

Chapter 77

Rife Information Pollution (Infollution) and Virtual Organizations in Industry 4.0: Within Reality Causes and Consequences

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ABSTRACT

Information pollution, which usually refers to the overabundance of irrelevant, unsolicited, unwanted messages, is a major cause of concern for practitioners and academic researchers. Advances in the information and communication technologies has proliferated the production of information. Consequently, people are suffering from information pollution. Information pollution has made it difficult for employees and individuals to find the quality information quickly and conveniently from diverse information sources including print and electronic sources. This chapter sheds light on the relevant literature of information pollution and analyzes its causes in the Industry 4.0 era and puts forward suggestions for tackling this problem. This chapter emphasizes the significance of concrete efforts from computer scientists, academic professionals, and information professionals to devise strategies and techniques for refuting the effects of information pollution.

INTRODUCTION

Industries are undergoing a historic turning point (Laudante, 2017). People, machines, and products are now communicating with one another via the internet within the context of industry 4.0. Industry 4.0 refers to the convergence between industries and the Internet technology (Fernández-Miranda, Marcos,

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Peralta, & Aguayo, 2017). Industry 4.0 offers opportunities in the form of resource efficiency, energy efficiency, and increased productivity. It also solves industry challenges by shortening the innovation creation process; and time-to-market cycles, facilitated through horizontal integration, vertical integration and end-to-end digital integration (Kagermann, Helbig, Hellinger, & Wahlster, 2013). For the most part, both manufacturers and technology suppliers do have a very positive outlook towards industry 4.0 (de Sousa Jabbour, Jabbour, Godinho Filho, & Roubaud, 2018).

Industry 4.0 is made up of different components which includes, 3D printing, big data, Internet of Things (IoT), and the Internet of Services (IoS). These components individually and collectively facilitate smart manufacturing and logistics processes (Kagermann et al., 2013). These components enable and support the management and the production processes within Industry 4.0. The industry 4.0 context in this chapter is its managerial aspect and not the technical and automation process. The managerial aspect is discussed within the context of virtual organizations.

Industry 4.0 is driven by big data generated and used in the processes within this industry. Therefore the prospect of managing big data in this industry becomes challenging. However, currently new ways of managing big data are now evident in Industry 4.0. But these new approaches towards managing big data are not sufficient. This is because most of the information harvested from the big are not credible and useful to the management and administrative employees in virtual organizations utilizing industry 4.0. What makes big data challenging are its characteristics. Big data is made up of the 4Vs, i.e. velocity, veracity, volume, and variety of information. The 4Vs have increased significantly in the contemporary age resulting in increased information pollution or infollution. *Information pollution refers to the information that is irrelevant, outdated, inaccurate, hidden and unsolicited.* How infollution is handled in an industry is important to the value derived from big data in the context of industry 4.0. Therefore, the successful realisation of benefits associated with virtual organizations in industry 4.0 relies on how a firm's Research and Development (R&D) process is directed towards the reduction or mitigation of infollution caused by the 4Vs. This idea is supported by Prause (2015), who based on the glueing function, emphasised the management of the 4Vs to reduce information pollution or infollution within the context of industry 4.0 (see (Jay Lee, Kao, & Yang, 2014)).

The focus of this chapter is on how infollution could affect the decision makers and administrative employees working in a virtual organization delivering an industry 4.0 service. The chapter is designed in a progressive manner. Here the discussion begins with general overview of the central concepts of the chapter. This is followed by how these concepts are seen within virtual organizations and Industry 4.0. The chapter is designed as follows. The first section is the introduction. This is followed by an overview of the concept of infollution. As industry 4.0 is an ICT enabled industry, the next discussion is on the influence of ICT on infollution. This is followed by a discussion on infollution and Industry 4.0; a discussion on the interplay between infollution, virtual organizations and industry 4.0; and the conclusion of the chapter. In this chapter the words "information pollution" and "infollution" are used interchangeably.

INFORMATION POLLUTION: NATURE AND SIGNIFICANCE

In this section, a general overview on infollution as a concept and how it impacts organizations in general is discussed. The context of the discussion in this section is broad, because information pollution is assumed to emerge from divergent sources. This includes online and offline sources.

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