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Editorial

INDUSTRY 4.0 AND SKILLS IN DIGITAL TRANSFORMATION

INDUSTRIA 4.0 Y COMPETENCIAS EN LA TRANSFORMACIÓN DIGITAL

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Industry 4.0 and the underlying digital transformation is a topic of cutting-edge research in various disciplines.[1,2] The sixth volume and first issue of 2022 of the Cuban Journal of Public and Business Administration includes original articles and good practices, among which some of the trends of the current context are included. Articles related to the topics are shown: profiles of competences of managers, simulation and digital twins, knowledge management, Building Information Modelling, business architecture, entrepreneurship in MSMEs, strategic prospective in the value chain of antibiotic drugs, integration of business data based on virtual knowledge graphs, intangible information system for digital transformation and the digital silk road.

Digital transformation favors increased effectiveness and efficiency in government management[3-5] and Industry 4.0 has a favorable impact on business resilience.[6] An analysis of the four intelligences of Industry 4.0: production, products and services, supply chains and work, reveals that the latter is the least approached in depth and that success presupposes the articulation between the four through synergies.[7] The use of maturity models at the organization level is also recommended to optimize the general performance of the management system. sociotechnical work in the context of rapid technological development in Industry 4.0.[8]

The exponential growth of Industry 4.0 technologies and digital transformation generates the need for managers and workers to have certain skills,[9-13] just as it presupposes the generation and assimilation of new knowledge[14] and enabling technologies.[1] The first This article proposes a methodology for the design and evaluation of the competency profiles of managers in Cuba, applied in the agricultural sector which, due to its generalization with the elaboration of more than 4,000 profiles, constitutes an organizational innovation.[15,16] The holistic understanding of competencies includes not only knowledge and skills, but also attitudes, values and personal traits linked to good performance.[12,17,18]

The technological components of Industry 4.0 increase the performance of the organization, such as profitability, sales, production, capacity utilization rate, production speed, product quality and can lead to significant cost reductions. of production.19 In this sense, among the enabling technologies of Industry

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4.0 are digital twins and the simulation of operational processes is very useful, as presented in the second article, obtaining the model from the Arena software, with the data resulting from the timing of the activities of the process and the information provided by a Cuban company of the Cubacorreos Business Group.

Knowledge management in universities through scientific observatories[20,21] is a topic that is addressed in the third article, to raise the visibility of professors linked to the doctoral programs of the University of Matanzas.

Industry 4.0 promotes the use of technologies for more sustainable manufacturing.[22] Thus, the Building Information Modeling (BIM) methodology in construction companies has spread due to the advantages it brings to business efficiency and effectiveness. The article that addresses management innovation in Cuban construction companies shows the advantages and considerations of its use in the Holguín Construction Company. Industry 4.0 is expected to increase both quality and productivity in construction, and for this purpose BIM as an autonomous collaboration and synchronization system, capable of automating design and construction processes, will improve the ability to handle substantial amounts of data. loaded with heterogeneity and attract investors.[23]

Industry 4.0 also contributes to the traceability of information in supply chains.[24] In particular, the article that deals with the commercial management of agencies representing shipping lines proposes business architecture as a solution for managing change with information technologies. (IT).[25] Likewise, e-commerce in these agencies presupposes the use of IT standards in the supply chain, which have currently been affected by COVID-19.[26]

The application of Industry 4.0 in small and micro-enterprises has not yet been generalized.[27,28] The perceptive analysis of enterprises in some cantons of Ecuador is an article in which the strengths and weaknesses are determined, in which it is highlighted the consensus of its importance for the employability and the services that the population receives, as well as the generation of management capacities.

Production systems, human resources, project management, management leadership, green design and logistics, information technology, Big data and collaborative relationships are key resources for the adoption of Industry 4.0 with a positive relationship with sustainable production and with the capacities of the circular economy.[29] Culture, the multifunctional approach and continuous improvement are also activities that must be reinforced in the value chains in Industry 4.0 environments,[30,31] as well as strategic foresight.[32-34]

Another article deals with the proposal for a strategic plan[35-36] to articulate the value chain of antibiotic drugs,[37] which promotes the consolidation of the investment process in production plants and diagnostic laboratories, active surveillance by the network of laboratories, the development of new antibiotics and diagnostics and promotes the productive chain with companies in the sector and other actors in the economy.

In environments of high syntactic and semantic heterogeneity, the integration of business data38 based on virtual knowledge graphs[39,40] in the Cuban Post Office International Messaging and Exchange Company (EMCI) contributes to improving the performance of operational processes,[41] being the object

of study in the eighth original article. Its application allowed to reduce the indicator of the time of stay at the airport in the cargo extraction planning process, through two dimensions: alignment to the Business objectives (AOE) and the development of the integration solution (DSI).

The new business model 4.0 requires having domains in operations management, control and data science[42] and is committed to intelligence and knowledge management (intangibles) through technologies such as Bigdata, Internet of things,[43] Artificial intelligence, data mining, cloud and fog computing, Blockchain, among others.[22,44] In this sense, the article intangible information system and organizational development for digital transformation in the Cuban company reflects on the methodological theoretical bases. The utility of business architecture[45] and the Balanced Scorecard is highlighted.[46-48]

Finally, the second good practice is shown in the article referring to electronic commerce as a means of connecting China and Latin America through the digital silk route.

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