

Human resources management practices and learning for innovation in developing countries: pharmaceutical firms in Mexico

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This doctoral thesis contributes to the literature on human resources management practices and learning for innovation in the context of developing countries. It brings together literature on: (1) systems of innovation; (2) human resource management practices and innovation performance at the level of the firm; and, (3) learning through R&D. The thesis broadly interprets R&D as learning, a mechanism promoting absorptive capacity and supporting technology capability-building.

Empirical evidence refers to the pharmaceutical industry in Mexico; it builds on two kinds of data: qualitative and quantitative from both primary and secondary sources. Primary data were collected through both a survey conducted by the Mexican government and a series of in-depth interviews with representatives from the pharmaceutical industry, health research and regulatory organisations. Secondary data came from extensive searches on archival and other documentary sources, attending specialized seminars, presentations, Internet and so on.

The empirical analysis distinguishes between learning as strategy, and learning in terms of knowledge content. In other words, firms endorse different learning strategies and require distinct types of knowledge during the R&D process. As for the former, firms can produce technology based on internal technological efforts; or tap external technology markets as an exclusive source of knowledge. Alternatively the two learning strategies are potentially complementary, external knowledge flows complement learning efforts carried out in-house.

In terms of knowledge content, and in line with knowledge-based theories of the firm, pharmaceutical firms in Mexico can either exploit knowledge available within their customary knowledge base, or explore for those pieces of knowledge so far unavailable to them. Different knowledge requirements associate with distinct R&D outcomes with varying degrees of novelty, at least for the firm. Hence the thesis analysed how human resource management practices underpin pharmaceutical R&D leading to the adoption of improved or new (generic) drugs and/or drug manufacturing processes.

The use of learning as relevant dimension for the analysis is a major contribution of this thesis; it advances some previous studies in the field which trace direct links between human resource management practices and innovation performance at the firm level. Although such studies often find positive relationships between those variables, they are unable to explain why this is so. This thesis sheds light on how and why management practices underpin learning for innovation: the relationships depend on factors such as the expected outcome from R&D, or the novelty of the knowledge required by the firm. Distinct human resource management

interventions contribute differently to the construction of the necessary absorptive and innovation capacities by pharmaceutical firms.

The analysis revealed that socioeconomic contexts matter for learning and innovation; they determine how countries, industries and firms insert and contribute to innovation in specific sectors/industries. Countries such as Mexico characterize by strict labour controls, limited R&D and a specialization in incremental innovations; accordingly it is a firm's characteristics, particularly export orientation and origin of capital ownership; what largely explains learning behaviours of pharmaceutical firms.

Nevertheless human resource management practices intervene in two main areas: First, they guide the mobilization and exploitation of knowledge already residing in the firm. Second, they steer the search and exploration for knowledge previously unavailable within the firm; they contribute to enriching the knowledge base of a firm. Distinct human resource management practices associate with different R&D processes and expected innovation outcomes; they also influence interactions between a firm and external knowledge providers. The provision of training and the adoption of rules to govern strategic hiring are management practices that assist learning through R&D in the pharmaceutical industry in Mexico.

This thesis suggests that better understanding organizational environments around R&D is needed as human beings are at the hearth of innovative organizations; the dynamics of working environments, as created via human resource management interventions, can potentiate performance of R&D.