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One doesn't need to be especially creative or innovative to come up with great new ideas, just smart enough to listen to creative people and collect ideas from experts.

In this spirit, the OWIC Executive Innovation Brief summarizes thinking from global innovation experts that we feel have application for forest industry companies.

In addition, each Brief includes insights from a group of advisors, listed below.

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OWIC EXECUTIVE INNOVATION BRIEF

Why you should be prepared for the Bioeconomy?

Responding to the Bioeconomy: Business Model Innovation in the Forest Sector. Chapter in forthcoming book: Environmental Impacts of Traditional and Innovative Forest-based Bioproducts. Springer. 2016. 978-981-10-0653-1
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Increased political clout around the bioeconomy (economy based on biological rather than petroleum resources) presents a major opportunity for forest sector firms.

The Opportunity of the Bioeconomy: Emergence of the bioeconomy presents an opportunity to diversify product offerings and reduce reliance on stagnant markets for mature products. Opportunities range from traditional market spaces with better growth prospects such as engineered structural wood products for non-residential construction to "new" bioproducts such as liquid fuels, chemicals, bioplastics, and nanocellulose.

Improvements to make products more environmentally friendly are incremental steps toward the bioeconomy. Examples include environmental certification, non-formaldehyde-added adhesives, and reduced density fiberboards. Environmental product declarations are a means to formally document and report product performance. More radical steps might include developing new products using design for environment thinking, thereby minimizing environmental impacts over the entire lifecycle of the product or actively engaging in the re-use, repair, refurbishment and recycling of products.

As forest sector companies create new products or target new customers, adapted business models are required. If a wood treating company begins to offer recycling of its products at end-of-life, it requires a new business model. While forest sector firms are adept at innovation in manufacturing processes, most are less so with respect to product and business systems innovation, the types most likely critical for capitalizing on the bioeconomy.

If a company is effective at decreasing costs, and increasing efficiencies (exploitation), it is not necessarily adept at creating new products/services (exploration). Being effective at both is said to be ambidextrous. Imagine the outcome of a recently announced project at Umeå University where the goal is 3D printing of cellulose-based materials for home construction. Might a sawmilling company that is highly skilled at manufacturing traditional structural products be well-placed to make the leap to 3D printing of houses? Probably not. That is why radical innovation often comes from startups outside an industry. Still, an ambidextrous company is more likely to successfully enter these types of new market spaces.

Pathways to the Bioeconomy: It is critical that companies explore new opportunities in the emerging bioeconomy via continuously innovating and renewing products, processes and business models. The company that is innovating will be a natural entrant into the bioeconomy because of the opportunities it presents.

So, where should your company start to embrace the bioeconomy? Culture is the fundamental ingredient from which companies can begin to innovate. Incremental cultural tweaks can push a company toward a culture of enhanced innovativeness, but for bigger steps, structural changes may be necessary. Five structural alternatives are outlined in the chapter, each of which allows disruption of the existing cultural norms and if done well can facilitate effective exploration. They are: *A separate R&D unit, Cross-functional innovation teams, Creating a closely held subsidiary company, Alliance/collaboration with other companies, and Purchase of another company.* The following text addresses two of the five.

Establish a Separate R&D Unit: A separate R&D unit can possess its own innovative culture that is distinct from the rest of the company, allowing exploration of new ideas while the remainder of the company focuses on exploitation. However, many forest sector companies have downsized or even eliminated their R&D departments and in most cases these units will not be returning. For companies without an R&D unit, an option to facilitate exploration is to actively collaborate with research institutes and/or universities. Collaboration with research organizations can be combined with accessing governmental programs designed to facilitate research, development, and innovation, especially in small companies.

Initiate Cross-company Collaboration: Collaboration can take many forms ranging from joint R&D to joint ventures. Lego recently announced a huge R&D investment to create a sustainable alternative to petroleum-based plastic for its bricks. This is an opportunity for the right biorefining firm. Despite the challenge, interaction with highly different companies (in terms of products, culture, expertise, etc.) promises to be fruitful because differences lead to more new ideas.

Conclusions: A growing bioeconomy means the opportunity for numerous types and forms of innovations. New products and services will be offered using a variety of business models serving an increasingly environmentally-focused consumer base. As purveyors of products from renewable materials, companies in the sector are endowed with a head start, an inherent advantage, over companies with less environmentally friendly offerings. However, this head start will quickly dissipate without genuine strategies to further tailor products and services for the bioeconomy customer.