USPS LEADERSHIP FORUM
FOR STAKEHOLDERS

UPDATE ON THE PAPER INDUSTRY

John Jankowski, Director, Corporate Development
And Kathy Haynes, Regional Vice President of Publishing Sales
Sappi North America
“Letters to Dad”

Dad,

I had fun at school today. Frank won the race. I love you.

Love, Bobby

Love Dad
Paper 2019 and Beyond

Thoughts on consumer preferences, macroeconomic trends and our collective future
“Fake News: Lies spread faster on social media than truth does”
—NBC News, March 8, 2018

55% of people prefer paper over plastic.
—Isobar, April 2018

“Why We're Giving Up the Plastic Wrapper Around Our Magazine”
National Geographic is launching a multiyear ‘Planet or Plastic?’ campaign to encourage consumers to reduce single-use plastics.
—National Geographic, June 2018

“Nestlé’s commitment is to make 100% of our packaging reusable or recyclable by 2025”
—Nestlé website

“Consumers viewed paper over plastic bags as better for the environment by a factor of 3 to 1.”
—Gallup 2017 poll

“China Tariffs Hit Recycled Paper Imports”
—Waste 360, September 5, 2018

“A new report from Juniper Research has found that “advertisers will lose an estimated $19 billion to fraudulent activities next year, equivalent to $51 million per day.”
—Business Wire, September 26, 2017

“Digital Overload: Your Brain On Gadgets”
—NPR, August 24, 2018

94 Percent of College Students Credit Paper for their Success.
—Paper and Packaging Board Report, July 9, 2018

“Amazon is mailing a printed holiday toy catalog to millions of customers”
—CNBC, November 6, 2018

“Amazon to take 50% of US e-commerce share by 2023”
—Retail Dive, September 12, 2018

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Agenda

Who is Sappi – Kathy Haynes

Paper Industry Update – John Jankowski

Our Collective Future – Kathy Haynes
Sappi at a glance

- Global sales US$5.8 billion in 2018
- 5.56 million tons paper
- 2.3 million tons pulp
- 12,500 employees
- Global network/infrastructure and business in 150 countries

Market leader in four business divisions:

- Graphic Papers
- Packaging and Speciality Papers
- Dissolving Woodpulp
- Casting and Release Papers
Unlocking the full potential of trees

Making the most of a renewable, natural material

End use

Certified forests

[Graphic papers
Packaging and Speciality papers]

Cellulose

Dissolving Wood pulp

Fibre composites

Nanocellulose

Casting & Release paper

Hemicellulose

Xylitol & chemicals from sugars

Lignin

Chemicals from Lignin

Low calorie sweetener

Textiles

Pharmaceuticals

Cellophane

Automotive parts

Furniture

Audio speakers

Reinforcing agent

Control release agent

Viscosity modifier

Textures for materials

Functional films

Automotive wraps

Binding agent

Dispersion agent

Emulsion stabiliser

Making the most of a renewable, natural material
Paper and the Circular Economy

Agenda

Who is Sappi – Kathy Haynes

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Our Collective Future – Kathy Haynes
Printing & Writing Papers Overview
Printing and Writing Market Trends

- Growth of digital platforms has resulted in long-term structural demand decline for printing and writing grades.

- Global demand for printing and writing paper has been declining since 2007, but has been offset by growth in paper based packaging and tissue.

- Consolidation, closures and conversions has greatly reduced the number of printing and writing producers.

- China plays a large and increasing role in global trade flows, supply/demand balance, cost pressures and pricing.
Printing Paper Quality Pyramid

Coated Free Sheet (CFS)
Coated Groundwood (LWC)
Uncoated Paper
Newsprint
Packaging Paper
Tissue
Coated Papers

- 38 million tons globally, 7 million tons in North America
- Primarily used in magazines, catalogs, books and other commercial print pieces, including direct mail advertising
- Demand falling by 4% per year, with coated freesheet holding up better than coated mechanical

Source: RISI
Uncoated Mechanical

- 12 million tons globally, 3 million tons in North America
- Primarily used in magazines, catalogs, books and other commercial print pieces, including direct mail advertising
- Demand falling by 6% per year

Source: RISI
Uncoated Freesheet

- 58 million tons globally, 8 million tons in North America
- Primarily used in office paper, envelopes and stationary
- Largest of the printing and writing categories; demand falling 3% per year

Source: RISI
2018 Printing & Writing Demand by End-Use

- Commercial print, which includes direct mail pieces, has held up better than any other paper end-use.
- Magazines have seen the largest decline in paper usage.

Source: RISI
North American Printing and Writing Demand Trend

Source: RISI

NA Printing & Writing Indexed Demand

Forecast

Source: RISI
Cost Drivers – Paper and Print

Paper Production
- Chemicals: 31%
- Fiber: 28%
- Labor: 12%
- Energy: 9%
- Other: 10%
- Delivery: 10%

Catalog/Direct Mailing
- Postage: 60%
- Paper: 20%
- Printing: 20%

Source: RISI, Sappi
Profit Margin Trend – Coated Freesheet

CFS Web Price vs. Average Mill Total Cost

14% of US capacity closes
Global Printing & Writing Demand by Region

**2007**
- North America: 26%
- Europe: 30%
- China: 15%
- Other Asia: 19%
- Latin America: 5%
- Oceania: 2%
- Africa/ME: 3%

**2018**
- North America: 17%
- Europe: 25%
- China: 24%
- Other Asia: 23%
- Latin America: 5%
- Africa/ME: 5%
- Oceania: 1%

Source: RISI
From 1992-2018, global demand has grew 1% per year while China demand grew 6% per year.

Since 2007 (demand peak), global demand has fallen 2% per year while China demand has continued to grow 2% per year.

Source: RISI
China Update

- Chinese government implemented restrictions in early 2018 on recycled paper
- This led to a scramble for fiber supply from Chinese paper and board producers and contributed to the sharp increase in virgin (non-recycled) fiber prices
- Chinese companies were forced to seek new sources of pulp and recycled paper outside China
- In 2018, Chinese companies acquired 8 North American mills, with ~2.7 million tons of pulp and paper capacity
  - First time Chinese companies have purchased paper assets in North America
- Currently 1/3 of coated mechanical capacity in NA is owned by Chinese companies
Growth of Imports into North America

Source: RISI
NA Capacity Share by Producer – Coated Freesheet

1999
- Sappi, 1,045
- Westvaco, 718
- Consolidated Paper, 712
- Mead, 640
- Champion, 622
- International Paper, 619
- Potlatch, 410
- Simpson, 249
- Appleton, 280
- Plainwell Paper, 50
- Boise Cascade, 42
- Wausau, 40
- Gallaher, 40
- Georgia Pacific, 29
- Mohawk, 13
- Crown Vantage, 5
- E.B. Eddy, 13
- Domtar, 12
- West Linn, 17
- Temple, 16
- Union Camp, 10
- Plainwell Paper, 5
- Boise Cascade, 4
- Wausau, 4
- Gallaher, 4
- Georgia Pacific, 3
- Mohawk, 3
- Crown Vantage, 3
- E.B. Eddy, 1
- Domtar, 1
- West Linn, 1
- Temple, 1
- Union Camp, 1
- Plainwell Paper, 1

2019
- Sappi, 1,221
- Nine Dragons, 281
- Verso, 1,829

Source: RISI
## Capacity Changes

### Coated Freesheet

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
<th>Annual Net Change (tons)</th>
<th>Date</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sappi</td>
<td>Biberist, Switzerland</td>
<td>(479,000)</td>
<td>Q2 11</td>
<td>Ceased CFS production at mill</td>
</tr>
<tr>
<td>M-real</td>
<td>Aanekoski, Finland</td>
<td>(220,000)</td>
<td>Dec-11</td>
<td>Closed PM2</td>
</tr>
<tr>
<td>M-real</td>
<td>Husum, Sweden</td>
<td>68,000</td>
<td>Q1 12</td>
<td>Shift from Aanekoski mill</td>
</tr>
<tr>
<td>Stora Enso</td>
<td>Uetersen, Germany</td>
<td>(154,000)</td>
<td>2012</td>
<td>Shift to specialty paper</td>
</tr>
<tr>
<td>Smart Papers</td>
<td>Hamilton, OH</td>
<td>(42,000)</td>
<td>Feb-12</td>
<td>Shut last PM at mill</td>
</tr>
<tr>
<td>Burgo</td>
<td>Avezzano, Italy</td>
<td>(112,000)</td>
<td>Jul-12</td>
<td>Shut PM1</td>
</tr>
<tr>
<td>Arjowiggins</td>
<td>Odense, Denmark</td>
<td>(120,000)</td>
<td>Dec-12</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Lecta</td>
<td>Condal, France</td>
<td>(99,000)</td>
<td>Jul-13</td>
<td>Shut PM6</td>
</tr>
<tr>
<td>International Paper Courtland, AL</td>
<td>(116,000)</td>
<td>Q4 13</td>
<td>Shifted PM2 to specialty paper</td>
<td></td>
</tr>
<tr>
<td>Sappi</td>
<td>Alfeld, Germany</td>
<td>(165,000)</td>
<td>Q4 13</td>
<td>Shifted PM2 to specialty paper</td>
</tr>
<tr>
<td>Ilm Group</td>
<td>Koryazhma, Russia</td>
<td>77,000</td>
<td>Q4 13</td>
<td>New PM7 and coater</td>
</tr>
<tr>
<td>Lecta</td>
<td>Zaragoza &amp; Motril, Spain</td>
<td>(40,000)</td>
<td>Dec-14</td>
<td>Shift to specialty paper</td>
</tr>
<tr>
<td>Burgo</td>
<td>Avezzano, Italy</td>
<td>(165,000)</td>
<td>Jan-14</td>
<td>Shut PM2</td>
</tr>
<tr>
<td>NewPage</td>
<td>Rumford, ME</td>
<td>(45,000)</td>
<td>Feb-14</td>
<td>Indefinitely idled PM2</td>
</tr>
<tr>
<td>Sappi</td>
<td>Nijmegen, Netherlands</td>
<td>(265,000)</td>
<td>Jun-14</td>
<td>Mill sold to AVAC to produce specialty paper</td>
</tr>
<tr>
<td>Paper Excellence</td>
<td>Linningen, Germany</td>
<td>(176,000)</td>
<td>Jul-14</td>
<td>Idled PM6</td>
</tr>
<tr>
<td>FutureMark</td>
<td>Alsip, IL</td>
<td>(35,000)</td>
<td>Sep-14</td>
<td>Mill indefinitely idled</td>
</tr>
<tr>
<td>Sappi</td>
<td>Stanger, South Africa</td>
<td>(88,000)</td>
<td>Dec-14</td>
<td>Transition to uncoated</td>
</tr>
<tr>
<td>Arjowiggins</td>
<td>Wierzenes, France</td>
<td>(187,000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metsa Board</td>
<td>Husum, Sweden</td>
<td>(66,000)</td>
<td></td>
<td>2015 PM8 shut to packaging</td>
</tr>
<tr>
<td>Lecta</td>
<td>Zaragoza &amp; Motril, Spain</td>
<td>(66,000)</td>
<td></td>
<td>2015 Shift to specialty paper</td>
</tr>
<tr>
<td>APP</td>
<td>Jiangsu, China</td>
<td>(198,000)</td>
<td></td>
<td>2015 PM closure</td>
</tr>
<tr>
<td>Catalyst</td>
<td>Rumford, ME</td>
<td>45,000</td>
<td></td>
<td>Jan-15 PM62 restarted</td>
</tr>
<tr>
<td>Catalyst</td>
<td>Rumford, ME</td>
<td>(65,000)</td>
<td>Sep-15</td>
<td>PM62 indefinitely idled</td>
</tr>
<tr>
<td>Lecta</td>
<td>Zaragoza &amp; Motril, Spain</td>
<td>(56,000)</td>
<td></td>
<td>2016 Shift to specialty paper</td>
</tr>
<tr>
<td>Verso</td>
<td>Wickliffe, KY</td>
<td>(21,000)</td>
<td>Dec-15</td>
<td>Apr-16 Permanent closure, PM2</td>
</tr>
<tr>
<td>Catalyst</td>
<td>Rumford, ME</td>
<td>58,000</td>
<td>May-16</td>
<td>2016 PM2 restarted</td>
</tr>
<tr>
<td>Moorim</td>
<td>Jinju, South Korea</td>
<td>(114,000)</td>
<td>Q2 16</td>
<td>PM6 closures</td>
</tr>
<tr>
<td>Hansol</td>
<td>Osan, South Korea</td>
<td>(103,000)</td>
<td>Q2 16</td>
<td>PM6 closures</td>
</tr>
<tr>
<td>Stora Enso</td>
<td>Suzhou, China</td>
<td>(265,000)</td>
<td>Q4 16</td>
<td>PM6 closures</td>
</tr>
<tr>
<td>Verso</td>
<td>Jay, ME</td>
<td>(50,000)</td>
<td></td>
<td>Q1 17 Shut PM3 (restarted on linerboard in 2018)</td>
</tr>
<tr>
<td>Sappi</td>
<td>Lanaken Mill, Belgium</td>
<td>220,000</td>
<td>2017-2019</td>
<td>Transition from CGW to CFS</td>
</tr>
<tr>
<td>Appleton Coated</td>
<td>Appleton, WI</td>
<td>(280,000)</td>
<td>Oct-17</td>
<td>Mill shut (partially reopened in 2018 on other grades)</td>
</tr>
<tr>
<td>West Linn Paper</td>
<td>West Linn, OR</td>
<td>(267,000)</td>
<td>Oct-17</td>
<td>Mill shut</td>
</tr>
<tr>
<td>Sappi</td>
<td>Somerset, ME</td>
<td>(218,000)</td>
<td>Oct-18</td>
<td>PM8 conversion to packaging</td>
</tr>
</tbody>
</table>

**Net Change** (3,813,000)

### Coated Mechanical

<table>
<thead>
<tr>
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<th>Annual Net Change (tons)</th>
<th>Date</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>NewPage</td>
<td>Stevens, WI</td>
<td>(247,000)</td>
<td>Feb-11</td>
<td>Whiting Mill closed</td>
</tr>
<tr>
<td>Holmen</td>
<td>Madrid, Spain</td>
<td>(187,000)</td>
<td>Mar-11</td>
<td>Idled PM61</td>
</tr>
<tr>
<td>Oji</td>
<td>Fuji, Japan</td>
<td>(71,100)</td>
<td>Apr-11</td>
<td>Shut PM1</td>
</tr>
<tr>
<td>Rainbow Papers</td>
<td>Mehala, India</td>
<td>(334,000)</td>
<td></td>
<td>Q3 11 Started 2nd hand machine</td>
</tr>
<tr>
<td>Sun Paper</td>
<td>Yanzhou, China</td>
<td>385,000</td>
<td>Q4 11</td>
<td>New PM2D</td>
</tr>
<tr>
<td>Verso</td>
<td>Bucksport, ME</td>
<td>(90,000)</td>
<td>Oct-11</td>
<td>Shut down PM2</td>
</tr>
<tr>
<td>Myllykoski/UPM</td>
<td>Anjanlankoski, Finland</td>
<td>(232,000)</td>
<td>Dec-11</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Myllykoski/UPM</td>
<td>Albruck, Germany</td>
<td>(393,000)</td>
<td>Jan-12</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Norske Skog</td>
<td>Honefoss, Norway</td>
<td>(154,000)</td>
<td>Mar-12</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Resolute</td>
<td>Catabwa, SC</td>
<td>(125,000)</td>
<td>Jun-12</td>
<td>Indefinite shut - PM 1</td>
</tr>
<tr>
<td>Verso</td>
<td>Sartell, MN</td>
<td>(180,000)</td>
<td>Aug-12</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Guangnir Tianyi</td>
<td>Fangchenggang Guagu</td>
<td>165,000</td>
<td></td>
<td>2013 Started 2nd hand machine</td>
</tr>
<tr>
<td>Tan Mai</td>
<td>Kontum, Vietnam</td>
<td>220,000</td>
<td></td>
<td>2013 New machine</td>
</tr>
<tr>
<td>UPM</td>
<td>Straccie, France</td>
<td>(297,000)</td>
<td></td>
<td>Jan-13 Ceased production of coated paper</td>
</tr>
<tr>
<td>Investlepam KanKrasokamsk, Russia</td>
<td>95,000</td>
<td>Mar-13</td>
<td>Restarted PM3</td>
<td></td>
</tr>
<tr>
<td>Norske Skog</td>
<td>Walsum, Germany</td>
<td>(248,000)</td>
<td>Dec-13</td>
<td>Shut PM4</td>
</tr>
<tr>
<td>Stora Enso</td>
<td>Corbehem, France</td>
<td>(364,000)</td>
<td>Sep-14</td>
<td>2014 Mill closure</td>
</tr>
<tr>
<td>NewPage</td>
<td>Rumford, ME</td>
<td>(22,000)</td>
<td>Feb-14</td>
<td>Indefinite shut - PM 2</td>
</tr>
<tr>
<td>Stora Enso</td>
<td>Veitsiluoto, Finland</td>
<td>(209,000)</td>
<td>Mar-14</td>
<td>Shut PM1</td>
</tr>
<tr>
<td>Norske Skog</td>
<td>Tasmania, Australia</td>
<td>154,000</td>
<td>Apr-14</td>
<td>Converted PM2 from newsprint</td>
</tr>
<tr>
<td>FutureMark</td>
<td>Alsip, IL</td>
<td>(124,000)</td>
<td>Sep-14</td>
<td>Mill indefinitely idled</td>
</tr>
<tr>
<td>Verso</td>
<td>Bucksport, ME</td>
<td>(350,000)</td>
<td>Dec-14</td>
<td>Mill closure</td>
</tr>
<tr>
<td>Metsa Board</td>
<td>Husum, Sweden</td>
<td>(132,000)</td>
<td></td>
<td>2015 PM8 shut to packaging</td>
</tr>
<tr>
<td>Catalyst</td>
<td>Rumford, ME</td>
<td>(47,000)</td>
<td>Sep-15</td>
<td>PM12 indefinitely idled</td>
</tr>
<tr>
<td>Verso</td>
<td>Jay, ME</td>
<td>(150,000)</td>
<td>Q4 15</td>
<td>PM2 shut down</td>
</tr>
<tr>
<td>Verso</td>
<td>Duisen, Italy</td>
<td>(165,000)</td>
<td>Dec-15</td>
<td>Permanent closure, PM2</td>
</tr>
<tr>
<td>Kotkamill</td>
<td>Kotka, Finland</td>
<td>(189,000)</td>
<td>Jan-16</td>
<td>Permanent closure, PM2</td>
</tr>
<tr>
<td>Catalyst</td>
<td>Rumford, ME</td>
<td>41,000</td>
<td>May-16</td>
<td>PM22 restarted</td>
</tr>
<tr>
<td>Norske Skog</td>
<td>Walsum, Germany</td>
<td>(225,000)</td>
<td>May-16</td>
<td>Permanent closure, PM2D</td>
</tr>
<tr>
<td>Resolute</td>
<td>Catabwa, SC</td>
<td>(200,000)</td>
<td>Jul-17</td>
<td>PM2 shut down</td>
</tr>
<tr>
<td>UPM</td>
<td>Kaukas, Finland</td>
<td>(248,000)</td>
<td>Q1 17</td>
<td>Shut PM2</td>
</tr>
<tr>
<td>Verso</td>
<td>Jay, ME</td>
<td>(150,000)</td>
<td>Q1 17</td>
<td>Shut PM3 (restarted on linerboard in 2018)</td>
</tr>
<tr>
<td>UPM</td>
<td>Grand Rapids, MN</td>
<td>(128,000)</td>
<td>Q1 18</td>
<td>Shut PM5</td>
</tr>
</tbody>
</table>

**Net Change** (3,702,000)

Source: Midland, RISI
US Containerboard Demand

US Containerboard Demand Trend

Source: RISI
Summary

- Printing and writing demand to continue long-term structural decline, both globally and in the US
- Increased presence of imported paper, despite duty cases
- Responsible environmental footprint increasingly essential, both within the paper industry and in comparison to alternative substrates, e.g. plastics
- Increasing trend of converting paper machines from declining printing and writing grades into growing packaging and tissue markets
- Despite declining demand, print remains and will remain a strong and effective communication and advertising tool
Agenda

Who is Sappi – Kathy Haynes

Paper Industry Update – John Jankowski

Our Collective Future – Kathy Haynes
Our Future is Bright…

Even as technology becomes more advanced, paper continues to play an important role.

Isobar, April 2018. Data reported on Expressives aware of the campaign.

* Statistically significant improvement since 2015

TM, © 2018 Paper and Packaging Board.
“PEOPLE UNDERSTAND AND REMEMBER WHAT THEY READ ON PAPER BETTER THAN WHAT THEY READ ON SCREEN. RESEARCHERS THINK THE PHYSICALITY OF PAPER EXPLAINS THIS DISCREPANCY.”

—FERRIS JABR
“WHY THE BRAIN PREFERENCES PAPER” SCIENTIFIC AMERICAN
What Print Does Better than Any Other Media
Higher comprehension and recall
Stimulates emotions and desires
Slower reading speeds
Preferred by majority (even millennials)
More focused attention, less distraction
Drives sensory involvement
Print significantly boosted the effectiveness of cross-platform campaigns

- Campaigns that used PRINT & ONLINE improved Persuasion Metrics by more than 10%
- Campaigns that used PRINT & TV improved Purchase Intent by more than 17%.

Source: Millward Brown Digital
Following the trend seen for Brand Favorability, Purchase Intent increased the most after a high level of exposure on Print.

Frequency Impact on Purchase Intent
Data is Delta

- **Online**:
  - 1-2 Exp Delta: 3%
  - 3-4 Exp Delta: 4%
  - 5+ Exp Delta: 5%

- **Print**:
  - 1-2 Exp Delta: 7%
  - 3-4 Exp Delta: 6%
  - 5+ Exp Delta: 9%

- **TV**:
  - 1-2 Exp Delta: 10%
  - 3-4 Exp Delta: 14%
  - 5+ Exp Delta: 18%

*significant increase at 95% confidence*
What we touch shapes what we feel.
UNBOXING APPLE

CRITICS SAY APPLE’S IPHONE SEEMS MORE LIKE A STONE YOU MIGHT FIND IN A STREAM THAN A DEVICE. SIMILARLY, THE PACKAGE IT COMES IN DEFIES TRADITIONAL NOTIONS OF WHAT A BOX CAN BE.

THE BOX
“Apple pays as much attention to its packaging as it does to its products... Getting it just right is fan obsession.”
The Guardian

THE UNBOX
“Anyone who’s purchased anything from Apple in the last decade knows just how beautiful an experience unboxing their products is.”
—Gizmodo
To Kill A Mockingbird author Harper Lee wrote to Oprah Winfrey in 2006: “Some things should happen on soft pages, not cold metal.”
Our Future is Bright

- Customer preference globally favors paper over plastic
- The science of haptics shows that print is better for retention and recall
- With over 4,000 digital media touchpoints received per day, direct mail has the ability to cut through the clutter
Thank you