Dec 2019)

**Guangxi, Southern China (leased)**
81 000 ha of forest land
Fair value: 181 MEUR (31 Dec 2019)

**Veracel plantations, Brazil**
Stora Enso’s share 112 000 ha of forest land
Fair value: 86 MEUR (31 Dec 2019)

**Montes del Plata, Uruguay**
Stora Enso’s share 131 000 ha of forest land
Fair value: 222 MEUR (31 Dec 2019)

In addition:
- Laos: trial plantation, 3 900 ha (leased land)
- Russia: 369 500 ha (long-term harvesting rights)

In addition land book value totals 548 MEUR in the balance sheet as at 31 Dec 2019
### Forest fair valuation increased by 777 MEUR

<table>
<thead>
<tr>
<th>Location</th>
<th>Productive land (ha)</th>
<th>Price per ha (EUR)</th>
<th>Value (BEUR)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest holdings in Sweden</td>
<td>1,140,000</td>
<td>3,020</td>
<td>3.4</td>
</tr>
<tr>
<td>Forest holdings in Finland</td>
<td>262,000</td>
<td>2,960</td>
<td>0.8</td>
</tr>
<tr>
<td>Forest holdings in plantations</td>
<td>220,000</td>
<td>3,230</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total forest holdings</strong></td>
<td><strong>1,622,000</strong></td>
<td><strong>3,040</strong></td>
<td><strong>4.9</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Productive land (ha)</th>
<th>Price per ha (EUR)</th>
<th>Value (BEUR)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest value in Sweden based on LRF**</td>
<td>1,140,000</td>
<td>5,700</td>
<td>6.5</td>
</tr>
<tr>
<td>Forest value in Finland based on real estate register***</td>
<td>262,000</td>
<td>3,300</td>
<td>0.9</td>
</tr>
</tbody>
</table>

* Land and biological assets  
** LRF Konsult  
*** Real estate register (Kiinteistörekisteri) and Stora Enso
Increasing transparency through our new Forest division…

• Non-operational fair value changes of biological assets reflect changes made to valuation assumptions and parameters, usually during the annual valuation process
  – Continue to be reported as earlier and excluded from Operational EBIT, but included at Operating result (IFRS).

• Operational fair value changes of biological assets containing all other fair value changes, mainly due to inflation and differences in actual harvesting levels compared to harvesting plan
  – To be reported in Operational EBITDA

• Silviculture cost (i.e. for planting seedlings) of Forest division and plantations in Biomaterials and Consumer board are to be reported in Operational EBIT (below Operational EBITDA)
  – Stora Enso will reclassify Nordic silviculture costs of the Forest division from Operational EBITDA to Operational EBIT
  – Silviculture costs for plantations continue to be reported in Operational EBIT (below Operational EBITDA)
…with over 50 MEUR higher EBITDA annually

Key figures

<table>
<thead>
<tr>
<th>MEUR</th>
<th>Illustration Forest H1/2019</th>
<th>Illustration Group H1/2019</th>
<th>Group as reported H1/2019</th>
<th>Illustration Forest 2018</th>
<th>Illustration Group 2018</th>
<th>Group as reported 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>1 245</td>
<td>5 242</td>
<td>5 242</td>
<td>2 285</td>
<td>10 486</td>
<td>10 486</td>
</tr>
<tr>
<td>External Sales</td>
<td>433</td>
<td>5 242</td>
<td>5 242</td>
<td>754</td>
<td>10 486</td>
<td>10 486</td>
</tr>
<tr>
<td>Internal Sales</td>
<td>811</td>
<td>-</td>
<td>-</td>
<td>1 530</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Operational EBITDA</td>
<td>60</td>
<td>935</td>
<td>907</td>
<td>127</td>
<td>1 931</td>
<td>1 878</td>
</tr>
<tr>
<td>Operational EBIT</td>
<td>39</td>
<td>629</td>
<td>610</td>
<td>93</td>
<td>1 357</td>
<td>1 325</td>
</tr>
<tr>
<td>Operational EBITDA margin</td>
<td>4.8%</td>
<td>17.8%</td>
<td>17.3%</td>
<td>5.6%</td>
<td>18.4%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Operational EBIT margin</td>
<td>3.2%</td>
<td>12.0%</td>
<td>11.6%</td>
<td>4.1%</td>
<td>12.9%</td>
<td>12.6%</td>
</tr>
<tr>
<td>Operational return on operating capital (ROOC) or Capital employed (ROCE)</td>
<td>2.1%</td>
<td>12.9%</td>
<td>12.5%</td>
<td>3.0%</td>
<td>15.1%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Operating capital / Capital Employed</td>
<td>3 722</td>
<td>10 696</td>
<td>10 696</td>
<td>3 137</td>
<td>9 235</td>
<td>8 824</td>
</tr>
</tbody>
</table>

- Forest division segment reporting will begin 1 January 2020
- Restated historical figures to be published in Q1/2020
Oulu paper mill is converting to packaging board
Reducing our paper capacity by 20%

- 450 000 t/a high-quality virgin-fibre-based kraftliner
- 530 000 t/a unbleached softwood pulp
- Oulu Mill’s EBITDA margin expected to improve by 15–20 percentage points
- 350 MEUR investment in 2019–2022
- Production on the converted machine to start by the end of 2020

Source: Pöyry, Risi, ICCA, Stora Enso analysis

Kraftliner global (mt)

- Global CAGR 2%
- +3 900kt CAGR 2.3%

Global excl. North America
North America
Financial performance - divisions
Sales, EBITDA margins, EBIT margins and ROOC

Stora Enso
Our formula for success continues to deliver results

- Sustainable profitable growth 6–8%*
- Strong cash flow generation
- Capex ~3.4 BEUR**
- Dividend ~50% of EPS
- Net debt to operational EBITDA <2.0x
- Debt to equity <60%

* Excluding Paper ** Next five years
Total CAGR potential of 6–8% per year

Sales in Q4 2019

CAGR potential 2019–2024 (excluding paper)

- **Consumer Board**: 2–4 %/a
- **Packaging Solutions**: 7–8 %/a
- **Biomaterials**: 3–5 %/a
- **Wood Products**: 6–8 %/a
- **TOTAL (excl. Paper)**: 6–8 %/a
As of 1 January 2020, Stora Enso merged its containerboard business previously in the Packaging Solutions division with the Consumer Board division, creating a new Packaging Materials division. The remaining business in Packaging Solutions, together with the recently created Formed Fiber unit, constitute a more focused Packaging Solutions division. The Group also established a new Forest division as of 1 January. The Interim Report for Q1/2020 will follow the new structure.

The restated figures for the new divisional structure will be published during Q1/2020
Packaging Materials division in brief

Renewable packaging materials for various end uses

- Strong offering of renewable and recyclable materials with low carbon footprint for consumer and industrial packaging
- Serving demanding packaging end uses with premium materials based on both virgin and recycled fiber
- Customers are converters, brand owners and retailers
Consumer Board
Reporting based on divisional structure in 2019

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q4/18</th>
<th>Q4/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>5.0%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>
Our target is 25% of sales from new products and services.

**BIO-BARRIERS AND FILMS**
- Replacing PE-films in cups
- Pouches for low to medium shelf life
- Lids
- Replacing aluminium foil
- Pouches with high barrier properties

**GLOBAL MARKET SIZE**
~80 BEUR

**2019-2021**
- Biocomposites
  - Straws
  - Caps, closures & packaging components
  - Rigid containers
  - Trays
  - Caps with hinges
  - Tubes

**14 February 2020**
Stora Enso
Source: SmithersPira, internal analysis
Geographical exposure – Packaging Materials

Production Facilities
- Sweden
  - Fors Mill
  - Skoghall Mill
- Finland
  - Imatra Mill
  - Ingerois Mill
  - Varkaus Mill
  - Heinola Mill
- China
  - Beihai Mill

Sales
- Sweden
- Finland
- Poland
- China

Worldwide sales network
R&D: Karlstad, Sweden and Imatra, Finland

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity 1,000 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>3,290</td>
</tr>
<tr>
<td>Containerboards</td>
<td>1,410</td>
</tr>
</tbody>
</table>
We continue to grow our premium offering in Beihai

DEMAND AND CAPACITY IN CHINA
VIRGIN FIBER BOARD
(Million tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Demand</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>7.2</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>7.8</td>
<td>11.9</td>
</tr>
<tr>
<td>2020</td>
<td>8.5</td>
<td>13.4</td>
</tr>
<tr>
<td>2025</td>
<td>10.3</td>
<td>13.4</td>
</tr>
</tbody>
</table>

PRICING OF PREMIUM AND COMMODITY GRADE
VIRGIN FIBER BOARD IN CHINA
(RMB/t)

Source: Pöyry, RISI

14 February 2020
Stora Enso
Attractive end-use segments offer significant opportunities

GLOBAL PACKAGING MATERIALS MARKET

ADDRESSABLE MARKET FOR CONSUMER BOARD

~400 BEUR

Food & Dairy: 27%
Beverages: 8%
Healthcare & Cosmetics: 5%
Other consumer goods: 10%
Industrial and transport packaging: 50%

PAPER BOARD’S SHARE OF TOTAL PACKAGING

Food & Dairy: +2.3%
Beverages: +2.6%
Healthcare & Cosmetics: +2.8%

Source: SmithersPira, Euromonitor

Industrial and transport packaging

Other consumer goods

THE RENEWABLE MATERIALS COMPANY
2.6% CAGR until 2030 for virgin fibre board grades

Virgin fibre board grades:
- Coated Unbleached Kraft (CUK)
- Solid Bleached Sulphate (SBS)
- Liquid Packaging Board (LPB)
- Folding Box Board (FBB)
- Food Service Boards (FSB)

Source: Pöyry
We have a strong position with global customers
Top 10 customers account for 53% of sales and 60% of EBITDA

Source: Stora Enso, Pöyry

Coated Unbleached Kraft (CUK), Solid Bleached Sulphate (SBS), Liquid Packaging Board (LPB), Folding Box Board (FBB)

SE = Stora Enso

Market share per product vs. competitors

<table>
<thead>
<tr>
<th></th>
<th>Europe kt</th>
<th>Global kt</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUK</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>SBS</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LPB</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>FBB</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Relative market share

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CUK</td>
<td>131%</td>
</tr>
<tr>
<td>SBS</td>
<td>103%</td>
</tr>
<tr>
<td>LPB</td>
<td>110%</td>
</tr>
<tr>
<td>FBB</td>
<td>56%</td>
</tr>
</tbody>
</table>

Source: Stora Enso, Pöyry
Packaging Solutions

• Packaging Solutions division focuses on growing new services and packaging solutions

• Innovation collaboration throughout the whole value chain for developing new renewable packaging

• Renewable packaging design
Formed fiber products replace plastic in packaging

- Plastic free, renewable and recyclable material that can be used for various applications in food and non-food use
- Moisture and grease resistant
- Can be used for instance in bowls, plates, coffee cup lids, as well as in agriculture, electronics and cosmetics packaging to replace plastic parts
- Products are made from various pulps by pressing it into a desired shape in a molding machine
Packaging Solutions
Reporting based on divisional structure in 2019

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q4/18</th>
<th>Q4/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging Solutions</td>
<td>Operational ROOC &gt; 20%</td>
<td>25.7%</td>
</tr>
</tbody>
</table>

![Divisional strategic target chart](image)
Geographical exposure – Packaging Solutions

Production Facilities

- Finland
  - Kristinankaupunki
  - Lahti

- Poland
  - Lodz
  - Mosina
  - Ostroleka
  - Tychy

- Russia
  - Arzamas
  - Balabanovo
  - Lukhovitsy

- Estonia
  - Tallinn

- Latvia
  - Riga

- Lithuania
  - Kaunas

- Sweden
  - Jönköping
  - Skene
  - Vikingstad

- Estonia
  - Tallinn

- Latvia
  - Riga

- Lithuania
  - Kaunas

- Poland
  - Lodz
  - Mosina
  - Ostroleka
  - Tychy

- Russia
  - Arzamas
  - Balabanovo
  - Lukhovitsy

Grade

<table>
<thead>
<tr>
<th>Corrugated Packaging</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 000 t</td>
</tr>
<tr>
<td></td>
<td>1 370 (Mm²)</td>
</tr>
</tbody>
</table>
We have strong market position and growth in our home packaging markets

Europe

- **Nordics**: 0.7 BEUR, 0–1% CAGR
  - #1: 107%*

- **Poland & Baltics**: 1.5 BEUR, 3–5% CAGR
  - #2: 85%*

- **Russia**: 1.7 BEUR, 3% CAGR
  - #4: 62%*

China

- **China**: 1.8 BEUR, 5–6% CAGR
  - #5: ~20%*

* Relative market share, measured as a share of largest competitor

Source: Stora Enso analysis

Note: CAGR 2016–2026

Using virgin fiber boards from Beihai and Europe
Strong position and growth in our home box markets

Key box segments:

Food	Retail	Industrial goods	E-commerce	Consumer electronics

Key box markets:

<table>
<thead>
<tr>
<th>Market</th>
<th>Box Sales</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nordics (#1)</td>
<td>0.7 BEUR</td>
<td>1–2% CAGR</td>
</tr>
<tr>
<td>Poland &amp; Baltics (#2)</td>
<td>1.9 BEUR</td>
<td>3–5% CAGR</td>
</tr>
<tr>
<td>Russia (#5)</td>
<td>2.4 BEUR</td>
<td>3% CAGR</td>
</tr>
<tr>
<td>China (#3)*</td>
<td>1.8 BEUR</td>
<td>7% CAGR</td>
</tr>
</tbody>
</table>

*Position in rigid box market
E-commerce is driving growth in packaging

E-commerce packaging by materials
(Global market value share, 2017)

- Corrugated: 80%
- Flexibles: 15%
- Protective mailers: 1%
- Cushioning: 3%

Corrugated packaging growth in E-commerce

• ~15% CAGR (2017–2021)
• ~33 BEUR market value globally and ~6 BEUR in Europe in 2021
• ~13 BEUR market value added in E-commerce segment globally until 2021

Note: Market values for Global and Europe (Western, Central and Eastern) in 2021. 0.85 USD/EUR average exchange rate used in calculations.
Source: Statista 2018; Smithers Pira – Future of e-commerce packaging to 2022
Containerboard net balance

- **Testliner. Recycled fluting, 600 000 tonnes**
- **SC Fluting capacity 300 000 tonnes**
- **Kraftliner Capacity 390 000 tonnes**

**Containerboard**
- Production 1 300 000 tonnes
- Internal consumption 340 000 tonnes
- External purchases 230 000 tonnes

**Balance**
~730 000 tonnes
Corrugated packaging is also growing in Europe

Source: Pöyry, Risi, ICCA, Stora Enso analysis
Biomaterials

• Biomaterials offers a wide variety of pulp grades

• End uses: printing and writing papers, specialty papers, graphic papers, packaging paperboards and tissue

• Fluff pulp primarily used in diapers and hygiene products

• Dissolving pulp for textiles

• We are maximising the business potential of the by-products extracted in our processes, such as tall oil and turpentine from biomass. Based on our strong innovation approach, all fractions of biomass, like sugars and lignin, hold substantial potential for use in various applications
Biomaterials—geared towards growth

Sample product categories:
- Paper, packaging and tissue production: Supreme by Stora Enso (Softwood), Perform by Stora Enso (Hardwood) and Select by Stora Enso (Hardwood).
- Fluff pulp for hygiene products; diapers, and feminine care products: Care by Stora Enso
- Dissolving pulp for viscose fabrics e.g. textiles, pharmaceuticals, sponges, cellophane: Pure by Stora Enso
- Lignin (adhesive for construction, carbon fibre and energy storage) Lineo™ by Stora Enso
- Xylose
- By-products: tall oil, turpentine

Main competitors include UPM, Metsä Fibre, Södra, Arauco and Suzano
Biomaterials worldwide

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-fibre pulp</td>
<td>1,050 t</td>
</tr>
<tr>
<td>Long-fibre pulp</td>
<td>500 t</td>
</tr>
<tr>
<td>Fluff pulp</td>
<td>350 t</td>
</tr>
<tr>
<td>Dissolving pulp</td>
<td>200 t</td>
</tr>
<tr>
<td>Net market pulp</td>
<td>2,200 t</td>
</tr>
</tbody>
</table>

- **Montes del Plata**
  - Capacity: 1.4 Mt/a

- **Veracel**
  - Capacity: 1.2 Mt/a

- **Skutskär**
  - Capacity: 540 kt/a

- **Enocell**
  - Capacity: 490 kt/a

- **Sunila**
  - Capacity: 375 kt/a

**Shared Ownership (50%)**

**Stora Enso Biomaterials’ Mills**
Demand for all pulp grades is growing by 2%

**Textiles, nonwovens**
107 Mt market, growing 3%/y
6.8 Mt market pulp (dissolving)

**Carton board**
48 Mt market, growing 2.0%/y
5.3 Mt market pulp

**Tissue**
36 Mt market, growing 4%/y
23 Mt market pulp

**Hygiene**
590 billions of converted unit, growing 3.5%/y
6.2 Mt market pulp (fluff)

**Paper**
- Specialty: 29 Mt market, growing 2%/y
  9 Mt market pulp
- Graphic: 101 Mt market, declining -1%/y
  17 Mt market pulp

### Pulp (hardwood & softwood) demand grows 2% CAGR by 2023

<table>
<thead>
<tr>
<th>2018</th>
<th>2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>65</td>
</tr>
<tr>
<td>89</td>
<td>94*</td>
</tr>
</tbody>
</table>

Demand, Mt/a
Market balance, %

*) without UPM new mill

### Pulp average capacity growth

- 2007-2018: + 1.6 Mt/y (90% operating ratios)
- 2019-2024: + 1.0 Mt/y (confirmed projects, incl. UPM new mill)

Source: Pöyry Consulting Group, Hawkins Wright, Smithers Pira, RISI
Balanced market expected in pulp

Announced capacity growth 2018–2022: 2.8 Mt (0.56 Mt/year)

- Softwood 0.8Mt
- Hardwood 2.0Mt

Source: Hawkins Wright (April 2018)

Pulp demand 2018–2022: + 1.6 Mt/year (2.5% CAGR)

No new major projects announced
Megatrends support the demand for virgin pulp in China

To 2030:

- **Urbanisation**: 58% (70% (+200 million people))
- **Growing middle class**: 5 trillion to 9.6 trillion (private consumption in USD)
- **Changing lifestyles**: 60% (90% (safe sanitation services))
- **Eco awareness**: Ban on imported recovered fibre
- **From 14 kg to 21 kg per capita consumption**
- **+10 Mt of hardwood and softwood**
We continue with our strategic focus areas

Maximise value from eucalyptus pulp
- Continue to improve production efficiency
- Constantly improve the cost competitiveness of Montes del Plata

Differentiate our Nordic pulp business
- Reduce exposure in softwood
- Grow in fluff and dissolving pulp
- Continue to improve production efficiency
- Innovate on pulp applications with current customers

Generate profitable growth from innovation platforms
- Build and develop strong business on:
  - Improved pulp properties
  - Regenerated cellulose and MFC
  - Lignin
  - Bio-based chemicals
  - Extraction and separation technologies
We are differentiating our pulp mix

Maximize value from eucalyptus pulp

Improve competitiveness of our Nordic mills (Fluff and dissolving)

Today

- Softwood: 45%
- Hardwood: 29%
- Fluff/dissolving: 26%

Target 2020

- Softwood: 43%
- Hardwood: 42%
- Fluff/dissolving: 15%
Innovation is key for sustainable profitable growth

**Product platforms**

**1. Improved pulp properties**

**2. Regenerated cellulose & MFC**

**3. Lignin**

**4. Bio-based chemicals**

Technology platform for extraction & separation
Creating value from renewable, reusable and fossil free materials

<table>
<thead>
<tr>
<th>Innovation Platforms</th>
<th>Value proposition</th>
<th>End markets</th>
<th>Time to market</th>
<th>Market Potential: Size / value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved pulp properties</td>
<td>Increased material efficiency and performance</td>
<td>Specialty papers, hygiene fibre-based packaging</td>
<td>Continuous</td>
<td>2.6 Mt / 1.4 BEUR</td>
</tr>
<tr>
<td>Regenerated cellulose</td>
<td>Novel sustainable material from cellulose</td>
<td>Textile, and as film material in packaging</td>
<td>2020–2022</td>
<td>20 Mt / 35 BEUR</td>
</tr>
<tr>
<td>MFC</td>
<td>Increased material efficiency and performance</td>
<td>Specialty papers, coatings, cosmetics, and as film material in packaging</td>
<td>2019–2021</td>
<td>0.7 Mt / 1.6 BEUR</td>
</tr>
<tr>
<td>Lignin</td>
<td>Replace fossil-based materials</td>
<td>Resins and adhesives, Carbon fibre, Carbons for energy storage</td>
<td>2017–2023</td>
<td>1 Mt / 1.7 BEUR</td>
</tr>
<tr>
<td>Bio-based chemicals</td>
<td>Replace fossil-based materials for plastics</td>
<td>Packaging</td>
<td>2026–2027</td>
<td>2 Mt / 2.5 BEUR</td>
</tr>
</tbody>
</table>

Sources: Hawkins Wright, The Fiber Year 2018, EMBS, Smithers Pira, Transparency market research, Price Hanna consultants, Composites Marktbericht, Plastics Insight, Stora Enso experts
Wood Products division in brief
Solutions, products and services

- Innovative wood-based products for construction, interior usages and everyday living.
- The product range covers all areas of construction, including massive wooden elements and wooden components.
- It also includes a variety of sawn timber goods and pellets for sustainable heating.
- Biocomposite product range replaces plastics in consumer goods.
- High demands with regard to safety, quality, design and sustainability.
This building grows back in 17 minutes.

We can cut construction emissions by up to 75% using renewable materials.

Geologen Trummen Strand
Växjö, Sweden
The wood used removed 5 700 tonnes of CO₂ from the atmosphere...

...and it equals 40 million car kilometres

Üstra-Siedlung
Hannover, Germany
Strong and light without losing flexibility in design

Millimetre precision using latest technology

Head above Water
London, England
Wood Products – accelerating growth

Sample product categories:
- Classic sawn
- Classic planed
- CLT (Cross laminated timber)
- LVL (Laminated Veneer Lumber)
- Construction beams
- Window and door components
- Building Solutions
- Building Components
- ThermoWood
- Pellets
- Biocomposites

Main competitors include Binderholz, Holzindustrie Schweighofer, SCA Timber and Metsä Fibre

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q4/18</th>
<th>Q4/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Products</td>
<td>Operational ROOC &gt; 20%</td>
<td>27.1%</td>
</tr>
</tbody>
</table>
Our operations well positioned in Europe

- **Number of mills**: 4,038
- **Production units**: 21
- **Sales to countries**: Czech, Poland, Germany, Netherlands
- **Capacity**: EUR 1.6 billion
- **Grade and Capacity**:
  - Sawn goods: 5.7 Mm³
  - Further processing: 2.6 Mm³
  - CLT: 240,000 m³
  - LVL: 75,000 m³
  - Pellets: 500,000 t
Getting the right log is critical for profitability in Wood Products.

Customer demand  Sawing pattern  Log pricing  Cutting  Purchasing

Demand flow

Material flow
Buildings of the future will be cheaper and more sustainable

Our solutions offer:

• Up to 70% faster construction time
• Up to 80% fewer truck deliveries on site
• Carbon emissions cut by up to 75% using wood
• Faster, safer and quieter construction
• Healthier indoor climate
• Good thermal resistance and insulating properties
DuraSense® by Stora Enso – gradually replacing plastics with biocomposites

- Biocomposites enable the use of renewable wood in products typically produced from plastics, such as disposable cutlery, furniture, as well as storage and logistics goods.
- Includes renewable materials and can reduce the consumption of fossil-based plastic by up to 60%.
- Always a better alternative than fossil-based plastic.
  - For example, with wood fiber we can reduce the carbon footprint of a product up to 80%.
The target to grow profitable 6–8% p.a. through innovative wood-based solutions

Building Components and Solutions
Competitive Classic Planed
Biocomposites

We target to increase the new products and services from 4% to 15% of sales by 2024
Forest division creates value through supply, innovation and sustainable forest management

Competitive wood supply

Innovation

Sustainable forest management
Paper

• Renewable paper solutions for print media and office use
• Customers include publishers, retailers, printing houses, merchants, converters and office suppliers
• The products and services meet the customers’ quality and sustainability requirements
• End uses: newspapers and supplements, books, magazines, advertising, note books, art books, office
• Focus on further developing the sustainability and efficiency of operations
Paper – geared to cash generation

Sample product categories
- Paper selection for print media: Newsprint and book papers, Uncoated mechanical papers (SC), Coated papers (Brands: e.g Nova, InnoPress)
- Paper selection for office use: transactional needs, office printing, writing and educational needs (Brands: e.g 4CC, MultiCopy, Zoom)
Main competitors include UPM, Sappi, Norske Skog, Holmen and the Navigator company

<table>
<thead>
<tr>
<th>Divisional strategic target</th>
<th>Q4/18</th>
<th>Q4/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Cash flow after investing activities to sales &gt;7%</td>
<td>2.5%</td>
<td>10.3%</td>
</tr>
</tbody>
</table>
Paper worldwide

<table>
<thead>
<tr>
<th>Grade</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsprint</td>
<td>1 800 t</td>
</tr>
<tr>
<td>Uncoated Magazine (SC)</td>
<td>1 070 t</td>
</tr>
<tr>
<td>Coated Magazine</td>
<td>260</td>
</tr>
<tr>
<td><strong>Total Magazine Paper</strong></td>
<td>1 330 t</td>
</tr>
<tr>
<td>Coated Fine*</td>
<td>800</td>
</tr>
<tr>
<td>Uncoated Fine</td>
<td>1 000 t</td>
</tr>
<tr>
<td><strong>Total Fine Paper</strong></td>
<td>1 800 t</td>
</tr>
<tr>
<td><strong>Paper Total</strong></td>
<td>4 930</td>
</tr>
</tbody>
</table>

*Oulu coated fine paper production to continue until end of September 2020*
Since 2013 we have transformed our Paper business

-17%  -33%  -21%  -82%  +20%

Paper demand in Europe  Our production capacity  Our deliveries  Our accidents  Customer satisfaction*

Optimising profitability and cash flow:
• Focus on the right product and customer segments
• Pricing excellence
• Variable and fixed cost control
• High operational efficiency and capacity utilisation
• Focused investments
• Working capital reduction
• Innovation and digitalisation

(*) Percentage points in NPS

Change 2013-Q3/2018
Innovations
Innovations – a few snapshots
Focus on innovations

In 2018, Stora Enso’s expenditure on research and development was EUR 149 million, which was equivalent to 1.4% of sales.

56 priority founding patent applications filed and over 324 patents granted worldwide.
We are investing more in innovation and R&D

R&D expenditure in 2018
149 MEUR

Peers:
Borregaard
IP
Metsä Board
Mondi
SCA
Smurfit Kappa
UPM

Source: Stora Enso, annual reports 2018

14 February 2020
Stora Enso
Innovation projects with high potential impact to transformation

- Bio-barriers, MFC films
- Native and modified MFC
- Intelligent packaging
- Bio-based plastics
- Dissolving pulp to novel cellulose materials
- Liquid and food packaging
- Specialty papers, nonwovens, personal and home care, barrier materials
- Sophisticated applications to brand owners and supply chains
- Chemical intermediates
- Textiles and nonwovens
- Lignin for phenol replacement
- Carbon fibre
- Bio-based carbons for energy storage
- Biocomposites
- Reduction of fossil raw materials in adhesives
- Sports and leisure, wind energy, automotive, aviation
- Anode material for batteries, activated carbon for double layer capacitors
- Replacement of fossil-based plastics in composites
Innovation in packaging
Advancing the renewable packaging industry with innovations

- Microfibrillated cellulose (MFC)
- BiobARRIER coatings
- Biocomposites
- Intelligent packaging
- Design driven innovation
We see many new opportunities to replace fossil-based materials...

Lignin-based products
- Lineo™ by Stora Enso
- Carbon fibre
- Carbon for energy storage

<table>
<thead>
<tr>
<th>Market size</th>
<th>Growth</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 BEUR</td>
<td>~20%/a</td>
<td>30–50%</td>
</tr>
</tbody>
</table>

Biocomposites
- DuraSense™ by Stora Enso for wood-based biocomposites
- Less fossil-based materials with higher share of fibre

<table>
<thead>
<tr>
<th>Market size</th>
<th>Growth</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 BEUR</td>
<td>~15%/a</td>
<td>20–30%</td>
</tr>
</tbody>
</table>

Liquid packaging MFC
- Source reduction

MFC films
- Functional barriers for paper and board packaging

<table>
<thead>
<tr>
<th>Market size</th>
<th>Growth</th>
<th>EBITDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 BEUR</td>
<td>~5%/a</td>
<td>&gt;20%</td>
</tr>
</tbody>
</table>

14 February 2020
Stora Enso
THE RENEWABLE MATERIALS COMPANY
...Iceland Foods chooses our Trayforma to replace plastics

- Iceland Foods, the UK’s leading specialist retailer in the frozen food category, launched the first plastic-free pledge for its own brand products for a UK supermarket
  - Target is to be plastic-free by 2023 through an overhaul of their entire product range
- Ready meals packed in paperboard trays
- Trayforma™ by Stora Enso food-safe and suitable for cooking at high temperatures in ovens and microwaves food trays
Micro-fibrillated cellulose improves product properties and can replace fossil-based materials

**Today**

- MFC is used to make more durable, lighter, high-quality packaging products

**Future potential**

- Barrier coating solutions for grease and oxygen barriers
- Biodegradable replacement for aluminium foil
- Carrier for example in cosmetics
- 3D printing
Biocomposites – gradually replacing plastic

• Use in products, such as disposable cutlery, furniture, as well as storage and logistics goods

• Raw material for markets where plastics dominate

• Can reduce the consumption of fossil-based plastic by up to 60%

• Always a better alternative than fossil-based plastic
  – Reduce the carbon footprint of a product up to 80%

Target market
4.5 Mt
1-5 years
Stora Enso, Intelligent Packaging

- Digitalization of packaging and product flows using RFID technology
- Offering provided in three focus areas from tag products to retail and pulp&paper solutions
- Circa 40 people in Europe and Asia
- Milestones:
  - Started 10 years ago in Stora Enso, last 3-4 active commercialization.
  - 2017 - Inauguration of PackPerformance Center in: a dedicated RFID development and testing site in Tampere, Finland
  - 2018 – Establishment of Business Unit structure for Intelligent Packaging within Stora Enso group
  - 2018 – Launching ECO™ technology

<table>
<thead>
<tr>
<th>Intelligent Packaging Verticals</th>
<th>ECO RFID tag products</th>
<th>New Retail solutions</th>
<th>Industrial solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Intelligent packaging
Connecting packages, products and value chains

Radio-Frequency Identification (RFID)
Scope of Intelligent Packaging

• Complete offering for end-to-end execution
• Value driven approach to digitalisation projects
• Unique capabilities to connect products and embed identifiers
• Post sales support
• Software platform and supporting enterprise software integrations
Business success requires end-to-end solution
From tags and integration to cloud and applications

- Business case evaluations
- Solution design
- Installation & Maintenance Services
- Application development
Studies show significant benefits for RFID

### Improvement in Key Retail Metrics/KPIs Before and After RFID Adoption

<table>
<thead>
<tr>
<th>Metric</th>
<th>Before RFID</th>
<th>After RFID</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory Accuracy</td>
<td>67.4%</td>
<td>84.5%</td>
<td>25.4%</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>64.6%</td>
<td>71.7%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Store Out-of-Stocks</td>
<td>16.5%</td>
<td>9.8%</td>
<td>40.6%</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>17.8%</td>
<td>11.8%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Profit Margin</td>
<td>8.9%</td>
<td>14.3%</td>
<td>60.7%</td>
</tr>
<tr>
<td>Average Markdown</td>
<td>14.8%</td>
<td>11.9%</td>
<td>19.6%</td>
</tr>
</tbody>
</table>

* Improvement is reflected by reduction

Source: EKN—Kurt Salmon RFID in Retail Survey, 2016

---

McKinsey study 2018 on Supply Chain potential of Intelligent Packaging in industrial goods

- Tied-in capital reduction: 3-11%
- Cost decrease in supply chain: 4-7%
- Improvement in service level and product availability: 1-2%
ECO RFID Tag Technology
Unique RFID technology launched in Nov 2018

Key benefits:
• Sustainable
• Reliable
• Performant
• Cost neutral

Available in several tag designs

Traditional RFID structure: 6 layers + release liner
ECO RFID structure: 3 layers + release liner
Digitizing Supply Chains for better visibility

1. Automated inventory management with RFID-gates that auto-register which RFID-tagged items enter the warehouse at inbound and leave the warehouse at outbound.
2. Automated counting and scanning as RFID reader scans contents of box with RFID-tagged items, useful in receiving and picking.
3. Automated cycle count with handheld RFID-reader (or even a drone with an RFID-reader) performs cycle count of items in floor storage.
4. Forklifts with RFID-scanners enable sensing of pick/put-away locations quality controls that correct packages are picked.
5. Stock location management with RFID readers on shelves sense which RFID-tagged items are placed on the shelves.
6. Shipping QC with RFID-reader gate verifies that correct RFID-tagged packages are loaded on the truck avoiding incorrect shipments.
7. Dispatch navigation with RFID-readers in the ceiling identify items in the dispatch area and lights guide workers to correct boxes.
8. Smart container with RFID-readers at the door that register which RFID-tagged items enter and leave the container.
9. Package validation with RFID-reader in pack stations verifies content of package being built – verifies pack completion and warns if line items are missing.
10. RFID-reader in trunk of van keeps automated inventory count and tracks RFID-tagged equipment.
11. Anti-tamper protection of goods with sealed tag and/or unique code to identify genuine product.
12. Returns management with RFID tags also on return flow from customers or other warehouses to enable full integration with other use cases.

Authors: Arvind Verma and Hemant Bhatia

14 February 2020
Stora Enso
Retail and RFID
RFID market development example – Macy’s

“Men’s and women’s undergarments, men’s slacks, denim apparel and women’s shoes”

“30% 2012 60% 2016 100% 2017”

“All lines of businesses at its stores, except for jewelry and cosmetics.”

“All items in every store tagged.”

Source: RFID Journal, October 2016

Stora Enso
Item Level Tagging Benefits in retail stores

Example in food category

- Waste reduction **up to 20%** *
- Labour cost reduction **up to 50%** *
  - Cut labour costs of shelf life management
  - Improve visibility of use-by dates
  - Simplify mark down process
  - Reduce net food waste in store
  - Improve stock rotation
  - Enhance recall management

* based on Avery Dennison pilots and retailer feedback
Innovative and award-winning design

- Leak-tight renewable and 100% recyclable packaging for fresh fish
- WorldStar packaging award
- Sustainability award by World Packaging Organisation

- Original design replacing traditional pressed pulp packaging for eggs
- Best packaging and label award for Food at ProdExtraPack
Stora Enso named Husqvarna’s most innovative supplier

Long term collaboration between Stora Enso and Husqvarna Group

Motivation for the award:

Stora Enso invests for the long term in competence, resources and proactive involvement in order to understand its customers’ needs. Through this initiative, Stora Enso has enabled Husqvarna to sustainably achieve its ambitious goals concerning development and innovations in the supply chain.

New packaging for chain saws reduces cost and CO₂ emissions

- 37% capacity fill
- 5 300 pallets/year
- 180 containers/year
- 190 000 kg CO₂/year
Innovation in Biomaterials

- Pulp applications
- Cellulose modification and pulp process by-products
- Developing the extraction technology
- Further development of sugars
From wood to renewable products

Extraction and separation technologies

- 20–30% Lignin
- 25–35% hemicellulose
- 35–45% cellulose

Cellulose and hemicellulose

Sugars

Lignin

Lignin, biochemicals, bioplastics, regenerated cellulose, pulp etc
Innovation is key for sustainable profitable growth

Product platforms

1. Improved pulp properties
2. Regenerated cellulose & MFC
3. Lignin
4. Bio-based chemicals

Technology platform for extraction & separation
Platform 1: improving pulp properties for existing products

Fluff pulp
- Hygiene and health, growing by 3.6% per year
- Life expectancy and increased disposable income in developing countries
- Improve fluff pulp properties to increase customer value

Dissolving pulp
- Dissolving pulp to textiles is a 6.1 Mt market, growing 6.8% per year
- The increase of cellulosic fibre in textiles is driven by global brand owners
- Improve quality to be able to differentiate in the value chain

Pulp for specialty papers
- Flexible packaging, labels, security, décor, among others
- 28 Mt market, growing 1.8% per year
- Fibre improvements, special additives, sustainable coatings & barriers, source reduction and other innovation opportunities

Source: Smithers Pira, Hawkins Wright
Platform 2: Developing new technologies for using wood fibre in textiles, non-woven and specialty papers

**Regenerated cellulose**
- Participate in the development of new technologies for using wood fibre in textile
- Growing interest from global brand owners increases demand for renewable fibres
- Opportunity to leverage on existing assets to enter this new market

**MFC**
- MFC has potential to be used in specialty papers and non-woven
- MFC is a versatile material with potential to work as strength enhancer, additive, binder and barrier material
- Stora Enso has a long history in the research of MFC and has a demonstration plant in Imatra, Finland

Source: Stora Enso
Platform 3: Lignin – big opportunities in many markets

Phenol replacement
- Phenolic resins is a 2.8 Mt market, growing at 4% CAGR
- It replaces phenol in adhesives for plywood, OSB (oriented strand board), laminates, LVL and other wood construction materials
- The carbon footprint for lignin is roughly 1/10 of the carbon footprint of phenol

Carbon fibre
- Light-weight high performance composites
- 70–80 Kt market, growing at 9–12% CAGR
- Low-carbon-footprint carbon fibre is unoccupied market space

Energy storage
- Substitution of conventional hard carbon anode materials in energy storage, namely Li-Ion Batteries and Supercapacitors
- Market growing on average by 20% CAGR
- Key applications: portable consumer electronics, power tools, electrical vehicles, stationary applications and back-up systems

Source: Stora Enso, Carbon Composites, IDTechEx, LuxResearch, Markets and Research, Zion Research
Renewable Lineo™ by Stora Enso can replace fossil-based materials

- Wood-based lignin is a renewable, non-toxic, traceable material
- Environment benefit, for example, in carbon fibres, energy storage and mechanical forest industry
- Today as a replacement for oil-based phenolic materials in glues for example in plywood and paper lamination
- Lignin makes up 20-30% of round wood

Market size; 3Mt for Phenol replacement
Platform 4: Bio-based chemicals replacing fossil-based materials

Bioplastics and intermediates

- Growing interest in packaging/bottling markets for renewable solutions
- Reduction on carbon footprint and enhanced properties are key target areas
- Market clearly favoring second generation biomass as the raw material source
- It is a very populated market place, thus, strategic alliances will be crucial to win in this industry

Xylose

- Key application is the xylitol (sweetener) market (approximately 120 Kt at 4–6% CAGR)
- Compared to C6 sugars it still is a rather undeveloped market, mainly due to lack of pure xylose availability. This is changing with the biorefinery concepts
- Growing interest and developments taking place in the market
- Stora Enso well positioned to be a frontrunner here

Source: PwC, Kline and Industry experts
Innovation in Wood Products

Product innovations

Building Systems

Digitalisation
From a classic sawn producer to a leading provider of innovative wood-based solutions

Classic sawn
Cross Laminated Timber (CLT)
Laminated Veneer Lumber (LVL)

Industrial components
Construction beams
Pellets

Building Solutions
Online services and e-business
Building Systems driving growth

Find the film from Stora Enso’s YouTube page (youtube.com/storaenso), or use a direct link youtube.com/watch?v=3El9hpy_T5k
New ways of improving efficiency through digitalisation – Forest categorisation & log value

1. Buyer takes pictures
2. Pictures to cloud service
3. Cloud
4. Calculation
5. ProCalc data - Value of logs
6. Results
7. • Quality class
8. • Value for sawmills
9. → Pricing proposal for buyer

Stora Enso

14 February 2020
Digitalisation in Wood Products

1. Market information
   - Forest categorisation based on collected info
   - Optimised raw material specification based on demand
   - Product demand forecast based on market

2. Digital customer interaction
   - Scan each single product
   - Simulate production, based on demand and log info
   - Automate, robotise and mobilise production
   - Individualisation of each log and digital data transfer to mill
   - Trees cut based on profit optimisation
   - Intelligent products

Wood Products end-to-end Digitalisation
Group’s financial performance, dividend policy, ownership and top management
Financial performance - Group

![Bar and line graph showing financial performance over years](image)
Cost structure 2019
% of costs

- Logistics and commissions: 34%
- Fibre: 14%
- Chemicals and fillers: 6%
- Energy: 13%
- Material: 10%
- Personnel: 6%
- Depreciation: 6%
- Other: 11%
Capex raised temporarily above depreciation

Capex for 2019 and estimate for 2020 include the capitalised leasing contracts according to IFRS 16 Leases standard.
Large number of opportunities prioritised through robust capital allocation

- Systematic approach on Group capex (>10MEUR)
  - Investment Working Group headed by CFO reviews all the proposals to ensure quality and prioritisation
  - Alignment with the Stora Enso strategy and financial and sustainability targets

- Selective investments to strategic projects in winning markets and products

- New cash flow modelling tool helps asset prioritisation with 20–30 years perspective

<table>
<thead>
<tr>
<th>Divisional financial targets</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Board</td>
<td>Operational ROOC &gt; 20%</td>
</tr>
<tr>
<td>Packaging Solutions</td>
<td>Operational ROOC &gt; 20%</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>Operational ROOC &gt; 15%</td>
</tr>
<tr>
<td>Wood Products</td>
<td>Operational ROOC &gt; 20%</td>
</tr>
<tr>
<td>Paper</td>
<td>Cash flow after capex to sales &gt; 7%</td>
</tr>
</tbody>
</table>
Year-on-year net debt/EBITDA

![Graph showing year-on-year net debt to EBITDA](image)

- MEUR
- Q114, Q314, Q115, Q315, Q116, Q316, Q117, Q317, Q118, Q318, Q119, Q319
- Net debt
- Net debt to operational EBITDA
Revolving Credit Facility 600 MEUR matures in January 2023 and is fully undrawn.
### Sustainability in our funding and reporting

<table>
<thead>
<tr>
<th>Revolving Credit Facility with a green aspect</th>
<th>Green Bond Framework</th>
<th>Green Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing includes sustainability component based on ability to reduce greenhouse gas emissions.</td>
<td>A loan-format to support sustainability-focused fixed income investors and to report environmental impacts.</td>
<td>First green bonds issued in February in 2019 to finance Bergvik Skog forest acquisition.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sustainable Finance strategy</th>
<th>Climate-related financial disclosure</th>
<th>Integrated reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim is to influence and develop the financial markets and to secure funding partners with sustainability agenda.</td>
<td>CFO support for better disclosure of climate risks and opportunities based on recommendations by the Financial Stability Board’s Task Force on Climate-related Financial Disclosures (TCFD).</td>
<td>The World Business Council for Sustainable Development (WBCSD) Redefining Value Board and programme: work on international reporting frameworks, materiality assessment standards, and data assurance methodologies.</td>
</tr>
</tbody>
</table>
Stora Enso dividend policy

- Strive to pay stable dividends linked to the long-term performance
- Half of the EPS over the cycle

*Dividend proposal*
Ownership Distribution
as of 31 December 2019

<table>
<thead>
<tr>
<th>Ownership Category</th>
<th>% of shares</th>
<th>% of votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solidium Oy*</td>
<td>10.7%</td>
<td>27.3%</td>
</tr>
<tr>
<td>FAM AB</td>
<td>10.2%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Social Insurance Institution of Finland (KELA)</td>
<td>3.1%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Finnish institutions (excl. Solidium and KELA)</td>
<td>12.5%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Swedish institutions (excl. FAM)</td>
<td>9.3%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Finnish private shareholders</td>
<td>4.4%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Swedish private shareholders</td>
<td>4.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>ADR holders</td>
<td>1.8%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Under nominee names (non-Finnish/non-Swedish shareholders)</td>
<td>43.8%</td>
<td>14.7%</td>
</tr>
</tbody>
</table>

* Entirely owned by the Finnish State
## Major Shareholders
as of 31 December 2019

<table>
<thead>
<tr>
<th>By voting power</th>
<th>A shares</th>
<th>R shares</th>
<th>% of shares</th>
<th>% of votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Solidium Oyj*</td>
<td>62 655 036</td>
<td>21 792 540</td>
<td>11</td>
<td>27.3</td>
</tr>
<tr>
<td>2 FAM AB**</td>
<td>63 123 386</td>
<td>17 000 000</td>
<td>10</td>
<td>27.3</td>
</tr>
<tr>
<td>3 Social Insurance Institution of Finland (KELA)</td>
<td>23 825 086</td>
<td>973 982</td>
<td>3</td>
<td>10.1</td>
</tr>
<tr>
<td>4 Varma Mutual Pension Insurance Company</td>
<td>8 513 018</td>
<td>1 140 874</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>5 MB-Bolangen i Vetlanda AB (incl. Stiftelsen Seydlitz Småland)</td>
<td>4 826 020</td>
<td>1 110 000</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>6 Ilmarinen Mutual Pension Company</td>
<td>3 055 000</td>
<td>16 570 000</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>7 Erik Johan Ljungberg's Education Foundation</td>
<td>1 780 540</td>
<td>2 336 224</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>8 Swedbank Robur Funds</td>
<td>0</td>
<td>16 729 037</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>9 Elo Mutual Pension Insurance Company</td>
<td>0</td>
<td>7 909 000</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>10 Bergslaget's Healthcare Foundation</td>
<td>626269</td>
<td>1 609 483</td>
<td>0</td>
<td>0.3</td>
</tr>
<tr>
<td>11 AFA Insurance</td>
<td>0</td>
<td>7 072 505</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>12 Nordea Investment Fund</td>
<td>0</td>
<td>5 841 360</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>13 The State Pension Fund</td>
<td>0</td>
<td>5 813 755</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>14 SEB Investment Management</td>
<td>0</td>
<td>5 769 313</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>15 Keva (Local Government Pensions Institution)</td>
<td>0</td>
<td>4 793 208</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>16 Lannebo Funds</td>
<td>0</td>
<td>4 480 000</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>17 Unionen (Swedish trade union)</td>
<td>0</td>
<td>3 782 750</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td>18 Investment Fund OP Suomi</td>
<td>0</td>
<td>3 375 000</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>19 The Society of Swedish Literature in Finland</td>
<td>0</td>
<td>3 000 000</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>20 Schweizerische Nationalbank</td>
<td>0</td>
<td>2 658 558</td>
<td>0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**20 largest total** | 168 404 355 | 133 757 589 | 38 | 76.5

*Entirely owned by the Finnish State. **As confirmed to Stora Enso.
Group Leadership Team

President and CEO
Annica Bresky

CFO
Seppo Parvi

HR
Malin Bendz

Packaging Solutions
David Ekberg (acting)

Sourcing & Logistics
Johanna Hagelberg

Paper
Kati ter Horst

Packaging Materials
Hannu Kasurinen

Communication
Ulrika Lilja

Legal
Per Lyrvall

Biomaterials
Markus Mannström

Sustainability
Noel Morrin

Forest
Jari Suominen

Wood Products
Seppo Toikka (acting)
Board of Directors

Jorma Eloranta  
since April 2016  
Chair

Hans Stråberg  
since April 2009  
Vice Chair

Elisabet Fleuriot  
since April 2013

Hock Goh  
since April 2012

Mikko Helander  
since March 2019

Christiane Kuehne  
since April 2017

Antti Mäkinen  
since March 2018

Richard Nilsson  
since April 2014

Göran Sandberg  
since April 2017
ESG indices and other external recognition in 2018

- Euromoney Vigeo: Stora Enso is included in the Euromoney Vigeo World, Europe, and Eurozone 120 indices as one of the 120 most advanced companies in terms of environmental, social, and governance performance.
- FTSE4Good Index: Stora Enso is included in the FTSE4Good Index Series. These indices measure the performance of companies that meet globally recognised corporate responsibility standards.
- ECPI Ethical Indices: Stora Enso is included in the ECPI EU Ethical Equity index, which covers environmental, social, and governance criteria.
- ISS-oekom Research: Stora Enso is classified as “Prime” by ISS-oekom Research's environmental, social, and governance rating methodology. In 2018, Stora Enso also received the best possible Environmental & Social quality score by the Institutional Shareholder Services (ISS).
- MSCI: Stora Enso is included in several of MSCI's ESG indices.
- Equileap: Stora Enso was ranked number 12 globally and the best performing Finnish company in gender balance and gender equality by Equileap, an organisation set up to accelerate progress toward gender equality at work.
- Most sustainable company 2018: In November 2018, Stora Enso was ranked as the most sustainable listed company in Sweden by Dagons Industri, Aktuell Hållbarhet, and Lund University School of Economics and Management.
Sponsored ADR Programme

Stora Enso has established a sponsored Level I ADR programme in the US. The ADRs trade on the premier tier of Over-The-Counter (“OTC”) market in the US. Details are as follows:

Ticker Symbol  SEOAY
CUSIP  86210M106
Ratio  1 ADR : 1 Ordinary Shares
ADR depositary  Citibank

Share price information  www.citi.com/DR or www.otcqx.com

Please contact the Citibank’s dedicated ADR broker desks:

Scott Pollak (New York)  Mike Woods (London)
Tel: +1 212 723 5676  Tel: +44 20 7500 2030
Email: scott.h.pollak@citi.com  Email: michael.woods@citi.com
Financial results for Q4 and full year 2019

Record high cash flow despite a challenging quarter

President and CEO Annica Bresky
CFO Seppo Parvi

30 January 2020
Record high cash flow despite a challenging quarter
Dividend proposal EUR 0.50 per share
Q4 2019 year-on-year

• Strong cash flow from operations at 721 (323) MEUR. Cash flow after investing activities was 518 (148) MEUR

• Significant increase of forest fair valuation of 777 MEUR, out of which 600 MEUR effecting IFRS results (not impacting Operational EBIT, using DCF methodology)

• The 275 MEUR profit protection programme is proceeding ahead of plan

Key financials

• Sales decreased by 9% to 2 411 (2 657) MEUR due to significantly lower prices

• Operational EBIT decreased to 112 (271) MEUR due to significantly lower prices, partly offset by lower costs

• Net debt to operational EBITDA at 2.1x (1.1x) close to the target <2.0x

• Operational ROCE at 4.2% (12.4%), below the strategic target of 13%
Cost savings partly offset price decreases
Operational EBIT Q4 y-o-y
275 MEUR profit protection programme strengthens our readiness for the future
150 MEUR cost savings actions implemented in 2019
### Forest fair valuation increased by 777 MEUR

<table>
<thead>
<tr>
<th>Productive land (ha)</th>
<th>Price per ha (EUR)</th>
<th>Value (BEUR)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest holdings in Sweden</td>
<td>1 140 000</td>
<td>3 020</td>
</tr>
<tr>
<td>Forest holdings in Finland</td>
<td>262 000</td>
<td>2 960</td>
</tr>
<tr>
<td>Forest holdings in plantations</td>
<td>220 000</td>
<td>3 230</td>
</tr>
<tr>
<td><strong>Total forest holdings</strong></td>
<td><strong>1 622 000</strong></td>
<td><strong>3 040</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Productive land (ha)</th>
<th>Price per ha (EUR)</th>
<th>Value (BEUR)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest value in Sweden based on LRF**</td>
<td>1 140 000</td>
<td>5 700</td>
</tr>
<tr>
<td>Forest value in Finland based on real estate register***</td>
<td>262 000</td>
<td>3 300</td>
</tr>
</tbody>
</table>

* Land and biological assets
** LRF Konsult
*** Real estate register (Kiinteistörekisteri) and Stora Enso
Dividend proposal unchanged at 0.50 EUR per share

- Dividend proposal of 0.50 EUR per share for 2019 totalling 394 MEUR, unchanged from 2018

- Dividend policy:
  - Strive to pay stable dividends linked to the long-term performance
  - 50% of EPS over the cycle

*Dividend proposal*
Events during Q4

• Corrugated packaging plant in Riga, Latvia expansion completed, ramping up as planned

• 9 MEUR investment enabling the production of bio-based plastics barrier in transparent packaging to be completed by Q2/2021

• Stora Enso and Sulapac commercialised a renewable and biodegradable straw

• 90 000 t/a packaging papers machine at Imatra Mills in Finland was shut down

• Kitee sawmill in Finland closed and agreement to divest sawn construction timber (KVH) mill at Pfarrkirchen in Germany to be finalised during Q1/2020

• Divestment of 60% equity stake in Dawang Mill in China completed
### Record high cash flow, good working capital management

**Summary financials Q4 2019**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>2 411</td>
<td>2 657</td>
<td>-9.3%</td>
<td>2 402</td>
<td>0.4%</td>
<td>10 055</td>
<td>10 486</td>
<td>-4.1%</td>
</tr>
<tr>
<td>Operational EBITDA</td>
<td>259</td>
<td>405</td>
<td>-36.0%</td>
<td>376</td>
<td>-31.0%</td>
<td>1 542</td>
<td>1 878</td>
<td>-17.9%</td>
</tr>
<tr>
<td>Operational EBITDA margin</td>
<td>10.8%</td>
<td>15.3%</td>
<td></td>
<td>15.7%</td>
<td></td>
<td>15.3%</td>
<td>17.9%</td>
<td></td>
</tr>
<tr>
<td>Operational EBIT</td>
<td>112</td>
<td>271</td>
<td>-58.8%</td>
<td>231</td>
<td>-51.7%</td>
<td>953</td>
<td>1 325</td>
<td>-28.1%</td>
</tr>
<tr>
<td>Operational EBIT margin</td>
<td>4.6%</td>
<td>10.2%</td>
<td></td>
<td>9.6%</td>
<td></td>
<td>9.5%</td>
<td>12.6%</td>
<td></td>
</tr>
<tr>
<td>Profit before tax excl. IAC</td>
<td>678</td>
<td>267</td>
<td>153.4%</td>
<td>152</td>
<td>n/m</td>
<td>1 329</td>
<td>1 190</td>
<td>11.7%</td>
</tr>
<tr>
<td>Net profit for the period</td>
<td>519</td>
<td>299</td>
<td>73.9%</td>
<td>59</td>
<td>n/m</td>
<td>856</td>
<td>988</td>
<td>-13.4%</td>
</tr>
<tr>
<td>EPS excl. IAC, EUR</td>
<td>0.69</td>
<td>0.33</td>
<td>113.2%</td>
<td>0.13</td>
<td>n/m</td>
<td>1.34</td>
<td>1.29</td>
<td>3.9%</td>
</tr>
<tr>
<td>EPS (basic), EUR</td>
<td>0.66</td>
<td>0.39</td>
<td>71.2%</td>
<td>0.09</td>
<td>n/m</td>
<td>1.12</td>
<td>1.28</td>
<td>-13.1%</td>
</tr>
<tr>
<td>Operational ROCE</td>
<td>4.2%</td>
<td>12.4%</td>
<td>-66.1%</td>
<td>8.7%</td>
<td>-51.7%</td>
<td>9.8%</td>
<td>15.5%</td>
<td>-36.8%</td>
</tr>
<tr>
<td>Cash Flow from Operations</td>
<td>721</td>
<td>323</td>
<td>123.5%</td>
<td>488</td>
<td>47.8%</td>
<td>1 980</td>
<td>1 365</td>
<td>45.0%</td>
</tr>
<tr>
<td>Net debt/last 12 months’ operational EBITDA</td>
<td>2.1*</td>
<td>1.1</td>
<td>2.2*</td>
<td>2.1*</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Restructuring of Swedish forest holding impact 0.6x in Q4/19 and 0.7x in Q3/19 and adoption of IFRS 16 Leases impact 0.2x in Q4/2019 and 0.3x in Q3/2019.
Consumer Board
Successful “value over volume” management
Q4 y-o-y

• Sales decreased by 4% to 614 MEUR due to lower board deliveries in Europe

• Operational EBIT increased by 111% to 51 MEUR
  - Value over volumes approach decreased volumes but local sales prices were higher
  - Clearly lower variable costs due to pulp

• Key account negotiations completed successfully with increased prices

• Operational ROOC doubled to 9.5% (5.0%)
Packaging Solutions
Challenges in containerboard, corrugated market continues to perform well
Q4 y-o-y

• Sales decreased by 17% from all-time high level a year ago to 293 MEUR
  − Significantly lower containerboard prices
  − Corrugated market strong, softer demand in China

• Operational EBIT decreased by 43 MEUR from last year’s record high level to 16 MEUR
  − Lower raw material prices for corrugated units offset by lower containerboard prices

• Operational ROOC decreased to 6.8% (25.7%) driven by significantly lower containerboard prices

• Oulu Mill conversion into kraftliner production is proceeding as planned and production is expected to start by the end of 2020
Biomaterials
Challenging market conditions continue, focus on inventory management
Q4 y-o-y

- Sales decreased by 18% from last year’s all-time high level to 341 MEUR
  - Significantly lower pulp prices
  - All-time high deliveries

- Operational EBIT decreased by 103 MEUR to -12 MEUR from last year’s record high Q4 level
  - Higher total volume impact but significantly lower pulp prices
  - Maintenance costs in Skutskär higher
  - All-time high deliveries to manage inventory levels

- Operational ROOC decreased to -1.9% (15.0%)
Wood Products
Focus on margin protection and record Q4 cash flow
Q4 y-o-y

• Sales decreased by 6% to 374 MEUR
  - Lower classic sawn prices and lower deliveries

• Operational EBIT decreased by 28 MEUR from last year’s record high Q4 level to 14 MEUR
  - Lower sales prices
  - Lower total volume impact mainly due to curtailments in Nordic mills to manage inventory levels and Kitee closure impact
  - Lower wood costs in Central Europe and lower fixed costs

• Operational ROOC decreased to 8.2% (27.1%) due to lower profitability

• Launch of a new concept enabling architects, engineers and developers to design wooden office buildings

• Finland’s tallest wooden high-rise building, Lighthouse Joensuu, has been granted the ‘Puupalkinto’ Wood Award 2019
Paper
Strong cash flow supported by good cost and working capital management
Q4 y-o-y

- Sales decreased by 9% to 694 MEUR
  - Significantly lower paper deliveries and lower prices in most paper grades
  - Dawang paper mill divestment impact -13 MEUR

- Operational EBIT stable at 44 MEUR
  - Somewhat lower prices in most grades and significantly lower total volumes impacted by curtailments to manage inventories
  - Lower variable, mainly pulp and paper for recycling costs, and fixed costs due to good costs management

- Cash flow after investing activities to sales ratio increased to 10.3% (2.5)%
  - Very good working capital management

- Reducing paper capacity by over million tonnes, 20% of Stora Enso paper capacity, with Oulu conversion in 2020
Outlook for 2020

Subdued and mixed trading conditions caused by geopolitical uncertainties are expected to continue to impact Stora Enso in 2020. The decline in demand for European paper will persist, and demand for other Group products is expected to remain mixed. Exceptionally mild winter conditions in the Nordics with reduced period of frozen soil could impact harvesting and transport of wood and may therefore affect the stability of raw material supply and potentially increase wood costs to our Nordic mills.

Stora Enso will continue active cost management in 2020–2021 through the profit protection programme implementation. The fixed and variable cost savings target is 275 MEUR to the end of 2021. Various labour unions in Finland are currently on strike which is expected to impact result negatively.
Guidance for Q1 2020

- Operational EBIT is expected to be in the range of 90–200 MEUR

- During Q1, there will be an annual maintenance shutdown at Ostrołęka Mill PM5. The total maintenance impact is estimated to be approximately 60 MEUR and 10 MEUR lower than in Q4/2019 and in Q1/2019 respectively.

- Various labour unions in Finland are currently on strike which also affects Stora Enso’s operations. The negative impact of these three-week labour actions is included in the above guidance range for Q1/2020.

<table>
<thead>
<tr>
<th>Annual maintenance</th>
<th>Q1 2020</th>
<th>Q1 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging Materials</td>
<td>Ostrołęka Mill PM5</td>
<td>Ostrołęka Mill PM5</td>
</tr>
<tr>
<td>Biomaterials</td>
<td>-</td>
<td>Veracel Mill</td>
</tr>
<tr>
<td>Paper</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
New divisional structure as of 1 January 2020

**Growth**
- Packaging Materials
  Consumer board and container board business
- Packaging Solutions
  Corrugated packaging together with recently created formed fiber unit
- Biomaterials
  No changes
- Wood Products
  No changes
- Forest
  Nordic forest assets and wood supply operations in Nordics, Russia and Baltics

**Cash**
- Paper
  No changes

The restated figures for the new divisional structure will be published during Q1/2020
Record high cash flow and significant increase of forest valuation
Q4 2019 year-on-year

• Subdued and mixed trading conditions

• Very strong cash flow from operations, 721 (323) MEUR

• Significant increase of our forest assets fair valuation, 777 MEUR

• 275 MEUR profit protection programme delivering positive impact of 150 MEUR in 2019

• New divisional structure from January 2020 onwards

• Dividend proposal 0.50 EUR per share
THE RENEWABLE MATERIALS COMPANY