Paper Industry Commentary
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Will Small Uncoated Freesheet Paper Machines Continue to Prosper in China?

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China's paper industry has grown significantly in the last two decades, and an expansion of uncoated freesheet capacity is one of the reasons the growth has occurred. Even with the electronic revolution, uncoated freesheet capacity in China increased at a pace similar to GDP growth over the last decade (Figure 1).

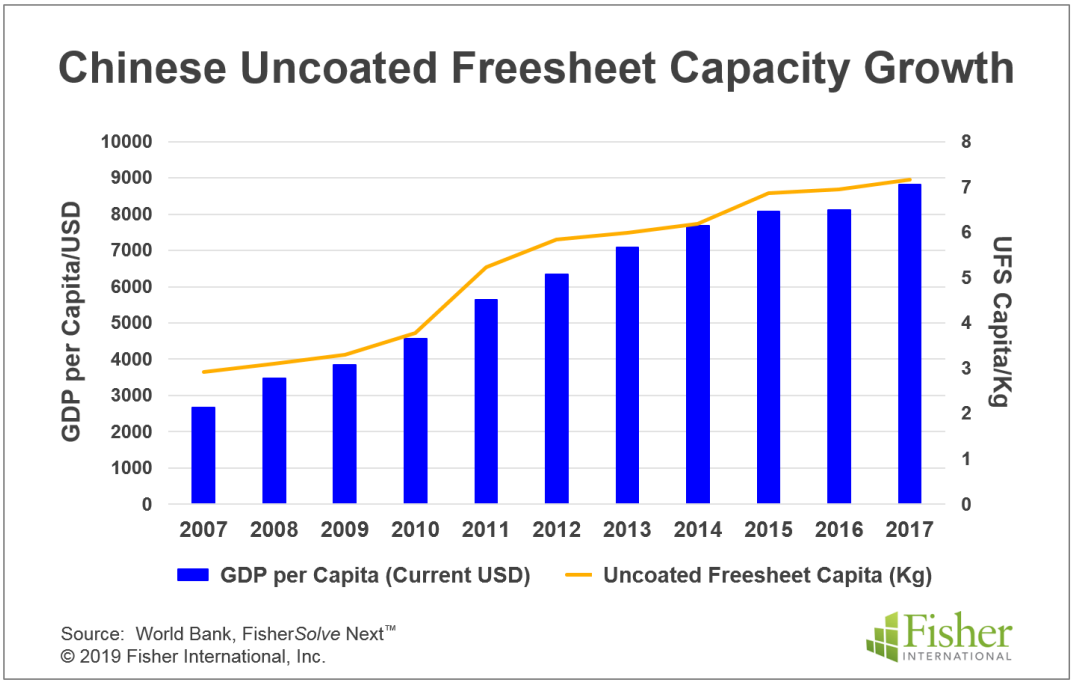

Figure 1

Growth has been so rapid, in fact, that in 2011, China exceeded U.S. capacity and became the largest uncoated freesheet producing country in the world, with total capacity reaching 10.8 million tonnes in 2018, or 7.2 kilograms per capita (Figure 2).

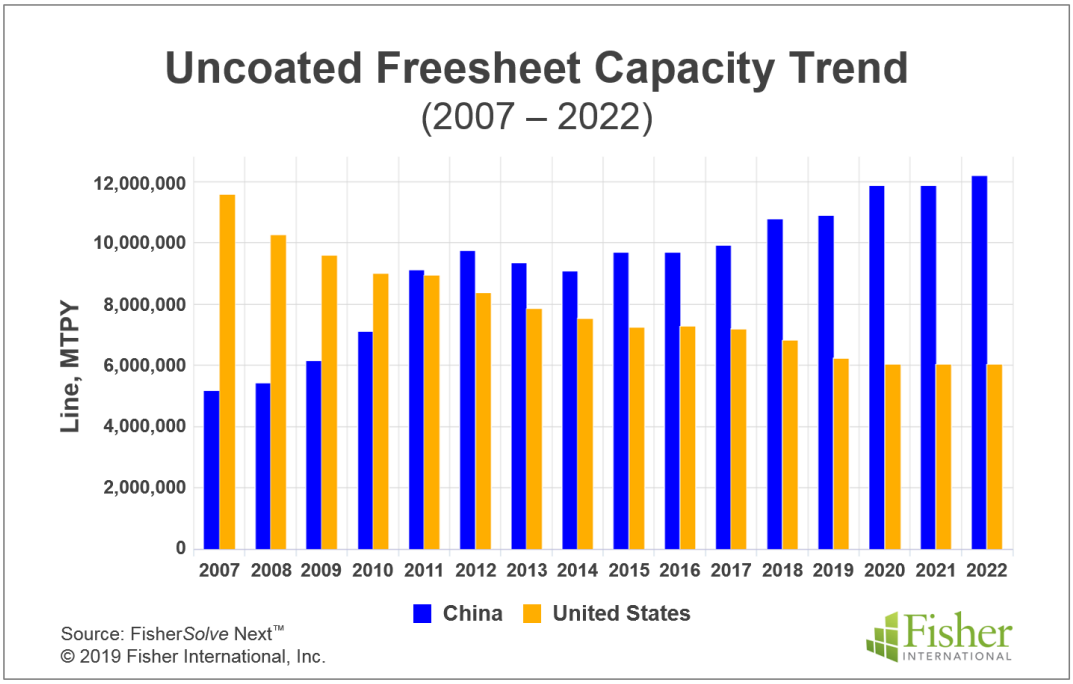

Figure 2

A closer look at China's uncoated freesheet segment, however, shows a structure that is drastically different from western countries, or even its neighbors.

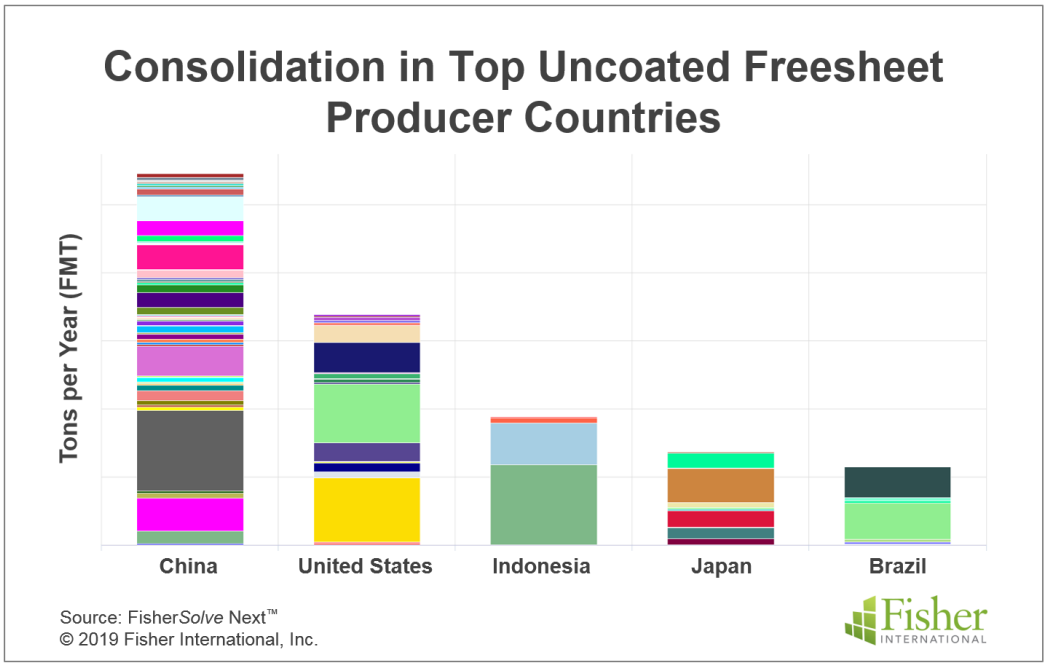

Figure 3

Many small companies play a significant role in the Chinese market.

As shown in Figure 3, the consolidation rate of the top 5 companies in China is 53%, while it is 71% in the U.S. and 75% in Japan.

In Indonesia and Brazil consolidation is even higher.

Competitive Disadvantages

Since 2000, 17 paper machines with capacity greater than 100,000 MTPY were installed in China, including several giant machines with capacity exceeding 500,000 MTPY. In the same period, 110 paper machines with capacity of less than 100,000 MTPY came online.

After further analysis of the operating uncoated freesheet machines in China, we found that 75% of them have capacity below 38,000 MTPY.

Figure 4 shows that 75% of Chinese uncoated freesheet machines have speeds of less than 500 meters per minute, and 50% have speeds of less than 250 meters per minute.

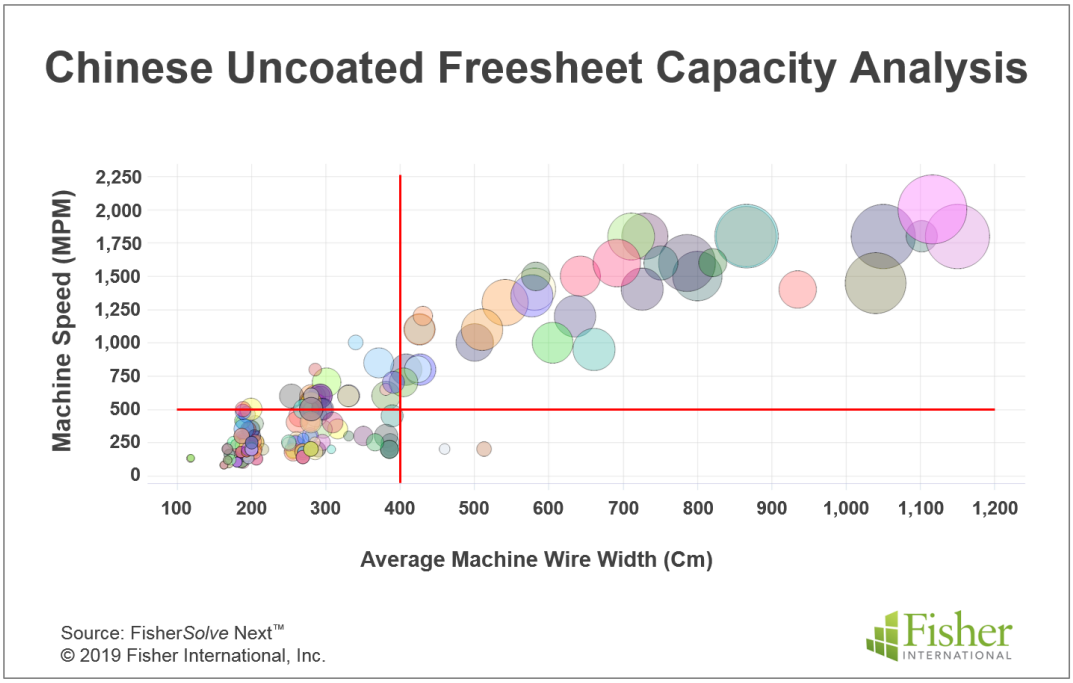

Figure 4

Small companies obviously face more pressure from more directions than their larger counterparts, such as economies of scale, supply chain stability and bargaining power, to name a few. Based on Fisher's analysis, most small machines have significantly higher risk than the rivals in the market

Using the Fisher*Solve* Next™ Viability Benchmark module, Figure 5 shows that most small machines are in moderate to high risk positions due to factors such as Cost, Capital Required, Size, Technical Age and Tons per Inch Trim.

Will the small machines exit the market due to industry consolidation? If they do, will this be a permanent closure or repurpose? Which companies should devise a new strategy?

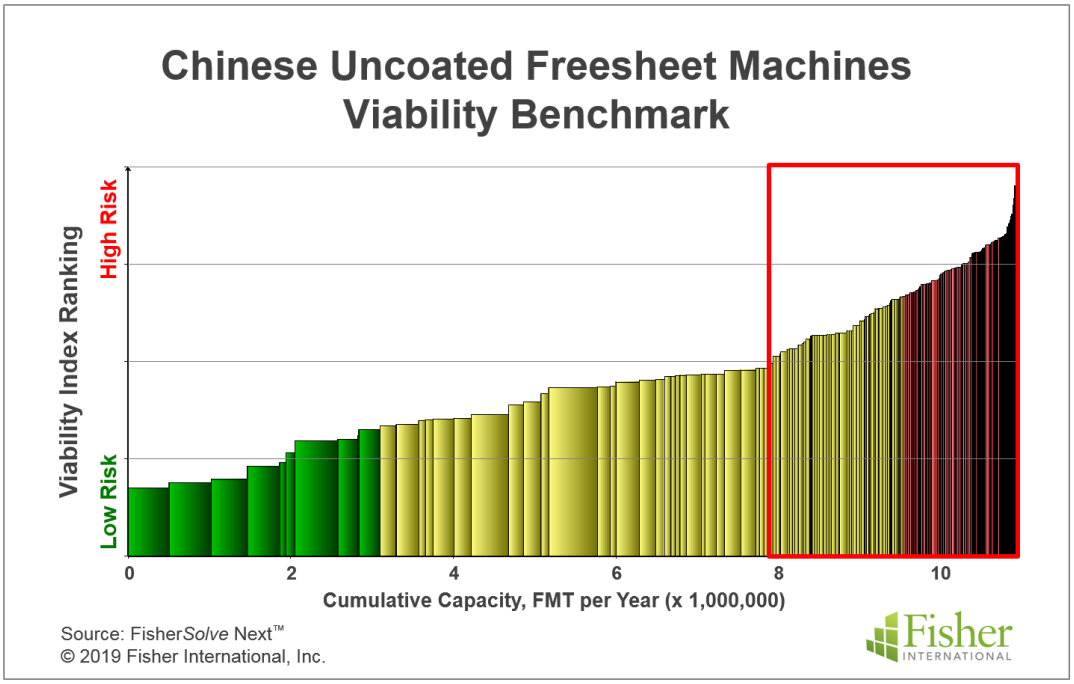

Figure 5

Since 2007, 434 uncoated freesheet machines have been idled and 118 machines have been repurposed to other paper grades. Figure 6 shows the top countries with line closures and repurposed machines.

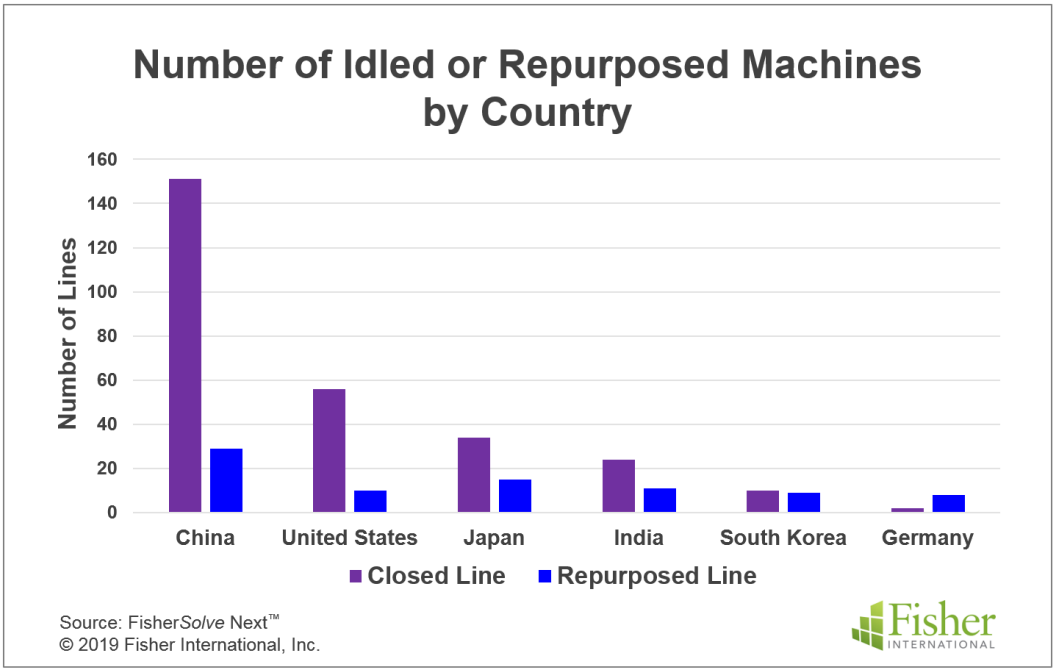

Figure 6

Nearly 150 uncoated freesheet machines that have exited the Chinese market in the past decade, and 29 of those machines have been repurposed to other products that are doing quite well.

Some machines have been repurposed to specialties paper, but success can also be seen in other grades.

Do these repurposed machines reveal some potential for uncoated freesheet machines with high risk, especially considering additional large machines will be installed in the future, like the Asia Symbol's machines going online in 2020?

Machine X – A Case Study

A more detailed look at the cost of Chinese uncoated freesheet machines with capacity of less than 38,000 MTPY shows some machines with manufacturing cash cost over $1,000 USD/FMT (Figure 7). The highlighted machine, Machine X, presents an interesting case study for further analysis.

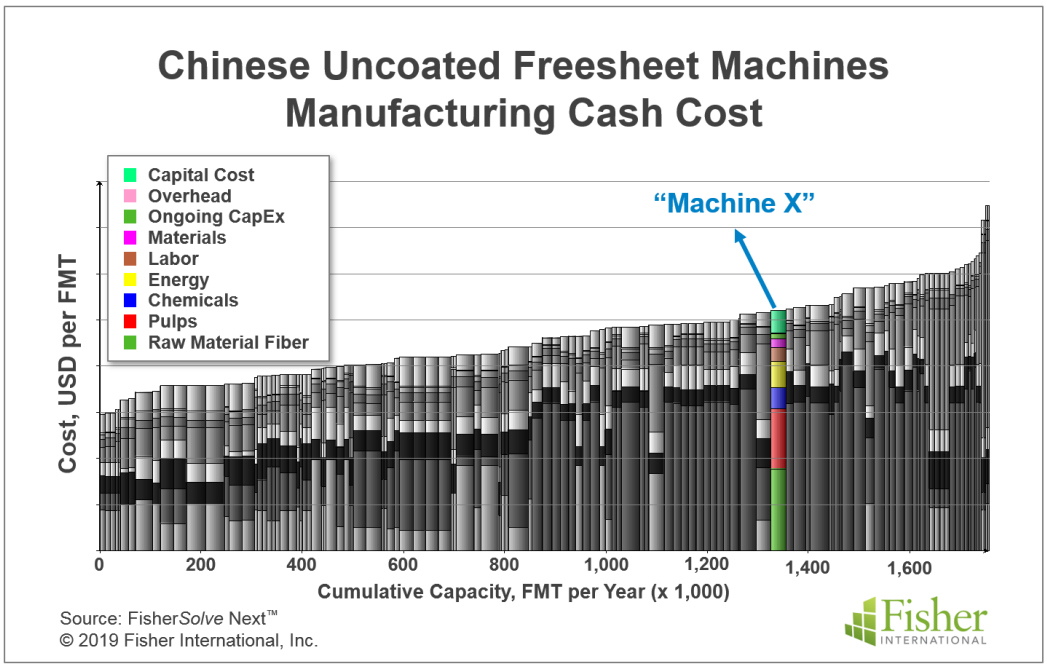

Figure 7

Machine X is an integrated line, but it does not have the cost advantage of other integrated lines. Why is this? What are the machine's advantages and disadvantages? How can costs be reduced with the machine's existing configuration? Is an upgrade needed, or is it more economically efficient to switch to other products?

Fisher's analysis of this machine reveals that it is a relatively new entrant (started up in 2010) with capacity above industry median and that its integrated mill configuration provides flexible furnish choices. The most significant reason that Machine X's costs are higher than its competitors with similar configurations is that its energy cost exceeds $100 USD/FMT of paper, the sixth highest in China (Figure 8).

In the near term, reducing energy costs should be the top priority for this line's engineers, who can provide multiple solutions on this topic. Furthermore, if the company wants the machine to be more economically efficient, a long-term alternative to consider would be differentiating its product. Which product should this line be converted to?

Using the iDentical report tool in Fisher*Solve* Next to search for lines with comparable configurations, we found 460 paper machines in 266 mills that were similar to Machine X; 376 of these lines are currently operating (Figure 9).

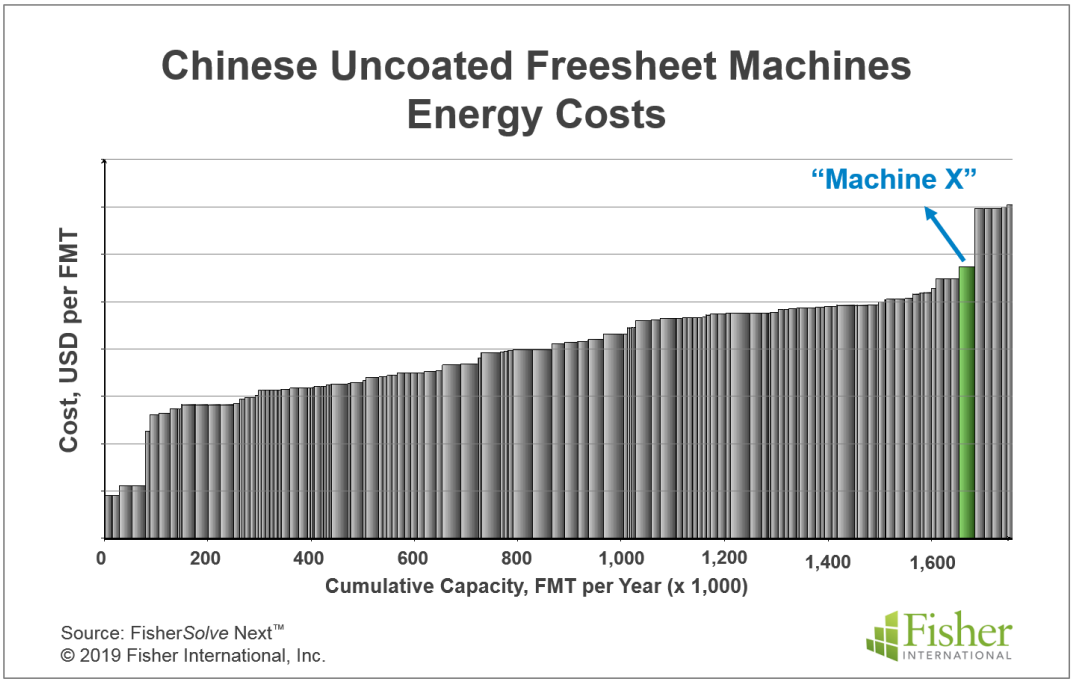

Figure 8

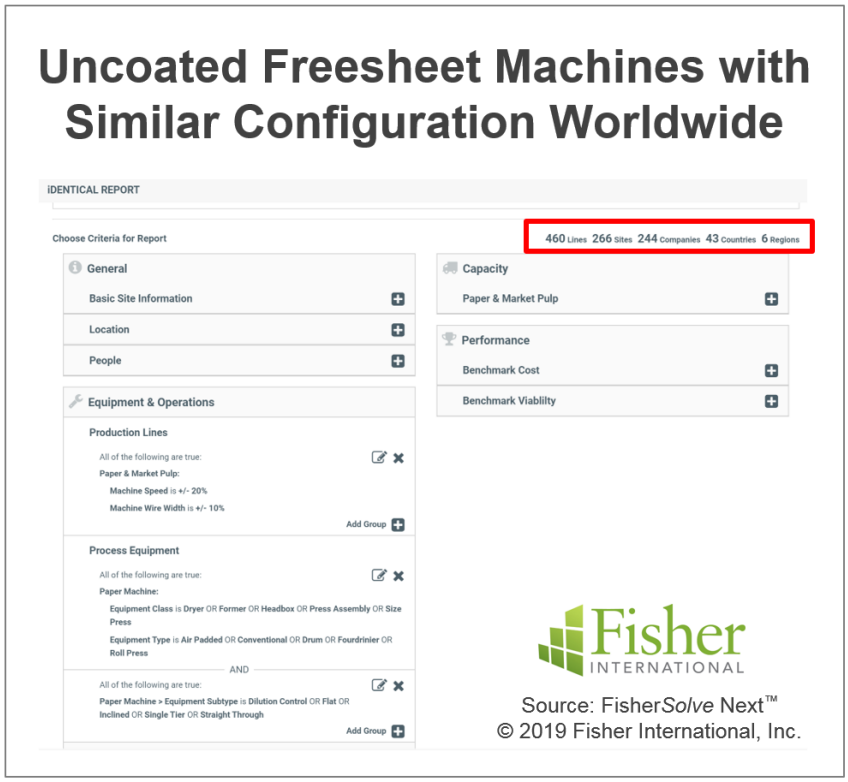

Figure 9

These machines went through three rounds of screening to help us identify the most promising products for Machine X's conversion. The screening questions include:

- Does the mill have cost advantage?
- Can the mill provide a value-added product to the customer?
- What is the supply and demand of the grade?
- Will there be substitutes in the market soon?
- Can other rivals imitate the success easily?
- What is the ROI?

After a high-level screening, 38 different product options were identified. The second and third rounds of screening narrowed the options to 2 products: absorbent kraft paper and waxed paper base.

Repurposing to specialty grades may replace some uncoated freesheet paper machines, but management should also investigate the specialties paper market dynamic and forecast the market potential, as the repurposed capacity could change the whole makeup of the specialties paper market. Smart managers will think one step ahead in order to avoid herd behavior, which tends to happen in the paper industry.

Fisher can help you find the right answer for your higher cost mill with its Fisher*Solve* Next platform, Virtual Mill project, iDentical report tool, and Mill Financial model. Give us a call if you would like to talk.

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