INDUSTRY 4.0: THE TIME OF DIGITALIZATION, PRODUCTION AND INTEGRATION OF INDUSTRIAL KNOWLEDGE

Dear readers:

Since the first industrial revolution, the technological progress has caused the growth of industrial productivity, and in recent years advances in mobile communication and information technology have placed us in the middle of a technological development that has led to the digital transformation of the industry: the connected industry or also called the industry 4.0.

In these times and beyond the classic conception of automated systems for serial production, sensors, machines and information systems need to be connected along the entire value chain, generating data that must be transformed in knowledge to achieve an intelligent industry focused on the product and the customer.

Therefore, the mere connection and generation of data is not enough, the digitalization of the industry is only an enabler of other analytical and reasoning processes. In this sense, the industry 4.0 paradigm is an interdisciplinary approach, where very recent areas of knowledge such as the Internet of things, cyber-physical systems, cloud computing, augmented reality, data analytics, among others, interact with better known domains such as automatic learning, business architecture, integration and business architecture and information and communication technologies to lead us to an integrated, efficient and flexible industry which allow the production of high quality goods at reduced costs.

Thus, the development of Industry 4.0 proposes challenges on how to apply and implement required processes along the value chain, based on the context and requirement of each industry, and it also offers opportunities to achieve sustainable manufacturing in different areas of the production process: in business models, value-creating networks, in the organization's model, in human resources as well as in processes and products.

These challenges and opportunities need to be understood in each context, since these also allow small and medium-sized industries to enter to industry 4.0. From the point of view of academic results, according to Muhuri et al. (2019), in the article titled Industry 4.0: A Bibliometric Analysis and detailed overview published in the journal Engineering applications of Artificial Intelligence, publications and analysis of citations about Industry 4.0 in Web of Science and Scopus have recent data; in 2012 emerged the first academic article, and by 2017 194 articles had already been reported in Web of Science and 1425 articles in Scopus, with an exponential growth in the number of citations regarding the number of publications. Thus, the new proposals to meet the challenges posed by industry 4.0 wait for all of us to provide information in this domain of knowledge.

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