



Sustainability

Value creation in the pulp and paper industry through sustainability transformation

Pulp and paper companies have faced environmental issues for many years because of the resource-intensive nature of their industry. Most prominent have been allegations from NGOs against companies running logging activities in primary forest to supply fiber for their chemical or mechanical pulping operations. These allegations, as well as complaints from other civil society groups against the industry, have led governments to strengthen environmental regulations, initially in the developed world, but today the regulatory trend is global. Frequently changing regulations have thus shaped the pulp and paper industry for decades and are continuing to shape it worldwide, resulting in many innovations—a new form of raw material, recycled fiber, to name just one. Pulp and paper companies today are also, for obvious commercial reasons, intrinsically highly motivated to operate sustainably, for example, to ensure a sufficient flow of fiber into their mills from nearby forests or plantations long into the future.

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Most players in the sector still understand these external and internal pressures to operate sustainably as a necessary cost of doing business—a “ticket to play”. However, McKinsey’s recent experience across multiple industries shows that paying close attention to sustainability in every aspect of management, from input sourcing to sales to stakeholder relations, can create significant long term value for many enterprises, including pulp and paper companies.

Pursuing sustainability to create value goes beyond satisfying the environmental concerns of governments and consumers by replanting forests, and reducing water consumption and air pollution. It means, in addition, developing new products and market opportunities opened up by growing

Applying a sustainability lens to the traditional levers can uncover new opportunities

environmental consumer trends, extending the resource-saving mindset and techniques learned to every area of operations, and understanding and communicating the outcomes of pursuing sustainability to manage regulatory, reputational and operational risks. Interpreted in this “whole business” sense, pursuing sustainability for value may entail changes in each and every element of an organization’s strategy and operations, amounting to a “sustainability transformation” in its overall way of doing business. Just sourcing sustainable or certified raw materials and decreasing energy consumption is not enough, though those will be important steps in any sustainability transformation. But such actions need to be formally tied to sustainability targets and indicators which are incorporated in the companies performance tracking system. The company can then actively manage against its sustainability indicators, alongside its traditional KPIs, as part of its overall performance management system.

This article shows how pulp and paper companies can identify and assess value-creating opportunities underpinned by sustainability following a holistic approach we have developed for this purpose. The approach helps companies to identify such opportunities along three dimensions: growth, return on capital and risk management.

A holistic diagnostic approach

How do pulp and paper companies go about changing sustainability from a cost heading into a means of creating long-term value? Our approach starts by breaking down the three main contributors to value creation—growth, return on capital, and risk management—into the business activities or “value creation levers” that most influence them (Exhibit 1). Then companies can look for opportunities to increase value created by those levers along any of the dimensions of sustainability, from saving operating waste to “greening” a brand.

The McKinsey tool used for diagnosis in sustainability transformation programs is represented schematically in Exhibit 1. It has three interdependent levels. The operating system sits at the center, since any value your company creates stems from operating cash flow. Revenue growth, return on invested capital and skill in risk management occupy the next level of the tool. The outer level comprises nine value creation levers that represent the entire value chain of a pulp and paper business in terms of the functional areas recognized in the industry.

To scope the impact on value of pursuing sustainability opportunities across the organization, company leaders need to identify and evaluate available opportunities lever by lever and estimate their potential effects on growth, return on capital and risk management. Managers can then sum the combined effects of these opportunities on cash flow over time to get an idea of how much value they might create overall. In addition – maybe even more importantly – the sustainability diagnostic tool enables managers to evaluate their current position and identify those dimensions of sustainability on which they are already creating value and those where they might create more.

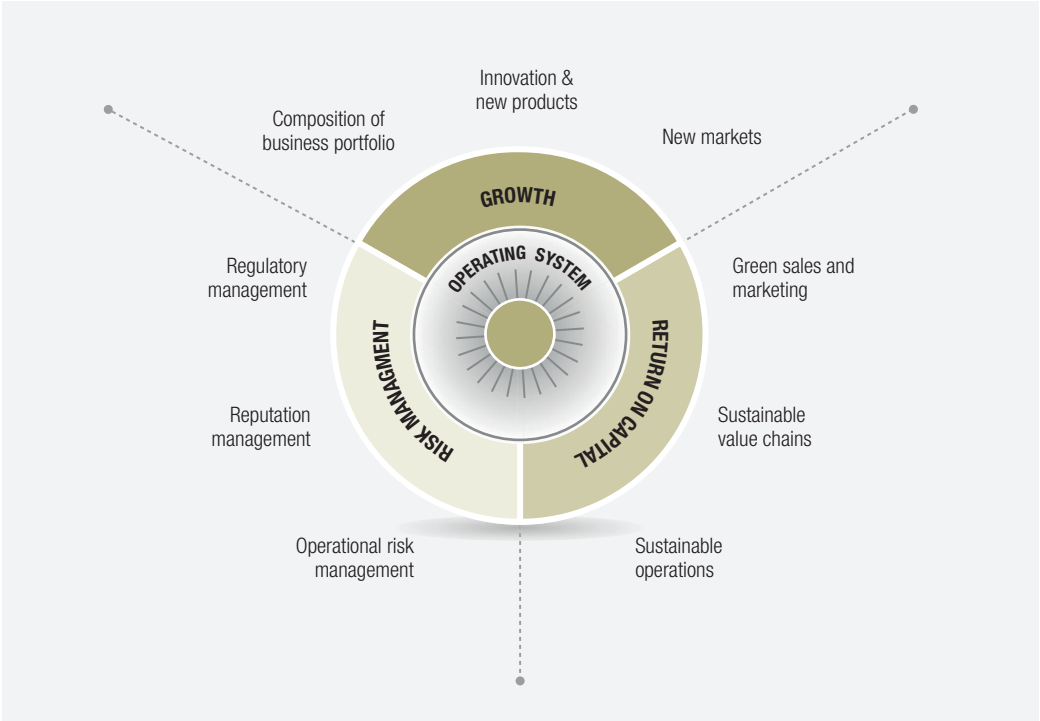
Identifying sustainability opportunities

Business opportunities underpinned by sustainability may vary widely from lever to lever. Below we give some examples.

Growth

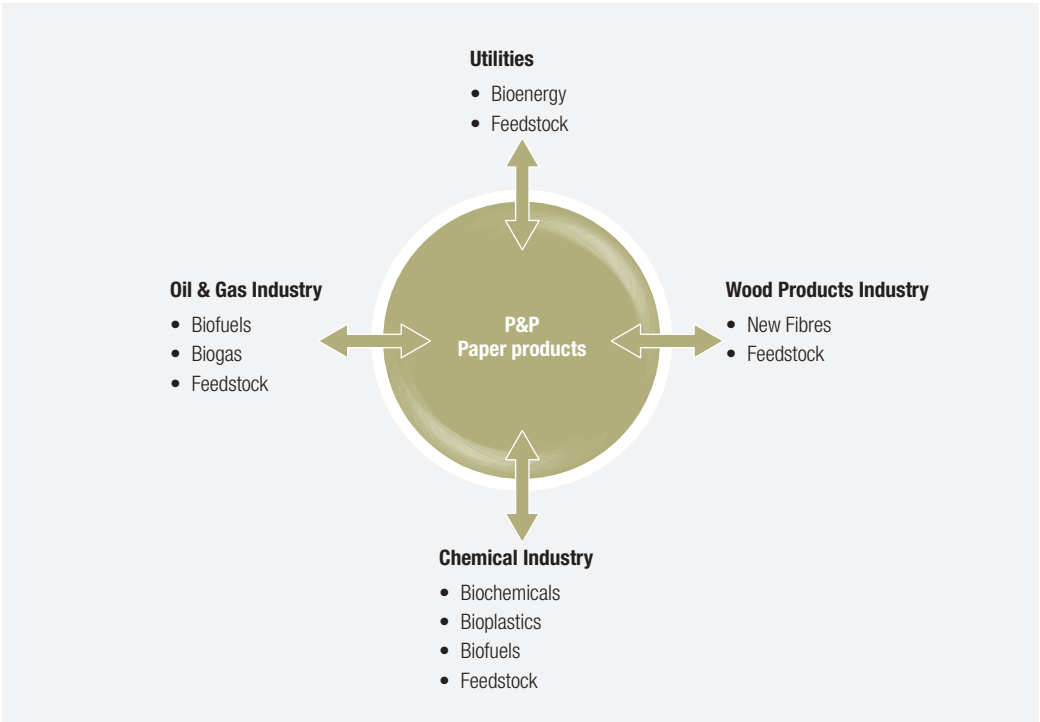
Applying a sustainability lens to the traditional levers for generating revenue growth—adjusting the business portfolio, developing new products or entering new markets—can uncover new opportunities. Every company regularly has to review its business portfolio to be successful in the long term. Adding sustainability to the criteria used to evaluate existing businesses and explore new business opportunities may

Exhibit 1
Applying sustainability criteria throughout the company's operating system will lead to additional value creation



Source: McKinsey analysis

Exhibit 2
Capturing the full economic potential of the virgin fiber can be achieved through joint-ventures with other industries



Source: McKinsey analysis

Energy consumption is a critical cost driver in today's cash constrained environment

alter decisions about whether to hold, divest or pursue them. Indeed, many players within the forest industry have already adopted a strategy of horizontal integration into bioenergy and are generating significant revenues or reducing their costs substantially. Until recently, sustainability related business opportunities were pretty much limited to co-firing fibrous waste products in mill boilers or turning them into wood pellets. However, increasing oil prices and technical progress have been generating other options (Exhibit 2).

Following the example set by agribusinesses, especially producers of sugar and food oils, the pulp and paper industry should seek out growth opportunities underpinned by sustainability, both including and beyond those in bioenergy. For example, McKinsey's internal research has shown the impressive potential of converting unproductive pulp mills into biochemical plants, in partnership with chemicals companies. Their combined knowledge of chemical pulping and refining provides a solid foundation from which to start producing other value added cellulose-based products. Cellulose-based biochemical producers with downstream manufacturing capabilities could feasibly produce a wide array of products, beyond pure biochemicals. Examples include optical fibers and construction materials such as confibercrete, a cellulose-fiber reinforced concrete. Some of these may not yet be manufacturable in industrial quantities or economically viable, since oil-based products are still cheaper at today's oil prices. Nevertheless, there are already many examples of agribusiness companies that have successfully diversified into biofuels or chemicals, and forest product companies could follow suit.

Partnerships with energy utilities and chemical companies represent a very real opportunity to take advantage of the global trend towards sustainability. Such companies generally struggle to manage upstream and to source raw material,

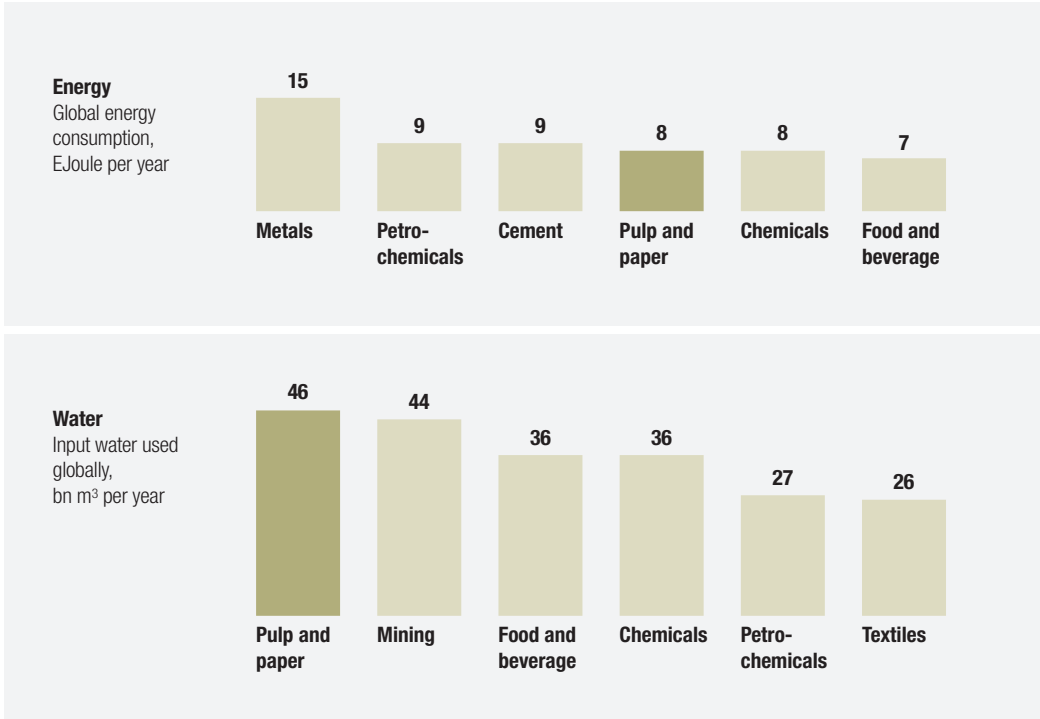
and they seek out those capabilities in pulp and paper companies: the latter can provide raw material and machinery while the utilities and chemical companies provide the know-how and off take of the final product. Together, they can create win-win partnerships.

Taking into account sustainability issues such as environmental regulations or limited natural resources, when predicting new operational or market trends can prompt innovative ideas capable of generating growth and creating value long into the future. As well as exploring novel business opportunities, as described above, pulp and paper companies may find chances to innovate in their core businesses, one example being the development of new types of bioplastic fibers with the potential to reduce the company's overall raw material and energy needs, while producing high quality, competitive new product lines. Similarly, assessing possible acquisitions against sustainability criteria will help managers to understand how potential targets could complement the growth prospects and value creating power that the existing portfolio gains from sustainability.

Return on capital

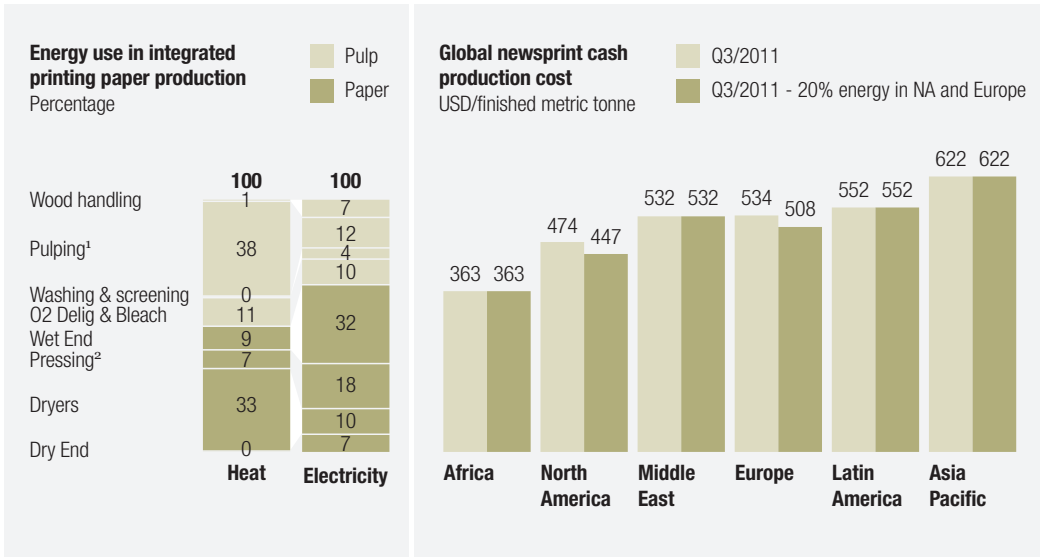
All industry players operating in today's cash constrained environment need to reduce the cost of their operations to improve returns. Water and energy consumption are critical cost drivers: worldwide, the pulp and paper industry is among the largest consumers of both, compared to other sectors (Exhibit 3). A recent study carried out by McKinsey & Company identified more than 20 opportunities available to pulp and paper companies to reduce their consumption of energy and water, ranging from retrofitting buildings to improve the overall efficiency of the machinery to improving water treatment systems. Implementing those measures will most likely lead to increasing returns on capital.

Exhibit 3
The P&P industry is one of the most energy- and water-intensive industries



Source: IEA, water business roundtable, World Resources Institute, U.S. Geological Survey, Shilomanov, UNDP, Pacific Institute, McKinsey analysis

Exhibit 4
Reducing costs for heat and electricity can improve the mills position in the cost curve significantly



¹Including Evaporators, Recovery Boiler, Cherm Prep, Lime Kinl and Recaus
²Including Wastewater and Utilities

Source: American Institute of Chemical Engineers, McKinsey analysis

Opportunities to save water and energy arise at every step in production processes, starting in the forest, where applying best practice forest management techniques will produce fiber with properties that allow it to be pulped using less energy, and running through to papermaking, where introducing steam recovery and finishing will save both energy and water.

Indeed, following sustainability as a guiding principle in any project will lead to lower production costs. It can also help companies to identify opportunities that will cut costs further in the long term and shrink their environmental footprint at the same time. More efficient use of water and energy will not only have a direct effect on a mill's position in its respective cost curve (Exhibit 4), it could also indirectly create value, if a company succeeds in positioning itself as environmentally conscious based on its good husbandry of resources. Some measures, especially those related to energy efficiency, can also generate additional revenues. For example, some chemical pulp mills that have managed to cut their energy consumption are now selling increasing volumes of surplus energy on the external market.

Some opportunities to improve resource efficiency will likely require capital expenditure. So all such opportunities need to be carefully assessed to ensure that those chosen have a positive net present value and don't destroy value for the company.

Risk management

The forest industry faces a broad array of risks, from rapid changes in national and global regulations, to NGO challenges, to operational risks posed by potential community unrest in less stable operating regions. Pursuing both operational and environmental sustainability in all management decisions will reduce those risks and ensure long term business success.

Companies need to identify their exposure to existing as well as possible future regulations and quantify the impact of potential regulatory scenarios on the market as a whole, as well as their particular organization. They need to formulate strategies appropriate to the different scenarios, including how to adjust to any future financial incentives that governments may offer. If industry members, through their industry associations, develop a common pulp and paper agenda to take into regulatory negotiations, they will have a much better chance of working with governments and regulators to develop rules that ensure both sustainability and increasing industry value. They will thereby be better prepared to comply with new regulations.

However, the industry is still far from being proactive in its approaches to regulators and civil society, and generally only reacts to external pressures. This is an area where the pulp and paper industry can learn a lot from its peers. For example, the energy industry is positioning itself as the preeminent "green" industry, even though the pulp and paper industry already uses a higher share of renewable raw materials and energy. The pulp and paper industry should follow this example and be more proactive in informing the public as well as regulators of its sustainable value chains and products to avoid unnecessary or growth limiting future regulations. The sustainability reports that most major pulp and paper companies now produce can help demonstrate to regulators a company's positive green achievements: the sector sustainability reports produced by the industry associations can do the same for the sector as a whole.

Right alongside regulatory management comes reputation management. The forest industry has long been the target of allegations from NGOs about its upstream activities, especially fiber sourcing. Such allegations generate reputation-damaging publicity, in some cases prompting customers to cancel delivery contracts.

Seriously pursuing sustainability for value creation will require persistent, long term effort

Proactive reputation management should help companies to avoid this kind of damage. But companies also need a robust, transparent communication strategy to head off any subsequent charge from NGOs that they are trying to “greenwash” their activities. The first step for any company is to understand its exposure to reputational risk and to address any issues it identifies, for instance, by sourcing only sustainable fiber, refusing to harvest natural forests, protecting threatened animal and plant species, and respecting aboriginal rights. One relatively recent case in which the industry has successfully engaged with civil society resulting in a long term improvement of its reputation through the Canadian Boreal Forest Agreement. Under this arrangement, the leading North American pulp and paper companies voluntarily agreed to protect 26 million ha of forest while NGOs agreed to stop campaigning against the industry. The media has responded positively, boosting the industry’s reputation, while the industry has secured long term fiber supply from more than 70 million ha of boreal forests, with the backing of the NGOs.

Enabling sustainability transformation

Seriously pursuing sustainability for value creation will entail a wholesale transformation for most pulp and paper companies. It will require persistent, long term effort and the presence of four critical supporting factors.

First, the aim of creating value through sustainability needs to be embedded in company culture and values. Everyone in the company should understand that creating value is the purpose of a corporation, and that value is the measure of its success. Optimizing long-term value from sustainability depends on pursuing sustainability along the entire value chain, with no let-up. Persistence is particularly important for the forest industry, given the time it takes

for trees to grow, especially in temperate and boreal regions. The challenge for company leaders is to embed this kind of long-term focus on sustainability in the business despite the demands of multiple short term issues requiring immediate action.

Second, sustainability needs to be integrated into performance management systems so companies can encourage, measure and reward achievements. That means defining sustainability goals, monitoring key indicators of progress towards them and setting appropriate incentives. Some measures of sustainability, for example, the extent of a company’s greenhouse gas emissions, may not directly affect a company’s bottom line, although lowering them could materially improve the company’s reputation and bargaining power with regulators. Such “externalities” need to be incorporated into the key performance indicators (KPIs), not least because they might in time become “internalized” through legislation.

Adopting KPIs linked to sustainability will make individuals and teams accountable for seeking new ways to improve the business and the environment at the same time. This in turn will help to fashion a company culture or mindset that supports creating value through sustainability. But people will need new skills and tools to succeed in realizing the business opportunities that such a mindset reveals. Training from “sustainability champions” will be critical.

Lastly, committed leadership from the top is essential for a company to succeed in pursuing sustainability for value in every function. Company leaders need to manage the change and communicate its rationale to their staff. At the same time, they need to seek out and engage in partnerships that might have seemed unlikely in the past, for instance, with NGO leaders known for criticizing the industry.

A transformation based on sustainability doesn't mean doing everything differently. Rather, it means managing existing processes, systems and functions from day to day against a new sustainability objective. Evaluating performance against sustainability criteria is likely to uncover opportunities to make value-creating improvements in every area of the business.

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In today's world of scarce raw materials, increasing energy costs and talent shortages, managing resources more sustainably will become a potential game changer for all sectors. This is especially true for resource intensive sectors like the forest product industry. If pulp and paper companies address this new reality proactively, they will both avoid unnecessary costs and capture opportunities to create significant value. The key to success is to embed sustainability – environmental, operational and even social sustainability- as an objective into every management decision, at every level of the organization.