

"DESIGNING POTENTIAL SOLUTIONS"

The third stage of the project SIMBIO was conducted in the period between 01/07/2021 to 31/03/2022. The main objectives of the third stage were to identify and assess potential solutions dedicated to the causes of problems and barriers to the development of the bio-packaging market in Poland in accordance with the rules of the circular economy (Figure 1).

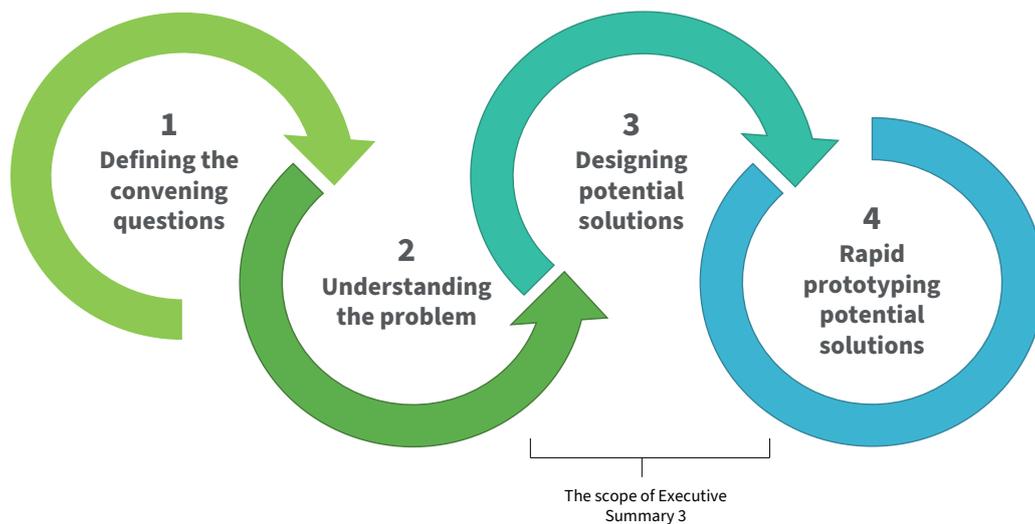


Figure 1. The four stages of the SIMBIO project

The starting point for the implementation of the third stage was the results obtained from the second stage. These results included a list of problems and barriers and their causes for the development of bio-packaging supply chains in Poland. A survey questionnaire was prepared with the aim to discover the most important problems and barriers along with their causes for the development of the bio-packaging market, according to the stakeholders. The results were the subject of discussion panels organised during the 2 Social Innovation Lab workshop. Online panels were held on January 28 and February 18, 2022. The workshop was attended by a total of 26 representatives of bio-packaging supply chain stakeholders, including 21 in the discussion panels. The synergy of knowledge, competences and experience of the participants made it possible to conduct a partnership discussion. The result was the development of solutions for the management of supply chains and the life cycle of bio-packaging for food in accordance with the circular economy principles. The SIMBIO team members moderated panel discussions and took notes of participants' statements. As part of the third stage, team members conducted an analysis of the global market in search of innovative solutions used in the bio-packaging market. These solutions were presented during workshop 2. The stage concluded with the preparation of the report and dissemination of the research results.

The most urgent solutions were identified for the key barriers and their causes, based on the panel discussions held with various groups of stakeholders of the bio-packaging supply chains.

The key barrier to the first **problem** i.e., **insignificant share of bio-packaging, including compostable packaging, in the food packaging market in Poland**, is the high price of bio-packaging in relation to the price of the packaging made of plastics. The two main reasons for this barrier are:

- The high prices of raw materials (3.5 times higher than the prices of conventional plastic raw materials), the low availability of imported and domestic raw materials to produce bio-packaging, the high logistics costs related to the import of raw materials,
- The low demand for bio-packaging (resulting from low environmental awareness of consumers and difficulties in identifying such packaging).

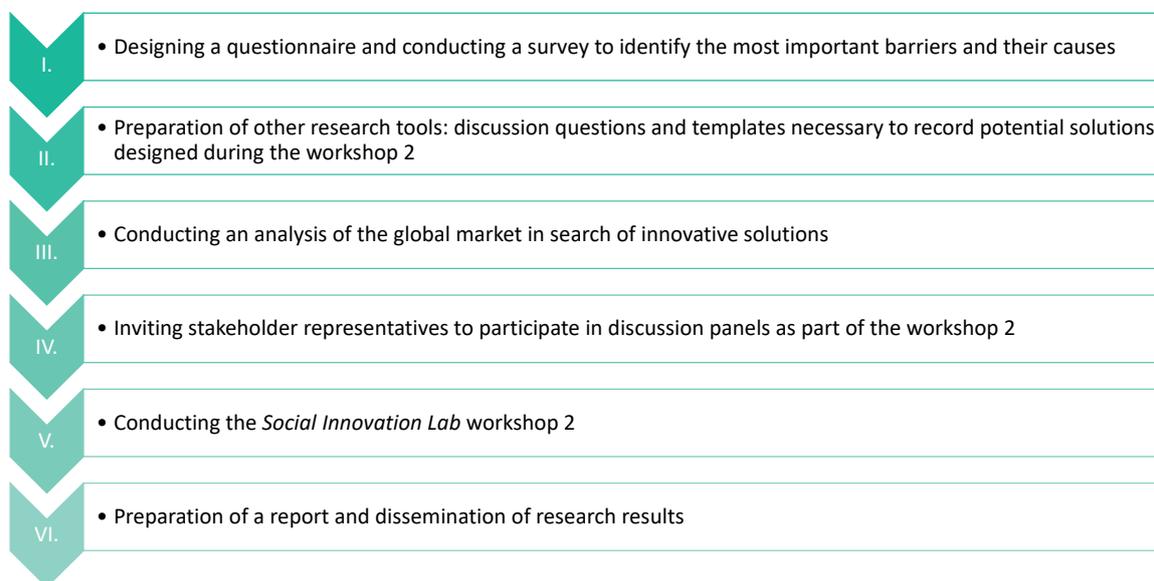


Figure 2. Tasks completed in the 3rd stage of the SIMBIO project

The most urgent solution identified during the panel was an increase in the number of production plants (producing bioplastics) in Poland and improving their cooperation with organisations performing R&D projects.

The second problem is the low awareness and willingness of consumers to buy food products in bio-packaging. The main barrier to this problem is the insufficient level of consumer knowledge about bio-packaging (including compostable ones) in a circular economy. The two key reasons for this barrier are:

- the lack of consumer awareness of the importance of the packaging problem, the lack of education (e.g. in schools, social media), information campaigns on bio-packaging (including compostable packaging), and the shortage of mobile applications supporting the dissemination of knowledge and waste segregation.
- the lack of clear information on the packaging about its compostability.

The participants of the discussion panel jointly proposed potential solutions to eliminate the key causes of the barrier. According to the participants, the most urgent and the most difficult solution to implement is the inclusion of uniform information on the compostability placed on the packaging. The information serves to educate the consumer about the packaging and how to manage the packaging waste.

The third problem is the insufficient social and environmental responsibility of enterprises in the supply chains of food packaging. The barrier that determines this problem to the greatest extent is the lack of sufficient cooperation of enterprises for the benefit of the circular economy. The panel participants proposed solutions dedicated to its key reason, which is:

- the lack of cooperation between enterprises in the field of acquiring and gathering knowledge about bio-packaging and the circular economy, the lack of joint R&D works for bio-packaging, no economies of scale, no joint actions to simplify and standardise the specifications of bio-packaging, the lack of sufficient cooperation for a uniform European standard and the lack of interdisciplinary cooperation within enterprises.

Designing a strategy for the development of the bio-packaging market (including compostable packaging), i.e. an ‘umbrella’ for the activities of internal stakeholders of supply chains, is extremely urgent and difficult to implement.

The fourth problem is the low level of development of compostable packaging waste management. The barrier to this problem is the lack of uniform and transparent regulations regarding the planning and organisation of closed-loop compostable packaging. There are two causes of this barrier:

- the legal regulations that are inadequate and insufficient for the market, often also inconsistent, and above all (especially in recent years) changing legal regulations.
- the limited awareness of the implementation of the circular economy idea.

The discussion led to the definition of the two most urgent solutions: (1) **the development of a strategy for the compostable packaging market along with operational documents**, and (2) **establishing an association of processors of bioplastics (and/or producers of compostable packaging) obtained from biodegradable renewable raw materials.**

PROJECT OVERVIEW

Title: New Frontiers in Social Innovation Research: Social Innovation Management for BIOPlastics

Acronym: SIMBIO

Keywords: social innovation, circular economy, bioplastic, packaging, supply chain

Project aim: to develop social innovation to address the challenges in applying bioplastic packaging in food supply chains, for a circular economy

PROGRAM

Trans-Atlantic Platform: Social Innovation Call

FUNDING INSTITUTION IN POLAND

Polish National Centre for Research and Development

Contract number: T-AP SI/SIMBIO/1/2020

Duration: 01.09.2020 - 31.08.2022



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www.simbioresearch.com

