

Preface: Changing technological determinants of international competitiveness

Guest Editor: Bela Gold

Fletcher Jones Professor of Technology and Management, The
Claremont Graduate School, Claremont, California, 91711-6184, USA

Introduction

Advances in the development and effective utilization of technology are currently entering a process of increasingly-effective integration with all other functions as the basis for further strengthening competitiveness.

In their earlier stages, technological innovations emerged largely as a result of whatever improvements occurred to engineers and workmen – and which then gained sufficient support from management to allocate the resources needed to implement them. With continuing advances in knowledge, usually enhanced by the growing specialization of functions and of those responsible for improving their effectiveness, innovative efforts tended to be increasingly focused on particular sectors within product development and production operations. These have certainly yielded a continuing succession of interacting improvements in product and in processing capabilities.

In order to maximize the benefits gained from such narrowly-focused advances however, it was found necessary to actively encourage exploration of means whereby the quality, productivity and cost benefits of such applications within any sector of operations could be reinforced through adaptive improvements in preceding and in following operations. Accordingly, this represented a further expansion of management's direct involvement in improving productive efficiency.

Continuing advances in understanding the potential role of technology in strengthening competitiveness have involved developments in three directions. One has involved continuing reconsideration of the level and composition of purchased materials, with an increasing tendency to buy partially-processed instead of raw materials and even some finished components. A second has involved periodic re-evaluations of the most favourable composition of outputs, ranging from intermediate to final products, as well as from common models to those adapted to the distinctive requirements of customers. And a third has been driven by competitive pressures to keep adapting production capabilities to emerging changes in the composition of demand, in respect to product-mix and product quality as well as in respect to the scale, technological modernity, and economy of production operations.

As a result, maintaining effective competitiveness increasingly requires adaptations not only to each of these categories of change, but also to their mutual interactions. This obviously involves substantial impacts on all major managerial responsibilities – and especially on their ability to keep adjusting resources and organizational responsibilities to emerging market pressures.

The following papers may be divided roughly into two groups. One is concerned

primarily with evaluations of the problems and processes of integrating technological advances into the broader concerns of company managements in a variety of countries. The second group focuses instead on a variety of more general industrial policy and intellectual concerns.