

3M TAIWAN: PRODUCT INNOVATION IN THE SUBSIDIARY¹

Chya-Yi Liaw (Emily) wrote this case under the supervision of Christopher Williams solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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In 2004, Tao-Chih Chung, departmental head of the health care business division of 3M Taiwan, initiated a project intended to exploit local market needs for 3M's hydrocolloid dressing, a technology that had existed within the company for many years without any practical applications. 3M hydrocolloid dressings were sterile wound dressings consisting of a hydrocolloid adhesive covered by an outer, clear adhesive film impermeable to liquids, bacteria and viruses.² The product was regarded as a medical material in Taiwan, sold only to hospitals and drug stores affiliated with clinics.

A product development review was conducted to examine the product's potential in the local market. The local project team suggested marketing the material as an acne treatment. The product would be known as Acne Dressing. There was no standardized solution for acne treatment in Taiwan. If launched, Acne Dressing would be a new and innovative product in the local market as well as 3M's first application of hydrocolloid dressing technology. Since there were no similar products in the market, the project team had limited information: potential sales and volume estimations were largely speculative. With little previous experience in product development and no similar products to base development on, Chung had to decide whether or not to proceed with the product launch.

3M OVERVIEW

3M, formerly known as The Minnesota Mining and Manufacturing Company, was founded in Two Harbors, Minnesota in 1902. Five businessmen planned to mine a mineral deposit for grinding-wheel abrasive but the deposits proved to be of poor quality. The company quickly moved to nearby Duluth and focused on sandpaper manufacturing. Although the company was dedicated to manufacturing industrial products from the beginning, it gradually diversified into consumer markets. 3M became one of the world's most innovative and recognized companies with widely-known brands such as Scotch, Scotch-Brite, Nexcare, Post-it and Comment.

¹ This case has been written on the basis of published sources only. Consequently, the interpretation and perspectives presented in this case are not necessarily those of 3M or any of its employees.

² "Product Information, 3M Tegaderm Hydrocolloid Dressing," 3M, www.3m.com/product/information/Tegaderm-Hydrocolloid-Dressing.html, accessed July 5, 2011.

Headquartered in St. Paul, Minnesota, 3M had gradually extended its global presence in the United States, Europe, the Middle East, Africa and Asia Pacific. In 2004, 3M generated US\$20 billion in sales and US\$2.9 billion in net income.³ International sales represented 60 per cent of total sales (see Exhibit 1). The company had 189 sales offices worldwide, with 15 in the United States and 174 internationally. By December 31, 2004, the company employed 67,071 people, with 32,648 employed in the United States and 34,423 (approximately 51 per cent) located internationally.⁴

THE 3M WAY TO INNOVATION

Innovation and product development constituted an important part of 3M's activities. 3M invested approximately US\$1.1 billion (5-6 per cent of sales) per annum in research development⁵ and had 1,000 scientists and engineers dedicated to developing new ideas.⁶ Most of the researchers in the United States were based in corporate research laboratories in St. Paul, Minnesota. Research and development activities included scientific research, application of scientific technology to the development of new products, technical support to customers and internal development of patents.

3M managed its operations in seven business segments: health care; industrial; display and graphics; consumer and office; electronics and communications; safety, security and protection services; and transportation (see Exhibit 2). The health care segment had the highest sales among all segments, accounting for more than 20 per cent of total sales (see Exhibit 3). Each business segment leveraged its own unique sales channels, customers, technologies, manufacturing facilities and selling processes. To encourage efficient distribution of business resources, the seven business segments shared common or related 3M technologies to facilitate innovation and product development.

Business segments were further segmented into divisions. Each product line represented an individual division that possessed its own sales, marketing and technical support staff. For example, the health care segment was comprised of a variety of divisions that included medical and surgical supplies, skin health and infection prevention products, pharmaceuticals, drug delivery systems, dental and orthodontic products, health information systems, microbiology products and closures for disposable diapers.⁷ Each division was managed as an individual entity; this small, decentralized structure minimized bureaucracy and empowered business units to concentrate on new ideas and their own customer bases.⁸

3M's approach to innovation evolved from a distinctive corporate culture created by William L. McKnight. McKnight joined the company as an assistant bookkeeper in 1907. He quickly rose in the company and became president and chairman of the board of directors.⁹ McKnight's management philosophy was described in 1948:

As our business grows, it becomes increasingly necessary to delegate responsibility and to encourage men and women to exercise their initiative. This requires considerable tolerance.

³ 3M 2004 Annual Report, Standard & Poor's NetAdvantage, www.netadvantage.standardandpoors.com.proxy1.lib.uwo.ca:2048/NASApp/NetAdvantage/index.do, accessed July 5, 2011.

⁴ Ibid.

⁵ John Dwyer, "Dare you play R&D roulette," *Work Management*, September 26, 2008, p.16-18, www.worksmangement.co.uk/features/dare-you-play-rd-roulette/15585/, accessed June 25, 2011.

⁶ "R&D Before All at Hewlett Packard, 3M and GE," *Strategic Direction*, 20 (10), October 2004, p. 15-17.

⁷ 3M 2004 Annual Report, Standard & Poor's NetAdvantage, www.netadvantage.standardandpoors.com.proxy1.lib.uwo.ca:2048/NASApp/NetAdvantage/index.do, accessed July 5, 2011.

⁸ Ernest Gundling, *The 3M Way to Innovation: Balancing People and Profit*, Tokyo; New York: Kodansha International, 2000, p. 70.

⁹ *A Century of Innovation: The 3M Story*, 3M, 2002, p. 9.

Those men and women, to whom we delegate authority and responsibility, if they are good people, are going to want to do their jobs in their own way.

Mistakes will be made. But if a person is essentially right, the mistakes he or she makes are not as serious in the long run as the mistakes management will make if it undertakes to tell those in authority exactly how they must do their jobs.

Management that is destructively critical when mistakes are made kills initiative; and it is essential that we have many people with initiative if we are to continue to grow.¹⁰

These ideals promoted a company culture that emphasized innovation, risk taking and teamwork. As such, pursuing ideas that did not have immediate impact and learning from mistakes became an important part of 3M's culture of innovation; failure was seen as a learning experience.

McKnight's management philosophy affected many aspects of management at 3M. The company adopted a "15 per cent rule": employees in any area of the company could use 15 per cent of their working hours to pursue their own ideas or projects and had no obligation to report on progress of these ideas.¹¹ The 15 per cent rule empowered employees while encouraging managers not to over-manage operations (provided essential duties were performed adequately), promoting a corporate culture of freedom and innovation.

Each year, 3M allocated US\$50,000 to the company's Genesis Grant program — a program designed to fund innovative projects that may not receive funding through 3M's normal channels.¹² Project teams competed for grants by presenting their ideas to their peers. In this way, each staff member played an important role in building an innovative climate. Additionally, 3M unofficially practiced lifetime employment.¹³ This job stability enhanced risk taking and allowed long-term career planning that could work for the company's benefit. The spirit of cooperation and teamwork within the organization derived from the fact that employees did not have to worry about looking for another job eventually.

Management at 3M had long realized that interaction with customers was an excellent way to garner new ideas and business solutions. In one of his early roles as a sales manager, McKnight had observed that salesmen were prime sources of innovative ideas due to their frequent interactions with the customers who used their products. Through constant interaction, the company identified users' problems and developed solutions accordingly; for example, in developing a material that limited the spread of skin infection, the company consulted its major users, including doctors and make-up artists, for ideas about how to use the product and apply it to the skin.¹⁴

3M's key growth driver was its investment in technologies. Technical innovation at 3M was based on more than 40 technological platforms (see Exhibit 4). The company also combined many of these technologies in order to invent new products that addressed different customer needs. This single set of assets was shared amongst all the business segments at 3M in order to allow free access to the company's technologies.

¹⁰ "McKnight Principles," 3M, http://solutions.3m.com/wps/portal/3M/en_WW/History/3M/Company/McKnight-principles/, accessed June 25, 2011.

¹¹ Tim Stevens, "3M reinvents its innovation process," *Research Technology Management*, 47 (2), 2004, p. 3-5.

¹² Felipe Lara-Angeli, "Encouraging innovation: Lessons from the 3M experience," *China Staff*, 13 (4), Apr 2007, p. 10-12.

¹³ 彭芃萱, 你不知道的3M: 透視永遠能把創意變黃金的企業傳奇 (Things you don't know about 3M), *Business Weekly Publications*, 2010, p.253-256.

¹⁴ Ruth Mortimer, "Customer Innovation: Inspirational Customers," *Brand Strategy*, London, July 12, 2005, p. 24.