

**Industry 4.0 technologies – a factor
contributing to the introduction of a circular economy
to achieve sustainable development
(review of foreign literature)**

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Abstract

The *purpose* of the study is to consider the features of Industry 4.0 generated by modern intellectual, information and digital technologies and providing a higher level of production. However, the impact of Industry 4.0, including individual technologies on the industries of the circular economy and individual stages of the product life cycle has not yet been sufficiently studied. The research contributes to the expansion of the understanding of these processes. *The subject of the study* is the circular economy (as one of the most important concepts aimed at sustainable development) and Industry 4.0 technologies. *Target groups*. Decision-making bodies and stakeholders responsible for the development and implementation of modern technological solutions that take into account the social and environmental components of sustainable development of the country and regions, including in the sectoral context. This research may find a response in the scientific community. As a *methodological tool*, the method of analyzing the literature in this area is used, in particular, a comparative analysis of case studies, practical developments in the field under study. *Results*. The analysis of the processes associated with the introduction of Industry 4.0 technologies at various stages of the life cycle of products in the industry context and their impact on the transition to the circular economy is carried out. It is considered and confirmed that Industry 4.0 technologies have a wide range of effects to improve circulation, which in turn contributes to achieving sustainability by realizing economic, social and environmental benefits. The differences in the potential impact of Industry 4.0 technologies on the stages of the product life cycle, including in the industry context, are demonstrated. It is shown that understanding such an impact will allow using the advantages of Industry 4.0 technologies to achieve sustainability and will contribute to the strategic implementation of such technologies in the context of the transition to a circular economy. *Conclusions*. In order to take advantage of the benefits provided by Industry 4.0 technologies to achieve sustainability by influencing circulation processes, it is necessary to carefully assess the degree of technology impact on various stages of the product life cycle, including taking into account its industry affiliation. *Recommended*. The conclusions made indicate the need to continue research in this direction in the light of the emergence of new technologies generated by their continuous development and integration.

Keywords: *circular economy, fourth industrial revolution, information and digital technologies, sustainability, product life cycle.*

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