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PackAlliance:
European alliance for innovation training
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Linking **Academy** to **Industry**.

Training program: New materials and biomaterials

Plastic packaging in the context of development of new materials and biobased materials technology

Prof. Agnieszka Cholewa-Wójcik



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Module: Plastic packaging in the context of development of new materials and biobased materials technology

Topic: Analysis and evaluation of packaging materials used for production of packaging including contact with food

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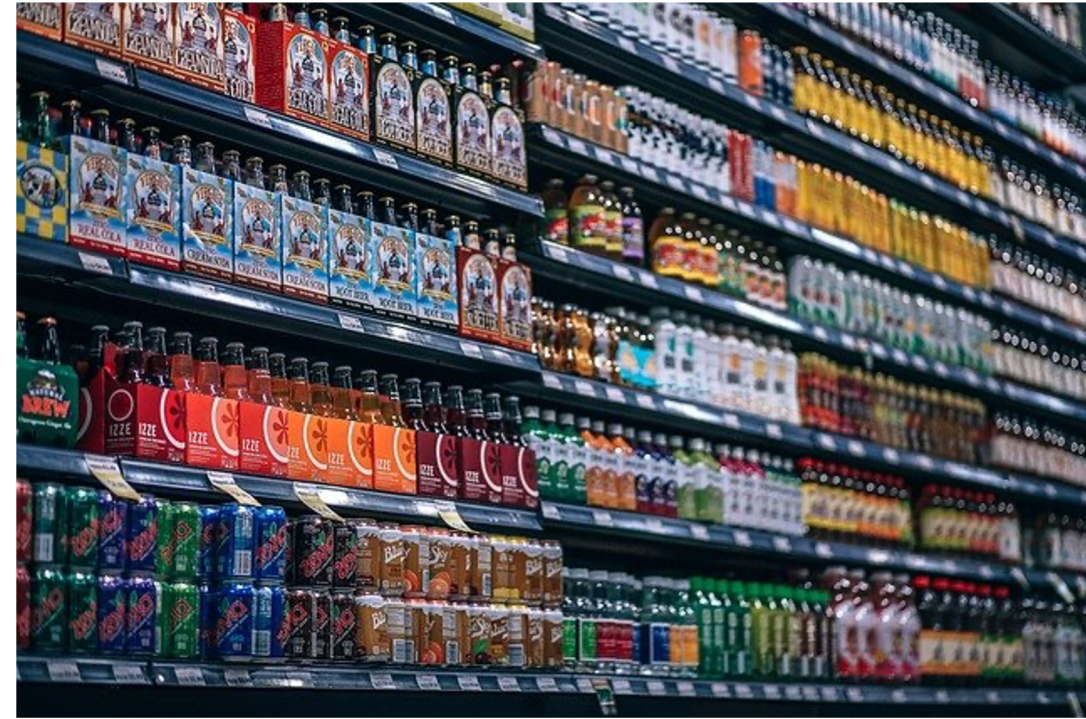
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1. Introduction

The development of the packaging market affects the growing interest in packaging, which should be treated as determinants of product quality.

The role of packaging as an important factor influencing the quality of products is closely related to the functions it performs.

The functions of packaging in the supply chain determine the desired set of features and properties of packaging, hence the need to thoroughly know and understand what requirements are imposed on packaging by entities in the supply chain.



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Packaging¹ is:

„all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. ‘Non-returnable’ items used for the same purposes shall also be considered to constitute packaging”.

¹European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste

Packaging categories

Due to its essential function in relation to the content:

- Sales or primary,
- Grouped or secondary,
- Transport.

Due to the way it is used:

- Disposable,
- Reusable.

Due to the method of settlement in trade:

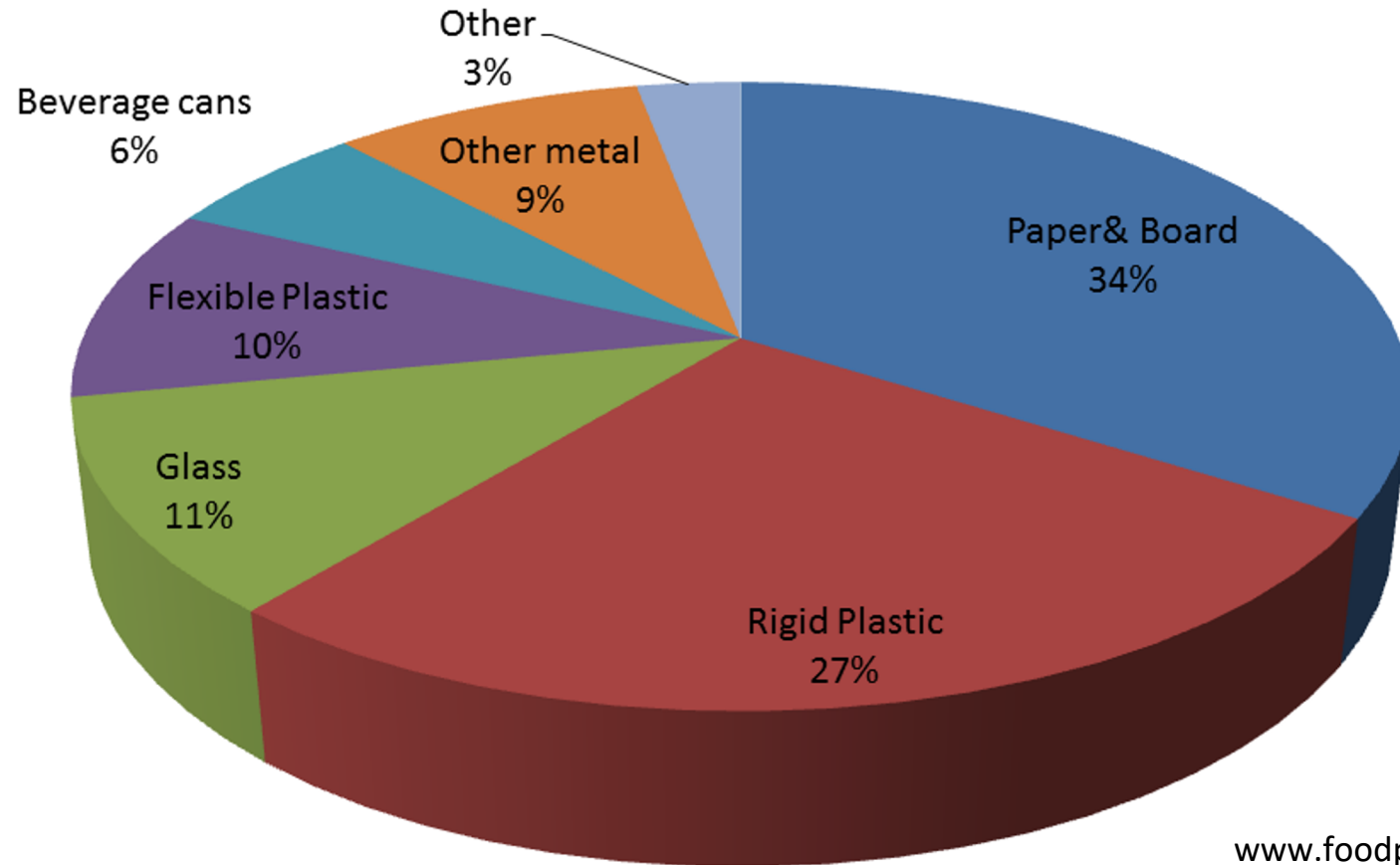
- Sold,
- Manoeuvrable.
- Rented out.

Packaging categories

Due to the packaging material:

- From paper and cardboard,
- Glass,
- Metal,
- Made of plastics,
- Fabric,
- Wooden,
- Ceramic,
- Multi-material.

Market Share of Packaging Material



www.foodpackagingforum.org

Functions performed by packaging:

Protection

Logistics

Informative

Economic

Ecologic

Procedure of assessing the safety of food materials

Technical regarding packaging materials and primary packaging

Technical regarding secondary packaging and accompanying documents

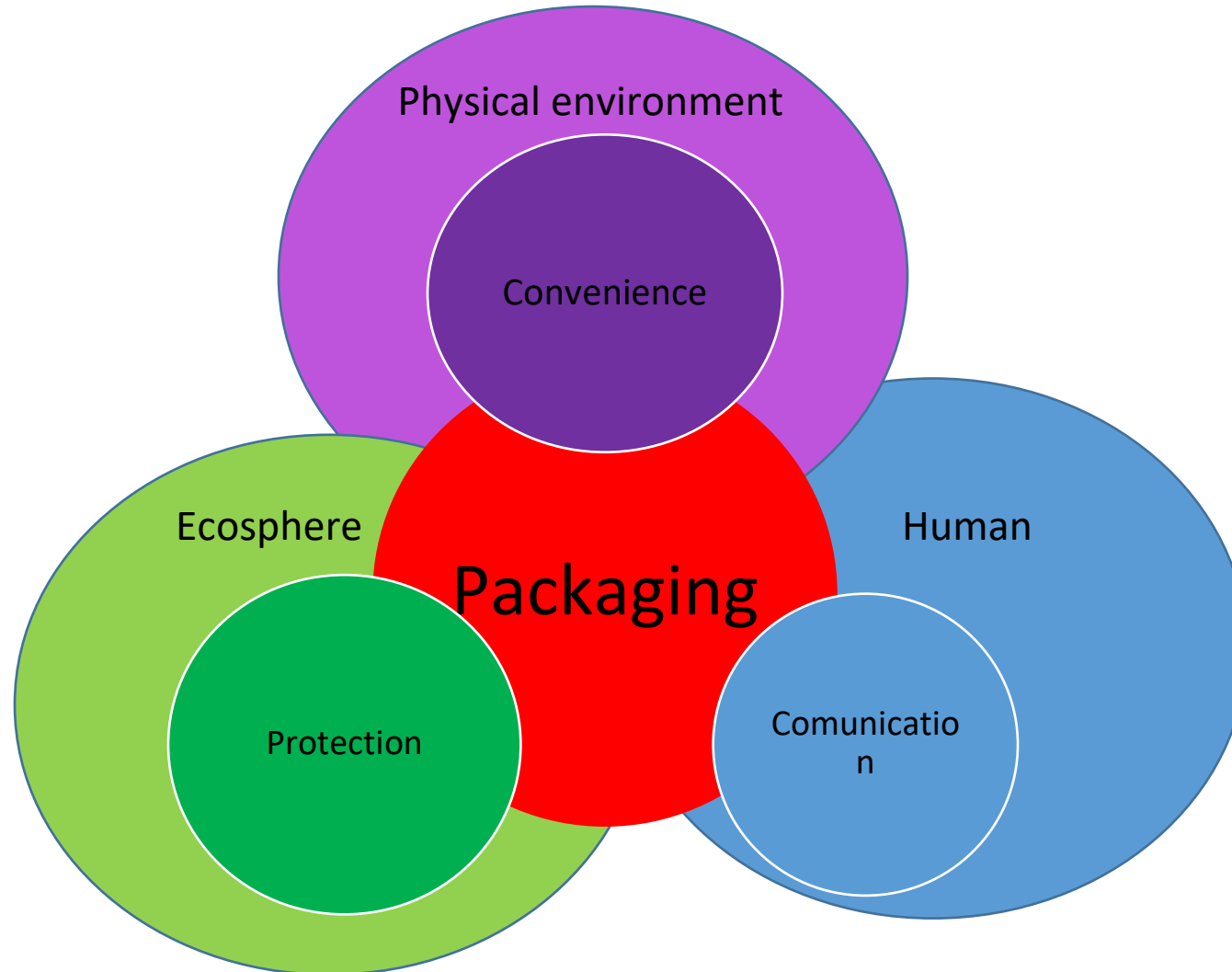
Systemic related to the conditions of minimizing the occurrence of threats

Packaging functions matrix

A new look at the role of packaging as a determinant of product quality is the systemic approach proposed by Bix and colleagues from the School of Packaging Michigan State University.

They developed a concept in which they distinguished the following functions: protective, comfort and communication as those that the packaging must fulfill in the physical, ecosphere and human environments, along the entire supply chain. In this concept, within the entire supply chain created by enterprises related to the packaging life cycle, there are mutual interactions of packaging functions in three environments. Accordingly, when deciding on packaging design, you should take into account the interactions.

Functions performed by the packaging in three environments



On the basis of the packaging matrix "The Packaging Matrix", taking into account the trajectory of intersection of the functions of packaging and three environments, it is necessary to compile the features and properties of packaging important due to the role of packaging.

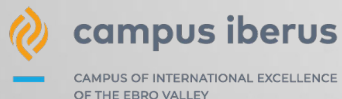
In the matrix containing the list of packaging features and properties, due to their functions in three environments, all cells should be considered, taking into account the relations between them. Such an approach, including the perspective of all participants in the supply chain, ensures both a rational approach to the packaging design process and optimizes its assessment. Such a proposal of a systemic approach to packaging intended for packaging products with specific features and properties is a multi-faceted, comprehensive look at the role of packaging as a determinant of product quality.



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