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Collaborative Leadership Is Key for Maine's Forest Products Industry

by Brooke Hafford MacDonald, Lydia Horne, Sandra De Urioste-Stone, Jane Haskell, and Aaron Weiskittel

Abstract

The forest products industry is economically, socially, culturally, and environmentally important to Maine. Thus, Maine's future economy depends greatly on the leadership in this industry. Effective leadership grows out of understanding the changes that are taking place in the industry and finding innovative ways to address unexpected challenges and emerging opportunities. During times of change, many industry leaders settle for maintaining the status quo. The forest products industry in Maine, however, is systematically assessing the ways the landscape is changing. Rather than continuing on the same path, the industry is gathering insights that could lead to a vibrant, but perhaps different, future. What we report here is an innovative process that actively solicits insights reflecting the diverse perspectives of those who work in different subsectors of the industry. What is emerging is evidence of the importance of collective leadership that brings together different areas of knowledge. We report on the process, the emerging findings, and the implications for leadership in moving forward.

RESEARCH TO SUPPORT FUTURE LEADERSHIP DECISIONS

Maine's forest and forest products industry are vital to Maine's economy. Recent estimates by the University of Maine indicate that the total economic impact of Maine's forest products industry in 2016 was $8.5 billion, representing 6 percent of state gross domestic product (GDP) and approximately 4 percent of state employment compared to $9.8 billion of economic impact generated in 2014 (MFPC 2016). Besides the downward effects on the forest industry's total economic contribution, the closures of six pulp and paper mills between 2010 and 2016 also affected over 7,500 jobs in the state. While ongoing efforts are focused on alleviating the short-term impact of these changes in rural communities, it is crucial that Maine also develop a broad and long-term strategic plan to promote and build its future forest products subsectors. Maine has the opportunity to capture growing global demand for forest products, including various kinds of paper and wood products, demand for which will increase as both human population and standards of living increase. In addition, cross-laminated timber panels; tall wood buildings; high-tech paper, panel, and packaging materials; wood-derived chemicals; bioenergy; and nanomaterials all promise new opportunities in wood products markets. Maine is poised to attract the capital investment needed to build new mills and value-added manufacturing opportunities for its forest products industry.

Leadership should not focus on the little things; it should focus on the big things. With good leadership, times of trouble can become times of opportunity. To know what to do, industry leaders need information from diverse, knowledgeable voices. They need to seek out different perspectives and weave them together. To that end, we report on an extensive study aimed at providing information that leaders in the forest industry can use in this challenging time. Our study was designed to identify Maine's advantages for capturing emerging forest products markets and to determine the challenges that government and industry leaders must overcome to capture such markets. Current and future leaders can use these data to better understand leadership qualities needed for decision making involving opportunities and challenges.

This article summarizes key points from interviews and focus groups with leaders in Maine's forest products industry held between November 2017 and March 2018. To date, 24 individuals have participated in the study, representing the following categories: (1) land management, (2) landownership, (3) logging, (4) transportation, (5) sawmills, (6) pulp and paper mills,

(7) bioenergy, (8) forest-related professional services, and (9) forest-related professional groups.

The interviews and focus-group discussions offer revealing insights, suggestions, and visions for the future of Maine's forest products industry. Themes for industry leaders emerged as the participants discussed what is working well, the biggest challenges, and key opportunities.

WHAT IS WORKING WELL

Industry Cluster

Maine's forest leaders are increasingly recognizing the strength of working together. The different subsectors participating in this study are all highly codependent. The success of one subsector relies on the success of the others. A simplified chain of events illustrating codependence might look like this. Landowners depend on their land managers to oversee operations related to timber production. Land managers depend on contractors—loggers and truckers—to remove trees, prepare them for transport, and deliver them to mills. Different trees will go to different mills. Sawmills process hardwood species and large pine logs to produce furniture, flooring, and other building materials. Pulp and paper mills handle softwood trees such as balsam fir and spruce species, which are easily compressed into paper, boxboard, or tissue. The wood product left over from sawmills, chips, bark, sawdust, and other residuals, may go to a paper mill or biomass plant. Biomass plants compress wood waste into small briquettes and pellets, which are burned to produce heat or electricity. Energy and heat produced from biomass may be provided to businesses located near large biomass plants or sold elsewhere. Unlike many states, Maine has every piece of the cluster within its borders, so members of each subsector are able to form and maintain strong professional relationships.

Our study is showing that it will be important for industry leaders to continue to facilitate subsector cooperation. This includes making all pieces of the cluster easily accessible to other subsectors in the cluster. Legislative leaders, when provided with relevant and timely information, can champion and support policies that favor and enhance continued subsector cooperation. Additionally, leaders can continue to make the cluster accessible to new businesses to ensure growth, diversification, and the constant flow of new products and ideas as value is added within each subsector.

Remaining Mills in Maine

Pulp and paper mills that did not close—Sappi, Verso, and Woodland, for example—are still doing well. In 2017, according to a *Bangor Daily News* article (February 8, 2017) Sappi, a global pulp and paper provider, announced a $165 million investment in a paper machine for its Skowhegan mill. In 2014, Woodland LLC, a pulp and paper mill based in Baileyville, announced a $120 million investment to add tissue-manufacturing capabilities (*Bangor Daily News,* March 13, 2014). This investment allowed Woodland LLC to diversify its product line and take advantage of a strong tissue market. This mill also distributes pulp to China, where demand far outweighs supply. According to an article in the *Bangor Daily News* (February 15, 2018), Verso paper recently announced it was upgrading and reopening their mill in Jay, which will provide 120 jobs, the same number of jobs lost when the mill closed in 2017.

Maine's forest leaders are increasingly recognizing the strength of working together.

Switching from making paper to other products—boxboard/packaging, tissue, specialty papers—has been important for mills staying in business. For example, Sappi also produces dissolving wood pulp and develops textile and food applications (*Bangor Daily News,* February 28, 2014; April 24, 2016). Some participants in our study suggested that key elements for the sustainability of Maine's forest resources industry include having a global presence, using cutting-edge technology, and developing innovative wood products.

While many pulp and paper mills have closed, sawmills continue to thrive or even grow. Participants said Maine's sawmills are able to produce world-class products and are internationally competitive. Sawmills and remaining pulp and paper mills provide good wages and benefits to Maine workers. Because these mills are located in rural parts of Maine, the jobs are important for keeping these small communities alive.

Focus group participants from subsectors other than mill owners also recognized the importance of

I come from a long line of loggers and mill operators, dating back to when my hometown, Allagash, Maine, was first settled in 1886. My great grandfather, Jim Hafford, was a cook at the lumber camps and also worked as a river driver. After felling trees with handheld bucksaws and axes, the men at these camps would prepare logs and load them onto horse-drawn sleighs. The sleighs would transport the logs to landings near the riverbanks for the winter, and after the spring thaw, the river drivers would release the logs into the open water. The icy, raging currents would sweep the logs to their destination, and the river drivers would ride rafts of logs as they traveled through the water. The men would jump from log to log, making sure the logs didn't jam or get stuck on a rock or riverbank. The work was very dangerous.

Jim's son, my grandfather Lee, also worked as a logger and a transporter. The introduction of chainsaws and motorized vehicles made his work a bit more tolerable. I say "a bit" because even with the increased mechanization that came during the early 1950s, these were still some of the most dangerous and physically demanding jobs available. And it wasn't just the woods jobs: my maternal grandfather, Elmer McBreairty, owned and operated his own cedar sawmill and reminded me of the dangers of his work every time he raised his weathered, two-fingered left hand.

When my father, Michael L. Hafford, was in his twenties, he bought a skidder and started working in the woods. The work was still challenging, and he was faced with either not having any work at all or spending significant time away from his family. He never encouraged my brother or me to work in the woods. I have never held a forestry-related job, but I have always carried a great amount of respect for those who continue these traditions. Forestry occupations are essential for rural Maine. And the Maine logger archetype—rugged, strong, flannel-wearing men (and women)—is as much a part of the Maine identity as the lobsterman, hunter, and potato or blueberry farmer.

In the 1980s, retired teacher Faye O'Leary Hafford, my grandmother, began keeping written records of Allagash folklore. She compiled interviews, old stories, poems, songs, and recipes, and eventually published them as short books. Most of her publications were

Allagash river drivers. Photo courtesy of Faye O'Leary Hafford.

inspired by the North Woods timber industry. In the introduction to the book *The Fall of the Forest: Tales of the Last Generation,* she wrote:

> *I am writing this book for the men and women who are still trying to make a living in the lumber industry and for those who had to give up for one reason or another. Read their stories. Think about how they are feeling. Could we have done anything different to help them to have stayed in the industry? What will the future bring?* (Hafford 2001)

Last fall, I joined a team of researchers who are using focus groups and interviews with current forest resources professionals to study Maine's forest products. I was interested in learning about the status of the forestry industry as a whole. What is currently working well? What are the biggest challenges? What are the most exciting opportunities? What does the industry aspire to look like in the future? As our research team conducted interviews and focus groups, I learned that many problems my family experienced—physical demands, high business costs, time spent away from families—are still experienced by workers in today's forest industry. And there is a suite of new, complex challenges that older generations could not have predicted. The good news is that many industry leaders are willing to work together to solve the problems and promote the industry. Our research also revealed what it takes to be a good leader, particularly during a period of industry transition and what will be required of future leaders as the industry reinvents itself.

—Brooke Hafford McDonald

diversifying their operations. They saw the need to adapt to changes in market conditions, such as recognizing demand for specialty paper production as well as thinking "outside the box." Given that many rural communities are highly dependent on mill jobs, it is crucial to assess how open and prepared the residents are to job diversification and learning new skills. Investing in technology to increase efficiency will also be important for the future of Maine's forestry industry. These and other investments will help Maine continue to produce world-class products and may facilitate new opportunities for access to global markets.

Integrity of Forests

Maine has a large, healthy wood basket. Ninety percent of the state remains forested (http://www.forestsformainesfuture.org/forest-facts/) despite being actively harvested for 200 years. Forestland tracts remain large, uninterrupted, and undeveloped as illustrated by aerial photos of the United States at night (Figure 1). The remarkable contrast shows eastern United States glowing brightly and very developed, while Maine is almost entirely dark. The bright lights of Boston, Quebec, Montreal, New York, and other nearby cities remind forest leaders of the opportunity that Maine is within a one-day drive of 70 million people (Curran 2017). Some participants noted that Maine's mixed species forests regrow quickly and naturally without much interference or active management, which can lead to the production of diverse products and the capture of various markets. Even though industry leaders are currently focused on Maine's surplus of softwood, Maine's ability to grow a good balance of hardwood and softwood is viewed as a positive for long-term strategies and product development opportunities.

Maine also has the highest percentage of sustainably managed forestland in the country and is a national leader in forest conservation easements. Maine landowners are environmentally responsible, seek certifications, and are committed to a high standard of conservation. Landowners and land managers consider ecological value while maintaining working forests. As one participant noted, Maine citizens are interested in conservation while also interested in having working forests. Participants noted that it will be important for future leaders to balance wood harvesting while ensuring the forest remains intact for future generations.

Consumers show a growing interest in sustainably sourced products. Leaders can appeal to the environmentally conscious consumers by highlighting Maine's sustainable forest practices, emphasizing both the high-quality product and the responsible forestry practices. As leaders balance conservation and economic goals, they should promote forest certifications as a way to help build positive public relationships with Maine residents.

THE BIGGEST CHALLENGES

High Cost of Business

Start-up costs are not a unique concern for investors; they are felt across the industry. Logging and trucking contractors typically provide their own equipment—participants informed us that a single 18-wheeler hauling truck could cost up to $200,000. Additional overhead costs such as insurance, maintenance, and fuel are major expenses that fluctuate dramatically according to global situations and equipment age. In a 2007 interview with the *Bangor Daily News* (November 14,

FIGURE 1: **Northeastern United States at Night (Photograph from NASA website 2012)**

2007), wood hauler Albert Raymond said: "My fuel bill last week was $2,200 for 10 loads of wood. That left $1,300 and out of that, I take my [truck] payments, insurance, tires….There's supposed to be something left there for a wage, but for me, there's nothing." Several study participants echoed Raymond's situation that the truckers' wages become nonlivable after they pay their high overhead costs. Yet, one study participant reported that some young people in rural Maine are willing to assume massive debt simply to continue to live and work near where they are from, a financial risk that might not pay off.

High energy costs concerned participants across all subsectors. Maine's extended winters and cold temperatures lead to high electricity use. While Maine's energy costs are still lower than in other New England states, potential investors will find they are higher than the national average.

We cannot change Maine's weather, but industry leaders can invest in more energy-efficient upgrades to reduce the cost associated with maintaining production. They can replace energy-inefficient equipment and apply for grants to make larger upgrades to facilities. Leaders also noted that they must continue to lobby collectively for business-friendly tax laws that might include subsidies, incentives for sustainable energy upgrades, and tax considerations to alleviate contractors' large start-up costs. Legislative leaders will play a pivotal role in helping the state's forestry businesses thrive.

Workforce

Maine has the oldest population coupled with one of the lowest birth rates in the United States (https://factfinder.census.gov/). As such, the state faces the challenge of attracting and retaining young people to work in its businesses and enhance its tax base. The leaders who participated in our study all expressed concerns about the state's aging workforce although specific labor issues varied across subsectors. Participants made the following points:

- The current workforce is good but old. What will happen when those workers retire?
- It is difficult to attract young talent for skilled positions. Maine has no research and development (R&D) hub, and drawing young talent to live in Maine is a challenge.
- If a business can attract a qualified worker to apply, that person may not accept the job offer because there are no job opportunities for the spouse, or good schools, or good hospitals.
- Young people are not as willing as people were in the past to spend time away from home, work long hours, or perform difficult manual labor, especially if the wages are not competitive, and there are other income options.

One solution suggested by participants is to be more active in schools—working with children and parents—to show that Maine has a thriving forestry industry with many opportunities for earning a living in rural Maine. Rather than assuming other people know about the industry, forest leaders could highlight current and emerging aspects and the benefits of forest-related jobs as a way to help youth consider Maine's forestry industry as a viable career option. Positive media features about a growing, thriving industry are crucial to attract labor. Continued partnership with universities with forestry programs in New England will also be important for attracting and promoting skilled labor, especially without an R&D hub.

Multiple Use

Several participants grappled with balancing management of lands for forestry purposes while also allowing use of the land by the public. Use of forestland can be particularly challenging for landowners, especially when people are destructive and cause financial burdens for the landowners. According to some participants, however, limiting or removing public access to lands is not a viable option. Their experiences revealed that some members of the public think they are owed access to the land and become upset if access is limited. Some users leave trash; others destroy property or tear up roads with off-road vehicles. Hikers and cyclists are also in danger when log trucks are on the road. As one participant said, "It's a fine line because, let's face it, mountain bikes and logging trucks don't mix."

Solutions to these problems include increasing public awareness about the forest industry's importance to the state of Maine and educating the public about safety hazards during what forest professionals call "unorganized use." Forest industry leaders should clearly post information in different venues about where and when recreation can (or cannot) take place. By explaining the reasons for any restrictions, forestry leaders may reduce conflict surrounding multiple-use issues and increase safety for recreationists and forest professionals.

Changing Weather Patterns

Maine forests are changing. One highly visible example is the change in the start of Maine's maple syrup season, which used to start consistently in late February, but now often starts in January (*Bangor Daily News,* March 23, 2018). Another noticeable change is that beech trees, which are normally associated with areas of higher precipitation and temperatures, used primarily for firewood, and not as commercially valuable as species like sugar maple, appear to be taking over much of Maine's forest (Bose et al. 2017). On the other hand, as one study participant noted, warmer weather might bring in more white pine, a highly valuable species. As Martin Dovciak, of the SUNY College of Environmental Science and Forestry, notes in a *Bangor Daily News* (February 26, 2017) interview, "It's important to realize that the species composition that we are used to, in terms of forest management, might be different in the future."

Warmer winters and earlier springs can result in a longer mud season, the period of time when the ground is soft and many forestry operations come to a halt. Maine's mud season historically began in mid- to late March and lasted through April, but in recent years, it has started as early as February (*Bangor Daily News,* March 4, 2017). While mud season is a well-known reality for the forestry industry, being out of work for longer periods has serious economic consequences. Landowners lose money. Contractors are laid off for longer periods and may need to seek other work. One study participant mentioned that if his workers run out of unemployment benefits and are required to seek work elsewhere (in construction, for example), he risks losing a significant chunk of his labor force. Working when the ground is too soft also ruts soil surfaces. One participant explained how increased rutting can put a company's environmental certifications in danger. Another noted that longer, warmer winters lead to more frequent freeze-thaw cycles and road washouts, which are expensive to repair.

As climate change continues to impact Maine's forests, industry leaders are preparing to adapt. Improved understanding of predicted effects of climate change for the state of Maine will be an important step as forest leaders plan for the future. Collaboration and collective planning will make the industry better able to adapt when changes, shifts, and unpredictable events strike, thus increasing the industry's long-term resilience. A collaborative planning process will also help the forestry industry take advantage of emerging opportunities resulting from climate change.

KEY OPPORTUNITIES

Market Opportunities

The remaining pulp and paper mills in Maine are still successful and competitive due to their diversification of products via innovative development and production. Industry leaders see more such opportunities on the horizon and are already capitalizing on emerging markets.

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Maine is strategically located near large domestic and international markets. Participants recognize that proximity to Boston, New York, Quebec, and Montreal is an excellent opportunity to increase market share. An additional opportunity would be to capitalize on the state's existing deepwater ports in Portland, Bucksport, Searsport, and Eastport, which would make Maine even more competitive on an international scale. However, industry leaders warn that infrastructure, including roads, railroads, and ports, needs to be improved before this opportunity can be fully realized.

Mill owners are already expanding their business ventures, seizing product-diversification opportunities, and investing in new technology. Through product diversification and infrastructure improvements, leaders can help Maine's forestry industry reach new markets while also increasing job stability.

Technological Advancement

Several participants believe that technological advancements will create new opportunities to use Maine's surplus wood pulp. In February 2018, two companies announced they were creating new plants to produce cross-laminated timber, a composite wood product strong enough to replace concrete in construction

projects. SmartLam LLC, from Montana, announced it would open a $25 million dollar facility that would create 100 jobs. That same week, LignaTerra Global LLC, from North Carolina, announced it would open a $30 million dollar facility that would create 100 jobs in Millinocket (*Portland Press Herald,* February 16, 2018).

Maine Coasters and Bio-Boards is currently working with the University of Maine to develop innovative beverage coasters with softwood pulp and spent grain from local breweries (*Bangor Daily News,* March 27, 2018). This company was able to identify and capture a niche that capitalizes on Maine's growing small-scale beer breweries while tapping into Maine's surplus of pulp.

Technological advancements in the development of biofuels has recently gained traction. Companies such as the Ensyn Corporation in Ontario that provides fuel to Bates College in Lewiston take leftover mill wood and develop it into heating fuel (*Portland Press Herald,* February 21, 2017). According to an article in the *Portland Press Herald* (October 18, 2017), the University of Maine's Forest Bioproducts Research Institute received $3.3 million from the Defense Logistics Agency to support research in converting wood fiber into jet fuel.

Industry leaders...recognize that university-private partnerships are critically important for advancing wood technology in the state.

Participants in our study also mentioned advancements in nanocellulose and fiberboard. Nanocellulose, which is derived from wood pulp, could replace plastics and other nonrecyclable material used in packaging (coatings in potato chip bags, for example), and their use in paper coatings may even replace disposable, plastic biomedical tools (*Bangor Daily News,* April 5, 2018). Low-density fiberboards, also known as insulation boards, are made from wood chips and shavings and have the potential to replace traditional foam insulation commonly used in the ceilings and walls of homes (*Portland Press Herald,* August 17, 2017).

Industry leaders in our study recognize that university-private partnerships are critically important for advancing wood technology in the state. New products developed through technological advancement can use the state's current abundance of wood pulp and bring jobs back to our rural communities. However, participants cautioned that just because it works in the lab does not mean it will work for a business—new technologies need to be tested in real-world settings. Study participants also noted that new technologies could attract different sources of labor with different specialties, which could potentially support an R&D hub in the long term.

Inspiration from Europe

Several industry leaders in our study have visited or studied forestry practices in Europe—Finland and Sweden, for example—and say that Maine can learn from these areas. Leaders are impressed by how much the public and government support the forestry industry in these countries and are inspired by how communities there are able to sustain themselves almost exclusively with wood. One participant stated that Maine and Finland have nearly the same amount of forestland (19 million acres and 23 million acres, respectively), but "Finland has twenty paper mills while Maine is down to six." There are roughly 800 combined heat and power plants in Finland, one for every community; the fuel of choice is woody biomass (*The Chronicle Herald,* March 30 2018). Finnish communities are willing to support the local economy rather than depend on foreign oil, especially when the result is more environmentally friendly. So why are things so different? Can Maine also become more self-sustainable by using its own timber?

Several study participants noted that young people in Finland are educated about the importance of forestry, which results in widespread, sustained public support. The Finnish government is also supportive and has made extensive investments in R&D (IIF 2017). Perhaps the primary reason for Finnish support for the wood industry, however, is the actual cost of energy. One Maine leader told us that in Finland oil is heavily taxed and that a single gallon of gasoline can cost up to $12. This participant also said that other energy sources are subsidized—much more so than they are in Maine—which makes biomass costs more competitive. This is illustrated, participants said, by the significant increase in Maine wood pellet sales when oil prices rise. Study

participants suggested that Mainers would also show the same kind of support if oil prices remained high.

Networking with Europeans, continuing to examine the success of European practices, and emulating what works well could, participants said, help industry leaders increase public support, government support, market competitiveness, and demand for wood products. Continuing to foster university-private partnerships will be important to expand investment in sustainable bioenergy research and product innovation.

WHAT DOES THIS MEAN FOR THE FUTURE?

Based on what we have heard from the focus group and interview participants, Maine's forest products industry has much to be hopeful about, but there are areas that need improvement. Forest industry leaders should continue to work cooperatively, between subsectors, across land-use groups, and maybe even across continents, as they create essential partnerships. In addition to business partnerships, the industry needs to obtain community buy-in and political cooperation to create an atmosphere of acceptance and support for business development. Industry leaders recognize they must look for new opportunities, management strategies, and technologies so they can think globally, while acting for the benefit of local communities.

Participants identified that this current period of rapid change for the forestry industry has the potential for economic, political, and social instability. Conversely, participants are also excited about the industry's prospects, its growth, new products, and potential. Maine's sustainable management practices will enable the forest industry to grow and thrive in an environmentally friendly way. Addressing concerns about negative press and multiple use conflicts are key to maintaining the social sustainability of the industry, while diversification, new markets, and technological advancements can help the industry absorb economic uncertainty. Continuing to be involved in more positive promotion of the industry, marketing efforts, connecting with communities, networking with other forestry professionals, strengthening university-private partnerships, and lobbying legislative leaders will all be increasingly important steps to overcome the challenges identified by participants to ensure a resilient forestry industry for Maine's future.

Generations of Maine foresters have faced uncertainty. This study has strengthened the beliefs of its participants and authors, that with a proactive view and preparation, combined with collaborations across the subsectors and in collaboration with universities, industry changes will benefit the state as a whole. As industry leaders continue to talk, share, and listen to each other, the future they envision is very bright indeed.

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