Chapter 96
Information Literacy and the Circular Economy in Industry 4.0

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ABSTRACT

Industry 4.0 contributes to the increase in technological production and the use of environmental resources. Because of that, researchers need to discuss circular economy issues in the context of I4.0. To understand the circular economy, people need to know how to access, evaluate, and use the information (information literacy). The purpose of this chapter is to discuss how information literacy has been studied for the development of the circular economy. The methodology implies a review of the literature on circular economy, information literacy, and Industry 4.0. Subsequently, the document connects the information literacy and BNQ21000 standard (Québec) focusing on sustainability. The review showed that there are only a few documents that analyze the circular economy in the context of Industry 4.0. In addition, the information literacy needs to be studied in the circular economy and Industry 4.0 so that managers, students, and researchers can contribute to that revolution in a critical and sustainable way.

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INTRODUCTION

Industry 4.0 (I4.0), also known as the Fourth Industrial Revolution (4IR), is based on smart technology allowing faster and personalised production of goods. I4.0 is considered a revolution because it changes the means of production and people's lifestyles. I4.0, however, contributes to the increase of technology production and use of environmental resources. Researchers, therefore, need to discuss circular economy issues in the context of I4.0. In order to understand the circular economy, people need to know how to access, evaluate and use information. Intelligent information use occurs through learning. This learning can be considered lifelong learning-as it is useful to professionals and individuals. Lifelong learning is internationally known as information literacy (IL). IL involves learning through information access to allow individuals can think critically.

In order to understand the issues that involve the circular economy in the context of I4.0, people need to become information literate. IL involves a critical discussion about the consequences of I4.0 in society. This critical thinking is fundamental to managers and professionals to allow them to behave in an ethical and sustainable manner.

The purpose of this paper is to discuss how IL has been studied to understand the circular economy development. It, furthermore, develops a framework connecting information literacy and the *Bureau de Normalisation du Quebec's (*BNQ21000) sustainable learning standards of Québec, Canada, so to enable managers can make effective decisions. It also demonstrates how businesses can become more sustainable in the context of I4.0.

The methodology involves a literature review about circular economy, information literacy and I4.0. Additionally, the paper connects IL and BNQ21000 standard (Québec) focusing on sustainability. IL needs to be studied in the context of the circular economy and I4.0, allowing managers, students and researchers to contribute in a critical and sustainable way. Businesses can apply IL in training about the circular economy and find new opportunities in environmental issues.

This paper attempts to connect concepts of Business Management, Sustainability and Information Science. The interdisciplinarity contributes to knowledge construction and helps business into the context of I4.0. Businesses can thus develop economically based on the principles of the circular economy, which promotes growth based on respect for the environment and society.

Industry 4.0 (I4.0) uses smart technologies for faster and personalised of goods and services for customers. It requires new production processes to satisfy changes in people's lifestyles. In addition, the increased use of technologies and intelligence in all business activities has the potential to improve and support circular economy issues in the context of I4.0. In order to understand circular economy benefits for individuals, organisations and society at large people need to know how to access, evaluate and use information about products and services.

Intelligent information use occurs through learning, sometimes lifelong learning, which is useful for professionals and individuals. IL involves a critical discussion about the consequences of I4.0 to all stakeholders, as individuals, organizations and society. Being able to access, evaluate and use information managers and professionals can develop a critical thinking and can make decisions in an ethical and sustainable way. The research question is:

1) What is the influence of information literacy on the circular economy to support a more sustainable way for Industry 4.0?