Diffusion of Technology in the Context of the Korean Man-made Fibre Sector

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Major structural changes occurred from labour-intensive manufacture (the cotton sector) to more capital-intensive manufacture (the man-made fibre sector) during the last four decades of the twentieth century. These structural developments went hand-in-hand with the development of the Korean textile and clothing industries. They also contributed to shifts in the pattern of production from natural fibre production to man-made fibre production as well as in the focus of production from down-stream products to up-stream products, with the latter requiring more advanced technologies. Developments in the technologies can be seen in parallel to the various structural changes. Beginning with technologies related to spinning and weaving of natural fibre products, technologies began to develop for the manufacture of man-made fibre products. The characteristics of these technologies also shifted from enlarging the scale of manufacturing through improvements in equipment to the development of new products and/or product differentiation.

Although there is a significant difference in features between product technology and process technology, often there is an overlap. Furthermore, it is not possible to discern which technology plays a superior role in actual technological progress, because technology used for the development of new products can affect the development of new process and vice versa. That is, firms initially focused on the basic technology for production from technology acquisition and then they tended to adjust processes for increasing output. This adjustment in processes can be regarded as technology diffusion, driving the improvement in the quality of products and shortening processing time. While technological capability was attained from the development of production skills, process innovation
took place as another form of technology diffusion, which led to increased capability for product design at the same time. Further to this, firms began to focus on R&D for products and processes, stimulating the capability for further innovative technology focused on new products. The objective of this paper is to present how technological diffusion within the Korean man-made fibre sector has affected the industrial development of the Korean textile and clothing industries as a whole. With the above consideration in mind, technological progress with respect to this sector is presented in this paper, under two headings: process technology and product technology.