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Business Model Innovation in a Circular Economy

OWIC EXECUTIVE INNOVATION BRIEF

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.

Remaking the Industrial Economy by H. Nguyen, M. Stuchtey, and M. Zils. McKinsey Quarterly. February 2014.

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This article is based on collaboration among McKinsey, the Ellen MacAurthur Foundation and the World Economic Forum. The above link includes extensive information about the circular economy concept.

Society is returning to ideals of earlier times, embracing a circular economy, a regenerative economic model that eliminates the traditional "take, make, and dispose" approach to manufacturing. Common business terms like supply chain and end-user reflect the linear nature of the traditional economy. In a circular economy products are designed for reuse/reassembly, remanufacture, or use as raw materials for other products. As a result, materials see multiple cycles of use and, if properly designed, can eventually be reintegrated into the natural environment. It is claimed that global materials savings from this approach could top $1 trillion per year by 2025 AND the circular economy could become a, "tangible driver of global industrial innovation."

The move toward a circular economy is partially driven by the rising cost of materials. An additional driver is changing societal values and expectations that drive legislation like the European Union End of Life Vehicle Directive which requires car manufacturers to take back their cars at the end of life. This has meant a shift in design thinking in car companies, facilitating the recycling process.

The forest sector has long exemplified principles of the circular economy. Many fiber-based products rely on by-products from primary breakdown operations. Also, the paper industry is an effective recycler. According to the AF&PA, just over 65% of all paper in the US is recycled. However, large volumes of de-inking chemicals are employed to make this possible. Improved design for ink removal would mean reduced chemical use, an area ripe for further innovation.

The authors outline four areas of circular thinking, all around "the power of" the following: 1) the inner circle, 2) circling longer, 3) cascaded use, and 4) pure inputs.

The power of the inner circle: A tight inner circle means a company designs its products so that components can be refurbished or recycled to reduce the need for new materials, less energy use, etc. The authors document efforts by Ricoh to design a line of copiers and printers for reuse. The machines are leased and when returned to the company are refurbished and placed back in the "fleet". This approach may be possible for companies such as office furniture producers (e.g., Emblem Furniture of the UK). Pallet and container pooling service CHEP repairs and reuses pallets and ultimately recycles broken or damaged components rather than sending them to the landfill.

The power of circling longer: Extending the number and/or length of cycles of reuse, repair, or remanufacture minimizes material and energy use. The authors cite the example of retread tires where the process of retreading takes about half the resource as a new tire and it provides about 90% of the performance. CLT buildings present an important opportunity for multiple cycles of use which also serves to maintain carbon storage for longer periods. Back to the pallet example, many different reinforcement and protection systems have been used to increase pallet life in logistics systems.

The power of cascaded use: The authors cite an example of a retailer taking in used clothing. The best pieces are sent to the secondhand market, the rest are used in lower-value applications. Should forest sector companies consider vertical integration to the level of retailing to cash in on the circular economy? Or, should they form new types of partnerships with existing retailers? Reclaimed lumber has developed meaningful markets in some locations. How might products and building systems be reworked to facilitate and grow the reclaimed lumber market? Some call this upgrading, creating at least one additional life cycle for solid wood products.

The power of pure inputs: A principle facilitating circularity is design for disassembly, allowing products to be more easily separated into constituent parts. If those parts are pure and non-toxic they are better raw materials for use in other products. Engineered and composite wood products are the norm today, but how many have been designed with this principle in mind? Typical thinking is that wood products be burned after their initial use. Creating paths for use in a subsequent manufacturing process rather than burning may be a major opportunity for innovation.

The authors conclude by saying, "By applying the principles of a circular economy—a system that is regenerative by design—forward-looking companies can seize growth opportunities while laying the groundwork for a new industrial era that benefits companies and economies alike." This trend may be a key opportunity for forest sector firms to innovate their business models.

Stay tuned to a newly minted EU research project titled CaReWood. Its primary goal is to develop business models for the cascade use of recovered wood. It is estimated that half of the 95 million m^3 of solid wood used in the EU27 countries could be recovered and reused with unchanged mechanical properties.