

The Impact of Knowledge on Corporate Innovation Performance in Traditional Manufacturing Companies During the Transition to Industry 4.0

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Abstract

By developing a conceptual framework to analyse the impact of knowledge on innovative performance of traditional manufacturing companies during the transition to Industry 4.0, this study investigates how the digital transformation process changes the knowledge base of traditional manufacturing companies in both key parameters: technology and company experience. An in-depth literature review, defined as a comprehensive, critical analysis of existing scientific research, has helped to establish the following logical sequence for this study. Digitalisation promotes innovation and increases the growth of productivity. Industry 4.0 can be mentioned as a paradigm that is technological, centred around the emergence of the digital transformation of manufacturing and industrial processes, integrating advanced technologies. At the same time, digital transformation alone is not the key to improving the innovation performance of manufacturers. Achieving a high level of innovation performance does not depend on any single factor, it depends on the synergistic cooperation of several elements. The influence of each factor is different and their interaction results in different configurations. Knowledge flows influence technological specialization in transition toward Industry 4.0. Knowledge networks encompass opportunities and actual pathways for acquiring knowledge and transforming it into innovation. The value of knowledge is reflected in its impact on productivity. Enterprises have carried out innovation by learning new knowledge. Enterprises can improve their productivity by acquiring knowledge in industrial innovation systems which is reflected in the function of production. Total factor productivity is more suitable for performance measurement and comparisons across firms over time. The intended conceptual framework collects and analyses knowledge parameters which can be included as variables of Total factor productivity function and could help to determine productivity changes over certain periods of time as a result of digital solutions and innovative activities. Practical significance of the conceptual framework: it is expected to serve as the basis for the further development of a simulation model, in turn, its further application will be aimed at preventing traditional manufacturing companies from making higher-risk and inefficient investments in digital technologies.

Keywords: digitalization, knowledge, innovation, total factor productivity, traditional manufacturing companies

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