

Role of Information and Communication Technology in Pharmaceutical Innovation: Case of Firms in Developing Countries

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Abstract : The pharmaceutical sector is ongoing different constraints related to the Research and Development (R&D) costs, the patents extinction, the demand pressing, the regulatory requirement and the generics development, which drive leading firms in the sector to undergo technological change and to shift to biotechnological paradigm. Based on a large literature review, we present a background of innovation trajectory in pharmaceutical industry and reasons behind this technological transformation. Then we investigate the role that Information and Communication Technology (ICT) is playing in this revolution. In order to situate pharmaceutical firms in developing countries in this trajectory, and to examine the degree of their involvement in the innovation process, we did not find any previous empirical work or sources generating gathered data that allow us to analyze this phenomenon. Therefore, and for the case of Morocco, we tried to do it from scratch by gathering relevant data of the last five years from different sources. As a result, only about 4% of all innovative drugs that have access to the local market in the mentioned period are made locally which substantiates that the industrial model in pharmaceutical sector in developing countries is based on the 'license model'. Finally, we present another alternative, based on ICT use and big data tools that can allow developing countries to shift from status of simple consumers to active actors in the innovation process.

Keywords : biotechnologies, developing countries, innovation, information and communication technology, pharmaceutical firms

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