

1. EXECUTIVE SUMMARY

Besides healthcare and digitalisation, a major innovation driver of the future will be the **logistics sector**. Due to a growing demand in consumer goods and increased globalisation, an essential part is the **packaging** itself.

Currently, the majority of sold products is packed in a combination of cardboard and various plastics, which are commonly made from expanded polystyrene (abbr. EPS, colloquially referred to as styrofoam). As a result, styrofoam waste takes up to 30% in landfills globally and contributes considerably to ocean and soil pollution due to its long lifespan (>500 years) as well as health issues due to the carcinogenic properties of styrene that take effect, once in the microplastic state. Mycrobez's mission is to implement a new industry standard with its circular packaging solution made of mycelium (mushroom "roots") and agricultural waste. Thereby enabling a future free of unnecessary plastics and contributing to the implementation of a circular economy.

Mycrobez solves an environmental problem while innovating the current lifecycle of packaging. By using agricultural waste and mushrooms to create a packaging solution that after its use acts as a dry storage solution for liquid fertilizer and closes the loop with nature. Thereby generating value with the product itself, as well as with the product's disposal.

The product: **Compopack®** comes in three variations: polished, unpolished and custom. The polished version is for secondary packaging while the unpolished version is for tertiary packaging. Which is due to their appearance and manufacturing costs. Custom material properties can be offered for special applications as well. This enables Mycrobez to service a large spectrum of customers, from e-commerce to jewelry or even pharmaceutical packaging. Resulting in the following market potential: the total addressable market comes at USD 158 bn with a CAGR of 6%, while our serviceable obtainable market in Europe is around USD 17 bn. Our beachhead market is the Swiss and German industry providing a total market size of USD 276 M.

The competition in this market can be divided into three segments: the current, yet outdated plastic industry providing Styrofoam, the eco-friendly segment dominated by pulp press, bamboo based and bioplastic applications and the mycelium (mushroom) based biocomposite industry.

That bioplastics and conventional plastics are not a viable solution for the future, is obvious due to their unsustainable material-properties. Here, legislative changes and consumer awareness accelerate their phase-out.

Competition from other eco-friendly alternatives such as pulp press or bamboo and glue based composites (that mostly focus on multi-use) are mitigated by: the superior material properties of mycelium, cost efficiency in production & retail and, most importantly, the capability to substitute the preceding solution seam-

lessly.

Last but not least, mycelium-based composites have become a trend over the course of the past ten years in which only one considerable player has established itself. Ecovative, a company based in Green Island, New York have been pioneers in bringing mycelium based composites on to the market. However, the best available technique (BAT) with which sealed air (licensee of Ecovative) produces mycelium packaging, is in a batch-based process that requires a number of steps to be done manually.

Mycrobez's unfair advantage is the innovative manufacturing process that enables us to eliminate the majority of manual steps while linearising a previously batch-based manufacturing process. Furthermore, Ecovative's focus lies on R&D and licensing while Mycrobez's focus is on making the solution mass-market viable.

This competitive landscape, combined with growing consumer awareness and increasing legislative pressure, makes this market attractive. Our keys to succeed in this market are:

- **A process innovation enabling Mycrobez to mass-produce a sustainable, plastic & toxin-free and biodegradable packaging solution that is price-competitive to styrofoam.**
- **Compopack® is capable of seamlessly replacing the previous plastic applications.**
- **The capability of servicing a variety of industries due to the diverse material properties of mycelium.**
- **A circular business model that runs a multi-pronged revenue model by generating value from the product and its disposal.**
- **By being circular and resource-efficient, Mycrobez already now fits into a future with a circular economy.**

Mycrobez's goal is to be ready to scale to an industrial prototype by the end of 2021. This will be achieved by fleshing out the technical details of the manufacturing process concept with the ZHAW (Zürcher Hochschule für Angewandte Wissenschaften). While in parallel conducting MVP (minimum viable product) market tests and delivering a POC (proof of concept) for the circularity aspect of the product.

Mycrobez will set up a small manufacturing site to facilitate the volume required to effectively deliver the POC and MVPs as well as providing room for prototype testing. The financial requirements for this are CHF 500,000 that will be derived from investments, grants and awards. For process development we estimate a total requirement of CHF 800,000 that is to be derived from the Innosuisse.