

Intelligent and Sustainable Food Packaging in a Circular Economy and Consumers Changing Needs

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Abstract

For a long time, packaging expresses the values of the product, it ensures the transportation of the product maintaining the quality and offering protection. Design and material play a crucial role to the attractiveness and sustainability of the product. Packaging is considered as an environmental and economic cost instead of a considered value for the waste decrease. Alternative packaging material and the current packaging technology could easily protect food waste. The possibilities of intelligent packaging in the circular economy are expanded through intelligent communication systems. With the term intelligent packaging we refer to the situation that conceptually surrounds packaging in relation to its use, technology and its interaction with humans and the environment. Through this interaction, innovative communication fields of action and applications are formed in the viability of the packaging. Contributing to the circular economy it is required to redefine conventional packaging through the possibilities of intelligent packaging. The variety of consumer as people with kinetic or visual disabilities, aging population highlight the need for easy-to-read and openable product packaging adapted to their needs. The global consumer market with the increasing of single person living, the increasing of ageing population, requires products designed friendly to the environment and to the peculiarities of customers need. With the provided applications of industry we can have safer packed faster with improved quality products. With smart technology, augmented reality, internet of things, the interconnection between machines and people through wireless sensors, RFID labels can ensure the relationship of the product with the environment, industry and the user. Mobile Augmented Reality in combination with location-based applications supporting by GPS and built-in sensors can easily monitoring the packaged object and sending all the necessary information to a server and display all stages from the production to the use. This report aims to provide an overview to the food packaging sector in our 'modern' way

of living the impact to the environmental and the customer's need. With the evolution of technology we attempt to create smart applications and an environment that is considered intelligent.

Keywords: Intelligent food packaging, circular economy, food waste, consumer needs