

## Chapter 5

# Innovation Diffusion in the European Ceramic Tile Industry Supply Chain

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### ABSTRACT

*Following Nelson's primary typology of enterprises based on a characterization of their technical change process (bulk commodities; complex systems producers; and chemical products producers) this chapter presents a case study on the innovation diffusion in the European tile industry based on the analysis of its manufacturing process and supply chain. The producers of ceramic tiles, the machinery producers and the frits and glazes producers fit each of Nelson's categories. Further, the European ceramic tile industry is clustered in two southern European regions: Emilia Romagna (Sassuolo – Italy) and Valencia Region (Castelló de la Plana – Spain) with a different configuration of the type of predominant companies within the cluster but also regarding surrounding clusters. This relative specialization, the interactions between surrounding clusters, and the strong interlink supplier-producer between both ceramic tile clusters make the study of the innovation diffusion in the European ceramic tile industry supply chain an interesting case.*

### INTRODUCTION

Ceramic tile production despite having a highly integrated production process it certainly matches Nelson's (1993) primary typology of enterprises. Nelson distinguishes three types of industries (bulk commodities; complex systems producers; and chemical products producers) based on a characterization of their technical change process. The producers of ceramic tiles, the machinery producers and the frits and glazes producers fit each of those categories. Further, another characteristic of the European ceramic tile industry is that it is strongly clustered in two southern European regions: Emilia Romagna

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(Sassuolo) in Italy and the Valencia Region (Castelló de la Plana) in Spain with, however, a different configuration not only of the type of predominant companies within the cluster but also regarding surrounding clusters. This relative specialization, the interactions between surrounding clusters, and the strong interlink supplier-producer between both ceramic tile clusters make the study of the innovation diffusion in the European ceramic tile industry supply chain a very interesting case. The objective of this chapter is to present the case study on the innovation diffusion in the European tile industry based on the analysis of its manufacturing process and supply chain and identify the mechanisms through which innovation is produced and disseminated in the industry.

## **BACKGROUND**

As Fagerberg (2003) points out, innovation has a clear impact on economic and social development. In the first place innovation introduces novelty (variety) in economic activity, which is necessary for economic growth in the long run. Also innovation tends to group in particular industries or sectors, which, as a consequence, develop faster, provoke structural change to production and demand and, exceptionally, also promote institutional and organizational changes. As many authors point out (Lundvall, 1993; Carlsson & Stankiewicz, 1995; Edquist, 1997), companies do not innovate in isolation. Innovating is a process in which companies interact with each other, as well as with organizations such as universities, research centres, public administration, and financial institutions and so on. Therefore, many authors explain the outcome of the innovation process by studying the innovation system in which the innovation takes place. Innovation, therefore, is to be understood as a collective and interactive process among a wide variety of actors.

A general definition of Systems of Innovation has been given by Edquist (2004, p. 182) as “all important economic, social, political, organizational, institutional and other factors that influence the development, diffusion and use of innovations”. This theoretical approach to innovation considers relationships and networks as key elements of the innovation and production processes (Edquist, 1997).

Following Edquist (2004) there are 6 main strengths on the Systems of Innovation’s approach. In the first place, it places innovation and learning at the core of the analysis, acknowledging that the production of knowledge, or the combination of already existing knowledge in new ways, is central to innovation. Innovation is therefore considered to be an endogenous process. Secondly, the Systems of Innovation’s approach is both holistic and interdisciplinary, i.e. it tries to cover all the important determinants of innovation and incorporate perspectives from many different fields within the social sciences. Thirdly, under this richer, but also more complex, approach the notion of optimality becomes irrelevant as it adopts an historical and evolutionary perspective where innovation is affected by many factors and feedback processes. A concrete innovation system can be compared with other real systems as well as with target systems but not between real and optimal systems as those cannot be specified. Forth, this approach accentuates the interdependence of innovating firms to other organizations in complex relational patterns far from the simplistic linear model. Fifthly, this approach allows a more comprehensive innovation

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