

I Introduction

In recent years the extent to which R&D directly influences business results within the manufacturing industry has steadily increased, and views such as "business expansion cannot be achieved without building up R&D capabilities" and "companies that control R&D control the market" have become firmly established among the senior management echelons at companies.

The current sluggish business environment suffers from intense international technological competitiveness, the downturn in profits brought about by the maturation of technology, products and markets, the diversification of market needs and the expansion of operational range through business diversification. This is making it extremely difficult for the manufacturing industry to break through the present barrier erected by technology that has reached maturity and become stagnant. Companies within the industry are now being forced to choose specific themes on which to focus because of the growing diversity of new technology seeds and basic technologies, and the sharp rise in the amount of R&D investment and the increasing research time required to obtain results from R&D. Thus there is an intensifying need for the Japanese manufacturing industry to place greater importance on "strategy" and "strategic management" in order to deal with such a chaotic and highly uncertain business environment.

During Japan's high economic growth period companies had relatively clear ideas about what they should manufacture and how, and there was no pressing need for senior management to emphasize the setting of goals to this end. Individual employees strove to improve the quality and performance of whatever they were manufacturing with the common aim of "expanding business by mass-producing better quality products in shorter periods at a cheaper cost". Needless to say, the long-established structure was efficient and played an absolutely vital role in the realization of this aim.

During this period private-sector companies assigned most of their business resources to product development and manufacture, while their research effort focused mainly on applied research aimed at improving product quality or performance, so R&D then was perhaps closer to "R&D" in its general lack of balance. This research-development-production

process was an extremely efficient means to achieve the mission mentioned above in a short period.

Companies that strengthened their business foundations during the high economic growth period poured considerable effort into R&D during the series of booms in establishing central research institutions in an effort to enhance their technological capabilities, and through this, continued to expand and became highly competitive in international markets. During this process, research and development by Japanese companies steadily took on a much more balanced emphasis, changing from the one-sided "R&D" to the more proportional "R&D".

As companies continue to change "from producing to thinking organizations" it is becoming increasingly important for them to clarify their strategies by way of a direction that employees should follow and goals at which employees should aim, that is, "what they should manufacture and how" and "what they should do to achieve this". In today's society we are constantly being inundated with information, so there is a growing need for systems which enable us to choose only that information which is of use to us, which facilitate the timely vertical, lateral and

1 Reference Document: NISTEP REPORT No.15 "From Producing to Thinking Organisations"

interdepartmental flow of information, and which promote strategic R&D management that is mindful of differentiation and the allocation of priorities.

If Japanese companies were pressed to choose organizational reform (to a dynamic and wellcoordinated system) or formulation and execution of strategies or both to deal with today's highly uncertain environment, then what kind of action would they take?

This report brings together the results of a survey of Japanese companies that forms a part of a wider survey which seeks to compare the R&D management systems of Japanese, United States and European companies.

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