ABSTRACT

This paper deals with the discussion of key success factors of the innovation process, a problem which appears to be highly complex and unstructured.

Innovation is recognized as an important element of business strategy of survival. Innovation is not only of managerial, but likewise of societal importance: to fall behind in the international innovation race will result in a long-term reduction of national welfare. The international viewpoint of innovation processes is stressed: differences in cultural background or governmental framework are detrimental to the cost and speed of innovation in Germany in comparison to the United States or Japan. Remarkably there is a significant discrepancy between the importance of this problem and the attention given by it by operations researchers.

For the purpose of the following analyses, the innovation process will be structured as follows:

* different innovation strategies: product vs. process innovations, radical vs. incremental innovations and innovation vs. creative imitation;

* different stages of the innovation process;
* intra- vs. inter-departmental organizational structure of the innovation process.

Three elements of innovation success will be identified: competence, commitment and leeway. Organizational items such as importance and avoidance of the so-called NIH-effect, the "organizational slack", an effective interface management between departments within an organization and effective networking strategies with the environment will be discussed.

The final section of the paper deals with the formulation of a management support model of the innovation process which consists of two sectors: an allocation sector and a scheduling sector. Methods of investment evaluation and selection, project funding, network techniques and others can be integrated in this model.

A. The Problem

It is a privilege and a great pleasure for me to address this fine audience today on the occasion of the opening of the 1990 International Conference on Operations Research. We are looking forward to what promises to be an outstanding Conference. I remember another outstanding conference many years ago. After the first day with impressive lectures we had a formal dinner party, and Raymond Betrand was the dinner speaker. He was scheduled to speak after the first dish, the soup. He gave us the now well-known hermit problem: A caravan comes to a crossroads in the desert. One road leads further into the desert and to certain death, the other leads to the oasis, the goal of