UPM – THE BIOFORE COMPANY
AIMING HIGHER
WITH BIOFORE
Investor presentation
May 2017
Global businesses – local presence

UPM’s sales by market 2016
EUR 9,812 million

- 13% North America
- 63% Europe
- 18% Asia
- 6% Rest of the world

- 54 production plants in 12 countries
- 19,300 employees in 45 countries
- 12,000 customers in 120 countries
- 85,000 shareholders in 40 countries
- 55,000 suppliers in 70 countries
# UPM in transformation

## Business model
Promotes value creation

## Business portfolio
Increasing share of businesses with strong long-term fundamentals for profitability and growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>EBIT</th>
<th>ROE (%)</th>
<th>Net debt</th>
<th>Market cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>EUR 9.5bn</td>
<td>EUR 513m</td>
<td>3.5%</td>
<td>EUR 4.3bn</td>
<td>EUR 4.7bn</td>
</tr>
<tr>
<td>2016</td>
<td>EUR 9.8bn</td>
<td>EUR 1,143m</td>
<td>10.9%</td>
<td>EUR 1.1bn</td>
<td>EUR 12.5bn</td>
</tr>
</tbody>
</table>

*) excluding special items for 2008, comparable figures for 2016
UPM business portfolio today *)
Competitive businesses with strong market positions
Operating on healthily growing markets

Growth drivers:
Private consumption
Sustainability
Population growth
Urbanisation
E-commerce
Construction
Transportation

UPM PLYWOOD
Plywood, veneer ~3%

UPM PAPER ENA
Graphic papers ~ -4%

UPM Speciality Papers
Label papers ~4%
High-end office papers ~4%

UPM RAFLATAC
Self-adhesive labels ~4%

UPM BIOREFINING
Pulp ~3%
Biofuels strong
Timber ~2%

UPM ENERGY
Electricity ~1%

* by comparable EBIT 2016
Demand trend growth, % pa
Increasing share of businesses with strong long-term fundamentals for profitability and growth

Sustainable growth

Maintaining strong cash flow

UPM Biorefining
UPM Raflatac
UPM Specialty Papers
UPM Plywood
UPM Energy

UPM Paper ENA

Sales 2016

100%

75%

50%

25%

0%

13
420,000t magazine
160,000t fine

14
460,000t magazine
345,000t news

15
Pulp +70,000t
Label stock expansions
Renewable diesel +120m litres
Specialty papers +360,000t

16
Pulp +100,000t

17
Pulp mill efficiency improvement
Plywood +40,000 m³

18
Pulp +170,000t
Label stock expansion

UPM
The Biofore Company
Value creation through sustainable growth and cash generation

Sustainable growth
- Commercial success
- Cost efficiency
- Focused growth investments
- Product mix development

Maintain strong cash flow
- Commercial success
- Cost efficiency
- Efficient use of assets, including restructuring
Serving the increasing customer demand with the help of the growth initiatives

Fully contributing
• Pietarsaari pulp mill expansion
• Fray Bentos pulp mill expansion
• Kymi pulp mill expansion
• Raflatac expansion in APAC, Poland
• Kaukas pulp mill efficiency

Contributing well in Q1 2017
• Lappeenranta biorefinery
• Changshu speciality paper machine
• Otepää plywood mill expansion

Under construction
• Kymi pulp mill expansion
• Raflatac expansion in Poland
Focused investments are delivering growth

| UPM Biorefining        | Pulp, Biofuels                                  | CAGR +3%  
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Average delivery growth 2011–2016</td>
<td>New business</td>
<td></td>
</tr>
<tr>
<td>UPM Raflatac</td>
<td>Standard products, Films and specials</td>
<td>CAGR +4%</td>
</tr>
<tr>
<td>UPM Specialty Papers</td>
<td>Label materials, Cut-size</td>
<td>CAGR +4%</td>
</tr>
<tr>
<td>UPM Plywood</td>
<td>Plywood</td>
<td>CAGR +3%</td>
</tr>
</tbody>
</table>

Sales 2016

- 100%
- 75%
- 50%
- 25%
- 0%
Business area long-term targets compared with realised returns

* Shareholdings in UPM Energy valued at fair value

Long-term return target
Group financial performance

Comparable EBIT

Comparable ROE

Net debt and leverage

Target: EBIT growth

Target: 10%

Comparable figures for 2014 - Q1 2017, excluding special items for earlier years

Policy: ≤ 2x
Direction: grow businesses with strong long-term fundamentals and sustainable competitive advantage

**Operating model** → Better than sum of parts
- Separate businesses
- Top performance
- Corporate benefits

**Performance** → Continuous improvement
- Profit focus
- High performing people
- Value-based leadership and responsibility
- Innovation

**Capability** → Foundation for opportunities
- Strong cash flow
- Strong balance sheet
- Corporate structure

**Capital allocation** → Attractive returns
- Attractive dividend
- Focused growth investments
- Selected larger investments
- Synergistic M&A

**Growth** → Earnings growth and valuation
- Current growing businesses
- New bio-based businesses
Financial performance in 2016 – disciplined capital allocation in action

Top performance
Comparable EBIT
EUR 1,143m
+25%

Comparable ROE
10.9%
+1.4%pp

Strong cash flow
Operating cash flow
EUR 1,686m
+42%

Attractive dividend
Dividend
EUR 507m
+27%

Focused investments
Capital expenditure
EUR 325m
Attractive returns
reached 80% of the EUR 200m
EBITDA target set for the first
wave of growth projects

Net debt reduction
EUR 969m, –46%

Industry-leading balance sheet
Net debt/
EBITDA
0.73x

5/6 business areas
achieved their financial targets
Strong cash flow and balance sheet

Operating cash flow

Net debt

Q1/17 operating cash flow EUR 396m
Working capital decreased by EUR 36m

Net debt / EBITDA (trailing 12 months)

Net debt / EBITDA

"Free cash flow"
Dividend policy

- UPM aims to pay an attractive dividend, 30–40% of operating cash flow per share

Dividend for 2016

- EUR 0.95 (0.75) per share, totalling EUR 507m
- 30% of 2016 operating cash flow of EUR 1,686m
Low investment needs in existing assets allow growth projects with modest total capex

Focused growth investments

- Good returns and fast payback
- Low implementation risk
- Financed from operating cash flow

Low replacement investments

- Asset quality in all businesses, e.g. large competitive pulp mills
- UPM Paper ENA

Modest total capex, attractive returns and continuously strengthening balance sheet
UPM businesses delivered a strong Q1 2017

- Comparable EBIT increased by 8% to EUR 305m (281m)
- Operating cash flow was strong at EUR 396m (341m)
- Net debt decreased to EUR 807m (1,873m), net debt/EBITDA to 0.52x (1.31x)
- Comparable ROE (LTM) increased to 11.1% (10.0%)
- Operating cash flow (LTM) was EUR 1,741m, EUR 3.26 per share
Q1 2017 – strong operational efficiency and good growth in deliveries

**UPM BIOREFINING**
- Record production in Pulp, Biofuels and Timber
- Pulp deliveries +8%
- Good demand growth, particularly in China

**UPM PAPER ENA**
- Another good quarter
- Sale agreements of hydropower assets
- Closed 305,000t of capacity
- Graphic paper deliveries –2%

**UPM ENERGY**
- Hydropower generation below long-term average
- Market prices depressed by mild weather conditions

**UPM SPECIALTY PAPERS**
- Record profits
- Good progress in product mix
- Deliveries +3%
- Good demand growth, particularly in Asia

**UPM RAFLATAc**
- Record profits
- Deliveries +6%
- Good demand growth, particularly in Asia

**UPM PLYWOOD**
- Record profits
- Deliveries +7%, favourable product mix
- Good demand, activity in construction improved further
Comparable EBIT by business area

- **UPM Biorefining**: EURm 150, % of sales 25
- **UPM Energy**: EURm 120, % of sales 60
- **UPM Paper ENA**: EURm 120, % of sales 12
- **UPM Specialty Papers**: EURm 50, % of sales 12.5
- **UPM Raflatac**: EURm 50, % of sales 12.5
- **UPM Plywood**: EURm 25, % of sales 16
Comparable EBIT in Q1 2017 vs. Q1 2016


<table>
<thead>
<tr>
<th></th>
<th>Q1/16</th>
<th>Q1/17</th>
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<tbody>
<tr>
<td>Prices</td>
<td>281</td>
<td>305</td>
</tr>
<tr>
<td>11.5%</td>
<td>12.3%</td>
<td></td>
</tr>
<tr>
<td>Fixed costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depr., forests, plantations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currency, net impact</td>
<td></td>
<td></td>
</tr>
</tbody>
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<tr>
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<th>Q1/16</th>
<th>Q1/17</th>
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<tr>
<td>Energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty Papers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper ENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plywood Other operations and eliminations</td>
<td></td>
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Outlook for 2017

- UPM’s profitability improved significantly in 2016 and is expected to remain on a good level in 2017.

- Demand growth is expected to continue for most of UPM’s businesses, while demand decline is expected to continue for UPM Paper ENA. The focused growth projects continue to contribute gradually to UPM’s performance.

- Following a deflationary environment in recent years, 2017 is expected to show modest input cost inflation. UPM will continue measures to reduce fixed and variable costs to mitigate this.

- In Q2 2017, UPM’s performance will be impacted by higher maintenance activity, especially in UPM Biorefining, UPM Paper ENA and UPM Energy, compared with Q1 2017.
Responsibility is good business

"We believe that customers, investors and other stakeholders value responsible operations that keep risks under control and add to our business opportunities, thereby increasing the company value."

UPM Annual Report 2015
Creating competitive advantage and long-term value by engagement

**Safety**

- Per million hours
- Lost-time accident frequency
- 5-year change: **−76%**

**Employee engagement**

- Manager effectiveness
- Employee engagement
- 5-year change: **+9**

**Productivity**

- Sales per employee
- 5-year CAGR: **+4% pa**

The Biofore Company

© UPM
Creating competitive advantage and long-term value by efficiency
Case: UPM Changshu mill in China

- **Water**: -60% Per tonne of paper
- **Energy**: -30% Per tonne of paper
- **Waste to landfill**: -60% Per tonne of paper
- **Certified fibre**: 85% In 2015

2015 compared to 2005

- **COD in effluent**: -75% Per tonne of paper
- **SO₂ emission**: -90% Per tonne of paper

Source: UPM
Consistent long-term work receives external recognition

UPM in sustainability indices

Sustainable and Responsible (SRI) investors form a significant part of UPM’s shareholders

SRI, % of total institutional shareholders

Source: Nasdaq, September 2016
Market pulp consumed in growing end-uses – supply of alternative white fibres declines

Global paper and board production

- Market pulp consumption in growing end-uses
- Stressed supply of white recycled fibre
- Mixed collection crowding out white recycled fibre
Case: Market pulp consumption in growing end-uses

Fibre consumption in tissue, cartonboard and specialty end-uses

- White integrated pulp: 10 million tonnes
- White market pulp: 30 million tonnes
- Other fibres (RCP, mechanical pulps...): 85 million tonnes

5% demand increase in tissue, cartonboard and specialty end-uses

Increase in market pulp consumption: +1.5 million tonnes

Source: Pöyry, Hawkins Wright, UPM
UPM Biorefining

Case: Stressed supply of white recycled paper

- 5% fall in global graphic paper production
- Fall in market pulp demand
- Market pulp to replace fall in white recycled paper supply
- Net increase in market pulp demand

Source: Pöyry, UPM
Case: Mixed collection crowding out white recycled fibre

Source: Pöyry, UPM
Summary of pulp demand outlook

Increase in end use ... 

- Healthy growth in other White Papers & Boards
- Strong growth in Containerboards (brown fibre)
- Decline in Graphic papers

... will drive fibre demand in coming decades

- Growth in Market pulp vs. decline in Integrated pulp
- Declining White RCP
- Demand of Brown fibre may overwhelm the supply

Estimated growth of White RCP + Integrated Pulp + Market Pulp is still conservative (~1 Mt/a)

Source: UPM, Pöyry, RISI
White fibres in different stages of life-cycle; 64 Mt capacity closed within 2000–2015

- **Hardwood pulp** capacity has experienced strong net growth after 2000 and is expected to continue growing.
- **Softwood** has faced closures as much as hardwood. New demand in China is turning decline into a slow growth.
- **White RCP** was the fastest-growing fibre in Europe and NA in early 1990’s. After recession capacity has been in decline due to very high collection rates and diminishing supply of graphic paper.
- **Mechanical** pulp continues to decline along with graphic papers.
- **Non-wood** pulps consumed mostly in China are under pressure due to environmental reasons.
- **Sulphite** has been in decline for decades.

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Note: Including both market and integrated pulp

Source: Pöyry
Chemical pulp market

Q1 NBSK pulp price increased by 1% from Q4
Q1 BHKP pulp price increased by 4% from Q4

Source: FOEX Indexes Ltd.

Pulp inventories

Source: PPPC World-20 statistics
Uruguay could be a competitive alternative – time schedule is several years

**Phase I**
- Conversation with Government of Uruguay

**Phase II**
- Development of Infrastructure
  - Pre-engineering
  - Tendering and Permitting
  - Est. 1.5 – 2 years

**Phase III**
- Investment Project
  - Development of Infrastructure
  - Est. 2.5 years

**Investment decision**
UPM Biorefining

UPM Biofuels in existing and future end-use

Fuel retail

Dedicated green fleets

Marine/Aviation
UPM Biorefining

UPM Biofuels business evolving

- **2010**: UPM enters Biofuels
- **Investment decision 2012**: Evaluate technologies, define business case
- **2015**: Commercial start
  - Build Lappeenranta Biorefinery and Biofuels organization
  - Establish Bioverno as a benchmark product and brand in biofuels
- **2020**: Technology and Business case proven
  - Start evaluation of future growth opportunities
  - Biocrude concept shaping
Significant emission cuts needed in transportation sector

EU’s greenhouse gas reduction targets cannot be met without significant emission cuts in transport – actions needed in all sectors.

**Transport emissions by sector**

- **Marine**: 14% of total emissions in Europe from transport
- **Aviation**: 13%
- **Road transport, heavy-duty**: 18%
- **Road transport, light-duty**: 55%

**Drop-in biofuels** are a solution for GHG reduction in all transport sectors.

**Electric vehicles** can be applied in light-duty road transport.

- EU’s overall GHG reduction targets:
  - 80% by 2050
  - 40% by 2030
  - 60% by 2040

- **Road transport**, light-duty: 55% of total emissions in Europe from transport.
Decarbonizing European transport requires effective use of all energy and technology options – renewable drop-in fuels a fast-lane solution

* Calculated based on “Global EV sales outlook to 2040” by Bloomberg New Energy Finance
* Assuming EV’s represent 38% of new car sales in Europe by 2040 + EV’s are fully emission free
** Assuming annual energy efficiency improvement of 2% in light-duty, 0.5% in heavy-duty
Cost competitive and flexible asset base

Power generation breakdown

- Condensing power
- Flexible hydro production with optimisation opportunities
- Nuclear as reliable base load with world-class availability performance
Cost efficient generation enables robust profitability also in challenging market environment

UPM Energy profitability

<table>
<thead>
<tr>
<th>Year</th>
<th>Comparable EBIT, EURm</th>
<th>% of sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>217</td>
<td>45.0</td>
</tr>
<tr>
<td>2013</td>
<td>186</td>
<td>39.9</td>
</tr>
<tr>
<td>2014</td>
<td>202</td>
<td>43.5</td>
</tr>
<tr>
<td>2015</td>
<td>181</td>
<td>43.6</td>
</tr>
<tr>
<td>2016</td>
<td>116</td>
<td>32.7</td>
</tr>
<tr>
<td>Q117</td>
<td>22</td>
<td>27.5</td>
</tr>
</tbody>
</table>
Self-adhesive labels in end-use
Leading position in a growing market

The self adhesive labelstock market

- > EUR 8bn global market
- ~ 4% p.a. growth
- Private consumption driven

UPM Raflatac

- #2 globally
- Business in 120 countries
- > 8,000 customers
- 3,000 people in six continents

UPM Raflatac market shares

<table>
<thead>
<tr>
<th>Region</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMEIA</td>
<td>25%</td>
</tr>
<tr>
<td>Americas</td>
<td>15%</td>
</tr>
<tr>
<td>APAC</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>
Continuing growth

1. Capturing the market growth in the current markets and product areas
2. Increased distribution coverage and customer reach
3. Wider product portfolio
4. M&A when opportunities emerge

Enabled by scalable operating platform & efficient investments
UPM Specialty Papers

Focus on global Labelling materials, Packaging in Europe and Office paper in APAC

LABELLING MATERIAL

PACKAGING

OFFICE PAPER APAC
Our end use markets are growing

**LABELING MATERIAL**
CASE: Siliconized release liner market, 44 Bn m²

- **2014**: 44 Bn m²
- **2020E**: 60 Bn m²
- **CAGR**: 9%

**OFFICE PAPER ASIA**
Asian cut size market, million tonnes

- **2015**: 4.6 million tonnes
- **2020E**: 5.2 million tonnes
- **CAGR**: 5%

**PACKAGING**
Paper flexpack, k tonnes

- **2015**: 2370 k tonnes
- **2020E**: 2702 k tonnes
- **CAGR**: 5%

**MARKET VALUE**

- **2014**: ~$12 Bn
- **2020E**: ~$58 Bn
- **2015**: ~$58 Bn
- **2020E**: ~$58 Bn

**GROWTH RATES**

- **South America**: 4%
- **Europe**: 4%
- **North America**: 3%
- **Asia**: 2.5%
- **MEA**: 2%

**CHN**

- **2015**: 0.6%
- **2020E**: 5%

**JPN**

- **2015**: 3%
- **2020E**: 2.5%

**KOR**

- **2015**: 0%
- **2020E**: 0.6%

**SEA**

- **2015**: 1%
- **2020E**: 1%

**AUS**

- **2015**: 6%
- **2020E**: -2%

**OTH**

- **2015**: 3%
- **2020E**: 3%
UPM Specialty Papers

Global release liner market: Applications

Product functions:
Release liner carries the adhesive and face material
- Prevents the adhesive from sticking permanently
- Important and often critical feature of a layered construction

Source: AWA
Changshu mill: focus on growing end uses with a flexible swing production line

**Business plan**

- **Accelerate growth of glassine**
- **Invest in the development of specialty grades – end-use segments in packaging**
- **Service existing long-term customers with graphic paper grades (WFU and WFC)**
- **Continue to grow in the “quality” copy paper segment primarily in China**

**Source:** UPM

**WFU:** wood free uncoated

**WFC:** wood free coated

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**Illustration: UPM Changshu Mill Quarterly Capacity**

- Chart showing quarterly capacity from 2015 to 2020 for WFU graphic, WFC, WFU spec, and glassine.
UPM Paper ENA

Paper demand by end use – different trends

- Historically Home & Office end-use has been the most resilient to structural changes
- Despite the digital alternatives personal preferences (way of working and learning), regulation (archiving) and lack of common standards have mitigated the change
- A moderate decline has taken place in Direct marketing end-use
- Paper based marketing is still recognized to be the most effective medium for retailers and cataloguers
- Steady decline in Magazine Publishing circulation and pagination, however number of titles increasing
- Publishers still rely heavily on the revenues from print
- Newspaper publishing being historically the most vulnerable to structural changes but remarkable differences between countries
- Monetizing digital circulation for Magazines and Newspapers continue to be challenging

Source: Euro-Graph
What does it take to perform in challenging markets?

1. Assets: Stringent capacity management
2. Sales: Profound customer- and market understanding
3. Cost base: Smart initiatives in push mode
4. Cash flow: Performance management and discipline
Demand-supply balance in European graphic paper is visible in margins

Sources: PPI, RISI, Pöyry
UPM Plywood

UPM Plywood in end-use

Construction

Vehicle flooring

LNG shipbuilding
Relevant high-end market offers meaningful growth potential

Relevant market ~5 million m³
- High-end demanding applications & customers
- Medium range standard products
- EMEA region
- Global LNG business
- Europe is net importer of plywood
- Imports focus mainly on standard products in mid-low ranges

Source: FEIC; FAOSTAT; UPM
Selected focus end-uses provide further growth potential

- The recovery of the European construction sector is driving demand (annual growth 2–3% p.a.)
- The financial crisis created a backlog for trailers driving the current replacement need (average growth 4% p.a.)
- The LNG market is expected to remain solid as countries secure energy availability, thereby supporting the demand for LNG vessels (existing order book for plywood based LNGC ~90 vessels)

Sources: Euroconstruct, West European trailer registrations for Big 7 Countries (1985–2016), LNG World Shipping
New business opportunities for UPM

### Biofuels
- High volume products
- Economies of scale
- Drop-in applications

### Biochemicals
- Auxiliary for pharma R&D
- Industrial Applications
- Performance chemical
- New applications

### Biofibrils
- Market entry

### Lignin
- New material
- End-user product

### Biocomposites
- 2 prod. sites
New separation technologies ensure best overall value capture

Wood-to-Sugar-Process
- Woody Biomass
- Glucose
- Xylose
- Lignin

Sugar-to-Chemical-Process
- Chemical A
- Chemical B
Partial overlap with fossil-based value chains in chemicals