Two Common Paths of Innovation System Evolution

Why innovation systems follow different evolutionary paths

If you read the literature on innovation, you will find that there are many books and articles on how to improve an innovation system. The problem is that they do not all address the problem in the same way, and the solutions they propose are not completely compatible. For example, a variety of writers on the automobile (for example, Womack et al., 1990; Clark and Fujimoto, 1991) and pharmaceutical (for example, Spilker, 1989) industries have described how the innovation process can be made more efficient (quicker, and less costly). Other writers (for example, Schroeder et al., 1989; Van de Ven et al., 1989; Garud and Van de Ven, 1992; Brown and Eisenhardt, 1998; Meyer, 1998) offer quite different prescriptions. Looking at projects in a variety of industries, they describe methods of diversifying and managing the proliferation of ideas. Are these prescriptions compatible with each other? Should all companies adopt both prescriptions? If so, how? If not, which prescriptions are valid when?

When I looked at what eight companies had done between 1984 and 1995 to improve their innovation systems, I found that they were not all pursuing the same goals. Some were focusing on improving their ability to diversify, that is, their diversification capacity, building their capacity to create new businesses, and to create products different from those previously produced. Others were focusing on improving innovation system efficiency, decreasing the time needed to develop a product, and the cost of its development. In effect, the former were implementing the solutions proposed by Brown and Eisenhardt (1998) and others, solutions that focused on new ideas and
diversification. The latter were implementing the solutions proposed by Clark and others (Clark and Fujimoto, 1991), which focused on innovation system efficiency.

In this chapter, I will describe the change paths followed by these companies. To give the reader a more concrete idea of what the changes were, I will look in more detail at the evolution of two companies: Industrial Chemicals, which increased its diversification capacity, and Northern Pharmaceuticals, which improved its innovation system efficiency. I will also explore the reasons why the two companies’ paths differed.

In Chapter 5, I briefly discussed seven reasons why management teams follow different paths as they work to improve their companies’ innovation performance. Here, I will focus on two of these: industry and company strategy. These two reasons explain most of the differences between the companies that focused on innovation system efficiency and those which focused on diversification capacity.

Here, I will summarize the thrust of this chapter, repeating part of what was said in Chapter 5, since it is also key to the argument of this chapter.

In more stable industries, the amount of uncertainty involved in innovation projects is relatively low, as the tasks that must be performed to develop a new product can be foreseen. In addition, they are consistent from one project to the next. As a result, standard project plans can be developed and improved as time goes on, each new project following the standard project plan, or an adaptation of it. Managers can improve the performance of the system by working to improve the standard project plan. Improvements usually involve shortening the amount of time involved, or reducing the cost of development. It is in these industries that managers work on improving innovation system efficiency. It is here that they develop standard project plans, and here that they work most assiduously to reduce the amount of time needed for development.

In less stable industries, it is sometimes not possible to foresee what tasks an innovation project team will have to perform. Unstable markets or technologies may make it impossible to foresee what tasks an innovation team will have to perform more than a few months, or even weeks, in advance. Uncertainty is also high when a company tries to develop a new business. Even if the business is new not to the world, but only to the company, the company may not