Engineered fibre mats

A technology worth replicating

Fast facts

Technology: **Engineered fibre mats**
Replicability: **Moderate potential**
Capital cost: **$30 to 35 million**
Output: **Automotive composites**
Natural fibre insulation
Erosion control mats

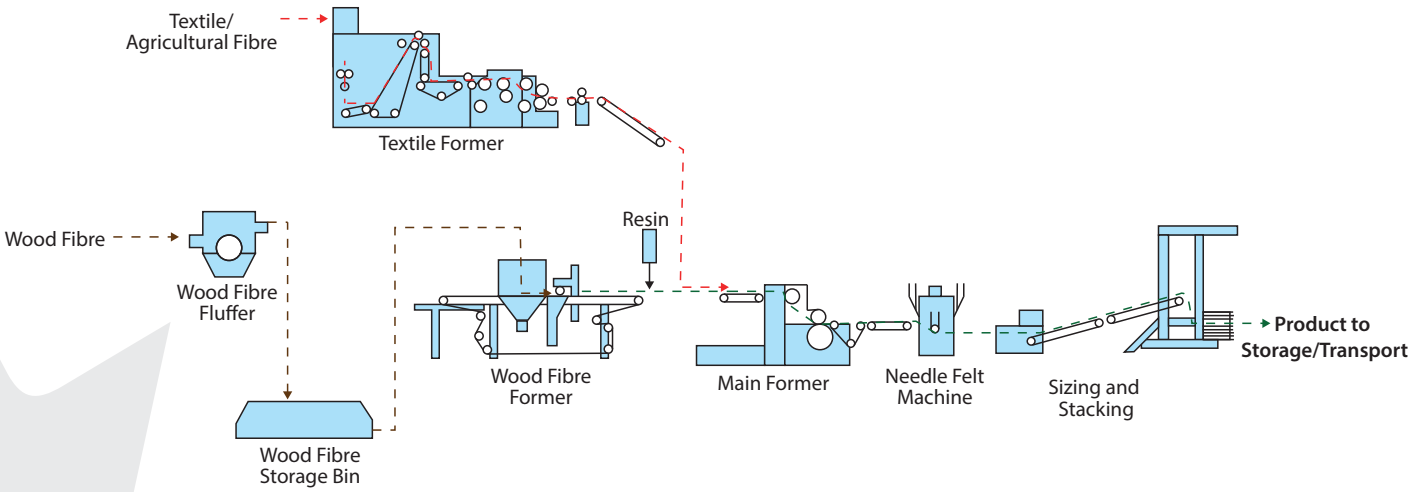
Success story

The **BioComposite Group** (BCG) has implemented an Engineered Fibre Mat process, which is based on a high capacity air-laid non-woven production line with a unique front end, enabling the use of a wide range of blended natural fibre materials into non-woven and needle-punched mats. These products can be used in automotive composites, natural fibre insulation and erosion control mats.

Advantages of engineered fibre mats[1]

- Natural fibre mats are ideal for interior automotive parts as a lightweight alternative to fibreglass components, thus improving the fuel efficiency of vehicles and reducing volatile organic compounds during manufacturing.
- They have excellent thermal and acoustic properties and are suitable for most insulation applications.
- They absorb water and silt more readily than polypropylene, which is critical on highly sloped terrain and in areas where multiple seasons are required for new growth.
- They provide a superior growing medium for deep-rooted plants, which in turn naturally contributes to erosion control and enriches the soil for plant life when decomposition occurs after 3.5 years.

How it works



Source: KSH Consulting

Need funding? Access the Canadian Business Service Network database of government grants, loans, and financing options at **canadabusiness.ca/eng/program/search/** for opportunities in your region.

[1] KSH Consulting

Canada

Technology maturity (very high)

Describe the technology risks. Has the technology been commercialized outside Canada?

- There are minimal technological risks associated with this process, and it has been implemented many times outside Canada. Air-laid non-woven processes are well-known, and there are multiple equipment suppliers.

Ease of implementation (low)

How feasible is the implementation of the technology, with regard to process complexity, capital costs or intellectual property issues?

- The process uses commercially available equipment that could easily be configured to manufacture engineered fibre mats, provided the capital costs could be raised and access to biomass material is readily available.
- As BCG holds the trade secrets with regard to the various sequencing techniques and fibre-blending formulas, intellectual property for those aspects of the process would have to be provided by BCG or be developed internally.

Potential for replicability (high)

Are there multiple sites available with the potential to facilitate such a project?

- As a stand-alone technology, replication of this process could be done at existing facilities with sufficient space or independently as a new facility.
- Ideally, replication would be done in proximity to biomass feedstock and/or regions in which the final products will be sold.

Market opportunities (moderate)

Is the relative market size targeted by this technology accessible?

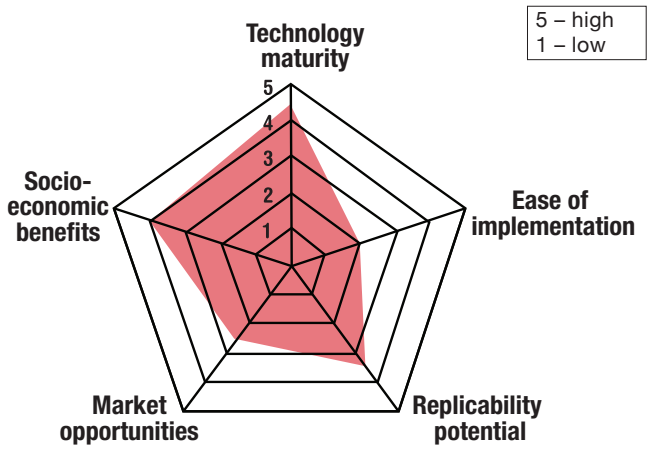
- There is a strong and growing demand in North America for automotive composite mats and building insulation made from natural fibre.
- Other potential markets exist (i.e. erosion control mats, growth media, fibre molded consumer items), but all are still relatively nascent and limited in size.

Socio-economic benefits (high)

Would the project lead to job creation opportunities, environmental benefits and the potential to transform the industry?

- A fully operational facility could create over 25 full-time jobs and generate approximately 40 indirect jobs for the region.
- A fully operational facility could reduce an industry's carbon footprint by up to 50,000 tonnes of greenhouse gases (GHG), depending on the components the mats are replacing.

Replicability Radar Diagram



Disclaimer: This replication analysis is based on the technology implemented under the project funded by IFIT. The IFIT program does not endorse any specific technology provider and has producer this brief analysis for the benefit of those considering implementing this type of project.

Is it suitable for you?

- ☑ Access to at least 10,000 tonnes of woody or agricultural biomass annually
- ☑ Access to a facility large enough to house the equipment and feedstock (about 30,000 sq. ft.)
- ☑ Access to markets for final products

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