

特別講演 「R & D Culture and Changing Times ;
Experience of 3M」

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AGENDA

1. 3M's background as a platform of today's discussion.
2. 3M's R&D culture that comes from its corporate culture.
3. Comments on how we are adapting to changing times; especially in a slow growth period.

BACKGROUND OF 3M

3M was founded in 1902 by five entrepreneurs in an attempt of mining corundum, a mineral for making abrasive particles for sandpaper, which proved to be valueless. In view of this, 3M decided to become an abrasives manufacturer.

Today, we manufacture more than 60,000 products and sell these products to a variety of diverse industries and trades in two hundred countries worldwide mainly through overseas operations in 58 countries. Japanese operation is Sumitomo 3M Limited, largest of 3M overseas operations.

We are among the largest U.S. companies, and rank 29th in sales, 17th in net income, 21st in shareholders' equity and 20th in market value.

Our expertise is in developing first-to-the-world products by using 100 key technologies that were researched and developed through the years.

About 75% of our products involve coating one material onto another. Examples are: coated abrasives, pressure-sensitive tapes, videotape, reflective sheeting, "Post-it" brand notes, etc. etc.

As regards the major markets we served, the industrial markets account for about 40% of sales. About 35% of our products are service-related, and health care products represent 15%, and consumer products make up

the remaining 10%.

Today, sales in the U.S. versus overseas is 50:50, but the overseas business is growing at a faster rate than U.S. business.

Total sales worldwide were just shy of 14 billion dollars in 1992 and our net income was slightly over 1.2 billion dollars. 3M employs 87,000 worldwide of which 38,000 work overseas.

3M is organized into 3 business sectors. Information, Imaging and Electronic; Life Sciences; and Industrial and Consumer.

Our financial goals are: 1) to grow income per share 10% or better, 2) generate a return of capital employed of 27% or better, 3) generate a return on shareholders' equity in the range of 20 to 25%, and 4) new product sales of 30% of total sales consisting of new products introduced in the last 4 years.

We are committed to quality growth through the development of original innovative useful products and services to achieve customer satisfaction. We are also committed to our corporate values, which are: 1) satisfying our customers with superior quality and value, 2) providing investors with an attractive return through sustained quality growth, 3) respecting our social and physical environment, and 4) being a company that employees could be proud to be a part of.

In order to achieve our commitments, we are investing in R&D based on a long-range strategy, which is reflected in the fact that our R&D expenditure was 7.3% of sales in 1992.

R&D Culture

We define innovation as an action taken to do new things.

Major factors that support innovation are 1) Values, goals and practices, 2) Boundary crossing, 3) Wealth of resources, 4) Reward and recognition systems, 5) Minimal controls and maximum responsibility, 6) Management support and encouragement, and 7) Culture or behavior pattern.

Main 3M R&D culture are 1) 30% new product rule, 2) Encouraging initiative, 3) 15% rule, 4) Boundary crossing, 5) Cross functional teams, 6) Recognition of innovators.

The 3M R&D organization consists of three levels of laboratories, namely the corporate research laboratories, the sector research laboratories and the division laboratories.

ADAPTING TO SLOWER ECONOMIC GROWTH

We have established R&D productivity targets of 30% new products worldwide, but 40% in Japan. We track first year introductions, and balance the ratio of new products that replace current products and those that create new business opportunities.

We continually upgrade our R&D portfolio. The global R&D effort is a coordinated effort to enhance productivity, and we manage our "pacing programs on a global basis.

The human resources movement and assignment are key to achieve our productivity goals and customer satisfaction.

Emphasis is on reduce time to market impact. We are experimenting with several "seamless organizations," where distinction between manufacturing, R&D and marketing are minimized.

As a transnational organization, 3M follows customers worldwide to provide the same products and services the customers enjoy in their home countries.

In conclusion, blending our cultural heritage of innovation with enhanced productivity and prioritization of our programs, in this period of slow growth should enable us to continue to achieve the highest levels of customer satisfaction. In other words, our efforts will be concentrated on how we can "Do More with Less".

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