



**Case Study #27: 3M – The Second Century**

BUS 189 – Prof. Larry Gee

Team 7 – Diamond Hands

PM: Von Victor Salamanca - #7375

Anahi Fonseca - #8673

Thao Nguyen - #0062

Cindy Truong - #3524

San José State University

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**Table of Contents**

Appendix 1: History, Development, and Growth of 3M	3
Appendix 2: 3M's Internal Strengths and Weaknesses	6
Appendix 3: Nature of External Environment	8
Appendix 4: SWOT Analysis	10
Appendix 5: 3M's Corporate-level Strategy	16
Appendix 6: 3M's Business-level Strategy	19
Appendix 7: 3M's Company Structure and Control Systems	22
Appendix 8: Recommendations for 3M	24
Case Question 1	26
Case Question 2	29
Case Question 3	31
Case Question 4	34
Case Question 5	36
Case Question 6	38
Case Question 7	42
Case Question 8	45
Conclusion	47
Bibliography	48

## **Appendix 1: History, Development, and Growth of 3M**

Formally known as the Minnesota Mining and Manufacturing Company, 3M is an \$85.1 billion industrial conglomerate operating in the segments of Safety and Industrial, Transportation and Electronics, Consumer, and Health Care. Ranked as the 103rd corporation on the Fortune 500 and as one of the 30 firms that make up the Dow Jones Industrial Average, 3M's diverse global presence expands over 200 countries. From its humble beginning as a small mining operation in Minnesota to its rise as the largest global manufacturer in the state, 3M has consistently placed innovation and perseverance as its top core value.

From Scotch tape and Post-it Notes to N95 masks, the company's culture has promoted the creation of over 60,000 products. Their presence in the Safety and Industrial segment consists of industrial abrasives, personal safety products, packaging tapes, closure and masking systems, roofing granules, and personal protective equipment. The Transportation and Electronics segment offers commercial solutions, electronics solutions, automotive materials, advanced materials, aerospace solutions, and transportation safety. Their Consumer segment covers home improvement products, healthcare products, and stationery and office products. The company's most recognizable brands are within this segment. Such brands include Post-it Notes, Command adhesive hooks, and Scotch Magic Tape. 3M's HealthCare segment includes reimbursement software, medical and surgical supplies, food safety products, filtration systems, infection prevention solutions, and oral care solutions ("MMM").

Founded by Dr. J. Danley Budd, Henry S. Bryan, William A. McGonagle, John Dwan, and Hermon W. Cable, on June 13, 1902, 3M started out with a simple goal of mining corundum for sandpaper production. However, the mine's reserves only carried low-grade non-commercial anorthosite. Thus, 3M was forced to import lower-quality products and weaker sales.

In 1905, Lucius Ordway's investment allowed the company to relocate to Duluth and

begin sandpaper production with new abrasive minerals. In 1907, William L. McKnight joined the company and helped shape its culture of innovation. In 1910, the firm relocated to St. Paul, which bloomed in expansion due to its central location and World War I (Johnson). 3M Three-M-ite Abrasive Cloth became the company's first invention in 1914. In 1916, 3M achieved financial stability and established its first dividends. Within the decades 1917 to 1930, 3M proved its innovative legacy through new product developments. Examples of such innovations include the creation of the world's first water-resistant coated abrasive in 1921, the invention of masking tape in 1925, the Scotch Cellophane tape launched in 1930, the Scotchlite Reflective Sheeting born in 1938, and the first handheld tape dispenser created in 1939 ("3M United States").

3M began its investment in innovation by establishing a Central Research Laboratory in 1937. From 1931 to 1952, 3M became a household name in the niche market and continued to diversify its product portfolio. 3M reached a high growth period from 1953 to 1969 through product expansion and R&D ("3M United States"). Due to a mixture of resignations from top executives, decreased sales, and increased competition, 3M faced stagnation in growth during the 1970s (Johnson). Fortunately for the company, the invention of one of their most popular products, the Post-it Notes, created a brand new market and revenue stream.

L.D. DeSimone took over leadership of 3M from 1991 to 2001. Throughout his time with the company, DeSimone's methods increased sales by pushing for collaborative work between researchers and marketers to create commercial products from existing innovations.

Unfortunately, these methods did not last as profits and sales declined in 1998. This prompted further reconstruction of the company's workforce, and by 2001, W. James McNerney Jr. was named CEO (Johnson). McNerney brought a shift in culture to 3M and introduced restructuring efforts via resources allocation, six-sigma, performance-oriented programs, and productivity

programs (Hill and Jones, C369). In 2002, 3M celebrated its anniversary by adopting its nickname as the company's formal name. They reached a new sales milestone of \$20 billion in 2004 and \$30 billion in 2013. Within the early 2000s, 3M focused on realigning the company's culture to sustain the competitive market. After McNerney left in 2005, Robert S. Morrison was dubbed CEO and led the company until 2008. During his time in 3M, Morrison focused on international expansion in emerging markets and targeted acquisitions for product portfolio expansion.

With the global economic downturn in 2008, 3M saw plunging sales and profit. Thus the company launched a series of restructuring efforts to decrease the workforce and increase research and development. From 2012 to 2015, 3M sought new growth opportunities by acquiring promising firms. In 2017, 3M's questionable involvement in the PFAS controversy harmed the company's public perception (Johnson). Meanwhile, from 2019 to 2020, 3M's expansion into the healthcare segment was followed by acquisitions and N95 respirator manufacturing. Starting in 2021, 3M has invested \$1 billion in technological innovation to achieve carbon neutrality, reduce water use, and improve water quality ("3M To Invest \$1 Billion").

## **Appendix 2: 3M's Internal Strengths and Weaknesses**

### **Internal Strengths**

The internal analysis of a company is vital in identifying the source of competitive advantage and recognizing the resources necessary to remain competitive. 3M is a highly diversified technology company with a global presence. 3M operates its business in multiple markets and industries and is one of the most diversified industrial conglomerates in the United States, offering more than 60,000 products that are used in businesses, schools, homes, hospitals, and more ("From Humble Beginnings"). 3M manages these products under 26 business lines, which it groups into four main business segments: Safety and Industrial, Transportation and Electronics, Health Care, and Consumer. The number of products and projects that the company is involved in, with people covering assignments from all over the world continue to play a vital role in one of 3M's internal strengths and is one of the many reasons for 3M's success today.

Another internal strength of 3M is the company's promise to its employees and the overall dimension of 3M's culture. For example, 3M constantly reinforced its employees to identify, develop and commercialize new products. Implementing the 15 percent rule has spurred innovation growth within the company. This 15 percent rule allows employees to spend 15% of their work time on experimental projects. It essentially promotes this culture of "just do it, seize the opportunity" that genuinely allows for its employees to learn and flourish with endless opportunities (3M century of innovation book" 31). The beauty of this rule is that it is not a rule at all but permission that allows employees to devote 15 percent of their time to projects of their choosing without being questioned by management. Undoubtedly, remaining in a culture of innovation is not easy. For example, 3M is known for attracting and retaining an imaginative and productive workforce. The company accelerates talent development yet creates a challenging environment that nourishes employees' self-esteem. For 3M to be one of the biggest sandboxes to

play in shows that the company truly fosters a culture of invention, innovation, and thinking that continues to place 3M at a competitive edge.

### Internal Weaknesses

3M possesses many internal weaknesses as well. While diversification is one of 3M's strengths, it may also pose a disadvantage. The diversity of 3M's product line forces the organization to compete in multiple markets and industries that would require expertise across a plethora of industries. How this business is structured would require the organization to put a lot of effort into these industries that require additional time and research and development (R&D) investments. This would not be ideal for the organization as 3M extensively focuses on innovation, and the downside to that is the continual reinvestment to remain innovative.

Further investments could potentially impact the company's operations and financials. 3M is spending more on research and development than the industry's average. As one of 3M's competitors, in the fiscal year of 2021, the amounts expensed as incurred for Honeywell's research and development expenses amounted to over 1.3 billion U.S. dollars ("Honeywell Form 10-K" 59). Another major competitor of 3M is Emerson, and this company incurred 485 million U.S. dollars in the 2021 fiscal year for its research and development expenses (Placek).

Retrieved from the company's annual report on Form 10-K for the year ended December 2021,

**Table 1** illustrates that 3M spending on research and development in 2021 came to nearly two

billion U.S. dollars ("3M CO Form 10-K 2021" 45). Evidently, 3M spent far more than the two competitors and comparatively more than a typical manufacturing company, consequently creating a higher cost structure.

(Millions, except per share amounts)	2021
Net sales	\$ 35,355
Operating expenses	
Cost of sales	18,795
Selling, general and administrative expenses	7,197
Research, development and related expenses	1,994
Gain on sale of businesses	—
Total operating expenses	27,986

Table 1: 3M CO Form 10-K 2021

### **Appendix 3: Nature of External Environment**

Porter's five forces consist of industry rivalry, the threat of new entrants, the threat of substitute products, the power of buyers, and the power of suppliers. 3M's industry rivalry is moderate. 3M already has a lot of competitors such as General Electric, Emerson, Honeywell, and Corning – all of which provide a range of similar products. However, 3M is a diverse company that has invested in research & development to produce innovative products that competitors may not have. 3M's threat of new entrants to the market is moderate. 3M's threat of entrants is lower because its primary industry does require high investment amounts, and sometimes competitors cannot afford the investment. This results in a lower chance of competitors entering the market. Because 3M is segmented into sub-industries, the threat of new entrants can be higher because the new entrants can sell products to the retailer cheaper than 3M. 3M's threat of substitute products is moderate. Competitors provide products with similar purposes and benefits to 3M's products. Competitors can sell similar products for lower prices but because 3M has invested a lot of money in product innovation to develop new and distinctive products, competitors may have difficulty imitating 3M's products. 3M's power of buyers is low because the company develops innovative products that consumers are willing to pay premium prices. 3M does offer a high investment amount on their research and development, meaning 3M has the opportunity to purchase raw materials from various suppliers. There is not one specific supplier the company purchases from – this makes the power of suppliers low.

There are many external elements that 3M is presented with. With the company's current performance, 3M can further develop new products in the market, preferably an expansion of the product line targeted toward a new audience. In addition, 3M is given the opportunity to practice different pricing strategies within the new emerging market and adopt new technologies. This market development will help put 3M at a competitive advantage. As a diversified conglomerate

and with the company's significant flexibility in funding, 3M has the opportunity to enter many markets and industries through acquisition opportunities to further invest in its operations to drive high growth.

As 3M recognizes and takes the initiative towards potential opportunities, there are also external factors of encroaching threats that 3M would have to deal with. The following are major threats 3M could face: legal and regulatory proceedings, competitive conditions and customer preferences, and fluctuations in foreign currency exchange rates. 3M faces liabilities related to fluorochemicals and lawsuits that could adversely impact its results. The legal proceedings may differ as outcomes of litigations regarding regulatory matters are often unreliable to predict. The threat of rivalry poses a considerable threat to 3M. Due to 3M's diverse operations, 3M would face a very broad range of competitors across many markets. Additionally, the demand for 3M's products would impact the revenue and financial operations of the company. For a corporation like 3M, which has global operations in different world regions, currency fluctuations become a significant concern when currencies strengthen or weaken the US dollar. Because 3M's financial statements are denominated in U.S. dollars, and approximately 60 percent of 3M's revenue is outside the United States, the company could be adversely affected ("3M CO Form 10-K", 10). Evidently, there are many external elements of opportunities and threats that provide and pose threats to the company's structure, respectively.

## Appendix 4: SWOT Analysis

### Strengths

As one of the leading firms in its industry, 3M Co. possesses numerous strengths: innovation, diversity, and strong brand quality. The company's culture of innovation and investment in research and development has benefited the company in a plethora of ways. As mentioned earlier, the company spurs innovation by implementing the 15 percent rule that allows employees to devote 15 percent of their time to projects of their choosing, allowing employees to flourish and explore more inventions and opportunities. 3M's culture of innovation attracts and retains an imaginative and productive workforce that truly sparks innovation and gives the company a competitive edge. Nonetheless, its portfolio of nearly 60,000 products (e.g., Post-It notes, Scotch-Brite, and medical and industrial products), 118,000 patents, and 4,000 new patents issued annually worldwide demonstrates the company's bandwidth and the natural strategic advantage of successful new products, greater access to new markets, and differentiated products ("100-Patent Woman").

3M is widely known for operating in multiple business markets and industries, and in doing so, 3M has effectively diversified its operations. And with such diversity, 3M has a highly diverse revenue stream. Retrieved from the company's annual report on Form 10-K for the year ended December 2021, **Table 2** illustrates that none of 3M's business segments account for more than 37% of sales ("3M CO Form 10-K 2021" 21). This diversity of products allows for

insulation against any competition against 3M's existing product lines. Evidently, due to 3M's diversity, it provides significant financial stability within its operation.

(Dollars in millions)	2021	
	Net Sales	% of Total
<b>Business Segments</b>		
Safety and Industrial	\$ 12,880	36.4 %
Transportation and Electronics	9,769	27.6
Health Care	9,050	25.6
Consumer	5,856	16.6

**Table 2:** 3M CO Form 10-K

Additionally, like many large companies, 3M has strong cash flows, allowing them to adopt a stronger market position and be involved in many competitive actions.

In addition to 3M's innovation and diversity, 3M Co. has high brand awareness and strong brand quality in the industry. 3M is one of the 135 companies worldwide designated as one of the World's Most Ethical Companies in 2021. Not only that, 3M has been very serious about science, which is the foundation of its existence ("3M Named"). The company is also equally considerate towards global issues like climate change and sustainability. According to 3M's News Center, 3M has planned to invest nearly 1 billion USD over the next 20 years to accelerate new environmental goals: "achieve carbon neutrality by 2050, reduce water use by 25% at its facilities, and return higher-quality water to the environment after use in manufacturing operations" ("3M to Invest \$1 Billion").

### **Weaknesses**

3M's weaknesses include diversity/lack of focus, continual reinvestment, and legal consequences. For this section of the SWOT analysis, diversity and legal matters will be the main topics since 3M's weakness of continual reinvestment has been discussed in the earlier sections of the research paper. Diversity of operations at 3M is both a strength and a weakness. As mentioned in the internal weakness section of the paper, 3M's diversity poses as a weakness because it forces the organization to compete in multiple sets of industries and markets. 3M would need expertise across a range of industries, markets, and technologies, and as a result, 3M would not be able to focus on one particular area. Furthermore, 3M would need to monitor all environmental factors proactively and adapt its strategy to grace the changing conditions; hence, it would be detrimental to the company as the stability in 3M's planning and ongoing activities will be significantly reduced.

The enormous brand of 3M has had numerous litigations in the past and is still dealing with ongoing litigations and defending lawsuits. For example, 3M faces State Attorneys General (AG) litigations related to per-and poly-fluoroalkyl substances (PFAS), environmental liabilities, and product liabilities. PFAS are chemicals that have been used in industry and consumer products worldwide; however, exposure to these chemicals is associated with a host of health effects, including cancer, decreased fertility, liver damage, and increased risk of asthma and thyroid disease. The firm has litigations from Minnesota, New York, Ohio, New Jersey, New Hampshire, North Carolina, and the list goes on (“3M CO Form 10-K 2021” 106).

As a result of these concerns, 3M increased its accrual for PFAS-related and environmental liabilities by \$138 million and made related payments of \$142 million since December 31, 2020. As of that date, the company had recorded liabilities of approximately \$29 million for environmental remediation costs to clean up, treat, or remove hazardous substances at former and current 3M manufacturing or third-party sites (“3M CO Form 10-K 2021” 113). Undoubtedly, State AG litigations and the environmental liabilities resulting from these concerns have adverse effects on the company's business and financial conditions. 3M is also dealing with an ongoing lawsuit regarding their Dual-Ended Combat Arms earplugs, which will be further discussed in the threats section of the SWOT analysis. Evidently, the company faces liabilities related to certain fluorochemicals, medical malpractice claims, and product defects, all of which could adversely impact 3M results.

### **Opportunities**

Alongside its strengths and weaknesses, 3M has opportunities in new product development, online services, and diversified acquisitions. As 3M is a multinational conglomerate with operations across many industries and markets, product line expansion would enable the company to gain new consumers in both common and niche markets. Within product

development, 3M has earned a reputation for its positive performance within its current firms, thus leading to similar success in the new product market (“3M Named as One...”). With the advancement of technology, products can be manufactured quicker and better, which would allow for the development of new product designs and innovation. The assistance of technology could also allow 3M to formulate a differentiated pricing strategy in new product markets. This strategy will enable the company to care for its current customers while luring potential customers through value-oriented propositions and unique product attributes. And with recent trends in consumer behavior (i.e., COVID increase of N95 mask demand), 3M has opened up a potential product portfolio and acquisition demand (“N95 Mask Sales Climb”). This new revenue stream would also allow 3M to diversify into new product categories. Thus these expansions would be a clear opportunity area for 3M.

Over the past few years, COVID-19 has made people more willing to buy online. Adopting online retail services is a growth opportunity area for the company. Examples of this would be the mass online buying of N95 masks during the peak pandemic period. During this time, 3M’s official website allowed consumers to make immediate purchases from a wide variety of 3M PPE products with a credit card directly on the website (“N95 Mask Sales Climb”). With the easy to purchase method and decrease in potential exposure, many individuals could be more comfortable with this opportunity. As the company manufactures such a wide range of products, online retail would enable 3M to sell directly to consumers and businesses without retail providers such as Walmart and Home Depot. Online service would also provide new offerings to the customers in the Supplies & Fixtures industry as third parties and physical location would not restrict them.

3M can potentially enter a number of new industries via an acquisition of firms. Unlike more single-industry-focused businesses, this high-growth strategy would fit well within 3M’s

scope of high profit and elevated risk. But with the brand's history and experience, 3M could acquire diverse firms to expand their existing markets. Examples of acquired firms by 3M would be Acelity, MModal, Scott Safety, and Dailys. Acelity Inc. was their highest-priced acquisition at \$6.72 billion dollars ("Acquisitions by 3M."). As a result, the company could expand into healthcare acquisition as the segment has been a focus from 2020 to 2022.

### **Threats**

Within the threats of 3M, the brand has been facing issues with government restrictions and lawsuits, competitive pressure, and the rising cost of raw materials. As 3M is a multinational corporation, the company faces liability laws and regulations in different countries, some of which could affect the manufacturing process and sales of 3M's products. Therefore, significant political and foreign risk could delay 3M's ability to do business in certain countries. For example, new environmental regulations may increase production costs and decrease profit due to difficult manufacturing transitions. 3M is also currently in a lawsuit with two veterans claiming that 3M's combat earplugs cause hearing damage. This lawsuit has brought forth a negative public perception of the brand, with nearly 300,000 plaintiffs claiming charges (Miller). Thus without a clear settlement or solution, 3M will face further negative repercussions via boycotts or lawsuits.

With 3M presence in the common and niche markets, the company has numerous competitors. Because of this, 3M must consistently stay competitive and up-to-date within all their industries and market share; this could cause issues in overall profit and supply-demand. As new product cycles are launched, competitive pressures could affect 3M's response to particular needs of the niche market. This could decrease the brand's overall customer satisfaction and reputation. 3M also has a threat in cheaper competitions. Thus they may be required to lower the profit margin to maintain competitive standing.

Macroeconomics fluctuations could affect the supply and cost of raw materials. From this fluctuation, 3M could face supply chain and production threats. Global affairs could also affect raw materials. 3M's challenges around supply chain constraints and raw materials shortages increased following Russia's invasion of Ukraine. In an official press release, 3M stated their plans to continue with the ongoing pricing increase and maintain spending discipline to offset the impact of the war (Person).

## Appendix 5: 3M's Corporate-level Strategy

3M's corporate-level strategy centers around maximizing profitability and sustaining its competitive advantage over its current business and any future businesses or industries it decides to participate in (Hill and Jones 309). To gain a comprehensive understanding of 3M's corporate strategy, it is helpful to look at 3M's mission statement. 3M's mission is to:

Use science to improve lives and help solve the world's toughest challenges. We remain focused on executing our plans and continuing to deliver exceptional value for our customers and premium returns for our shareholders. ("3M About Us")

From this quote, science remains at the heart of 3M's core operations and value chain. Through science and the company's consumer-driven innovation, 3M can successfully launch its products to the market.

3M carries out its corporate-level strategy through horizontal integration. To recall, 3M is a conglomerate with industries spanning safety, industrial, transportation, electronics, health care, and consumer products. In this, 3M has a history of acquisitions that allows it to achieve economies of scale, expand product differentiation, reduce competition, and increase bargaining power over suppliers and buyers (Hill and Jones 312). For instance, 3M's acquisition of Acelyty in October 2019 for \$6.7 billion allowed 3M to assume Acelyty's specialized assets in advanced wound care and surgical equipment ("3M Completes Acquisition of Acelyty, Inc"). As seen in this example, horizontal integration gives 3M the advantage of expanding its scope of operations to the healthcare industry. Recognizing that the healthcare industry is full of rapid growth, the total assets and total sales of Acelyty accounts for 2 percent of 3M's corresponding consolidated financial statement accounts ("3M CO FORM 10-K 2019").

Similarly, 3M also acquired Scott Safety for \$2.0 billion in October 2017. Through this acquisition, 3M obtained Scott Safety's "self-contained breathing apparatus (SCBA) systems, gas

and flame detection instruments, and other safety devices that complement 3M's personal safety portfolio" ("3M Completes Acquisition of Scott Safety; Business Enhances Personal Safety Offering."). Regarding 3M's financial statement impact regarding this acquisition, Scott Safety is a wholly-owned subsidiary with its total assets and total sales accounting for less than one percent of 3M's corresponding consolidated financial statement accounts ("3M CO FORM 10-K 2017"). It is worth noting that 3M's horizontal integration allows the company to increase its profitability through the diversification of its products. For example, when 3M acquired Scott Safety's state-of-the-art resources, 3M recognized economies of scope and leveraged the subsidiary's capabilities.

3M is also engaged in vertical integration as its corporate strategy. In vertical integration, 3M can expand its operations backward into its industry (Hill and Jones 316). In an interview in 2017, Paul Keel, 3M's former Senior Vice President of Supply Chain, attests that 85% of the company's sales are manufactured in a 3M facility (DiPietro). Instead of outsourcing its manufacturing operations to third parties, 3M owns "plants and distribution centers in 50 countries" (DiPietro). In another interview, Paul Keel announced that the company is embarking on a "geometric network" in which 3M has a physical supply chain that directly connects its chemical suppliers to its own factories (e.g., BASF). This digitization of 3M's supply chain allows the company to integrate its system and the supplier's system into a single, unified network. Investments into Enterprise Resource Planning (ERP) systems like these highlight 3M's goal of adding utility to each stage of its value chain (Banker).

3M's corporate strategy also consists of several notable strategic partnerships. For instance, 3M partnered with Ford Motor Company in March 2020 to ramp up the production of powered air-purifying respirators. This collaboration between 3M and Ford is in direct response to the critical, rising demand for personal protective equipment as a result of the novel

coronavirus (i.e., COVID-19) outbreak (“3M Partners with Ford”). 3M also collaborated with Nike to help design a new pair of Nike Sportswear sneakers. After analyzing multiple samples of 3M’s materials, Nike announced that it is planning to integrate 3M’s Scotchlite Reflective Material and feature 3M’s Thinsulate Insulation products into Nike’s entire sneaker collection (“Nike and 3M Collaborate on Iconic Sneakers”) In short, this collaboration with Nike highlights 3M’s vast dominion over a broad range of industries, including consumer products.

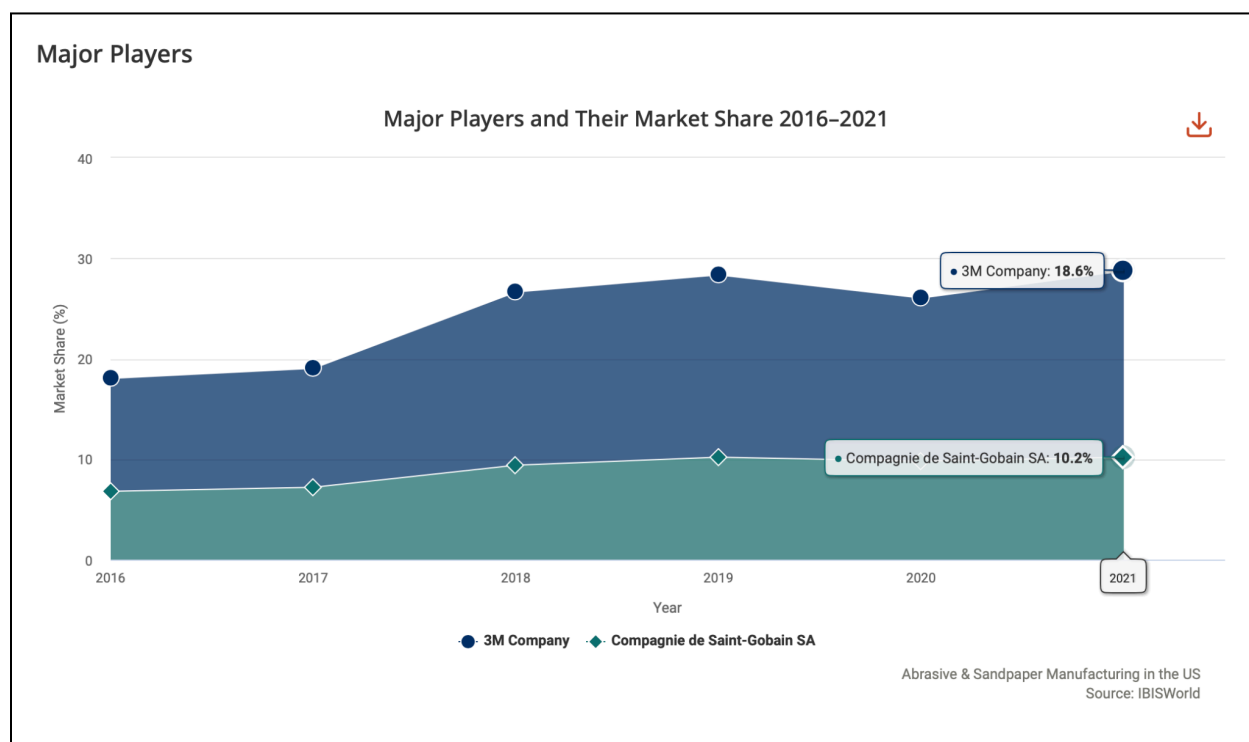
Overall, from its lowly beginnings as a small manufacturing company in Minnesota to its current multinational conglomerate status, it is evident that 3M’s corporate strategy evolved drastically over time. From 1907 to 1951, it is reasonable to infer that 3M’s primary corporate strategy was the diversification of its product line and continual investment in its research and development. From 1951 to the 2000s, 3M’s corporate-level strategy also focused on its global expansion into international markets such as Asia. It is through 3M’s global expansion that allowed the company to outsource non-core activities to cheaper labor markets and, at the same time, vertically integrate its supply chain system with its international suppliers. From McNerney’s role as CEO in 2001, 3M’s corporate strategy aimed at reducing its high bureaucratic costs through Six-Sigma. Finally, after operating for nearly 120 years, 3M is pursuing a horizontal integration strategy to expand its business over high-growth industries such as healthcare.

## Appendix 6: 3M's Business-level Strategy

To carry out 3M's corporate-level strategy, business-level managers are responsible for implementing a concrete plan for each of 3M's self-contained business units. Remarkably, 3M pursues all three generic business-level strategies in its product lines, including cost-leadership, differentiation, and focused differentiation.

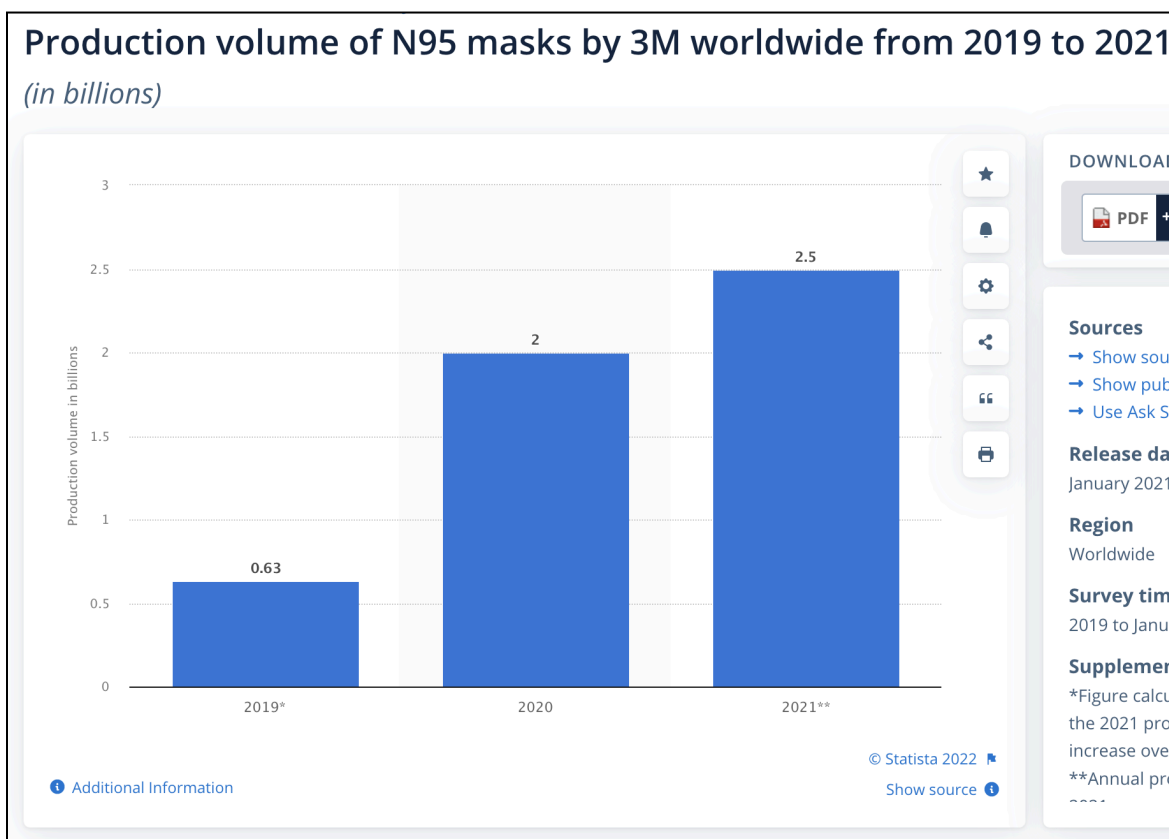
As previously mentioned, 3M has four major business lines: 1) Safety and Industrial, 2) Transportation and Electronics, 3) Health Care, and 4) Consumer. All four business segments share the same 3M technologies and have a significant global presence (3M CO Form 10-K 2021). Within its Safety and Industrial segment, 3M's underlying business divisions include abrasives (e.g., Scotch-Brite Abrasives), tapes (e.g., Scotch & Temflex Vinyl Tape), respiratory materials (e.g., N95 masks), and other personal safety. To that end, 3M boasts an 18.6% market share in abrasive and sandpaper manufactured, as seen in Figure 1 (Curran).

**Figure 1 Abrasive and SandPaper Manufacturing: Major Players and Their Market Share**



In 3M's Transportation and Electronic segment, product divisions include transportation safety (e.g., 3M Diamond Grade reflective sheets), commercial solutions (e.g., Thinsulate Acoustic Insulation products), and electronics material solutions (e.g., 3M Scotchlite graphic films). Under its Health Care segment, 3M has product divisions in food safety, medical solutions, and drug delivery. Since the health care products and services have to abide by specific regulations and are tailored to a medical institution's preferences, 3M utilizes a focused differentiation strategy (Kenney et al.). Through this focused differentiation strategy, 3M can leverage its superior expertise and innovation in the science and medical field. For instance, due to the onset of the COVID-19 pandemic in 2020, 3M was responsiveness to the needs of the general public. As such, Figure 2 shows that the production volume of N95 masks jumped from 0.63 billion in 2019 to 2 billion in 2020 (Statista).

**Figure 2 3M's Production Volume of N95 Masks**



In 3M's Consumer business segment, the company boasts a wide range of product divisions, including home care and office. Items in the consumer segment, such as bulk sponges, cleaning supplies, and heavy-duty pads, are part of 3M's cost-leadership strategy (Kenney et al.). In this strategy, 3M focuses on selling these goods at a lower price than its competitors. The cost-leadership strategy often implies that 3M implements low levels of product differentiation since its primary purpose is to appeal to the average consumer. In addition, to maintain a competitive advantage using a cost-leadership strategy, 3M On the other hand, other consumer products such as Scotch Tape, Post-It Notes, Scotchgard, and Scotch-Brite have a differentiation business-level strategy (Kenney et al.). In this strategy, 3M creates unique products that customers perceive as high quality. Considering the popularity of products such as Post-It Notes and Scotch Tape, these products underscore 3M's paramount brand awareness and value. To that end, 3M's widely recognized consumer products can tap into its consumers' minds, thereby generating high consumer responsiveness.

## **Appendix 7: 3M's Company Structure and Control Systems**

3M is a highly-innovative company. 3M is known for developing innovative products that continue to compete with other products regardless of how long they have been in the market. 3M's innovative culture and strategy have helped shape the company's organization – they are the drivers of why 3M has been able to maintain success and be competitive in the market. 3M's management philosophy consists of three points – innovation, diversification, and support for employees (Thompson). 3M gives employees the opportunity to work to develop new product ideas or services. To help employees achieve the company's goal of developing innovative products – the company has a 15% rule. This rule developed because of Richard Drew's successful product development for the company, the masking tape. This 15% rule helped turn 3M into an innovative and successful company. 3M provides recognition to employees who have made contributions to the company through rewards and opportunities – 3M provides these rewards and opportunities to encourage employees to continue to take risks and work to develop innovative products. The Corton Society Award and the Circle of Technical Excellence and Innovation awards honor employees who have made career achievements and contributions to the company (Hill and Jones, C364). In hopes of encouraging technical employees to learn about the management side of the business, 3M introduced the dual-career track. This track allows technical employees to follow a technical or management career path with the same opportunities.

To 3M, communication is important to be successful. For example, 3M has encouraged formal and informal networking among employees. A way in which 3M encourages quality efforts is by communicating with the employees and discussing the number of revenues that come from past products – the employees can then figure out what to work for.

Clarence Sampir and Maynard Patterson introduced the international expansion of 3M. Sampir and Patterson developed an innovative framework that allowed 3M to succeed in global markets. This framework included – getting in early, hiring talented & local employees, becoming a good corporate citizen of the country, growing the local economy, tailoring products, and enforcing patents in local countries (Hill and Jones, C366). Following the framework, 3M increased international sales from less than 5% in 1951 to 42% by 1979 (Hill and Jones, C367).

To continue to follow 3M's structure and strategy of being an innovative company, 3M established the Pathfinder program in 1978. The Pathfinder Program was designed to encourage the innovation of new products and new business initiatives born outside of the United States, (Hill and Jones, C367). This program earned 3M over \$150 million in sales in a year by 1983.

## **Appendix 8: Recommendations for 3M**

3M should continue to strike a balance between its six-sigma, lean production system against its innovative research culture. Embarking on this balancing act is crucial if 3M wants to remain at the forefront of science and technology while reducing its high bureaucratic costs. Since 3M is known to spend approximately 6% of its sales on its research development, it should consider reducing its cost structure without hampering the company's culture of innovation (3M CO Form 10-K 2021).

We also recommend that 3M should utilize business intelligence and data analytics ("3M to Advance Operating Model, Improve Cost Structure, and Accelerate Innovation"). Knowing that 3M has a comprehensive set of business and product divisions, upper management needs a systematic approach when viewing key performance indicators. Not only that, but employees working in managerial sciences and cost accounting need a centralized system, so that information silos do not impact the quality of data. Therefore, furthering the investment in ERP systems, business intelligence, and data analytics is essential for managers to gain critical insights into how the company is operating.

Our third recommendation is that 3M should conduct customer focus groups. These groups will consist of 3M's customers meeting with the company's employees to incorporate their ideas for products in development, or ideas on new products. Together, the customers and employees can develop product solutions or create new products that could potentially become successful. Individuals who end up developing successful products can be entitled to bonuses or receive a percentage of the company's income.

Our last recommendation is that 3M should invest in emerging technologies and markets to capture first-mover advantages. As we have seen in the past, 3M is known to launch highly successful products that cater to a particular niche market. For example, the post-it notes were

popular for those who used bookmarks but didn't want to damage the pages. To remain competitive in the 21st century, 3M needs to invest in emerging technologies and markets so that it can continue to have a strong brand presence.

**Case Question 1: What are the roots of 3M's culture of entrepreneurship and innovation?  
What were the key tenets of this culture as they emerged over time?**

Innovation is the hallmark of 3M's brand and company culture. As 3M Corporation has won numerous awards for its innovative feats, including the U.S. government's highest award for innovation – the National Medal of Technology, 3M's remarkable ingenuity and entrepreneurship is deeply rooted in its organizational structure (Govindarajan and Srinivas). In this, Dr. William E. Coyne, former Senior Vice-President of Research and Development at 3M, outlines six fundamental tenets of 3M's culture of entrepreneurship and innovation.

The first principle in fostering innovation is 3M's commitment to express its vision and articulate its values clearly (Kippenberger 32). According to 3M's 2017 Sustainability Report, their values are to:

Act with uncompromising honesty and integrity in everything we do. Satisfy our customers with innovative technology and superior quality, value, and service. Provide our investors an attractive return through sustainable, global growth. Respect our social and physical environment around the world. Value and develop our employees' diverse talents, initiative, and leadership. Earn the admiration of all those associated with 3M worldwide. ("3M Who We Are")

In addition, 3M's corporate vision is "3M Technology Advancing Every Company. 3M Products Enhancing Every Home. 3M Innovation Improving Every Life" ("3M Who We Are"). By analyzing 3M's vision and values, it is evident that 3M takes a consumer-centric approach to its business operations. Not only that, but 3M's values and vision also extend to a broader range of stakeholders, such as its investors and employees. Therefore, it is apparent that 3M's principles of valuing its customers, investors, and employees permeate throughout the entire organization.

These values allow the company to establish a suitable environment for innovation and entrepreneurship.

The second tenet that Dr. Coyne outlined 3M's foresight and identification of customer needs (Kippenberger 32). When it comes to inventing groundbreaking and blockbuster products, 3M's employees engage in a method called the "lead-user process" (Hippel et al.). Researchers saw that lead users (e.g., companies, organizations, and individuals who work in demanding conditions) have the potential to be innovators. Lead users have the ability to prototype better ideas than manufacturers since they have first-hand experience of what type of products best suit their needs. Recognizing that lead users are usually ahead of market trends, 3M instituted cross-functional teams where researchers work closely with customers (Hill and Jones C364). By doing so, researchers are able to observe and gain insight into customers' experiences when using 3M's products.

The third component of 3M's culture is their stretch goals (Kippenberger 32). From its early moments in company history to the present day, 3M has established two major growth targets. As previously covered in the SWOT analysis, 3M has launched the "15 percent rule". This rule aims to empower employees to follow after their entrepreneurial pursuits to advance 3M's research capabilities. Another ambitious goal established in the 1990s is the "30 percent rule." Here, 30 percent of 3M's sales revenue should come from products released less than four years prior (Hill and Jones C364).

The fourth ingredient is 3M's ability to "hire good people and then trust them" (Kippenberger 32). 3M has developed excellent relationships with academic institutions and universities. By doing so, 3M can leverage the talent of university research departments and hire potential college students to be full-time employees. Also, 3M has established a mistake-friendly culture. As Dr. Coyne explains it, "management that is destructively critical when mistakes are

made kills initiative” (Kippenberger 32). At its core, 3M acknowledges that it is imperative for management to trust its colleagues to foster employee initiative.

The fifth element is 3M’s well-connected communication between management and its employees and the knowledge management system between its different labs (Kippenberger 32). Due to 3M’s huge array of business divisions, the company established “3M’s Technical Forum” in 1951. The Technical Forum is designed to allow employees to share knowledge and technologies throughout the entire organization. Additionally, the Technical Forum will enable employees to share best practices, potential blockbuster product ideas, policies, and procedures (Conceição et al. 33).

Finally, the last foundational block of 3M’s innovative culture is rooted in its respect and reward for its employees. To motivate its employees in creative thinking and entrepreneurship, the company has established multiple rewards and recognition for those who have made significant contributions and advancements in 3M’s research and development (Hill and Jones C364). For instance, 3M awards its elite group of researchers in the Carlton Society and also awards the Circle of Technical Excellence and Innovation Award. Furthermore, 3M also allows a dual career path in which employees can choose a managerial position or a more technical role with equal advancement opportunities (Hill and Jones C364).

In short, 3M’s innovative and entrepreneurial culture is grounded on six fundamental tenets. These tenets give 3M the ability to have a sustained competitive advantage over its competitors.

**Case Question 2: How has the culture of entrepreneurship and innovation been nurtured at 3M from the era of McKnight through to that of DeSimone? How has entrepreneurship been institutionalized within the company?**

3M's culture of entrepreneurship and innovation was fostered through both formal and informal initiatives. During the McKnight era, a strong formal development baseline was created to promote product innovation through R&D. This development includes the Central Research Laboratory, Technical Forums, and other internal frameworks that connect technical employees with research laboratories. During this time, McKnight set in motion the 15% rule to spur innovation by researchers (Hill and Jones C361). The 15% rule was created to ensure consistent product development in 3M's future.

In 1937, the Central Research Laboratory was created to manage long-term basic research and amplify product development. The premise of this laboratory was to encourage researchers from different disciplines to work together. From the company's continuous growth, 3M introduced the Technical Forum in 1951. With a global network of diverse researchers to expand knowledge, share views, offer solutions, and implement technology, 3M leverages the company's expertise to encourage numerous opportunities. Sponsored by 3M, the Technical Forum started as a space where businesses could share and find solutions to their technical problems (Hill and Jones C362).

Due to the success of the cross-pollinate ideas of the Technical Forum, 3M created 3M Innovative Properties. The purpose of this structure was to leverage 3M's intellectual property to produce new product ideas. Unlike their competitors, when 3M's researchers request early-stage seed capital, they do not need to include a formal business plan (Hill and Jones C363). With this development, researchers have the opportunities to workshop their ideas without the hassle of funding restrictions.

The growth of funding and investment opportunities led to the establishment of Genesis Grants. The Genesis Grant directed up to \$100,000 in seed capital towards projects that did not receive traditional funding from 3M (Hill and Jones C364). During the development of a Genesis Grant-funded multi-layer reflective film project, 3M generated \$1 billion. To continue the culture of innovation, 3M created awards such as the Carlton Society and Circle of Technical Excellence.

In the 1960s, 3M established a technology auditing process that provided non-binding recommendations from peer reviews. 3M's organic decentralization allowed for decisions to be made upon different divisions. This helped maintain an entrepreneurial atmosphere within a large corporation. McKnight wanted to keep divisions small and focus on the customer (Hill and Jones C365). Unfortunately, this ideology frustrated some of 3M's critical customers as they had to communicate with numerous different 3M divisions. To fix this problem, 3M assigned key account representatives to work across the division line.

3M's informal development had revolved around the company's management style and culture that accepts failure and patience. 3M institutionalizes the principle of "patient money." (Hill and Jones C362). This was the idea that many major revolutionary innovations require long-term investment and development before they can reach a significant payoff. Examples of patient money products are fluorochemicals and duplicating 3M products. 3M's dual structures recognize the importance of risk and accepting well-intentioned failure. This ideology supports how "failure" may eventually lead to profits within due time. It emphasizes how technology may take years to showcase its promise and that instant profit is not the only indicator of success.

**Case Question 3: What were the strengths of the organization and culture of 3M during the McKnight to DeSimone era? What were the potential weaknesses?**

The organization and culture of 3M were very distinctive in the McKnight and DeSimone eras. In the McKnight era, 3M successfully transformed the company and expanded the company's products because of the high levels of innovation.

A strength during the McKnight era was that McKnight hired individuals who had enough talent that would help 3M succeed. Some of the talented individuals that McKnight hired include – the company's first scientist, Richard Carlton, Frankie Okie, and Richard Drew (Hill and Jones, C360). Carlton, Okie, and Drew developed some of the company's significant innovations that became the reason for the high growth and product diversification in the company – these products include the Wetordry Sandpaper and the masking tape, (Hill and Jones, C360).

From the major innovations that Carlton, Okie, and Drew developed, McKnight realized that his employees' ideas resulted in successful products for the company. To reiterate, McKnight decided to develop the 15% rule. This rule allows employees to spend 15% of their work time on their product ideas. The 15% rule resulted in employees' producing some of 3M's most successful products – like the Scotch Cellophane Tape, Scotch Guard, and the Post-It Notes. In addition, McKnight and his employees created innovative products by using old and new technology and applying it to new areas to develop new product opportunities successfully. Because McKnight allowed employees to develop their own product ideas, employees enjoyed exploring ideas for the company and became committed to creating successful products. 3M's employee turnover rate was actually very low at 3% per annum, (Hill and Jones, C366). 3M was actually one of the first companies to introduce incentives to employees – some of these incentives included a stock incentive and a profit bonus plan. With 3M providing employees the

opportunity to develop new product ideas, increasing career opportunities, and providing incentives, employees became loyal to the company and devoted themselves to working hard for 3M to continue to be successful.

McKnight's creation of useful units within the company was another strength. With the company growing, McKnight decided that it was important for something to be established to help tie together the company's diverse business. McKnight's decision resulted in the development of the 3M Technical Forum in 1951 and the 3M Innovative Properties (3M, IPC) in 1999. 3M's Technical Forum allowed the company's employees in different divisions to share ideas and solve encountered problems. The 3M IPC protected the company's intellectual property throughout the world. This allowed 3M's technologies to be applied across business units to potentially create successful business opportunities (Hill and Jones, C362).

In the McKnight era, 3M's organization and culture had many strengths. However, it did have some weaknesses. McKnight organized the company into product divisions, each division was set individually with the ability to run independently, but the R&D, human resources, and finance stayed centralized. McKnight's goal was to keep the divisions small, however, when some of the divisions became too big, some of the starting businesses developed into new divisions resulting in high growth rates (Hill and Jones, C363). 3M had to find ways to lower the high growth rates; however, this resulted in 3M losing potential opportunities with innovative products.

In the DeSimone era, 3M encountered many weaknesses. DeSimone met harsh critiques for his leadership from individuals. DeSimone was known as someone with little innovation and a lack of research and development – he was very different from McKnight. Under DeSimone's leadership, in the 1998s and the 1999s, 3M stock prices fell – earnings slumped by 50% (Hill and Jones, C367). 3M was underperforming compared to the market. In the DeSimone era, the

company did not produce new innovative products. The only new products produced consisted of improvements on past products. 3M did not have any mega-hit products since the Post-It Notes. DeSimone was blamed for not pushing the company to reduce costs. For example, in previous years, the company's inventory was turning over by 3.5 times a year (Hill and Jones, C367), but during the DeSimone era, no improvements occurred. During the DeSimone era, 3M's organizational culture suffered – employees were not happy. Employees believed DeSimone had a lack of focus on research, funding future research, and cutting costs of the company, including underpaying employees. 3M's organizational culture of the company was not as successful and innovative as during McKnight's era.

**Case Question 4: The expansion of 3M into international markets was highly successful.****What explains this?**

In 1952, Clarence Sampair was in charge of 3M's international operations and took a huge responsibility for the launch. He and his successor, Maynard Patterson, both set an innovative and entrepreneurial framework that continues to guide 3M's International Operations (Hill C366). A few simple yet key commitments toward successful international operations include:

1. **FIDO -- "First in Defeats Others":** Using the FIDO method is highly impactful towards the success of an international expansion as a first-mover advantage allows for less competition.
2. **Acquire and retain a motivated and talented local workforce:** Acquiring the right people helps to accelerate the development of talent. In order for a company to grow, employers not only need the best employees but the right individuals who would stay engaged and committed to organizational long-term goals. Furthermore, local citizens are customized to local requirements.
3. **Become a good corporate citizen of the country:** This allows for a higher-quality delivery as corporate citizenship optimizes the core competencies to address opportunities and goals that meet a business's environmental, governance (ESG), and social aspects.
4. **Grow with the local economy:** While the economy is growing, the company must maintain a growth rate that matches the local economy. In other words, the growth rate of productivity and labor inputs and the overall production of goods and services is growing with the local economy.

5. **Avoid one-size-fits-all products:** 3M understands that each country, market, and demographic is different, and for that, they know the importance of developing a global brand marketing that tailors products to fit and cater to individual local trends and needs.
6. **Enforce patents in local countries:** Enforced patents are necessary to protect intellectual property.

Aside from 3M's framework, they have managed to integrate technology and products that are valuable in foreign markets where incumbents lack. Additionally, 3M has a wide range of products that enables the company to establish a presence and cater to every phase of the market's economic growth and environmental and social issues. For example, 3M sells respirators in China to aid against air pollution, offers India solutions to congestion problems with pavement markets and sign sheets, and biodegradable surgical drapes in Europe (Team Trefis). As 3M continued stepping into the international market, the company expanded the company's R&D presence. This allowed for the innovation of new products and business initiatives outside the United States. Undoubtedly, due to 3M's strategic, innovative, and entrepreneurial framework and its focus on getting the mix of global scale while simultaneously maintaining 3M's traditional local market differences and decentralizing R&D, the expansion of 3M into international markets turned out to be incredibly successful.

**Case Question 5: What was the drawback of 3M's international expansion strategy?**

In 1951, 3M decided to expand globally. 3M created an international division where it established multinational companies in Australia, Brazil, Canada, France, Germany, Mexico, and the United Kingdom (Lestor, Nicholson). Clarence Sampir was responsible for 3M's international operations and the processes of launching them. Sampir, together with Maynard Patterson, worked together to lead 3M's global operations successfully. Sampir and Patterson followed a few commitments when expanding internationally. Some of these commitments are hiring talented and local people, becoming a good corporate citizen of the country, growing with the local economy, and tailoring products to fit local needs (Hill and Jones, C366). From the commitments Sampir and Patterson followed, we can identify that the international expansion strategy that 3M followed was a localization strategy. In a localization strategy, companies focus on customizing the company's products or services to provide a favorable match to the preferences of individuals in different national markets. Finally, 3M made sure to make adjustments to their products and services to fit the local needs of each country.

The drawback of 3M following a localization strategy was that, because this strategy focuses on the cultural and purchasing habits of individuals in a specific country, 3M faced challenges and increased pressures in providing a good customer experience to consumers. For example, 3M needed to be careful how they portrayed their products to be known and accepted by customers. As a result, the company had to be sure to understand the culture or language of each country because if any simple mistake was made that could offend the individuals living in that country, then 3M carries the risk of receiving a negative brand image and losing potential customers.

3M was also liable to local laws and regulations. The company had to be careful when introducing new products and services to a country. They needed to be sure to know and

understand the local laws and regulations in every country and be sure to follow them not to have to deal with any consequences. For instance, the European Business Center was created in 1991. This center oversaw 3M's business across Europe and, most importantly, paid attention to the local country's requirements.

3M had to change organization forms – they moved from a country-by-country management structure to more regional management to realize scale economies. The company had to alter organizational forms because of the environmental changes that happened between the 1980s and the 1990s. Some of the environmental changes include the fall of trade barriers – which led to the rise of regional groups, such as the European Union and NAFTA, and the Asian economic crisis – this exposed the high costs of 3M, and competitors pursuing a global strategy, (Hill and Jones, C367).

Lastly, 3M began to transform into a transnational organization in hopes of dealing with competitive pressures while still maintaining local responsiveness and decentralizing research & development capabilities to help drive down costs.

**Case Question 6: By the 1990s, 3M was starting to develop some problems. What were the causes of these problems?**

Joining 3M as a manufacturing engineer in 1958, Livio D. “Desi” DeSimone rose to leadership and was appointed CEO in 1991 (Johnson). After experiencing a 60% rise in sales in the second half of the 1980s, things took a turn for 3M when DeSimone was faced with the 1990–1991 recession and stiff price competition (Kelly). Despite those unfavorable circumstances, DeSimone was initially praised for guiding 3M in the early 1990s recession with annual sales growth of 2% from 1991 to 1993 (Kelly). Furthermore, for the first time in 1992, foreign sales accounted for 50% of 3M’s total sales revenue (Johnson). In addition, 3M’s performance in the Asian market consists of 27% of their foreign sales (Johnson). However, by the mid to late 1990s, 3M started to experience some problems, causing DeSimone’s leadership to come under fire internally and externally.

One problem that 3M developed is its duplication of resources within its decentralized organization. Historically, 3M pursues organic diversification within the company by splitting divisions when they become too big. Although smaller divisions encourage employees to think and act entrepreneurially, this led to a wide range of product lines that 3M had to manage by the 1990s (Hill and Jones C363). As a result, 3M had to spread its R&D resources thinly, causing promising product lines to be underfunded. Additionally, in 1992, 3M’s vast array of business divisions led to deeply frustrated customers as 10–20 representatives would call on the same customer (Hill and Jones C365). Overall, it is evident that 3M’s decentralized organization and duplication of resources meant high costs. Management’s inability to handle its cost structure efficiently will inhibit 3M’s ability to recognize scale economies.

Another issue that 3M faced was that by 1995, inventory was turning over 3.5 times per annum – which is below average for the manufacturing industry (*Forbes*). An explanation of

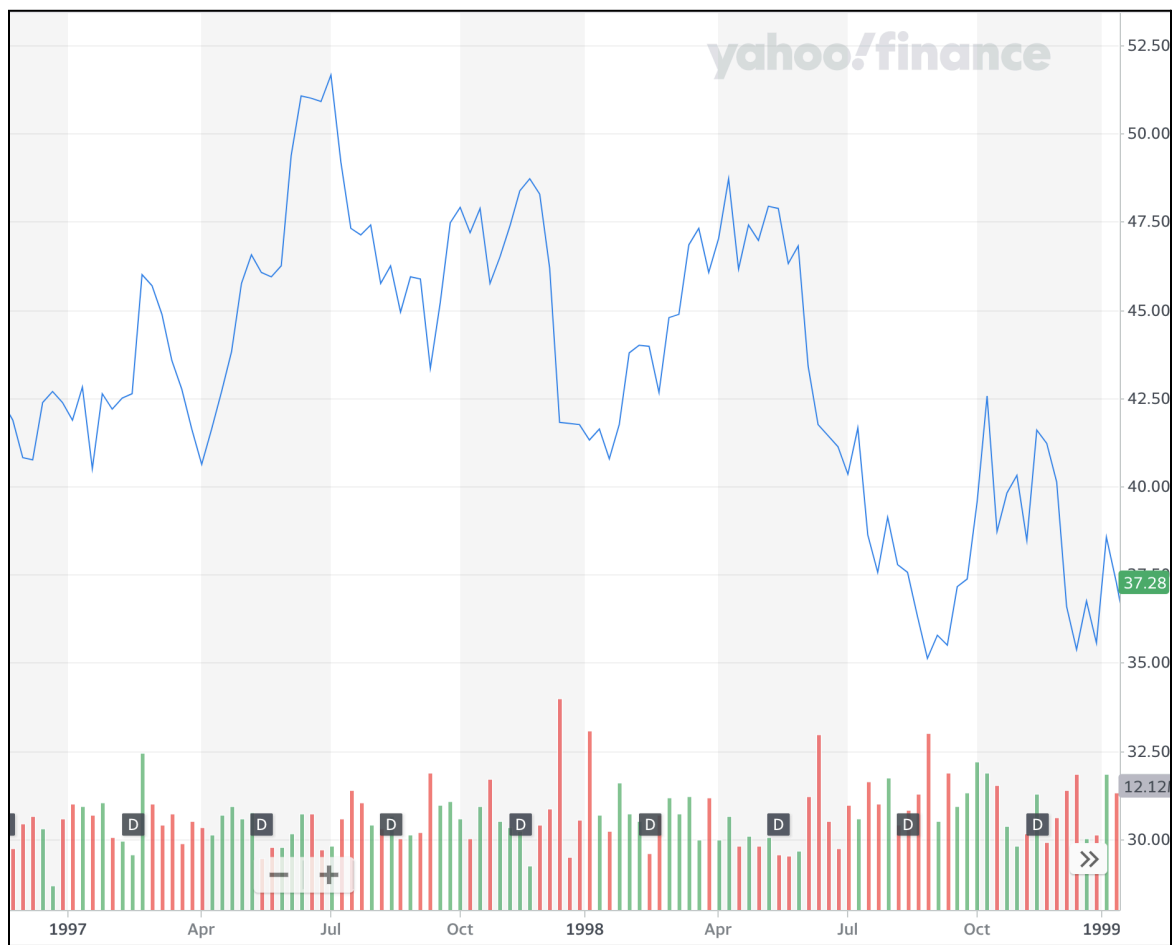
why 3M could not sell as much of its inventory in the 1990s was that it had not produced any new megahit product since its 1980s introduction of Post-It Notes. The “new” products that 3M released in the 1990s were merely minor improvements over its existing products (Hill and Jones C367). If 3M had increased its inventory turnover by 0.5 points to 4 times per year, it would have reduced its working capital by \$700 million.

By 1998, 3M was also facing mounting pressures from its investors for not meeting its expected earnings target. In particular, 3M is dealing with declining sales in Asia due to the devaluation of Asian currencies. Also termed the “1997 Asian Crisis,” the weakening value of the yen and other Asian currencies against the rising value of the U.S. dollar is disproportionately hurting 3M’s profit margin (Quintanilla). In other words, as the Asian currency loses value, it makes it difficult for 3M to sell its products to “Asian customers, who are already paying more for every dollar” (Quintanilla). The 1997 Asian Crisis was problematic for the company since 17% of its revenue and 23% of its net income came from Asian markets (Quintanilla). Despite growing pressures from Wall Street for 3M to leave the Asia region, DeSimone states, “we have the ability to withstand difficult periods (...) We’re part of the Asian economies, and we’re tough enough to go through a rough period and come out stronger” (3M century of innovation book”, 191).

Many commentators and analysts criticized DeSimone’s slow and sluggish response to the Asian crisis, and as a result, its earnings slumped by 50%, and its stock price fell. Figure 3 highlights that from its height in 1997, 3M’s stock was trading at approximately \$51.66 per share, and at its lowest in 1998, stocks were trading at \$35.11 per share (*Yahoo! Finance*). Additionally, it is noteworthy that in 1998, while investors expected 3M to earn \$1.05 per diluted share, the company was expected to reach 90 to 94 cents a diluted share, down from its previous

99 cents a share (Quintanilla). These underperforming financial metrics underscore 3M's inefficient processes in the 1990s.

**Figure 3 3M's Stock Price from 1997 to 1999**



In short, the 1990s is referred to as the “DeSimone Era” for 3M. Having an extensive manufacturing background and being a long-time employee of 3M, Desi DeSimone rose to leadership and was appointed CEO of 3M in 1991. Although initially praised for guiding 3M during the early 1990s recession, by the late 1990s, DeSimone’s leadership came under scrutiny. Due to the criticism of DeSimone’s poor leadership, such as the lack of new, innovative products, sluggish response to the 1997 Asian crisis, and the duplication of resources, 3M started to

develop some problems within the company. In this, 3M's stock price fell, and its earnings slumped by 50% in the late 1990s.

**Case Question 7: Why did 3M's board hire an outsider, McNerney, to run 3M after DeSimone. What is McNerney trying to do at 3M? What are the pros and cons of his approach?**

Due to criticism of DeSimone's slow and cautious decision-making, 3M needed a cultural shift to withstand the industry's competitive environment. In 2001, outsider Jim McNerney was selected by the 3M board to become the next CEO as they believed an insider would be hesitant to make any massive structural or cultural changes (Hill and Jones, C368). Due to his experience and knowledge from his time in General Electric, McNerney was added to boost 3M's efficiency and profit margin.

McNerney's effort improved efficiency via restructuring the allocation of resources, the six-sigma process, and the e-productivity program. His restructuring effort started with cutting 5,000 jobs, about 7% of the workforce, to save \$500M per year (Hill and Jones, C369). He then targeted fast-growth businesses and directed cash flow from struggling businesses to these growing ventures. Cash from mature businesses was used to fund growing one, essentially funneling money into promising ideas and cutting funding to weaker development projects. He also streamlined 3M purchasing processes by reducing the number of global packaging suppliers from 50 to 5 suppliers. He also withdrew the "30% sale" requirement for SKI within this effort. Many analysts worried that his action could create problems for 3M innovation culture as Post-it Notes, their most popular product, was an unexpected innovation that the creator made to reach SKI (Hill and Jones, C368).

Six-sigma was brought in with McNerney from his time in General Electric. It is a quality control process that works to improve processing and cost-saving. The approach focuses on improving cash flow, lower costs, and increasing growth rates. McNerney's effort with six-sigma prioritized customer needs, reduced process variation, and used financial results to analyze

projects. By 2003, 7,000 Six Sigma projects were in place to generate \$800 million in cash. This was predicted to increase to \$1.5 billion in 2004. His efforts in the E-productivity program were used to boost productivity via informational technology (Hill and Jones, C369). The digitalization range of processes included customer payment, supply chain management, inventory, and employee processes. This method allowed for the management of information between customers and suppliers and allowed for \$100 million in annual savings.

McNerney realigned 3M's original management structure to focus on product and global market. His efforts in improving management and growth capabilities revolved around introducing performance-oriented programs; such as the Six Sigma training that coached 20,000 employees by 2003, the Advanced Leadership Development Program that trained 400 higher-level managers, and the Executive Leadership Program in which all top managers graduated from (Hill and Jones, C369). His centralized corporate R&D effort focuses on filling high growth areas that 3M has no presence. 3M's Acceleration Program reallocated resources to prioritize faster-growing markets and boosted product growth (Hill and Jones, C370).

The pros of McNerney's time in 3M are shown in the improved resource allocation and higher productivity that allow for higher profit. He focused on a fast-growth market that would produce more profit-driven products. Thus by the end of his time in 3M, the company reported a 12 percent increase in its net income. Acquisitions were also more common under McNerney's time at 3M. Thus, the company expanded its portfolio and revenue (Johnson). The con to McNerney's time in 3M would be the potential harm to the company's innovative culture due to decreasing presence in research of new and emerging technology and lack of focus on resources in a slower-growing market.

Near the end of his leadership role, 3M's saw a slight revenue increase, and net income increased by about 20%. Overall, McNerney's performance provided more benefits than

consequences for the company, especially during a difficult economic environment. But in 2005, McNerney left to take a position at Boeing.

**Case Question 8: What is 3M's strategy to spend on human capital, and what can it do to compare its metrics with competitors?**

Firstly, 3M's HR mission is to "provide workforce and organizational solutions to accelerate strategy execution and drive operational excellence" (Paul & Schneider, 9). 3M's strategy development on human capital aligns with the company's mission and values. One of their strategies is to engage employees and strengthen their employment brand. In doing so, they enable effective human capital planning that helps to increase workforce productivity. 3M enhances the ability to acquire and retain the right workforce and accelerate talent development. This is necessary for a company to succeed and grow as employers not only need the greatest employees they can find but individuals who stay engaged, curious, and committed to 3M's long-term goals. 3M also optimized HR administration by providing a rich variety of global web forms and call centers to create a pool of functional thoughts and ideas. For example, 3M uses Valtera, a fully integrated online survey platform that provides human capital consulting and technology solutions in surveys, employee engagement, legal support, and more for hundreds of thousands of participants in a single wave. This pool of practical ideas is then nurtured into opportunities and provides 3M with the necessary resources for great success. 3M has also designed compensation and benefits plans for its employees to meet evolving business needs. This was believed to increase loyalty in a company, especially if they have a stake within it. 3M gives the employees opportunities by supporting them and assisting them to learn and flourish.

3M has its strategies for human capital; however, what can 3M do to compare its metrics with competitors? 3M could invest a generous amount in spurring innovation, assuming better and more efficient work strategies that will give the organization a competitive edge. They can promote the 15 percent rule that permits employees to spend 15 percent of their work time on experimental projects. They can add compensation incentives to encourage this rule. 3M could

also focus on lead users. Lead users are a precious cluster of customers that can contribute to plenty of opportunities and evaluation of emerging concepts. This helps increase innovative progress by individuals who seek to develop breakthrough products. 3M can also compare its metrics with competitors by setting productivity targets and comparing them to competitors. 3M can set their employee objectives and consider the possibilities to enhance employee productivity or even have an evaluation done regularly to track the progress of their current objective. Furthermore, everyone knows leaders should delegate to ensure employees are working on the right projects and deliverables; however, overly delegating the authority leaves employees feeling abandoned and unmotivated. Therefore, 3M must not overly manage by charging too much authority. These are the several actions 3M can consider to compare its metrics to its competitors.

## **Conclusion**

As a whole, 3M's culture of entrepreneurship and innovation nurtured its overall success throughout the years. From humble beginnings to becoming a multinational conglomerate, 3M has evolved in outlook and strategies. Yet, the company prioritizes innovation and perseverance within its employee culture. Alongside having segments in Safety and Industrial, Transportation and Electronics, Consumer, and Health Care, 3M's product portfolio of over 60,000 products emphasized the company's competitive advantage.

From development strategies such as the 15 percent rule to the corporate-level horizontal integration strategy, 3M has foreseen internal development and global expansion as forefront approaches. The company's history of acquisitions allows for increased profitability through the diversification of its firms. For example, 3M recognized economies of scope and leveraged the subsidiary's capabilities. By utilizing notable strategic partnerships and collaboration, 3M highlighted its broad range of industry presence. Through their consumer-centric approaches, it is apparent that 3M's principles of valuing its customers, investors, and employees permeate throughout the entire organization. These values allow the company to establish a suitable environment for innovation and entrepreneurship. In addition, the company's effort in numerous productivity programs and management strategies has expanded its internal development. Overall, 3M's success has been due to the company's culture and intellectual property development.

## Bibliography

*3M Century of Innovation Book.*

[multimedia.3m.com/mws/media/1712400/3m-century-of-innovation-book.pdf](http://multimedia.3m.com/mws/media/1712400/3m-century-of-innovation-book.pdf).

Banker, Steve. "Digitization and the 3M Supply Chain." *Forbes*, 3 May 2017,

[www.forbes.com/sites/stevebanker/2017/05/03/digitization-and-the-3m-supply-chain/?sh=7cf145e041c1](http://www.forbes.com/sites/stevebanker/2017/05/03/digitization-and-the-3m-supply-chain/?sh=7cf145e041c1).

Curran, Jack. "Abrasive and Sandpaper Manufacturing in the US." *IBISWorld*, Dec. 2021,

[my-ibisworld-com.libaccess.sjlibrary.org/download/us/en/industry/561/7/0/pdf](http://my-ibisworld-com.libaccess.sjlibrary.org/download/us/en/industry/561/7/0/pdf).

DiPietro, Ben. "3M Sees Opportunity in Supply Chain Risk." *WSJ*, 15 June 2017,

[www.wsj.com/articles/3m-sees-opportunity-in-supply-chain-risk-1497521413](http://www.wsj.com/articles/3m-sees-opportunity-in-supply-chain-risk-1497521413).

Govindarajan, Vijay, and Srikanth Srinivas. "The Innovation Mindset in Action: 3M

Corporation." *Harvard Business Review*, 6 Dec. 2017,

[hbr.org/2013/08/the-innovation-mindset-in-acti-3](http://hbr.org/2013/08/the-innovation-mindset-in-acti-3).

Hill, Charles, and Gareth Jones. *Case 27 3M – The Second Century* 10th ed., Cengage Learning, 2012.

Hill, Charles, and Gareth Jones. *Strategic Management: An Integrated Approach*. 10th ed., Cengage Learning, 2012.

Hippel, Eric Von, et al. "Creating Breakthroughs at 3M." *Harvard Business Review*, Sept. 1999, [hbr.org/1999/09/creating-breakthroughs-at-3m](http://hbr.org/1999/09/creating-breakthroughs-at-3m).

<https://tracxn.com/d/acquisitions/acquisitionsby3M>.

Johnson, Drew D. "3M Company." *Gale Business Insights: Global*,

[bi.gale.com.libaccess.sjlibrary.org/global/article/GALE|I2501326348/d235e4d7a8f00a63ddb4e7d2de0932c?u=csusj](http://bi.gale.com.libaccess.sjlibrary.org/global/article/GALE|I2501326348/d235e4d7a8f00a63ddb4e7d2de0932c?u=csusj). Accessed 8 May 2022.

- Kelly, Kevin. "The Drought Is Over at 3M." *Bloomberg*, 6 Nov. 1994,  
[www.bloomberg.com/news/articles/1994-11-06/the-drought-is-over-at-3-m](http://www.bloomberg.com/news/articles/1994-11-06/the-drought-is-over-at-3-m).
- Kenney, Matthew G., et al. "The Value of Creating, Maintaining and Sustaining an Intrapreneurial Culture: An Analysis of 3M's Strategic Positioning." *International Journal of Arts and Sciences*, 2010,  
[citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.435.7066&rep=rep1&type=pdf](http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.435.7066&rep=rep1&type=pdf).
- Kippenberger, T. "A Tradition of Innovation at 3M." *The Antidote*, vol. 2, no. 2, 1997, pp. 31–33.  
*Crossref*, <https://doi.org/10.1108/eum0000000006416>.
- Krogh, Lester C., and Geoffrey C. Nicholson. "3M's International Experience." *Research-Technology Management*, vol. 33, no. 5, 1990, pp. 23–27.,  
<https://doi.org/10.1080/08956308.1990.11670685>.
- Miller, Ronald V. "3M Earplug Lawsuit Update." Lawsuit Information Center Blog, 11 May 2022, <https://www.lawsuit-information-center.com/13-million-3m-earplug-verdict.html>.
- N95 Mask Sales Climb, Lifting Revenue as Omicron Drives Demand." *The Wall Street Journal*, Dow Jones & Company, 25 Jan. 2022,  
<https://www.wsj.com/articles/3ms-n95-mask-sales-climb-lifting-revenue-as-omicron-drives-demand-11643136555>.
- Paul, Karen B., and Benjamin Schneider. "3M Human Resources Measurement Engagement: A Multiyear Affair." *SlideToDoc.com*,  
[slidetodoc.com/3-m-human-resources-measurement-engagement-a-multiyear/](http://slidetodoc.com/3-m-human-resources-measurement-engagement-a-multiyear/).
- Person, and Aishwarya Nair. "3m To Continue Price Increases to Battle Inflation, Supply Snarls." *Reuters*, Thomson Reuters, 26 Apr. 2022,  
<https://www.reuters.com/business/3m-quarterly-adjusted-profit-falls-mask-demand-slumps-2022-04-26/>.

- Placek, Martin. "Research & Development Expenses of Emerson 2021." Statista, 17 Jan. 2022, [www.statista.com/statistics/596923/research-and-development-expenses-of-emerson/](http://www.statista.com/statistics/596923/research-and-development-expenses-of-emerson/).
- Quintanilla, Carl. "3M Expects Earnings to Decline Due to Turmoil in Southeast Asia." *Wall Street Journal*, 16 June 1998, [www.wsj.com/articles/SB897914011641016500](http://www.wsj.com/articles/SB897914011641016500).
- Statista. "3M N95 Mask Production Worldwide 2019–2021." *Statista*, 6 July 2021, [www.statista.com/statistics/1232566/global-n95-mask-production-of-3m](http://www.statista.com/statistics/1232566/global-n95-mask-production-of-3m).
- Team Trefis. "3M's Model for Global Expansion." *Nasdaq*, [www.nasdaq.com/articles/3ms-model-global-expansion-2013-12-31](http://www.nasdaq.com/articles/3ms-model-global-expansion-2013-12-31).
- Thompson, Andrew. "3M Industry, Organizational Structure, Management Philosophy - Panmore Institute." *Panmore Institute*, July 2015, [panmore.com/3m-industry-organizational-structure-management-philosophy](http://panmore.com/3m-industry-organizational-structure-management-philosophy).
- "3M's '100-Patent Woman' Audrey Sherman Explains How She Did It." *3M News Center*, [news.3m.com/3Ms-100-Patent-Woman-Audrey-Sherman-Explains-How-She-Did-It](http://news.3m.com/3Ms-100-Patent-Woman-Audrey-Sherman-Explains-How-She-Did-It).
- "3M CO FORM 10-K 2017." *Inline XBRL Viewer*, 8 Feb. 2018, [d18rn0p25nwr6d.cloudfront.net/CIK-0000066740/244bbb40-9914-4fb8-a545-ccc0942951b3.pdf](http://d18rn0p25nwr6d.cloudfront.net/CIK-0000066740/244bbb40-9914-4fb8-a545-ccc0942951b3.pdf).
- "3M CO FORM 10-K 2019." *Inline XBRL Viewer*, 2020, [d18rn0p25nwr6d.cloudfront.net/CIK-0000066740/d02f076e-a2bb-49af-b19b-ad4aebfd51fb.pdf](http://d18rn0p25nwr6d.cloudfront.net/CIK-0000066740/d02f076e-a2bb-49af-b19b-ad4aebfd51fb.pdf).
- "3M CO Form 10-K 2021." *Inline XBRL Viewer*. (2022, February 9). Retrieved May 7, 2022, from [https://www.sec.gov/ix?doc=%2FArchives%2Fedgar%2Fdata%2F66740%2F000006674022000010%2Fmmm-20211231.htm#i04254fc6fdb847859444e33430354842\\_13](https://www.sec.gov/ix?doc=%2FArchives%2Fedgar%2Fdata%2F66740%2F000006674022000010%2Fmmm-20211231.htm#i04254fc6fdb847859444e33430354842_13). "3M's

“3M Company - About Us.” *3M Company*, 2022,  
[www.3m.com/3M/en\\_US/company-us/about-3m](http://www.3m.com/3M/en_US/company-us/about-3m).

“3M Completes Acquisition of Acelity, Inc.” *3M News Center*, 11 Oct. 2019,  
[news.3m.com/2019-10-11-3M-Completes-Acquisition-of-Acelity,-Inc](http://news.3m.com/2019-10-11-3M-Completes-Acquisition-of-Acelity,-Inc).

“3M Completes Acquisition of Scott Safety; Business Enhances Personal Safety Offering.” *3M Investor Relations Press Release*,  
[investors.3m.com/news/news-details/2017/3M-Completes-Acquisition-of-Scott-Safety-Business-Enhances-Personal-Safety-Offering/default.aspx](http://investors.3m.com/news/news-details/2017/3M-Completes-Acquisition-of-Scott-Safety-Business-Enhances-Personal-Safety-Offering/default.aspx). Accessed 12 May 2022.

“3M Named as One of the World's Most Ethical Companies by Ethisphere Institute for 8th Consecutive Year.” *3M News Center*,  
[news.3m.com/2021-02-23-3M-Named-as-One-of-the-Worlds-Most-Ethical-Companies-by-Ethisphere-Institute-for-8th-Consecutive-Year](http://news.3m.com/2021-02-23-3M-Named-as-One-of-the-Worlds-Most-Ethical-Companies-by-Ethisphere-Institute-for-8th-Consecutive-Year).

“3M Partners with Ford to Help Further Accelerate COVID-19 Response.” *3M News Center*,  
[news.3m.com/3M-partners-with-Ford-to-help-further-accelerate-COVID-19-response](http://news.3m.com/3M-partners-with-Ford-to-help-further-accelerate-COVID-19-response).  
Accessed 12 May 2022.

“3M to Advance Operating Model, Improve Cost Structure, and Accelerate Innovation.” *3M News Center*, 3 Dec. 2020,  
[news.3m.com/2020-12-03-3M-to-Advance-Operating-Model,-Improve-Cost-Structure,-and-Accelerate-Innovation](http://news.3m.com/2020-12-03-3M-to-Advance-Operating-Model,-Improve-Cost-Structure,-and-Accelerate-Innovation).

“3M To Invest \$1 Billion to Achieve Carbon Neutrality, Reduce Water Use, and Improve Water Quality.” *3M News Center*,  
[news.3m.com/2021-02-16-3M-to-Invest-1-Billion-to-Achieve-Carbon-Neutrality,-Reduce-Water-Use,-and-Improve-Water-Quality](http://news.3m.com/2021-02-16-3M-to-Invest-1-Billion-to-Achieve-Carbon-Neutrality,-Reduce-Water-Use,-and-Improve-Water-Quality).

“3M United States.” *3M In the United States*,

[www.3m.com/3M/en\\_US/company-us/about-3m/history/](http://www.3m.com/3M/en_US/company-us/about-3m/history/).

“3M Who We Are” | *Introduction Our Corporate Values and Vision Communities Engaging Our Stakeholders Diversity and Inclusion*,

<https://multimedia.3m.com/mws/media/1393026O/2017-sustainability-report-who-we-are-section.pdf>. Accessed 10 May 2022.

“Acquisitions by 3M.” *Tracxn*,

“Honeywell Form 10-K.” *Inline XBRL Viewer*, 11 Feb. 2022,

[www.sec.gov/ix?doc=%2FArchives%2Fedgar%2Fdata%2F0000773840%2F000077384022000018%2Fhon-20211231.htm](http://www.sec.gov/ix?doc=%2FArchives%2Fedgar%2Fdata%2F0000773840%2F000077384022000018%2Fhon-20211231.htm).

“MMM.” *CNNMoney*, Cable News Network,

<https://money.cnn.com/quote/profile/profile.html?symb=MMM>.

“MMM Interactive Stock Chart | 3M Company Stock.” *Yahoo! Finance*, Yahoo!,

[www.finance.yahoo.com/chart/MMM](http://www.finance.yahoo.com/chart/MMM)

“Nike and 3M Collaborate on Iconic Sneakers.” *3M News Center*,

[news.3m.com/Nike-3M-Collaborate-on-Iconic-Sneakers](http://news.3m.com/Nike-3M-Collaborate-on-Iconic-Sneakers). Accessed 12 May 2022.

“Too Much Doodle?” *Forbes*, 19 Oct. 1998,

[www.forbes.com/forbes/1998/1019/6209054a.html?sh=6329e39ad71b](http://www.forbes.com/forbes/1998/1019/6209054a.html?sh=6329e39ad71b).