

Abstract Third generation R&D

There are three main reasons why it's becoming more and more important to focus on how to organize effective and efficient R&D these days. To begin with, the modern competitive environment forces companies to innovate rapidly and introduce high-quality, innovative and cost-effective new products. Secondly, R&D choices are one of the most complex and critical decisions general management faces today, because there R&D spending goes hand in hand with risky investments. And at last, there is the growing shortage of technical talent available, which makes the R&D more hard to manage. Therefore, it's of great importance for companies to manage R&D more efficiently such that the strategically correct R&D goals will pay off for these companies.

At this time, many companies plan their activities at different departments separately and relate them only sequentially, e.g. "We cannot plan production until design and engineering have come through". However, every action will have it's consequences for the whole company and it's final goals. To achieve the final company's strategic goals, it's necessary that corporate, business and R&D management act in partnership. The role of senior management is important here, because only senior management has the authority to mobilize the resources to realize the integration of all plans in a cohesive reinforcing plan. A difficult obstacle in achieving such an company with R&D goals integrated in the general management, is the gap between the views and culture of the different worlds of R&D and general management. The top management is afraid that directive management on R&D might suppress creativity and the R&D managers find it difficult to link the science and technologies they practice to the company's strategic business concerns. Nevertheless, companies should make the shift in R&D approach to sustain in this competitive technological developing environment. We can distinguish three generations of R&D, each next generation more focused on integrated R&D instead of a separate department.

The first generation of R&D is characterized by the lack of a strategic framework for the management of technology and R&D. The R&D decides how the future of the company will look like. In the general manager's budget, R&D is the overhead cost. General management participates little in defining programs or projects. General management can only decide whether it is willing to approve next year's budget. The management philosophy is characterized by failures of confidence in the relationship between general business management and R&D management. In this generation, R&D is typically organized into cost centers by scientific or engineering discipline. The problem for company's using the first generation is that later, when R&D yields results, the linkage between those results and the business' needs is or may be haphazard.

Second generation R&D management is a transition state between the intuitive and the purposeful styles of management. Second generation provides the beginnings of a strategic framework for R&D at the project level and seeks to enhance communications between business and R&D

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management. This is done by making business or the corporation the “external customer” for R&D practitioners alongside the internal customer. Like management in the first generations, managing in the second generation tends to centralize fundamental and radical R&D and to distribute incremental R&D to the business. Management in the second generation usually tries to measure the results of R&D by using quantitative approaches. Often the management runs into a market gap. Marketing people generally have little or no idea what the market needs will be in five years. On the other hand, R&D people usually have little direct access to market information.

The third generation management seeks to create across business units, across divisions, and across the corporation a strategically balanced portfolio of R&D formulated jointly in a spirit of partnership between general managers and R&D managers. In management philosophy, third generation management creates a spirit of partnership and mutual trust between general and R&D managers. They jointly explore, assess, and decide the what, when, why, and how much of R&D. Company's working in the third generation seek to organize their R&D in a way that breaks the isolation of R&D from the rest of the company. These company's believe that the most powerful way of managing your R&D is working in the matrix.

Source:

Philip A. Roussel, Kamal N. Saad, Tamara J. Erickson, 1991, Third generation R&D; managing the link to corporate strategy, Boston: Harvard Business School Press, chapter 1 and 3

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