

# Tech Venture Challenge

## Developing a Supply Chain Management and Distribution Network for a Bio Resin within a Research Transfer



Picture created with DALL-E

### Challenge description

The widespread use of petroleum-based resins, particularly phenolic resins in fire-resistant applications like aerospace, has significant environmental and health drawbacks. Recycling these resins is challenging, further amplifying their negative impact. Bio-based alternatives, such as furan-based resins, offer promise due to their high fire resistance but are hindered by brittleness. BioResin, an innovative startup, addresses this with FlexFuran—a sustainable, high-performance furan resin that is more ductile and suitable for demanding applications. FlexFuran reduces the CO<sub>2</sub> footprint by 75% compared to fossil-based phenolic resins. The initial target market, maritime and sports applications in Europe, is valued at 33 million EUR annually, growing over 5% per year.

### Thesis Focus

Within your master thesis project, you will work on scientific research questions related to:

- The role of supply chain management in enabling bio-resin commercialization in Germany and the EU
- Integration of regulatory compliance frameworks for raw material procurement and product distribution within the bio-resin industry
- Analysis of logistical challenges and strategies for efficient distribution networks tailored to bio-based materials
- Case studies of successful bio-resin supply chains and their alignment with German and EU environmental regulations
- Barriers to establishing sustainable and compliant supply chains for bio-resins and actionable strategies to address them
- The impact of sustainability metrics and optimization tools on enhancing the efficiency of bio-resin distribution networks

- Opportunities for leveraging renewable energy and circular economy principles in bio-resin supply chains

### Profile and process

You apply with a motivation letter and a CV (but no project draft) and write a master thesis suitable to your study program. You should have:

- Motivation to innovate and revolutionize the industry with sustainable bio-resin systems
- Background in business, supply chain management, or related fields
- Experience or interest in supply chain management, logistics, or bio-based industries would be an advantage for navigating the bio-resin market
- Exceptional analytical and creative problem-solving skills
- Willingness to take responsibility and work independently
- A team player attitude
- Ambition to co-found a startup within “EXIST Forschungstransfer”, transforming cutting-edge research into impactful real-world solutions

Upon successful application, you will become part of the TUM Entrepreneurial Masterclass and enjoy all its benefits. Completing a successful thesis will provide you with the opportunity to become a co-founder of the startup at an early stage.

**TUM Entrepreneurial Masterclass  
and  
Chair of Materials Handling, Material Flow, Logistics**

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