

Review Article

Industry 4.0 Disruption and Its Neologisms in Major Industrial Sectors: A State of the Art

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Received 3 June 2020; Revised 11 August 2020; Accepted 25 August 2020; Published 10 October 2020

Academic Editor: Jong M. Park

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Very well into the dawn of the fourth industrial revolution (industry 4.0), humankind can hardly distinguish between what is artificial and what is natural (e.g., man-made virus and natural virus). Thus, the level of discombobulation among people, companies, or countries is indeed unprecedented. The fact that industry 4.0 is explosively disrupting or retrofitting each and every industrial sector makes industry 4.0 the famous buzzword amongst researchers today. However, the insight of industry 4.0 disruption into the industrial sectors remains ill-defined in both academic and nonacademic literature. The present study aimed at identifying industry 4.0 neologisms, understanding the industry 4.0 disruption and illustrating the disruptive technology convergence in the major industrial sectors. A total of 99 neologisms of industry 4.0 were identified. Industry 4.0 disruption in the education industry (education 4.0), energy industry (energy 4.0), agriculture industry (agriculture 4.0), healthcare industry (healthcare 4.0), and logistics industry (logistics 4.0) was described. The convergence of 12 disruptive technologies including 3D printing, artificial intelligence, augmented reality, big data, blockchain, cloud computing, drones, Internet of Things, nanotechnology, robotics, simulation, and synthetic biology in agriculture, healthcare, and logistics industries was illustrated. The study divulged the need for extensive research to expand the application areas of the disruptive technologies in the industrial sectors.

1. Introduction

In the second decade of the twenty-first century, the world stands on the cusp of industry 4.0 paradigm which has remarkably become global emergence with a core of industrial transformation, revitalization, and development [1]. Simply put, industry 4.0 is the integration of cyber and

physical worlds through introduction of new technologies in the industrial fields [2, 3]. In other words, it is a technological revolution in every production system including operator and maintenance [4], which is quite unique from the previous revolutions as shown in Table 1 [5–9]. Industry 4.0 is the digitization of the industrial value chain which has become unexampled for economic and social development