

Digital Transformation and Industry 4.0: A Patent-Based Comparative Study of Brazil and Portugal

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Abstract

To analyze the indicators of patents filed between 2008 and 2022 in the process of digital transformation of industries in Brazil and Portugal, seeking to understand the changes brought about by the Fourth Industrial Revolution (4IR). The study is descriptive and applied in nature, using documentary research and access to bibliographic databases and legal protection institutes in Brazil and Portugal, as well as Questel's Orbit Intelligence database. The comparative analysis of patents reveals that Brazil and Portugal have participated, albeit unevenly, in the development of enabling technologies in the context of digital transformation. Despite the technological gaps, both countries have increased patent filings, but to a lesser extent than developed countries. The study differs in that the specific technologies that make up the 4IR studied on a large scale in the fields of information systems are less available within management fields, and the study compares two developing countries in terms of patents. The study contributes methodologically by applying comparative analysis to the literature on patents and Industry 4.0. In theoretical terms, it includes digital transformation in the joint analysis of patents and industrial structure. The study proposes a diagnosis capable of reducing the gap between the creators and users of Industry 4.0 technologies, which will make it possible to overcome technological gaps, encouraging the adoption of new technologies and the development of associated skills, which can generate positive impacts on society, such as creating jobs and increasing the competitiveness of the countries involved, as well as industrial and innovation policies in both countries.

Keywords

A Digital Transformation, Patents, Industry 4.0, Technological Catching-up.