

# Roadmap for sustainable materials

Enabling a leading mobility OEM to define their sustainability roadmap



## Quick overview

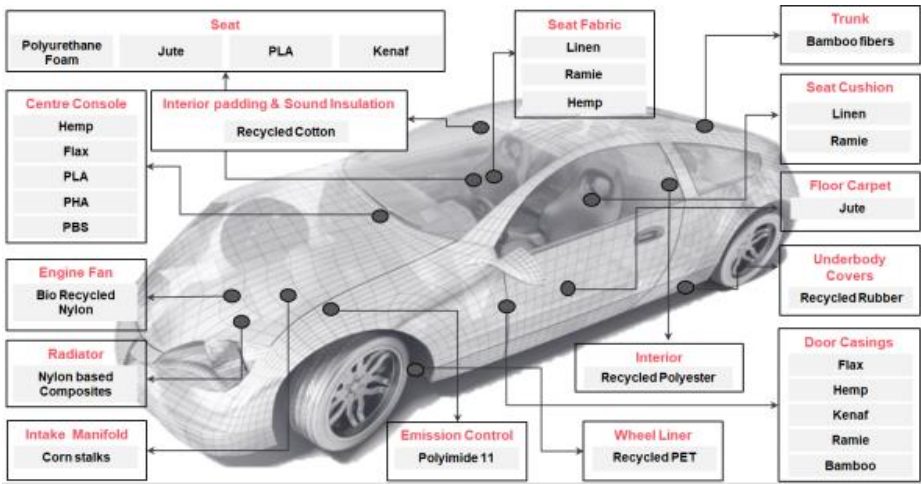
With environmental concerns and consumer preference continuing to impact the transport industry, our client wanted to gain an in-depth analysis of current and future trends related to sustainable materials. They also wanted to assess the landscape of materials under research - especially for the automotive sector.

## Client success details

The support and insights FutureBridge delivered helped our client build a prioritized roadmap for sustainable material usage in various vehicle systems, especially from an EV development perspective. Our analysis answered several of our client’s critical business questions including:

“Sustainability is a growing trend due to regulations and consumer awareness of the environment. How can mobility players build a sustainability roadmap?”

- What are the latest recyclable, renewable and biomaterial-based material developments for mobility applications?
- Which automotive components are expected to be produced from the identified materials?
- Who are the leading material developers innovating in this space?
- What are the latest products for these new alternative materials?

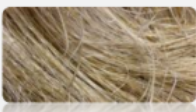


FutureBridge conducted extensive primary and secondary research across multiple industries to develop a landscape of current and future sustainable material insights. Our research included:

- Materials identified from within and outside the industry.
- Material properties including their mechanical and chemical make up.
- The energy needed to manufacture and recycle the identified materials.
- The state of maturity of materials and processing needs.
- Key players involved in the development of sustainable materials for automotive applications.

### Hemp fibre (1/2)

It can be refined into a variety of commercial items including paper, textiles, clothing, biodegradable plastics, paint, insulation, biofuel, food, and animal feed



#### Hemp fibres

KEY PERFORMANCE INDICATORS	
State of Maturity	Commercialized
Tensile Strength	310-750 Mpa
Melting Temperature	upto177 °C
Cost	\$0.40-\$0.55/kg
Biodegradable	Yes
Density	1.4 g cm-3
Safety	High
Toxicity	Nonionic
Resin Identification Code	NA

### Introduction

**INTRODUCTION**

- Hemp, or industrial hemp, typically found in the northern hemisphere, is a variety of the Cannabis sativa plant species that is grown specifically for the industrial uses of its derived products.
- It is one of the fastest growing plants and was one of the first plants to be spun into usable fiber 10,000 years ago.

#### ADVANTAGES

- Hemp composites shows the best flexural strength properties

#### DISADVANTAGES

- They absorb moisture
- Variability in their properties

#### PLAYERS

- BMW, **one of the largest car manufactures in the world**, is utilizing industrial hemp based biocomposites in their 'i3' electric car. By lowering the weight of the BMW i3, engineers of the vehicle have increased the distance that the electric car can travel. The BMW i3 is said to be made from 95% recyclable materials.
- **Faurecia plans to triple the production of its NAFILean** lightweight hemp-based biocomposites in the next three years, as they are increasingly adopted by OEMs. The company has recently developed new data to show the significant energy and environmental benefits NAFILean provides, in addition to the positive impact on agriculture.

FutureBridge further analyzed and arranged the material on a Player vs. Material vs. Components map. Potential suppliers of relevant material were also identified

Also, FutureBridge helped our client define a clear vision of which automotive components are expected to be designed and manufactured using sustainable materials in the near, medium, and long term.

## About FutureBridge

FutureBridge tracks and advises on the future of industries from a 1-to-25 year perspective.

We keep you ahead on the technology curve, propel your growth, identify new opportunities, markets and business models, answer your unknowns, and facilitate best-fit solutions and partnerships using our platforms, programs, and access to global ecosystems and players.