Absorptive capacities

Absorptive capacities - the ability of firms to recognize, assimilate and apply new knowledge for the benefit of their business performance – are key to a firm's ability to innovate. The nature of the concept involves three basic capacities in relation to new knowledge: recognition of its value, its assimilation and its application for commercial purposes.

Successful innovators have the ability to learn and connect this learning to their current knowledge basis. The central premise is that knowledge is cumulative, so the more an individual or an organization knows, the easier it is to acquire new knowledge. Prior knowledge is considered crucial to the assimilation of new knowledge, which means to say that the learning capacity of individuals and organizations is path dependent, i.e., a result from the previous learning efforts and capabilities. It is a dynamic and cumulative process, in the sense that the knowledge gained in the present will be more efficiently accessed in the future.

The absorptive capacity of an organization is more than the sum of the capacities of all individuals within it. These capacities also comprise the organizational ability to exploit the acquired knowledge, to foster communication and to establish relationships between its members. This stresses the contribution of organizational mechanisms for knowledge accumulation and learning.

Whereas the concept of absorptive capacity is mostly used to refer to organizational learning and innovation, a nation's absorptive capacity is linked to the ability of its economic units to acquire and internalize knowledge, and is considered a precondition for catching-up with more advanced nations. The national absorptive capacity is more than the sum of the capacities of single firms. There are some multiplicative factors that act at the national level but are insignificant at the firm level - the fact that countries follow a trajectory of technological accumulation is one of them. In this sense, the more a country develops in a specific industry, the more knowledge is accumulated at the national level (research infrastructure, institutions) that will be the source of learning and knowledge spillovers by firms in that industry.

Studies have linked the occurrence of knowledge spillovers from foreign direct investments (FDI) to the existence of absorptive capacities of firms. Absorptive capacities are also used to explain technology transfer among nations and the success of strategic alliances for innovation. Technology transfers (country and firm- wise) are more effective when firms possess previous accumulated knowledge and innovative capacities. Similarly, firms have more to benefit from cooperation with other firms.

Among the factors contributing to the accumulation of absorptive capacity is research and development (R&D). R&D is central to the generation as well as absorption of knowledge by firms and for the same reasoning is also crucial for firms to be able to benefit from spillovers. The quality of the human resources working at the organization also influences positively and strongly to the enhancement of absorptive capacities. Moreover, the establishment of cooperative arrangements for innovation is also considered to play a positive impact in the absorptive capacity of firms – access of external sources of knowledge is another important way of accumulating capacities.

Another aspect to impact the absorptive capacity of firms relates to institutional aspects that give rise to so called absorption barriers - the costs of implementing new technologies faced by firms depend on the institutional setting. For instance, monopoly rights may represent a barrier to the adoption of technologies in the sense that industry insiders with monopoly rights to the current technology will resist the adoption of better production techniques. This suggests that more competitive economies are likely to be characterized by higher absorptive capacity.

Absorptive capacities are strongly linked to the innovative propensity of organizations (and nations). General policies aiming to improve the innovative behaviour of firms can positively influence its outcome by stimulating the occurrence of R&D and the establishment of innovation networks, as well as the engagement of skilled human capital in the organization's activities. Industrial

development policies need to attain to the fact that firms need to have the capacity to absorb knowledge and innovate, and that such capacity is strongly embodied in people. From this perspective, educational policies should be one of the cornerstones of innovative capacities. Policies promoting a competitive environment for firms also contribute to a broader dissemination of knowledge, an important aspect for knowledge absorption to take place.

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