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PROTECTING THE CONSUMER

Product Safety and Marketing

The responsibilities of business demand leadership. Leadership by its very nature is highly visible. In February of 1974 then Chairman [of General Motors] Richard C. Gerstenberg told an audience of investors, educators, and the press “We must do well before we can do good.” The gist of his message was that the corporation had to make money—profit—before it could exercise its public responsibilities. This may sound naïve to many but the opposite is true. That by doing good, exercising a role of leadership and public responsibility, General Motors, or any American business, will do well and promote its long-term health and viability.

—John Z. DeLorean¹

LEARNING OBJECTIVES

Upon completion of this chapter, you should be able to:

- 8.1 Articulate the corporation’s economic, legal, and ethical obligations to different stakeholders, especially customers.

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- 8.2 Describe the moral dimensions of marketing decisions.
- 8.3 Apply the DRJ model to examine the ethical basis of duties of disclosure and product safety.
- 8.4 Manage and respond to product safety controversies.

The last chapter reviewed the duties of pharmaceutical companies to provide products that are safe, effective, and affordable. The theme of duties to customers continues in this chapter. The case studies in this section look at several critical consumer issues, including responsible marketing and product safety. The primary purpose of these cases is to help aspiring managers understand the moral aspects of marketing and to recognize, analyze, and respond to product safety issues.

What is the scope of the corporation's obligations to its customers? Two general but contradictory philosophies have prevailed: *caveat emptor* and *caveat venditor*. Under *caveat emptor* ("let the buyer beware") corporations have narrow responsibilities, and the burden is on the consumer to be circumspect about the products they choose to buy. Savvy companies will certainly attempt to win the customer's business by meeting his or her expectations by providing reliable and reasonably safe products, but consumers are generally at the mercy of market forces. If consumers demonstrate a willingness to pay for safer products, companies will make their products with added safety features. However, if they show no preference for safety, they will not get these features unless government regulators intervene. In recent decades, however, there has been a demonstrable shift to the philosophy of *caveat venditor* ("let the seller beware"). The reason for this shift is the asymmetry between the seller and the buyer. Sellers know far more about their products, including their risks and possible defects, than the buyer. Hence the seller has a duty to exercise "due care" to protect consumer welfare. Products should perform as promised. They should be reliable, function "as advertised," live up to the claims of their service life, and be safe. A product is safe if its risks are known to the consumer and they are judged to be acceptable or reasonable by that consumer based on the benefits he or she expects to receive from using that product.²

Companies also have an obligation to avoid or restrict the sale of "predatory" products that are highly dangerous. This product category includes addictive substances such as cigarettes. Some predatory products are banned altogether while others are confined to a subset of customers. The sale and marketing of these predatory products raises many ethical concerns. Should customers even be allowed to assume the risk of consuming these products? Do companies have ethical responsibilities to their customers to refrain from marketing these products or even remove them from the market?³

Most companies seek to win new customers or induce customers to switch from competitors through commercial advertising. The purpose of advertising is to provide consumers with product information and persuade them to purchase that product. Advertising works by creating a desire for the seller's product or by fostering a belief that this product

is the best means to satisfy some desire the consumer already has. Advertising has been condemned for being manipulative because it plays on people's perennial desires for "social acceptability" or "personal beauty." The debate about manipulation is one that cannot be opened here, but advertisers have ethical duties to avoid deception because it impairs consumer autonomy. In Kantian terms, deception that interferes with autonomy implies using the person as a means to achieve the goal of higher sales. However, it is not always easy to draw the line between deceptive ads and those with harmless puffery or hyperbole.⁴

AN OVERVIEW OF THE CASES

This set of cases on duties to the customer begins with a history of the controversial tobacco industry in the United States, which reviews the industry's growth, especially during the first half of the 20th century. This case also chronicles the epic struggle between the tobacco industry and government regulators once the causal link between cancer and cigarette smoking was established. Also reviewed in this briefing is the moral propriety of the targeted marketing campaigns deployed by companies like Philip Morris and R. J. Reynolds, which were desperate to attract new customers. Campaigns like "Joe Camel" seemed to cross the line by appealing to young children and impressionable teenagers. Also explored are hostile public policies, which imposed major restrictions on the industry, along with a brief discussion on the industry's current structure and challenges.

This industry overview is followed by a case study about the latest chapter in the "smoke wars" between the industry and regulators. In some countries, such as the United Kingdom and Australia, government regulators have mandated that cigarette manufacturers abandon their fancy packages for plain ones without logos such as the Marlboro red-and-white chevron. Those plain packages come with graphic warnings about the dangers of smoking. Will this trend continue and spread to the United States? And should tobacco companies switch to plain packaging for the sake of placating policy makers who want to suppress any vestiges of marketing tobacco products in order to further limit smoking consumption?

The chapter continues with a briefing on the history of the automotive industry in America. It includes a summary of the chief safety disputes in the industry such as the Ford Pinto debacle and the problems with the ill-fated Chevy Corvair. For many decades, automobile manufacturers did not take product safety seriously enough, and industry executives became masters at shifting blame. In their view, bad or negligent drivers, not vehicles, caused accidents. Is there any evidence that attitudes about safety have sufficiently evolved or that the industry has a higher level of "safety consciousness"? The briefing concludes with a look ahead at some of the potential controversies surrounding the driverless cars of the future.

The next case details General Motors' faulty ignition switch, which led to the recall of almost 5 million Chevy Cobalt cars in 2014. The company even faced criminal charges for covering up the defect. Consumers began complaining about the ignition switch in 2005, but GM never took adequate steps to investigate or resolve this safety problem. Failures to communicate within the organization and a sense of moral indifference seemed to contribute to GM's poor handling of this catastrophe which has exposed it to hundreds of potential lawsuits.

The second case on automotive safety examines Takata's defective airbag. The Japanese company has been in the crosshairs since 2014 for these dangerous devices which can disperse shrapnel throughout the vehicle when they are activated. The company initially resisted the efforts of regulators to replace all the malfunctioning airbags, and some of its managers falsified test results. What happened at Takata, the leading manufacturer of safety airbags, and why did this matter go unresolved for such a long stretch of time?

The final case in the chapter reviews the safety problems associated with the Samsung smartphone known as the Note 7. The popular phone, the leading competitor of Apple's iPhone, sometimes spontaneously erupted into flames thanks to a faulty battery. Samsung responded slowly to these problems but eventually orchestrated a comprehensive recall. The company has struggled to rebuild trust with consumers and overcome the adverse economic impact of this untimely product safety controversy.

BRIEFING: SPOTLIGHT ON THE TOBACCO INDUSTRY

Since the 1964 surgeon general's report indicating a strong link between cancer and cigarette smoking, the tobacco industry has faced a stressful and hostile business environment. Out

of concern for the health and welfare of its citizens, policy makers throughout the world have enacted many punitive measures to curtail smoking. These include high excise taxes, age requirements, and substantial restrictions on advertising and promotion. The end result has been a massive decline in cigarette consumption. Nonetheless, more than 15% of American adults smoke cigarettes on a regular basis, and there are still 1 billion smokers throughout the world. Despite all this turmoil and bad publicity, the industry continues to find new ways to lure customers, sometimes deploying questionable methods. Although their established

brands are cash cows that require little investment, the major firms have not abandoned their marketing strategies or product innovation efforts.

Before it exposes the current challenges for the cigarette manufacturers, this industry overview will explore the dynamics of the tobacco industry and its quest for continued viability. How responsibly has this industry coped with the social and ethical challenges that have complicated its business plans and strategic decisions? Was it ethical, for example, to aggressively pursue foreign markets where there were fewer advertising restrictions? Is target marketing to susceptible segments of the population morally permissible? What should companies like R. J. Reynolds and Philip Morris have done differently? The following analysis investigates these and other questions, but we begin with a broad historical overview.

Industry Origins and Growth

The modern cigarette was invented by James "Buck" Duke. His North Carolina company, W. Duke Sons & Company, made chewing tobacco and other products, and first began



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producing cigarettes in 1879. Human cigarette rollers were soon replaced by the Bonsack machine, which could produce 100,000 cigarettes a day. W. Duke Sons & Company became American Tobacco, which immediately appreciated the benefits of heavily promoting its products. By 1890, it was already spending close to \$1 million on advertising. Other competitors joined with American Tobacco to form a Tobacco Trust. The trust was dissolved in 1911 because it violated the Sherman Antitrust Act. After the “trust bust,” there were 16 small firms competing for customers. Those companies eventually evolved into the Big Six, which have dominated the cigarette market for almost a century.⁵

In 1913, one of the Big Six, R. J. Reynolds, introduced the first national branded cigarette known as Camel. This non-filter-tip brand quickly captured a 35% market share. Its broad mass appeal was attributed to its mild taste and especially to the clever “Coming of the Camel” advertising campaign. Soon after the successful debut of Camel, L&M brought Chesterfield to the market and the American Tobacco Company introduced Lucky Strike. Both were heavily advertised and soon became national brands that rivaled Camel’s market power. American Tobacco spent more than \$100 million advertising Lucky Strike during the brand’s first 10 years.⁶ The “Reach for a Lucky” campaign introduced around 1925 was a huge success. By the mid-1920s, R. J. Reynolds, American Tobacco, and L&M had accumulated an imposing 80% share of the expanding cigarette market. Lorillard’s Old Gold made its mark but never achieved the popularity of the other three brands. However, years later, Lorillard would have a big success with its menthol brand, Newport.⁷

These four major tobacco companies were soon followed by Brown Williamson, which launched two new brands, Viceroy and Kool, the first menthol cigarette. Finally, in 1932, Philip Morris joined these five companies by introducing its elite Marlboro brand, which was originally pitched to women because of its “ivory tips.” Philip Morris remained the smallest of the six companies until it transformed Marlboro into a virile man’s cigarette in the 1960s. Through World War II, three brands, Chesterfield, Camel, and Lucky Strike, continued to rule the U.S. market. The industry reached its peak during the 1950s, when Americans consumed more than 350 billion cigarettes per year.

By 1975, the Big Six accounted for 99.8% of the market. This was a powerful oligopoly that controlled virtually every aspect of the value chain. There was little price competition among these popular brands, and companies competed on the basis of marketing and limited product innovation. The cigarette is really no more than a commodity, so sales were driven by aggressive advertising and other creative promotions.⁸

Companies like American Tobacco and Philip Morris had followed Reynolds’s early example and invested millions of dollars to build their brands. There seemed little doubt that in the postwar consumer culture, demand could be generated and directed by the marvels of advertising. As a result, cigarette brands like Camel and Lucky Strike became iconic fixtures in American culture and became extremely valuable. According to *Fortune* magazine, “There can be little doubt that if Reynolds, Liggett & Myers, or American had to give up either their secret formulas or their brand names, they would keep the brand names.”⁹ In the 1980s, despite the rise of health concerns, advertising and marketing expenditures averaged about \$2 billion per year.

Thanks in large part to the success of its flagship Marlboro brand, Philip Morris’s market share surged from 11.3% in 1950 to 37.9% in 1987, when it overtook R. J. Reynolds as the undisputed market leader in the industry. The power of advertising and promotion was not lost on Philip Morris. In the 1950s, Marlboro was repositioned as a man’s filter

cigarette. In 1962, new ads depicted cowboys on the open range beckoning smokers to come to Marlboro country “where the flavor is.” This innovative “Marlboro Man” ad campaign rapidly propelled Marlboro to be the number-one brand in the United States.

Other popular brands in the 1970s and 1980s included Winston (RJR), Salem (RJR), Kool (Brown and Williamson), and Camel (RJR). But these products now had to contend with the potent appeal of Marlboro Man, who would not shrink from facing up to anxiety about the risks of smoking. According to Brandt, “Rarely, if ever, had marketing so brilliantly combined American values, traditions, and symbols with a promotional message. The campaign offered images rich in denial and escapism, in reassurance and immortality. The Marlboro Man would find an enduring place at the American campfire.”¹⁰

The decline in demand that began in the 1970s thanks to health concerns had little adverse effect on the industry’s ability to generate large profits. Well-established brands such as Marlboro were entrenched cash cows with a dedicated customer base and low production costs. This steady stream of profits provided Philip Morris with the capital necessary to diversify and to make strategic acquisitions such as Miller Brewing Co. and Seven-Up. Philip Morris successfully used its marketing acumen to revive dormant brands such as Miller, although it had less success with Seven-Up. R. J. Reynolds diversified into the food business with its takeover of the cookie maker Nabisco in 1985. A subsequent leverage buy-out created RJR Nabisco Corp. However, in 1999, the cigarette business was spun off, so Reynolds was once again just a tobacco company. As the new century dawned, the industry was on the brink of a wave of consolidation that would reshape the tobacco business.¹¹

Health and Safety Issues

As far back as the 1930s, many doctors and scientists had strong suspicions that cigarette smoking was hazardous to a smoker’s health. But there was only anecdotal and insufficient evidence to support these suspicions. It took some time and commitment to accumulate more objective and convincing scientific proof. In addition, the tobacco industry vociferously insisted that smoking was safe. They often ran ads like “More Doctors Smoke Camel” to reassure present and future customers. However, by the mid-1950s, researchers had gathered empirical proof of the strong connection between cigarettes and cancer. After a study commissioned by the American Cancer Society in 1954, one of the study’s authors declared that “all the evidence to date certainly points strongly to the conclusion that cigarette smoking does increase the probability of developing lung cancer.”¹² The growing consensus about the dangers of cigarette smoking would soon pose an existential threat to the whole thriving tobacco industry.

The public was barely cognizant of these dangers, but that situation changed dramatically during the Kennedy administration (1960–1963). In response to mounting political pressures, the surgeon general, Luther Terry, formed a committee in 1962 to study the issue of smoking’s effect on human health. The surgeon general’s report was released to the public in January 1964. In ominous terms, it concluded that cigarette smoking “is a health hazard of sufficient importance in the United States to warrant immediate action.” The report went on to declare that “cigarette smoking is causally related to lung cancer in men; the magnitude of the effects of cigarette smoking far outweighs other factors. The data for women, although less extensive points in the same direction.”¹³ The blunt report took an unsuspecting public by surprise. This was an alarming and unwelcome revelation

to a nation of contented and addicted cigarette smokers. The report was also an economic shock for the tobacco industry and the Big Six. There was an immediate but temporary decline in cigarette sales as well as a decline in the stock price for the major tobacco firms. The resilient industry fought back with its own studies and claims that disputed the surgeon general's findings. As a result, cigarette sales soon began to rebound.

The surgeon general's report, however, was followed by a series of governmental regulatory actions along with research projects to corroborate the report's findings. The Federal Trade Commission (FTC), for example, initiated tar and nicotine studies. By June 1974, 13 major federal laws pertaining to smoking and health were put into place by the federal government.¹⁴ The first of these happened in 1965: the Trade Regulation Rules on Cigarette Labelling and Advertising required a health warning on all cigarette packages, forbade ads directed at youths under 25, and prohibited advertising at schools and colleges. Suddenly the tobacco industry found itself in an adversarial relationship with policy makers. According to Miles, "What had once been fairly benign environment and an unquestionably lucrative domain had now become turbulent, interconnected, and complex."¹⁵

In 1967, the U.S. government mandated that broadcasters run one public-service antismoking ad for every three cigarette commercials. This mandate was followed by additional antismoking legislation, which included the banning of cigarette ads from all broadcast media, including radio and television. The ban was part of the Public Health Cigarette Smoking Act, passed by Congress in 1970. It was challenged by the tobacco industry but ultimately upheld by the Supreme Court. Two years later, health warnings were made mandatory in all print cigarette ads. At the same time, many states began to raise the cigarette excise tax, and some passed laws banning smoking in public buildings. The Federal Trade Commission began to monitor the industry by checking warning labels and studying the effects of advertising content on consumers. Antismoking forces continued to coalesce to create restrictive regulations for the industry.¹⁶

The tobacco industry assumed a defensive and combative posture during this trying period. It continued to insist that smoking was safe, refuting or obfuscating the evidence whenever possible. Industry executives categorically denied that smoking endangered one's health and pointed to the government's lack of conclusive evidence. Edward Horrigan, the chairman of Reynolds, appeared on many television programs claiming that "there is another side to these emotional issues." According to Horrigan, science had still failed to establish a "causal link" between smoking and cancer. Rather, the adverse health effects remain an open case.¹⁷ As Richard Kluger observed, the industry always tended "to dispute, distort, minimize, or ignore the unfolding evidence against it."¹⁸

Despite the protests of the industry, most rational consumers became convinced that the surgeon general's report was quite accurate: cigarette smoking is hazardous to one's health and a leading cause of lung cancer. Complicating the health issues was the fact that cigarette smoking is so addictive. Nicotine enters the bloodstream, affecting the smoker's mood and psychological state. When a smoker attempts to stop, he or she has to deal with painful withdrawal symptoms. Many smokers are so addicted they cannot quit smoking despite their best efforts and fears for their future health.¹⁹ At the same time, industry supporters argue that smoking reduces stress, which often leads to other health problems like overeating. So perhaps, they surmise, the benefits of smoking outweigh or at least offset its costs.

Restrictions on tobacco smoking continued unabated. In the United States smoking was banned from all domestic flights in 1990. At the same time the public's support for the tobacco industry was continuing to steadily erode. Universities like Harvard and CUNY divested their tobacco company investments. Harvard's president, Derek Bok, observed that the university did not want to be associated with companies "engaged in significant sales of products that create a substantial and unjustified risk of harm to other human beings."²⁰ Many other institutions such as California Public Employees Retirement System, the state pension fund, followed suit and accelerated the tobacco divestment drive.

The Tobacco Industry's Strategic Response: A Search for New Markets

How did the tobacco industry respond to this turbulent environment where it was constantly under siege? The Big Six employed a number of defensive strategies to protect their domains. The first was brand proliferation. In 1962, two years before the surgeon general's report, the number of domestic brands on the market was 47. By 1975, there were 100 different brands being sold on the domestic market. Many of these new brands were targeted to small segments of the tobacco market. Marginal brands were quickly eliminated to make shelf space for new brands.²¹

A related strategy was targeted marketing to help sell these new brands. Some of these campaigns, however, were quite controversial. In 1990, R. J. Reynolds introduced a new menthol cigarette called Uptown, which was expected to appeal "most strongly" to blacks. Marketing cigarettes to minorities was nothing new, since billboards with black and Hispanic models could be found throughout many minority communities. But civil rights groups viewed the Uptown brand as an escalation in target marketing that exploited blacks, especially the poor. According to an NAACP leader, "With the poor health of many black folks today, we do not need anything else to cause even more health problems. R. J. Reynolds' targeting of blacks is unethical." For its part, RJR said they were not trying to attract new smokers: "taking away business from our competitors is the only thing that Uptown is about." Nonetheless, the heavy criticism forced Reynolds to cancel the test marketing it had scheduled in Philadelphia and withdraw the brand.²²

On the other hand, the industry demonstrated more success in targeting women smokers. Philip Morris introduced Virginia Slims in the late 1960s, and it remained the predominant brand with women, with a 3.1% market share in 1989. With this in mind, Reynolds sought to market a new brand for women smokers called Dakota. Dakota was aimed at 18- to 20-year-old blue-collar "virile females," white women with only a high school education or less. A marketing campaign was designed to target these young women in an effort to cut into Marlboro's domineering market share without diluting the appeal of Reynolds's Camel brand to males. After test marketing in several cities, however, Dakota failed to yield the desired results, and the brand was withdrawn.²³

In general, while cigarette smoking had continued to decline in the 1980s and 1990s, the industry found it worthwhile to cultivate certain consumer groups, including blue-collar workers, women, and blacks, because these groups were the slowest to quit smoking. Its goal was to use their marketing skills on groups such as the less educated, women, and blacks that were quitting smoking less quickly than the general population.

But women's groups and other industry critics were sharply critical of targeted marketing. According to a spokesperson for the Women vs. Smoking Network, "When you target for marketing, you target for death."²⁴

In one of the most disputed marketing campaigns, R. J. Reynolds introduced Joe Camel. This was a cartoon figure of a camel with an oversized nose, a "smooth character," often depicted wearing sunglasses and a T-shirt or a baseball cap turned backward. Joe Camel always appeared in a "heroic pose," surrounded by palm trees or in a barroom encircled by adoring cartoon women. The campaign ignited consumer interest, and soon Reynolds was spending \$75 million to promote the Joe Camel character.²⁵

It certainly appeared that Reynolds was targeting young people, even underage smokers. The company denied these claims, however, and insisted the Joe Camel campaign was simply conveying that Camel was a fun and exciting brand. But even if youth were not directly targeted, the ads appealed to young people, and Reynolds could not discount the spillover effect on children. Research demonstrated that 51.1% of all preschoolers knew Joe Camel far more than any other cigarette brand. Three surveys concluded that the Joe Camel mascot "was highly effective in reaching children."²⁶ Despite this evidence and the cries of antismoking activists, Reynolds vowed to maintain Joe, and there were good economic reasons for their obstinacy. Thanks to this ad campaign, the market share for the Camel brand was showing steady growth trends. But in 1997, the FTC issued a "cease and desist" order against Reynolds that forbade the use of the Joe Camel figure in ads in magazines or on billboards. Rather than challenge the FTC, Reynolds decided to end the Joe Camel campaign.²⁷

A second strategy of Big Tobacco to compensate for falling domestic demand was the exploitation of opportunities abroad, especially in Asia, where health issues were not taken too seriously by some local governments. Between 1975 and 1995, cigarette consumption in the United States declined by 20%, and companies sought to fill the gap in sales through exports. To some extent, this effort did not represent a major new strategic direction, since the industry had always been committed to the idea of "global brands." As it moved more forcefully into foreign markets like India, the cigarette companies used novel advertising approaches to promote interest in cigarette smoking. In the 1990s, Japan became a lucrative market for foreign tobacco companies. Japanese consumers were attracted to U.S. brands by ads depicting groups of people enjoying a cigarette while engaged in activities like riding a motorcycle or singing songs. For the Japanese smoker, the American cigarette became a symbol of "high style." Antismoking activists blamed these ads for the sharp rise in the number of female smokers in Japan during this decade. Eventually an antismoking movement put an end to these ads and successfully lobbied for other steps to curb cigarette consumption. But for a long while, Japanese and foreign tobacco companies enjoyed a free hand in Japan.²⁸

During the 1990s, the U.S. tobacco industry also found a hospitable environment in Eastern Europe. After the breakup of the Soviet Union in 1989, these Eastern bloc countries like Poland and Czechoslovakia represented fertile new markets with high potential demand. Through heavy advertising of their brands, the U.S. companies sought to use their popular "Western image" to get young people to start smoking. When confronted about these ambitious ad campaigns, Philip Morris executives said that they were only taking advantage of "latent demand" that would exist "whether or not Philip Morris plastered the countryside with posters and billboards."²⁹ Most countries, including those

in Eastern Europe, have since signed on to the World Health Organization's 2003 treaty, which lays out universal standards limiting the promotion and advertising of tobacco-related products.

However, in India, where marketing regulations are slightly more permissive, companies can still advertise at the point of sale. Cigarettes can be advertised on small billboards outside shops where tobacco products are sold. Product displays and advertisements inside those shops or kiosks are also permissible. Some shop owners receive payments from tobacco firms in the form of monthly fees or free cigarettes to put up these “hoardings” or displays that promote a specific brand.³⁰

For the most part, the tobacco companies' foray into foreign countries was a big success and sustained its revenues and profits throughout its travails in the West. Philip Morris, for example, still depends heavily on its Asian operations. During 2013, Asia accounted for 34.2% of Philip Morris's revenue. The company shipped about 301 billion cigarettes to Asia during that year, out of a total of the 880 billion cigarettes sold by Philip Morris globally during the period.

Antismoking activists in Asia and the United States claim that Philip Morris is targeting low-income families within Asia. According to one prominent critic, “The bulk of the smokers in Asia are people with low income so the revenue earnings are from selling an addictive and hazardous product to poor people.” Moreover, Asian governments can afford to spend only small sums of money to stop the spread and prevalence of smoking. People in these countries are also more vulnerable because they lack information about the health risks and dangers of smoking.³¹

Current Industry Structure and Strategy

In 1998, the industry reached a deal with 46 states and the federal government to settle lawsuits from states seeking compensation costs associated with the treatment of smoking-related illnesses. Both sides estimated the payment would be about \$206 billion over 25 years. Industry payments to the “master settlement” have already amounted to about \$120 billion. While the settlement was a financial blow to the industry, it also brought closure to the industry lawsuits over product liability.³²

The industry has also consolidated over the last two decades as scale has become increasingly critical for a mature industry under pressure. British American Tobacco (BAT) acquired its former parent, American Tobacco Company, which brought brands such as Lucky Strike and Pall Mall into its portfolio of products. Philip Morris renamed itself Altria in 2003, as the parent company of Philip Morris USA. Altria spun off its international division, Philip Morris International, in 2008. In 2014, Reynolds purchased Lorillard Inc. to acquire its highly popular Newport brand. Consolidation has rationalized the U.S. market from the Big Six to two predominant players: Altria with a 46.6% market share and Reynolds America with a 33.6% share. Thanks to their scale and market power, these two companies have been able to reduce costs, increase prices, and remain quite profitable. Operating profits of U.S. tobacco manufacturers grew 77% from 2006 to \$18.6 billion in 2016.³³

In 2017, British American Tobacco announced its purchase of Reynolds for \$49.4 billion. International companies have renewed interest in the U.S. market, where they see some opportunities for growth. Aggregate cigarette sales in the U.S. have grown from

\$71 billion in 2001 to \$94 billion in 2015. The deal will give Reynolds better access to faster-growing emerging markets in South America, the Middle East, and Africa, where BAT has a strong presence. It will also give Newport, Reynold's leading brand, a chance to increase its share in the European market.³⁴

Tobacco companies continue to emphasize new marketing campaigns to preserve their customer base and lure new smokers to their brands. Altria, for example, has designed Marlboro Black, a bolder tasting offshoot of the original Marlboro brand, which is aimed at millennials. The lower-priced cigarette represents a “bold, modern take” on the traditional Marlboro brand. According to one description of Marlboro Black, “Think tattoos, black jeans, and motorcycles instead of Stetsons, blue jeans, and horses.” The brand is marketed to young adults through an elegant direct mail campaign that takes the form of a VIP party invitation. Marketing representatives also hand out coupons for \$1 packs at dance clubs and neighborhood bars. The product appeals to young adults for another important reason: it is less expensive than traditional brands. Introduced in 2016, Marlboro Black has already captured a 1% share of the U.S. cigarette market, or about \$320 million in revenues. This fashionable product has given the Marlboro brand new credibility with younger smokers.³⁵

Epilogue

By now, everyone is keenly aware that smoking is unhealthy and likely a contributory cause of diseases such as cancer and emphysema. Tobacco remains responsible for one in nine adult deaths. Despite the health risks and the battery of regulations passed by countries to fight smoking, Big Tobacco has not faded away. Companies continue to contend for market share, to invest in new marketing campaigns, and to innovate by developing reduced risk products such as e-cigarettes.³⁶

The beleaguered tobacco industry has always defended itself based on the premise that consumers are free to choose their products. Smokers willingly assume the risks associated with these products. Free choice is an important principle and cannot be overlooked in the debate about smoking. That argument, however, overlooks the addictive nature of smoking and the limits of free choice. Also, what about the social costs of smoking? Is it right for society to have to bear the burden of medical costs of smokers who contract lung cancer, emphysema, and other calamitous diseases? Are those costs high enough to ban consumption altogether? Such a move seems inconsistent with recent trends to legalize other potentially harmful substances such as marijuana. Arguably, governments should continue on the same path, following a consistent policy of “legalize and discourage.”³⁷

- If you were writing a history of American business, what would you say about the tobacco industry from a moral and social perspective? Is the industry's success a notable accomplishment for free-market capitalism? (Consult Chapter 1 for relevant background on capitalism.)
- Was it right for the industry to engage in “regulatory arbitrage,” that is, to take advantage of weak regulations in emerging economies where it sought to compensate for lost business in the West? Should tobacco companies feel free to advertise in countries where there are no restrictions on ads?

- How do you assess the targeted marketing campaigns of companies such as R. J. Reynolds? What about Altria's new Marlboro Black brand targeted to urban millennials? Which ethical principles support your position?
- What are the tobacco industry's duties to consumers? Given the product's predatory nature, is there a duty to refrain from any kind of marketing?

CASE STUDY 8.1

PLAIN PACKAGING AND THE ONGOING TRIALS OF BIG TOBACCO



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Big Tobacco continues to be the object of restrictive regulations including higher excise taxes, bans on advertising, more pronounced health warnings, and public smoking restrictions. These measures, which have been adopted by both mature and developing economies, are consistent with the World Health Organization's concerted effort to inhibit the prevalence of smoking throughout the world. But do any of these regulations go too far and perhaps even deprive these companies of their "free-speech" or trademark rights?

Governments in the developed world have adopted many diverse tactics to curtail cigarette consumption and dissuade new smokers. They have been successful in stifling ads and marketing promotions, and now they want to do something about packaging. In the tobacco trade, product, package, and promotion are closely linked together. Distinctive packaging has always been one key success factor in the marketing of tobacco products. Packages are carefully designed with reliance on "color experts" and top graphic design artists. American Tobacco spent millions to redesign its Lucky Strike package so it would better appeal to consumers. Marlboro's legendary red-and-white logo displayed on a "crush-proof," cardboard flip-top box has been one of the main factors in the extraordinary success of this famous brand. Few other products have been able to boast of such an enduring achievement of package design and promotion.³⁸

Given the importance of packaging, therefore, it is no surprise that it would become the next target of regulators determined to restrict the remaining traces of promotional efforts by tobacco firms. With smoking consumption in decline and advertising severely restricted, tobacco companies are forced to entice smokers to their products with quality and brand image communicated partly through smart packages. In some countries, like the United Kingdom, the tobacco firms have become quite innovative in designing packages, using vibrant colors like pink to appeal to young women smokers.³⁹

In 2012, a plain-packaging law was passed in Australia. It came under immediate attack by the tobacco industry but survived a lawsuit by British American Tobacco. The Australian law passed amid opposition from some retailers and merchants who saw little benefit from this new restriction. Would a plain package really deter cigarette smokers? According to one report, “The Plain Packaging legislation is not supported by any research or evidence and would have the unintended consequences of job losses and a potential increase in illicit trade with no public health benefit.”⁴⁰ However, supporters of the Australian law argued that the cigarette package clearly promotes the brand image, and hence this law should be an integral part of a comprehensive ban on advertising and marketing.

In May 2017, the same type of plain-packaging regulations went into effect in the United Kingdom. The law was passed in 2014 but delayed by several court challenges. The tough UK law bans branding or promotional messages on all cigarette packs. Thus, the legendary red-and-white chevron will be banished from all Marlboro packages. Cigarettes must be sold in drab greenish-brown packs without any logos or colors. There are large health warnings covering 65% of the package. On the side of each package, there is a message such as “Smoking kills—stop now” or “Smoking Causes Emphysema.” There is also a graphic photo of a diseased lung or a cancerous tongue that further conveys the great health risks of smoking. All cigarette packs must contain at least 20 cigarettes so they can be big enough for all the requisite health warnings.⁴¹

Many other countries including France, Ireland, Hungary, and Norway have passed similar plain packaging laws, so it is likely this trend will spread at least throughout the European Union. The French law also went into effect in 2017. French authorities hope that neutral packages will change tobacco’s image and deter new smokers from taking up the habit. However, the First Amendment and strong free-speech laws in the United States will most likely preclude government regulators from mandating plain packaging, though this result is far from certain.⁴²

The tobacco industry led by British American Tobacco vigorously challenged the UK law, the latest step in a very restrictive regulatory regime throughout the United Kingdom. A ban on newspaper and billboard ads went into effect in the early 2000s, followed by a law that bans tobacco products from being displayed in stores. The industry first took its case to the European Court of Justice (ECJ), but that court ruled that the packaging restriction was lawful. The UK Supreme Court refused the industry’s request to appeal their case any further.

In its defense, the industry has claimed these new plain-packaging laws have infringed upon their trademark and intellectual property rights. By forbidding the use of the trademark on a package, the companies are being deprived of their property without the appropriate compensation. It should be pointed out that while trademark law prevents a trademark from being misappropriated, it does not give someone a positive right to use that trademark. Companies also argued the legislation is unnecessary since, in the words of one spokesperson, “no one starts or continues to smoke because of the color of the pack.” However, these arguments failed to persuade the legal authorities in the United Kingdom and countries in the European Union.⁴³

- Do you agree with this recent trend toward plain packaging? Do the industry arguments regarding their trademark rights seem plausible? Will plain packaging make any difference in reducing smoking consumption?

- Should U.S. policy makers move in this direction? Is this a free-speech issue as the tobacco industry contends?
- Do tobacco companies have a duty to refrain from any kind of marketing?

BRIEFING ON SAFETY AND THE U.S. AUTOMOTIVE INDUSTRY

Ralph Nader's popular book *Unsafe at Any Speed* was a landmark work in the annals of books and articles dealing with the issue of automobile safety. Written in 1964, Nader concluded that the industry was myopic about safety issues and the situation

was not likely to change very much in the immediate future. Indeed, popular cars in the 1960s and 1970s, such as the Chevy Corvair and the Ford Pinto, were notorious for their unsafe designs. For a long time, safety was not a prime concern of automobile manufacturers who attributed accidents to careless drivers rather than to unsafe cars. They refused to believe the improper design and inferior quality of some vehicles was a contributing factor to many fatal accidents. At the same time, the U.S. government procrastinated putting into place a set of suitable safety regulations.

This briefing chronicles the long road to safer cars taken by the major players in the automotive industry along with U.S. policy makers. It also provides some background about the evolution of this industry so current safety issues can be viewed in their proper historical context.

The U.S. Automotive Industry

In the industry's earliest years, Ford Motor Co., founded by Henry Ford, was the undisputed market leader thanks to its famous Model T, nicknamed the "Tin Lizzy." Ford was followed by General Motors, which was founded by William C. Durant in 1908 as a holding company. Initially, General Motors operated only the Buick Motor Company, but it soon acquired several other young car companies including Oldsmobile, Cadillac, and Oakland (which became known as Pontiac). Another round of acquisitions from 1918 to 1920 added Chevrolet and General Motors Trucks to its expanding product range.

Ford wanted the car to become ubiquitous in the United States as a replacement for the horse and buggy. The company committed itself to large-scale high-volume production of the Model T. Accordingly, Ford innovated modern mass-production techniques at his new Highland Park plant in Michigan, which opened in 1910. The assembly line was introduced at that plant in 1914. Mass production led to lower costs and lower prices. By the time the Model T coupe was withdrawn from production in 1927, its price had been reduced to



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\$290, making it affordable for many middle-class Americans. The Model T was challenged by GM's Chevrolet as prospective drivers demanded different styling and new features.

After World War I, there was a striking transformation in the industry. A 1920 recession left an overly ambitious GM with excess inventory and resulted in a cash-flow crisis. Durant, who resigned in 1920, provided little central guidance and no sensible growth plan. Alfred P. Sloan became president of General Motors in 1923 in order to rescue the firm from its severe financial crisis. Sloan developed a new organizational structure that simultaneously emphasized decentralized operations and coordinated controls. Leaders of divisions like Chevrolet and Buick had freedom to operate, but certain controls were put in place to ensure those operations conformed to GM's overall growth and performance plans. Thanks to Sloan's brilliant management, GM took over first place in the industry and Ford fell into second place. GM held that leading market position for many decades.⁴⁴

The third member of the "Big Three" automotive manufacturers in the United States was created during the 1920s. Walter Chrysler, formerly of General Motors, formed the Chrysler Corporation in 1925. The fledgling company's growth was accelerated by the acquisition of the Dodge Brothers company in 1928. Chrysler soon broke into the sizable low-priced car market with its famous Plymouth brand. Chrysler has had an especially turbulent history as the third largest of Detroit's auto companies. It was highly respected in the years after World War II for its well-engineered cars, but it has spent the last several decades "bouncing between highs and lows."⁴⁵

Despite the rise of the automotive industry in Europe thanks to companies like Volkswagen, the Big Three dominated domestic and world markets until after World War II. They were joined by American Motors, which was founded in 1954, but always remained a minor industry player. In the postwar period, demand for automobiles peaked and the industry prospered. Detroit made big stylish "muscle" cars with high-performance V8 engines that were the envy of drivers throughout the world. The Ford Thunderbird, the Cadillac El Dorado, and the Chrysler Imperial became immensely popular and profitable brands.

But as foreign manufacturers made inroads into global markets, quality issues began to plague the industry. By the mid-1960s, American-made cars were being delivered to retail buyers with an average of 24 defects per unit. Federal regulations also upended the industry's cherished autonomy. Controls of emission of pollutants and energy consumption followed the oil shocks of 1973 and 1979. Demand for small, more fuel-efficient cars increased, and Japanese manufacturers like Toyota and Honda did a far better job of meeting that demand than GM and Ford. The industry was a victim of its own success and insularity. As David Halberstam points out,

The weaknesses of the system, the inherent dangers of being a part of a domestic monopoly in an industry open to other countries, had not yet revealed themselves. So, while other areas of the American economy remained competitive, no one challenged the auto industry until the full-scale assault of the Japanese in the seventies. When it finally came, the extent of American vulnerability surprised even those who had been critical.⁴⁶

After peaking at a record 12.87 million units in 1978, sales of American-made cars fell to 6.95 million in 1982 as imports increased their share of the U.S. market from 17.7% to 27.9%.⁴⁷

Japanese manufacturers were particularly adept in penetrating the huge American market. The Big Three struggled to downsize their models in order to meet fuel efficiency standards with poor quality cars such as the Chevy Vega and Chevy Malibu. There were also public embarrassments such as the massive Ford Pinto recall. Chrysler, the weakest of the Big Three and battered by competitive pressures from abroad, found itself in financial chaos in the late 1970s. By 1979, Chrysler teetered on the brink of bankruptcy. But a \$1.5 billion loan guarantee from the U.S. government helped save the company along with tens of thousands of jobs. Chrysler paid off the loans early in the 1980s, when it enjoyed success thanks to its minivans and a family of fuel-efficient autos called K-cars.

In 1980, Japan became the world's leading auto producer, a position it continues to hold. Honda and Toyota remain leading global brands with a high reputation for quality and reliability. In response to these events, the American automobile industry in the 1980s and 1990s underwent a massive restructuring effort, which included the introduction of new technologies to create a new generation of smaller and more fuel-efficient vehicles.⁴⁸ The era of the attractive, gas-guzzling muscle car was over. There was also the beginning of a consolidation trend during this decade. In 1987, Chrysler bought the number-four automaker, American Motors, but the subsequent consolidation prompted another financial calamity that led to a restructuring of the company. In 1998, Chrysler was acquired by Daimler-Benz of Germany and spent the next eight years as part of DaimlerChrysler. It was spun off in 2007 and once again became a stand-alone U.S. company.

The other major manufacturers also purchased or invested in foreign automakers. GM, for example, purchased a controlling interest in Swedish carmaker Saab and in Daewoo Motors. Ford invested in foreign manufacturers of Volvo, Aston Martin, and Jaguar. But under CEO Alan Mulally, Ford divested its interests in these elite brands to focus more intently on strengthening its own brand and enhancing manufacturing efficiency.

After difficult years battling resilient foreign competitors, fortunes improved somewhat in the late 1990s thanks to the popularity of sports utility vehicles (SUVs) such as the Ford Explorer and Chrysler's Jeep Cherokee. These vehicles have much higher profit margins, which helped Ford and GM to fatten their bottom lines. But in 2005, oil prices began to rise again, and demand for SUVs and light trucks suffered. Declining sales put a strain on industry profitability that culminated in near bankruptcy for Chrysler and GM. At the beginning of the 2008 recession, the Big Three were all in fragile financial condition, though Ford had the foresight to raise \$23 billion in cash in 2006 by mortgaging some of its assets. According to conservative estimates, in 2008 the U.S. government directed \$65 billion of taxpayer money to GM and Chrysler to avert financial disaster.⁴⁹ This "bailout," which has been repaid, averted tragic bankruptcies at a time when the U.S. economy was quite vulnerable. The Big Three have enjoyed more prosperous times in recent years. In early 2012, as the U.S. economy showed stronger signs of recovery, demand for U.S.-made cars, including trucks and SUVs, rallied. As a result, General Motors posted a record net profit of \$7.6 billion. Chrysler announced a profit of \$183 million, its first net profit since its near bankruptcy in 2008.⁵⁰

Industry Indifference: "Safety Doesn't Sell"

The first known automobile fatality occurred in 1898, just one year after the automobile was invented in 1897. Since 1900, 3.5 million Americans have been

killed in automobile accidents and over 300 million people have been injured. As automobile sales increased during the early part of the 20th century, so did fatalities. By 1946, automobile sales exploded in the United States thanks to pent-up demand after World War II. At the same time, highway deaths rose to 32,000 people per year. The number of fatalities continued to rise, and some safety advocates and policy makers took notice. The main problem was the so-called second collision after the initial impact of an accident. This was the collision of the occupants with the interior of the car, or with the road if they were thrown from the vehicle. For example, in a serious accident, a driver could be impaled by the steering column. To limit the physical damage from the second collision, safety experts recommended seat belts, collapsible steering wheels, “double-grip” door latches to prevent ejection, and other restraints.⁵¹

But for a long time, the general public regarded automobile accidents and fatalities as part of the “acceptable risk” of driving a car. Hence much of the early advocacy for safety improvements fell on deaf ears in Detroit, home to the corporate offices of the Big Three. During the high-growth era after the war, there was no recognition that safe design was a responsibility of the automobile industry. Safety simply meant safe and careful behavior by drivers. In the mind of Detroit, it had nothing to do with improved safety design (such as “deep-center” steering wheels to prevent impalement) or higher quality. Without the market pressure of demand from consumers for safer cars, safety was not a high priority for the Big Three. According to Joel Eastman, “Automobile manufacturers, echoing the reasoning of the highway professionals, took the position that it was not normal for a motor vehicle to be involved in an accident, and therefore they were under no obligation to design for that circumstance.”⁵² The industry mantra was clear: “cars are safe, drivers cause accidents.” As one General Motors executive exclaimed, “If the drivers do everything they should, there wouldn’t be accidents, would there?”⁵³ Some states such as Massachusetts were considering meaningful safety regulations, but they met with fierce resistance from the industry.⁵⁴

Instead of safety, the industry was far more concerned with design, style, and performance. They wanted to build and sell cars that consumers wanted. At the time, there was big demand for fashionable muscle cars with powerful V8 engines and 300 horsepower. The Chevy Camaro, the Ford Thunderbird, and the Pontiac GTO were all top-selling brands. None of these cars were constructed with safety in mind—they usually had mediocre handling and inadequate brakes. They were designed to accelerate quickly and to appeal to younger drivers who often pushed them beyond reasonable safety limits.⁵⁵ During the 1950s and 1960s, the Detroit oligopoly chose to emphasize annual styling and horsepower enhancements rather than new safety technologies such as seat belts (available in 1959), rollover protection, and disc brakes (introduced by Mercedes-Benz in 1958).⁵⁶

The Safety Crusade Begins

Attitudes about car safety finally began to change in the mid-1960s. Fatalities were on the rise, peaking in 1966 at 51,000 lives lost in car crashes. It was slowly dawning on the public and the media that this was a big problem that needed to be addressed. A catalyst for change occurred in 1965 when consumer advocate and lobbyist Ralph

Nader published his book *Unsafe at Any Speed*. Here was Nader's bleak assessment of the situation:

For over half a century the automobile has brought death, injury, and the most inestimable sorrow and deprivation to millions of people. With Medea-like intensity, this mass trauma began rising sharply years ago, reflecting new and unexpected ravages by the motor vehicle. . . . A transportation specialist, Wilfred Owen, wrote in 1946, "There is little question that the public will not tolerate for long an annual traffic toll of forty to fifty thousand fatalities." Time has shown Owen to be wrong. Unlike aviation, marine, or rail transportation, the highway transport system can inflict tremendous casualties and property damage without in the least affecting the viability of the system. Plane crashes, for example, jeopardize the attraction of flying for potential passengers and therefore strike at the heart of the air transport economy. They motivate preventative efforts. The situation is different on the roads.⁵⁷

The book documented in detail the many egregious flaws of the Chevrolet Corvair models from 1960 to 1963. Before its redesign, this car was infamous for its poor handling and lack of stability. *Time* magazine listed the Corvair as one of the 50 worst cars of all time. The Corvair was distinctive because it was a rear-engine car. There are certain benefits to putting the vehicle's heaviest component behind the rear axle. However, this design produces cars with a tendency to spin out. Chevrolet executives refused to spend the extra money to make the swing-axle rear suspension more manageable. The car had many other problems. It leaked oil profusely and its heating system tended to pump noxious fumes into the cabin. The end result was an unsafe vehicle that was heavily accident-prone.⁵⁸

The remainder of Nader's book focused on other notably neglected safety issues, ranging from poor brake performance to the fate of drivers who were being impaled by noncollapsible steering wheels. In general, Nader hit hard on the theme of poor accident protection. There was a big gap, he argued, "between existing design and attainable safety."⁵⁹ Nader's book and his subsequent safety campaign got a great boost from General Motors itself. The company was caught having private investigators follow him around. GM offered various excuses but all lacked plausibility, and General Motors formally apologized. Thanks to this publicity, by the spring of 1966, *Unsafe at Any Speed* was a runaway best-seller for nonfiction books.⁶⁰

At the same time that Nader's book appeared, Senator Abe Ribicoff held hearings on "Traffic Safety" during the spring and summer of 1965. Among the many issues discussed was GM's lack of attention to the Chevy Corvair's documented safety problems. The hearings raised the profile of automotive safety and showcased a defensive and combative industry, reluctant to confront the challenge of making safer cars.

Thanks in part to the growing higher safety consciousness of the American public, Congress passed landmark safety legislation in 1966: the National Traffic and Motor Vehicle Safety Act, which created the National Highway Traffic Safety Administration (NHTSA). The Highway Safety Act of 1966 was also passed at the same time, and it led to many changes in vehicle design. Thanks to new federal guidelines empowered by this law, vehicles were built with new safety features, including front head restraints,

energy-absorbing steering wheels, shatter-resistant windshields, and safety belts. For example, despite the objections of the automobile industry, in 1968 all passenger cars were required to come equipped with seat and shoulder belts for front seats. This regulation was widely regarded as a monumental step forward for passenger safety. According to NHTSA research, new safety standards, especially the seat belt and the airbag, saved more than 600,000 lives between 1966 and 2012.⁶¹

Subsequent to these laws, there has been a series of government mandates to enhance passenger safety. In 1974, the national speed limit was set at 55 miles per hour. The national maximum speed limit law was repealed in 1995, and the speed limit has since been modestly increased in most states. In 1984, states began to enact laws obligating drivers to wear their seat belts (or face fines). And in 1998, all new passenger cars were required to be equipped with frontal airbags. Airbag technology had been invented decades earlier, and it was commercialized in the 1960s when Mercedes-Benz developed airbags for its vehicles. But this proven safety technology did not find its way into most vehicles until the 1990s, perhaps another sign of safety indifference on the part of the Detroit oligopoly.⁶²

Since the imposition of the airbag requirement, there have been several other key NHTSA mandates. The agency has upgraded roof-crush standards for vehicles. In 2012, the NHTSA required electronic stability control (ESC) in all vehicles. ESC improves a car's stability by detecting and reducing loss of traction. These regulations along with a steady stream of other technological improvements have led to a sharp drop in automotive fatalities. In 1950, there were 70 deaths per billion vehicle-miles traveled, but in 2015, there were only about 10 deaths per billion.⁶³

Nonetheless, the industry has still not demonstrated a capability to recognize and deal promptly with defective cars. There have been numerous safety scandals involving automobile manufacturers like Ford, General Motors, Chrysler, and Toyota along with suppliers such as Firestone and Takata. The Pinto catastrophe still casts a dark shadow over the image of Ford and the entire automobile industry. The subcompact Pinto was a poorly made, unsafe car, subject to explosions and fire in the case of a rear-end collision. As the NHTSA investigative report into the Pinto's rear-end collisions concluded, "The fuel tank and filler pipe assembly installed in the 1971–1976 Ford Pinto is subject to damage which results in fuel spillage and fire potential in rear impact collisions by other vehicles at moderate closing speeds."⁶⁴ The report also indicated that between January 1975 and June 1977, there were 33 fatal Pinto accidents involving fire that resulted in 41 fatalities. After the NHTSA report was issued, Ford announced it was recalling 1.5 million Pintos, but the damage to Ford's reputation represented a huge setback for a company struggling to compete with the Japanese.

In addition to the Pinto controversy, Ford had to contend with safety problems with its popular Explorer SUV about 15 years later. The Ford Explorer was prone to rollover crashes, which were blamed in part on its Firestone tires. Ford acknowledged that it had been slow to detect and respond to the deadly Firestone-Ford combination. Given its reactive response to the radial tire recall in 1978, it is reasonable to assert that Firestone already had a poor safety record. From 2002 to 2010, reports of unintended acceleration in several Toyota models became another tragic example of industry safety problems. At least 56 people were killed because of defects linked to unintended acceleration. The Chrysler Jeep fires, which led to the recall of

1.7 million vehicles in 2013, and Chevy Cobalt's ignition switch debacle brought to light in 2014 are further evidence of the industry's continuing safety problems and its poor responsiveness. General Motors itself found a pattern of incompetence and neglect in its handling of the defective ignition switch. Thus, while progress has been made, new safety defects, inaccurate reporting, and delayed recalls continue to beset the automotive industry.⁶⁵

“Driverless Cars” and the Future of Automotive Safety

Despite enhancements such as airbags, seat belts, ESC, and many other effective safety devices, there are still far too many automotive fatalities. According to the NHTSA, there were 35,000 traffic fatalities in 2015, about 90% of them attributable to human error, including drunk driving. The leading cause of accidents continues to be driving too fast, with “driving under the influence” in second place. Auto accidents also cause over 2 million serious injuries per year.⁶⁶

Many cars now come equipped with high-tech safety gear such as autonomous braking and systems that prevent drivers from drifting out of their lanes. Enabling these safety features are cameras, sensors, and microprocessors. These safety technologies along with autopilot systems are a precursor to the driverless car, which should help reduce fatal automobile accidents. Tesla Motors has introduced a system that provides not only automatic braking and cruise control but also steers the car more actively (and accurately) than other semiautonomous systems. While some say that intelligent cruise control and self-driving vehicles will prevent accidents, others argue these technologies lull drivers into a false sense of security. According to Tesla, “Autopilot is by far the most advanced such system on the road, but it does not turn a Tesla into an autonomous vehicle and does not allow the driver to abdicate responsibility.”⁶⁷

The driverless car, still in its experimental stage, may be the next step in the steady evolution of automobile safety. The industry is certainly convinced that autonomous driving systems are on the horizon. Ford Motor Company announced it would introduce fully driverless cars without steering wheels by 2021. Other automobile manufacturers such as Nissan and Volkswagen have also committed to putting self-driving cars on the road as soon as possible. Eventually this technological race will engulf the entire global automobile industry. Even software giant Google is involved in a project to leverage its software and technology skills to make a driverless car. Carmakers need the cooperation of regulators, who tend to be quite cautious. The first mover in this new market, whether it be a company in Detroit, Silicon Valley, or Singapore, will gain a huge advantage in deploying driverless car technology throughout the world.⁶⁸

These safer vehicles may come along just in time. Within the last few years, car-crash fatalities have been on the rise as people have spent more time on the road and attempted to multitask with their smartphones or other devices. High-tech safety packages and eventually the driverless car can perhaps compensate for the human error and negligence that still cause the vast majority of automobile accidents.⁶⁹

CASE STUDY 8.2

THE CHEVY COBALT IGNITION SWITCH CRISIS

Kelly Ruddy was only 21 years old when she lost her life in a deadly crash on Interstate 81 in Lackawanna County, Pennsylvania, in January 2010. It was a dark and dreary winter night, and Kelly was driving north on the highway near the Bear Creek exit. For no apparent reason and without warning, she suddenly lost control of her 2005 Chevy Cobalt. The car flipped over, and Kelly was thrown from the vehicle. She was struck immediately by passing cars, which had no opportunity to stop. The accident was carefully investigated by Pennsylvania State Police. It was later determined that due to a faulty ignition switch, Mary's car had lost all power, become uncontrollable, and then flipped over, leading to her tragic death.



AP Photo/J. Scott Applewhite

Her parents, Mary and Leo Ruddy, fought General Motors for four years and often met denial and corporate resistance. Finally, in October 2014, they received a large financial settlement for their daughter's death along with an apology from the company. "It took us a whole four years. It was extremely difficult dealing with GM. They just set up road blocks and didn't want to deal with us and give us any acknowledgment," said Leo Ruddy. The distraught father went on to say, "It's ten years too late, they should have did something back in 2004 when they knew about it, our daughter would still be here and still would God knows how many other people."⁷⁰

This case explores the design flaws in the Chevy Cobalt that led to numerous tragic accidents. It also explores the corporate attitudes and bureaucratic morass that prevented General Motors from expeditiously getting at the root cause of the problem.

The Chevy Cobalt and General Motors

The early 2000s were once again difficult times for General Motors and the automotive industry in the United States. From 2001 to 2007, GM's global market share declined from 15% to 13.3%, and the trends for the future were not too promising. In 2005, General Motors lost over \$10 billion, and during that year the company initiated widespread cost-containment measures. The company eliminated 30,000 manufacturing jobs to reduce excess assembly capacity by 1 million units. Despite these measures, in 2007, GM was still losing \$729 per vehicle. Against this backdrop, GM sought to develop a more successful line of compact cars to shore up the declining sales of its trucks and SUVs. Rising gasoline prices increased consumer

demand for smaller and more efficient vehicles, and GM sought to respond with new models.⁷¹

This new line of cars included the Saturn Ion, introduced in 2003, and the Chevy Cobalt, launched in 2005. The Chevy Cobalt replaced the very successful Chevy Cavalier, but it had a higher price point than its predecessor. The Cobalt was a compact car that was designed to compete with the Ford Focus, the Toyota Corolla, and the Honda Civic. The Cobalt SS was a sports coupe, which was described in ads as the Corvette's "little brother." GM hoped the Cobalt's smart design and contemporary styling would attract younger drivers looking for cars with a more European look and feel. Its marketing efforts were heavily directed at drivers in the 18-to-34 age segment. Buyers could test drive the Cobalt in showrooms and also during Chevy tours across the country. These targeted marketing efforts paid off. The Cobalt was a big hit with younger drivers. More than 212,600 Cobalts were sold in 2005. Within a short period of time, the car delivered the highest number of buyers under age 34 for all GM vehicles. By the end of 2008, 40% of sales of the Cobalt Coupe were made to drivers under 30.⁷²

In developing vehicles for its small car line, GM relied on platform technology or common vehicle architectures that could be deployed on a global basis. This platform approach was adopted to help reduce development costs. Delta was GM's compact platform for front-wheel-drive automobiles and SUVs. Vehicles using the same platform shared key design and architectural components. The Delta platform included the Saturn Ion, Chevy Cobalt, the Chevrolet HHR, and the Pontiac G5. The platform debuted in 2003 with the Saturn Ion. All platform vehicles used the same four-speed automatic transmission and the same engines. They also used the same ignition switch.⁷³

The Cobalt and other Delta platform cars were described as "cost conscious vehicles," produced and sold with only the slimmest of margins. Every effort was also made to keep production costs low and all suppliers were pressured to lower their costs. GM sought to reduce material costs by \$1 billion by 2008 by setting cost-cutting targets for individual parts. Also, in an effort to increase revenues, the Cobalt was sold in large volumes to fleet buyers and to rental companies at steep discounts.⁷⁴

Choosing an Ignition Switch for the Cobalt

All Delta platform vehicles used the same ignition switch, which was located on the steering column of each vehicle. When the driver turns on the ignition switch, the engine turns over, and a signal is sent to activate the vehicle's systems, such as the antilock brakes and the airbag. When the switch is in the off position, all power is shut off, including the power for the airbags. In accessory mode, limited functions remain on (such as the radio). Key supporting components of the ignition switch include the shaft, the housing, the key cylinder, and the detent plunger, which holds the switch in the proper position (such as the run position). An essential design issue is the amount of force or rotational torque needed to turn the ignition switch from the off to the accessory or run position and keep the switch in that desired position.⁷⁵

In 1997, GM engineers designed a new "low current" ignition switch system known as the Discrete Logic Ignition Switch (DLIS). The innovative new system was designed to be less expensive and less prone to failure. It was developed as a "common" switch that could be used on multiple vehicle platforms. One of its main suppliers, Eaton Corporation (later acquired by Delphi), was chosen to develop and produce the DLIS ignition switch.⁷⁶

From its inception, however, this ignition switch had extensive problems. The prototype switch built by the supplier performed so poorly that the entire electrical concept needed to be reconfigured. But the redesigned switch also failed to meet GM's mechanical specifications for ignition switches. Specifically, the rotational torque, or the amount of effort required to rotate the ignition switch, was too low, allowing it to inadvertently move from the run position to off or accessory. The reason behind the low torque was that the detent plunger, which holds the switch in position, was too short. A longer spring along with a tighter and longer detent would have increased the rotational torque and prevented inadvertent shut-offs of the ignition switch when the car was in motion. But the lead engineer, Ray DeGiorgio, initially approved production of the switch with the low torque and shorter spring, since he believed this deviation would not affect the car's performance. Subsequent torque tests conducted in the fall of 2001 demonstrated very poor results: torque values required to rotate from the run to accessory position were well below the norm. The report states "Not OK" next to the test results. DeGiorgio received and reviewed these test results, but it is not clear whether they were seen by anyone else at GM.⁷⁷

Despite the negative test results with torque values below specification, DeGiorgio signed off on the ignition switch for production. No other approvals were necessary. He instructed Delphi to take no action to enhance the rotational torque because he was concerned that changing the detent would compromise the switch's electrical performance. DeGiorgio's email to Delphi, signaling his frustration, was signed, "Ray (tired of the switch from hell) DeGiorgio."⁷⁸

While DeGiorgio knew he was approving a substandard ignition switch, there is no evidence that other GM managers knew the switch did not meet GM's specifications. With DeGiorgio's knowledge and approval, the switch went into production even though it had these torque values well below standards. The fact that an inferior ignition switch had been authorized by DeGiorgio was not known to the engineers who would be investigating the Cobalt's accidents for the next decade. This lack of knowledge was due to a failure within the organization to track authorizations and accompanying test results for the vehicle's different technologies.

The switch was first installed in the Saturn Ion in late 2002. It was then approved for use in the Chevrolet Cobalt, Pontiac G5, Chevrolet HHR, Pontiac Solstice, and Saturn Sky. Ion production had begun in the fall of 2002, and by October 2003, performance reports indicated ignition switch problems. There were 65 reported moving stalls thanks to the ignition switch being accidentally rotated to the accessory or off position. But nothing was done to address the problem. The Cobalt went into production in the summer of 2004 with the defective switch. It was common practice for a group of new cars to be tested by GM employees, who were responsible for identifying problems before full-scale production began. During those tests, there were three cases of moving stalls as a result of the ignition switch being inadvertently turned to the off position. But the head of this testing group did not report these stalls, since he did not consider them to be significant.⁷⁹

When some of the first Cobalt cars coming off the assembly line were tested, there were also reports of inadvertent ignition switch shut-offs that resulted in moving stalls. But the engineers categorized the problem with the ignition switch as a "convenience" issue rather than a safety issue. Instead of implementing a solution, the engineers debated short-term fixes and their possible costs. In November 2004, as the Cobalt was about to arrive in showrooms, the moving stall problem was classified as a nonsafety issue despite the fact that this "stall" also deactivated the power steering, the power brakes, and the airbag system.⁸⁰

Around the time of the Cobalt product launch, there were two other reports of moving stalls triggered by a driver bumping the key chain with his knee. One was a journalist from Santa Barbara who informed Doug Parks, the Cobalt chief engineer, of the incident. Parks directed someone to look into the problem, but both incidents were once again regarded as “isolated events with no safety implications.” Nonetheless, in late November 2004, GM personnel opened a PRTS (problem resolution and tracking system) report to address the complaints. Engineers reviewed the problem and possible solutions, but the PRTS was closed in March 2005 with no action taken.⁸¹

By May 2005, General Motors had received many disturbing reports about moving stalls from Cobalt drivers. Some of those drivers demanded that GM repurchase their Cobalts because the ignition switch shut off during normal driving conditions. While GM engineers continued to disavow that this was a safety issue, Cobalt drivers had a much different perspective. According to one disgruntled customer,

This is a safety/recall issue if there ever was one. . . . The problem is the ignition switch is poorly installed. Even with the slightest touch, the car will shut off while in motion. I don't have to list to you the safety problems that may happen, besides an accident or death, a car turning off while doing a high speed must cause engine and other problems in the long haul. I am forwarding this letter to the NHTSA as I firmly believe that this ignition switch needs to be recalled, reexamined and corrected.⁸²

As a result of these complaints, GM opened a second PRTS on May 17, 2005, as two committees took charge of the issue: VAPIR (Vehicle and Process Integration Review) and CPIT (Current Production Improvement Team). Both committees discussed various solutions such as changing the key head design. They also considered longer term solutions such as replacing the ignition switch in future model year vehicles. DeGiorgio was consulted by both committees, and he argued for changing the ignition switch.⁸³

VAPIR signed off on the short-term fix, a new key head design that would put less weight on the key chain. GM issued a technical service bulletin to dealers explaining that the company now had an insert to change the key from a slot to a hole along with a smaller 13-millimeter key ring. However, in September 2005, the same committee rejected the new Cobalt ignition switch, called the GMT 191, that had been recommended by DeGiorgio. The long-term fix was scrapped because it was “too expensive” and would not result in “offsetting changes in savings on warranty costs.” In an email to engineers working on the problem, it was explained that “the con of the change is that the piece cost of the ignition switch went up around \$0.90 and would require \$400,000 in retooling . . . [while] the warranty offset for the new switch is in the \$0.10 to \$0.15 range.”⁸⁴

It was clear from the committee's deliberations that they still saw the problem as a convenience issue that could be solved by a simple measure, such as changing the key head and warning drivers to remove unessential items from their key chain. By this point, there were reports coming into GM about fatal Cobalt accidents due to airbags not deploying, but GM committees and managers did not grasp the connection to the flawed ignition switch, which they declined to treat as a safety issue.

To complicate matters further, the same GM engineer, Ray DeGiorgio, who approved the faulty ignition switch reversed course several years later without telling anyone. In 2006, he authorized a change in the ignition switch that would increase the torque

required to turn the key. The original detent plunger was replaced by a new one that had a longer and tighter spring. The new ignition switch was installed in the Cobalt and other vehicles beginning with the 2008 model year. However, the part number was not changed, and this made the change difficult to track. This failure to assign the new switch a different part number became a source of great confusion for engineers and others investigating the problem. When asked in 2009 and on subsequent occasions if the ignition switch had changed, DeGiorgio said it had not. DeGiorgio even testified under oath that he did not remember making a change from the 2005 to 2008 models.⁸⁵

By June 2006, GM engineers had been investigating the problem of moving stalls in the Cobalt for two years. At the same time, there were fatalities being reported due to airbag nondeployment. Those reports began to reach the GM legal department. But none of the investigators, committees, or lawyers perceived the connection between airbag nondeployment and the ease with which the ignition switch could be rotated to the accessory or off position. These two matters were regarded as separate and unrelated problems. Aside from changing the key head, no other solutions had been implemented to fix the low-torque ignition switch. DeGiorgio had approved a redesign of the ignition switch to take effect with the 2008 models, but this change did not address the problems with 2005, 2006, and 2007 Cobalts.⁸⁶

Cobalt's Fatal Accidents

On July 29, 2005, Amber Marie Rose died in a head-on collision in her 2005 Chevrolet Cobalt. This was the first death to be attributed to the defective switches. A contractor hired by NHTSA found that the Cobalt's ignition had moved out of the run position and into the accessory position, which cut off power to the steering, brakes, and airbags. In October 2006, three teenage girls returning from a trip to a Wisconsin Walmart store were involved in a serious accident when their 2005 Cobalt lost power and the car smashed into a tree. The airbags did not deploy, and as a result, two of the girls died, while the third suffered severe brain damage.

Many other accidents were reported to GM, including Kelly Ruddy's in January 2010. Just two months later, in March 2010, 29-year-old Brooke Melton was killed when her car stalled and lost control. It slammed into an oncoming Ford Focus. Other fatal crashes included the Cobalt that wrapped around a tree in Baldwin, Louisiana, in November 2005 and the Cobalt that struck a light pole in Lanexa, Virginia, in February 2006. Every time GM received notice of a crash, it opened a file, but there was no follow-up action. In 2007, the Wisconsin State Police sent to GM a detailed report on a different accident, detailing how a Cobalt crash had led to a fatality thanks to a moving stall and the subsequent nondeployment of the airbag. The report indicated that the ignition switch was in the "Acc" position and that the loss of power was the most likely reason for the airbag's failure to deploy. Outsiders had figured out the connection between the ignition switch failure and airbag nondeployment, but this fact continued to elude GM engineers.⁸⁷

According to a *New York Times* investigation, federal safety regulators and General Motors received more than 260 complaints from 2005 to 2014 about GM vehicles that suddenly turned off while being driven. Reports about Cobalt accidents and airbag nondeployment also continued to arrive at the company. However, while the NHTSA "expressed interest" in Cobalt airbag nondeployments in 2007, it refused to investigate these accidents more thoroughly. The NHTSA made no formal request to GM and did not ask the company to report back about the issue. Every time GM received notice of an accident,

the company opened a new file. But GM engineers could not figure out the source of the problem until 2013. Many of the complaints detailed frightening and harrowing scenes in which moving cars abruptly stalled out at high speeds. This happened on highways, in the middle of city traffic, and even while crossing railroad tracks. Some consumer complaints warned of “catastrophic consequences” if remedial action wasn’t taken.⁸⁸

When in-house lawyers began to see a troubling pattern in these accidents, they urged GM executives to initiate a more comprehensive investigation. This time the investigation was handled by GM’s Product Investigation Unit. It was assigned to a team led by Brian Stouffer. But despite the growing number of Cobalt crashes, “the investigation moved with no sense of urgency.” Stouffer was given all the results of the previous investigations, including outside reports like the one from the Wisconsin State Police. Stouffer and his team were especially puzzled that later models had no problems with airbag nondeployment. They did not know of the ignition switch change authorized by DeGiorgio beginning with the 2008 models. The Stouffer investigation proceeded slowly and produced no results—it became “stuck” by early 2013. However, there were several lawsuits in litigation against GM, and in one of the court proceedings in 2013, a plaintiff’s expert revealed there was a difference between the ignition switches used in the later Cobalt models (beginning in 2008) and those found in the 2005 to 2007 models. Only then were GM executives fully aware that the early-model Cobalts had a different ignition switch than the later models and that the first defective switch most likely had severe torque problems that might be responsible for airbag nondeployment.⁸⁹

With this evidence in hand, GM investigators had finally gotten to the root cause of the problem. But Stouffer wanted reconfirmation, so he hired his outside expert to review the conclusions of the plaintiff’s expert. Around this time, GM lawyers and outside counsel, which formed the Settlement Review Committee, reviewed the matter again. According to their report, “Airbag non-deployments in Cobalts . . . may be at least partially linked to the ignition switch issue. We know of approximately 20 non-deployments of frontal airbags in Cobalts where the crash forces are sufficient to have properly deployed the frontal airbag. [But] the ignition was in the ‘Acc’ position. In the Cobalt the airbag will not deploy with the key in ‘Acc.’”⁹⁰ Stouffer received his own report from the outside expert in November 2013, which confirmed that the defective ignition switch had been changed. At this point, he too came to the same conclusion as the Settlement Review Committee, a conclusion that had been reached six years earlier by Wisconsin state troopers.⁹¹

The Recall and Settlement

One month later in December 2013, a recall was proposed and reviewed by the Executive Field Action Decision Committee (EFADC). The committee was hesitant to approve a recall because GM’s chief engineer still questioned the extent and severity of the problem. Also, the EFADC members were not presented with fatality data and hence felt no strong pressure to take immediate action. Thus, even when GM became aware of the root cause behind this pattern of airbag failures, there was still a lack of urgency, a reluctance to “elevate” the issue, and a lack of leadership to drive the investigation to a conclusion.⁹²

Finally, in February 2014, GM issued its first recall of 780,000 cars with faulty ignition switches; vehicles included both the Chevy Cobalt and Saturn Ion models. The cost was estimated to be \$32.3 million. Later that month, the recall was expanded to an additional

842,000 vehicles at a cost of \$34.3 million. In March, GM officials learned that older ignition switches had been used to fix 2008–2011 Cobalts and Ions, and so the recall was expanded again by another 970,808 vehicles at an additional cost of \$39.7 million.⁹³

GM hired the law firm of Jenner & Block to investigate the entire Cobalt saga. GM also hired an attorney, Kenneth Feinberg, to ascertain precise numbers of accidents, deaths, and injuries due to the faulty ignition switch. GM originally claimed there were only 13 deaths attributable to this defect, but Feinberg found this number was much too low. Of all the claims for physical injury or death received up to 2015, Feinberg determined that 399 were valid. There were 124 deaths and 17 victims with very serious injuries (such as quadriplegia or permanent brain damage). Many other victims suffered modest injuries.⁹⁴

In April 2014, Mary Barra, who became GM's CEO in January 2014, testified before a congressional hearing. She admitted many mistakes had been made but reassured the congressional panel, "We will not shirk from our responsibilities now and in the future." She authorized a victims' compensation fund of \$625 million. In 2015, the U.S. Attorney for the Southern District of New York announced that a deal had been struck with General Motors. The carmaker would admit to concealing defects that led to the death of 15 people and it would pay a \$900 million fine. No GM employees were charged with criminal wrongdoing.⁹⁵

EXHIBIT 8.1 ■ Timeline of Events

1997–2001: Specifications determined for ignition switch for Delta platform (including Cobalt)

2002: DeGiorgio approves ignition switch for production in Cobalt and Ion models

August 2004: Cobalt goes into production

Fall 2004: Early reports of Cobalt moving stalls

November 2004: PRTS opened but moving stalls classified as nonsafety issue

March 2005: PRTS closed with no solution

May 2005: Cobalt VAPIR Committee considers short-term and long-term solutions to moving stall issue

September 2005: VAPIR rejects proposal to change ignition switch

2006: Litigation involving fatalities begins

May 2006: DeGiorgio approves ignition switch design change without change in part number

2007: Outsiders discover solution (Wisconsin trooper's report) but GM remains unaware

2009: GM declares bankruptcy as investigations continue

2011: Production Investigation Unit headed by Stouffer begins new investigation

April 2013: Plaintiff's expert demonstrates that ignition switch was redesigned in 2006

November 2013: GM's outside expert reconfirms redesign of switch and Stouffer arrives at his conclusions

December 2013: EFADC meeting to consider recall

February 2014: Recall of Cobalt (and Ion) model years 2005, 2006, 2007 gets under way

EXHIBIT 8.2 ■ GM Selected Financial Data, 2009–2013 (in millions)

	2009	2010	2011	2012	2013
Revenues	\$57,474	\$135,592	\$150,276	\$152,256	\$155,427
Operating Income	(4,928)	5,084	5,656	(30,363)	5,131
Net Income	(4,428)	4,668	7,585	4,859	3,770

- What was the competitive environment for GM when the Cobalt was introduced, and how might this have affected the company's decision making about safety issues?
- What are the implications of this case for how safety crises should be managed?
- How do you assess the actions of engineer Ray DeGiorgio?
- Did GM shirk its ethical obligations in this case? Were rights violated by GM's refusal to take action earlier?

CASE STUDY 8.3**TAKATA'S AIRBAG: UNSAFE IN ANY CAR?**

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One of the most propitious developments in the history of automotive safety was the introduction of the airbag that inflates on impact to protect drivers and passengers in the event of a dangerous collision. In the United States, the front-seat airbag became mandatory equipment in 1998. All vehicles now include front-seat driver and passenger airbags, and most cars are also equipped with seat-mounted and door-mounted side airbags. Airbags save lives and reduce the number of traumatic injuries that can result from accidents. But what happens when the airbag itself is defective? Auto

manufacturers and motorists were forced to deal with this unfortunate situation when they learned that the airbags made by the Japanese company Takata could explode and disperse shrapnel throughout a vehicle's cabin.

After providing some background on the dynamics of the airbag industry, this case examines the root causes of the Takata-made airbag's defects. It also presents Takata's reactive response to this crisis, which frustrated automakers and regulators. The tragedy

of the Takata airbag and the subsequent recriminations and lawsuits have had a profound impact on this once proud pioneer in automotive technology.

Takata AG

Takata AG was founded in 1933 in Shiga Prefecture, Japan, by an entrepreneur named Takezo Takada. The company began by manufacturing the lifelines that were used for parachutes. It also produced a number of other textile products. In the early 1950s, the company started to do research on seat belts based on its knowledge of parachute technology. Mr. Takada and other principals eventually incorporated as Takata. In the 1960s, Takata started to sell seat belts to automobile manufacturers. Takata soon developed a reputation as an innovator. The small company built the world's first crash-test plant for testing seat belts under real-world conditions. Takata was also a pioneer in the development of child restraint systems. In the early 1980s, the company changed its name to the Takata Corporation. Takata began making airbags in 1988. It soon expanded into Korea, Europe, and later to Ireland, where it manufactured and sold its seat belts. In the late 1980s, Takata established a U.S. subsidiary in North Carolina called TK Holdings Inc.

In 2000, the Takata Corporation acquired a German competitor, Petri AG, forming the European subsidiary Takata-Petri, which was renamed Takata AG in early 2012. Takata went public in November 2006, listing its shares on the Tokyo stock exchange. The Takada family and trust retained 80% ownership stake in their company. The founder's son, Juichiro Takada, became CEO and chairman that year, but several years later, in 2011, leadership was handed over to his son, Shigehisa Takada. In addition to its core products, airbags and seat belts, Takata AG makes steering wheels, child seats, and various plastic parts for cars and other machinery. By 2016, this major Japanese supplier to the global automotive industry employed over 48,000 workers in its worldwide operations, with revenues of \$6.6 billion.⁹⁶

Over its long history, Takata built a global reputation for reliability and quality. It was a company noted for its innovative product development and careful product testing. Takata's whole philosophy and mission has been tied to the goal of consumer safety:

Takata has been engineering the precision of our products to the millisecond for over 70 years. We have been driven by our dedication to save human life while embracing a pioneering spirit in developing innovative products. Takata has spread this same thought process to all of our locations worldwide. "Somewhere on earth, Takata products have saved the preciousness of human life today." We continue to challenge ourselves and our affiliates all over the world to develop new technologies so that people will be able to experience the joy of life. Our dream is that someday there will be zero victims due to traffic accidents. And we hope the day will come when the word "TAKATA" becomes synonymous with "safety."⁹⁷

Airbag Technology and the Airbag Industry

Airbag technology is an integral aspect of automotive safety. The purpose of the airbag is to impede the driver or passenger's forward motion during a collision within a fraction of a second. The airbag system consists of a bag made of thin, nylon fabric,

the sensor that tells the bag to inflate, and the inflator, a steel canister encasing the propellants that release gases which cause the bag to inflate and cushion the driver's forward motion. Inflation must happen quickly but not too quickly or the bag will blow up and burst, sending shards of metal at the vehicle's occupants. An essential element for a safe airbag is the use of stable propellants.⁹⁸

The global airbag industry has been highly concentrated in the hands of a few major producers for the last several decades. Steady global demand for autos and trucks along with tighter safety regulations have in turn fueled an escalation in demand for component products like airbags. Growth has been highest in North America, with Asia and Europe following close behind. One challenge for the industry has been a change in consumer expectations. Consumers have become more demanding and want superior safety equipment in their vehicles. But some structural aspects of the industry favor the rivals. Barriers to entry are high due to the need for substantial capital investment in plant and machinery coupled with technical expertise. In addition, the airbag is not optional equipment so there are no available substitute technologies for automakers.

The whole airbag industry is dependent on the original equipment manufacturers, or OEMs (automobile manufacturers), which are required by law to install airbags. This dependency makes the industry vulnerable to fluctuations in demand for new automobiles and trucks. If automobile industry sales decline, so too will sales for the airbag industry. Also, automakers have forced down their cost structure by techniques such as "just-in-time" production, which frowns on inventory and requires parts to be delivered as they are needed. These demands can create challenging delivery schedules and the need for quick production ramp-ups by suppliers.⁹⁹

There is fairly intense rivalry among airbag industry incumbents, which include the US-Swedish firm Autoliv, TRW, Takata, and Delphi, the principal supplier of General Motors. The number of viable competitors lowers the bargaining power of airbag module manufacturers, since OEMs can easily transition to another airbag manufacturer. These low switching costs give OEMs considerable leverage over their airbag suppliers. Airbags are a necessary but expensive component of every vehicle. The addition of the airbag as standard equipment drove up the price of cars, especially in developed markets like the United States and Europe. Since the high cost of airbags can adversely affect the margins of OEMs, they pressure suppliers for cost containment whenever possible.¹⁰⁰

By 2014, the year when Takata's recalls were beginning to mushroom, the company held an impressive 20% share of the market for automotive airbags. It followed behind market leader Autoliv (40% share) and TRW. Airbags accounted for about 40% of Takata's sales to outside customers. The Takata safety airbag could be found in many vehicles made by prestigious manufacturers like Honda, Toyota, Fiat Chrysler, and Volkswagen. Honda was Takata's biggest customer, accounting for over half of the company's net sales in fiscal 2015. Honda also held a small equity stake in Takata.¹⁰¹

The Takata Recalls

Takata's good fortune and commercial success soon unraveled when complaints about its defective airbags began to proliferate in 2007. At first, there were isolated cases of airbag inflator explosions that led to fatalities. When the inflator explodes during a collision that triggers the airbag to inflate, it can spread deadly shrapnel

throughout the vehicle. As complaints mounted, Takata was pressured by regulators such as the NHTSA to cooperate with manufacturers and recall cars that had defective airbags. By May 2013, the recall of defective Takata airbags had expanded to 3.5 million. But how could Takata identify which of its airbags were defective or prone to explosion?

The Japanese firm initially believed the problem was confined to manufacturing deficiencies at two of its plants in North America. The first problem was at the Moses Lake plant in the United States, and the second at the Monclova Plant in Coahuila, Mexico. The latter plant was operated by Takata's North American/Mexican subsidiary. The initial batch of recalls involved airbags made at both of those manufacturing facilities. Takata believed the mishandling of the propellants used to trigger the airbag's inflation was the source of the problem.¹⁰²

But by 2014, Takata began to see the problem was more pervasive, and the recall was extended to 19 million vehicles with Takata airbags. The recall, worked out in conjunction with automakers, was now one of the largest in the automotive industry's long history. The company concluded that high humidity levels might be causing the propellant to deteriorate and lead to a malfunction of the airbag. As a result, vehicles in a number of states with high humidity levels (such as Florida, Georgia, Texas, Louisiana, and South Carolina) were added to the recall list. The theory was that moisture was invading the inflator and destabilizing the propellant.

However, industry analysts and regulators were less confident about this new explanation for the defective airbags and argued the recall still did not go far enough. After airbag explosions involving vehicles operating outside the high-humidity states surfaced, the NHTSA demanded the company recall all vehicles with potentially defective airbags in the United States, not just those in "high humidity" states.¹⁰³ Takata, however, initially resisted the NHTSA's request. It insisted the safety agency had no legal authority to coerce an auto supplier to conduct a recall.

Regulators, however, had begun to grasp the ultimate source of the problem, which stems from the airbag's inflator. The culprit was the ammonium nitrate encased in those metal inflators as the propellant. According to the NHTSA, airbags with inflators that use an ammonium nitrate-based propellant without a chemical drying agent are susceptible to the risk of rupture. If that rupture occurs in a crash, metal shrapnel can be sprayed throughout the vehicle cabin. Scientists and regulators believe this volatile chemical compound is predisposed to destabilization. Ammonium nitrate is sensitive to temperature changes and moisture that can cause it to deteriorate over time. Thus, environmental humidity, high temperatures, and age are the key factors that break down the propellant and make it susceptible to explode and rupture the inflator during a crash. To date, there have been 13 deaths and more than 100 injuries due to this problem in the United States. Despite evidence to the contrary, Takata had remained skeptical for a long time that ammonium nitrate was the root cause of the problem.¹⁰⁴

By 2016, the total recall expanded to 100 million vehicles worldwide, with airbag inflators needing to be replaced before 2019. Any airbag that employed ammonium nitrate as a propellant without a drying agent was subject to the recall. In the United States, 42 million vehicles with 70 million Takata airbags were scheduled for recall. Adding to Takata's woes was the defection of most OEMs to new suppliers. In 2015, Honda, which was Takata's largest customer, announced it would no longer manufacture automobiles

with the Takata airbag. A year later, Fiat Chrysler Automobiles announced it would end market production of vehicles with ammonium-nitrate Takata airbag inflators.

Manipulating the Test Data

Takata's struggle with ammonium nitrate can be traced back to the 1990s, when airbag manufacturers eagerly sought alternatives to the airbag propellant sodium azide, which could cause toxic fumes. Takata first replaced sodium azide with tetrazole, but concerns over high cost and unpredictable supply led Takata to choose ammonium nitrate for its propellant, which generated the gases that inflate the airbag. However, as far back as 1995, one of Takata's patent applications indicated that this volatile compound was so vulnerable to temperature changes that it could be unreliable. Nonetheless, Takata was confident it could stabilize this propellant. In 2000, it went ahead with phased stabilized ammonium nitrate (PSAN) as its airbag propellant. Executives and engineers at Takata were convinced that PSAN was safer to manufacture and more efficient, thus allowing for smaller and lighter inflators that were more easily integrated into compact and subcompact vehicles.¹⁰⁵

Prior to the choice of this propellant, Takata's airbag business had experienced some formidable setbacks. A previous generation of airbags sold to Nissan had deployed too forcefully and were linked to at least 40 serious eye injuries in the 1990s. In 1997, an explosion at its inflator plant in Moses Lake, Washington, destroyed equipment and severely limited production. The company had to purchase inflators from competitors to make up for the shortage. These events set the stage for Takata's choice of the cheaper new compound, ammonium nitrate. Former engineers at Takata, like Mark Lillie, claim that considerations of cost induced the company to use this compound, despite its dangers. Takata's replacement for sodium azide, tetrazole, is produced in limited quantities and can be expensive. According to Lillie, tetrazole was squeezing margins at Takata at a time when the industry was more competitive and being pressured to lower costs. Ammonium nitrate is about one-tenth the price of tetrazole.¹⁰⁶

On the other hand, engineers at Autoliv who were asked to study Takata's cheaper airbags believed the risks posed by aluminum nitrate were too high. According to an Autoliv chemist, when the airbag is detonated, sometimes "the gas is generated so fast, it blows the inflator to bits." Autoliv scientists considered the evidence against ammonium nitrate to be irrefutable. Autoliv's concerns were also backed by ample research about the volatility of ammonium nitrate.¹⁰⁷

Airbag manufacturers were all seeking the "perfect propellant" that could inflate an airbag in microseconds and yet remain stable in an automobile for many years, sometimes in hot and humid climates. Despite evidence and advice to the contrary, Takata believed that ammonium nitrate was still the best choice. And it had the added advantage of being "unbelievably cheap." But other large airbag manufacturers besides Autoliv stayed away from ammonium nitrate, following the advice of scientists like Paul Worsey, an expert in explosives engineering at the Missouri University of Science and Technology. He claimed ammonium nitrate should never be used in airbags because it is so unstable; it is far more suitable for large demolitions in mining and construction.¹⁰⁸

Takata immediately encountered problems with PSAN, even before the first airbag shipments began. As Takata was preparing to manufacture bags with the new propellant,

it conducted process validation tests. Those tests showed the product did not meet the process validation specifications prescribed by carmakers like Honda. Some of these failures involved rupture of the inflator. But the final version of those test results omitted this information on these failures or substituted altered test results. Internal Takata documents reviewed by Honda revealed serious discrepancies. Several documents clearly indicated that a June 2000 report sent to Honda misrepresented several instances of “pressure airbag failure” (airbag ruptures) as “normal airbag deployments.” One of the reasons given by Honda for the termination of its relationship with Takata was the fact that the airbag company had “misrepresented and manipulated data.”¹⁰⁹

In 2001, Takata began to ship airbags using this propellant to automobile manufacturers including Toyota and Honda. Just two years later, Takata learned that an inflator had ruptured in a vehicle in Switzerland. In May 2004, there was another rupture that seriously injured a passenger in Alabama. The company was notified about the accident and inflator rupture by Honda. Alarmed by the Alabama incident, Takata secretly conducted tests on 50 airbags that it had retrieved from scrapyards. The steel canisters holding the propellants in two airbags cracked during the test. This failure could easily lead to the inflator’s rupture and spraying of debris inside the vehicle. However, according to two former employees who conducted these tests, Takata did not alert federal safety authorities about the dangers of these rupture-prone airbags. Instead, Takata executives ordered the testers to delete the testing data from their computers and dispose of the airbag inflators. The testing, which took place at Takata’s American headquarters in Auburn Hills, Michigan, was “hush-hush,” according to a former employee. “Then one day, it was, ‘Pack it all up, and shut the whole thing down.’” Takata had told the NHTSA that the first time it conducted tests in response to complaints about the airbags was in 2008.¹¹⁰

In the summer of 2007, Honda reported to Takata three accidents involving driver-side airbag inflator ruptures. In late 2007, Takata began testing 86 airbag inflators and determined the airbags involved in these accidents had all been made in 2000–2001 and came from its Moses Lake, Washington, facility. It recommended to Honda a limited recall of vehicles with airbags coming from the same production lots. As more ruptures in Honda vehicles were reported in 2009, Takata widened the scope of its recall. Additional inflator ruptures were linked to isolated manufacturing issues at its plant in Mexico, where manufacture of the propellant had been mishandled. Once again, the scope of the recall was broadened. The NHTSA launched its own investigation into Takata in late 2009 but closed it six months later because the company had identified the source of the problem. Critics claim that if the NHTSA had investigated Takata more thoroughly, the burgeoning recall crisis might have been avoided.

As additional complaints were received by Honda and Takata, Honda expanded recalls to 2.5 million. In 2013, Takata filed a “defect report” with the NHTSA explaining that some passenger-side airbags could rupture due to “manufacturing errors” at its Monclova, Mexico, plant. As more and more bags erupted in high-humidity states, more regional recalls were launched in those states. By 2016, both Takata and the NHTSA recognized that the problem was even more widespread, and the recall was expanded to include all airbags with inflators using ammonium nitrate that did not contain a drying agent. At this point, there was incontrovertible evidence that the cause of the problem was ammonium nitrate’s volatility. Also, inflators using this substance become more unsafe over time especially when exposed to high humidity and high temperature fluctuations.¹¹¹

For many years, Takata had assured regulators at the NHTSA that the airbag explosions were linked to isolated manufacturing issues. But thanks to multiple tests, the company knew better, or should have known better. In 2010, for example, Takata sought the help of outside experts at the pyrotechnic lab at Pennsylvania State University. The goal was to determine whether ammonium nitrate was at the heart of the defective inflator problem. A 2012 study released by scientists at the lab cast severe doubt on the use of ammonium nitrate because it was so unstable. However, Takata dismissed those results and waited two years before it shared that vital research with regulators such as the NHTSA. The study reflected the same concerns raised by some of Takata's own engineers in the late 1990s.¹¹²

As the safety crisis unfolded, other instances of test data manipulation came to light in a set of emails released as part of a personal injury lawsuit. In 2005, a U.S. engineer had accused his Japanese counterparts of “dressing up the data” by removing or glossing over unfavorable testing results about airbag failures. He complained that testers were changing graphics to divert attention from problematic test results. Four airbag experts asked by the *New York Times* to review the emails said they strongly suggested the company was trying to misrepresent or alter testing data presented to customers. The emails underscored concerns about tests on airbags conducted at a high temperature. A Takata spokesperson admitted problems in Takata's past reporting, including the validation test reports given to Honda in 2000. According to that spokesperson, “There have been instances in the past when Takata provided inflator validation testing reports to automotive customers that contained selective, incomplete, or inaccurate data.”¹¹³ The pattern of manipulating testing data that began in 2000 strongly imply that this practice had become a systemic problem at Takata.¹¹⁴

Postscript

After much delay and defensiveness, Takata finally accommodated regulators by recalling all cars with ammonium nitrate propellants and agreeing to phase out the use of this substance. But the crisis was far from over. In 2018, 19 auto manufacturers were still in the process of recalling an unprecedented 42 million U.S. vehicles with Takata airbags that risk rupturing. Auto manufacturers faced numerous logistical problems in replacing defective inflators and tracking down cars with faulty airbags that have been sold by the original owner.

In January 2016, Takata's CEO and grandson of the company's founder, Shigehisa Takada, resigned. Many automakers and regulators expressed their frustration at the way Mr. Takada had handled the prolonged airbag problem. They highlighted the company's poor governance and lack of transparency.¹¹⁵ After resisting the idea of a fund to compensate victims of the exploding airbags, Takata reversed course in February 2017 and set up a \$125 million fund for that purpose. Several months later, in June 2017, Takata, facing billions of dollars in costs and liabilities, filed for bankruptcy. Finally, Takata pled guilty to criminal charges and agreed to pay \$1 billion in penalties for providing misleading testing reports to automakers like Honda. Of that amount, \$850 million would be paid to automakers that had had to absorb huge recall costs.¹¹⁶

- How important is this product for Takata's long-term success? What percentage of Takata's sales does this product represent? How is this product distributed to

the end consumer? What is the competitive environment for this product? What difference might these factors make in Takata's handling of the safety crisis?

- How has Takata handled this product safety crisis? What could they have done differently?
- What are Takata's economic, legal, and ethical duties in this situation? How would you assess Takata's ethical performance throughout this controversy?

CASE STUDY 8.4

THE SAMSUNG RECALL: A GALAXY OF TROUBLES

When passengers on board Southwest Airline's flight 994 noticed smoke billowing from a smartphone, there was panic and chaos throughout the cabin. Fortunately, the plane bound from Louisville to Baltimore had not yet taken off. The Southwest crew quickly evacuated the plane's anxious 75 passengers, and the faulty device was disposed of. That device was a Samsung Galaxy Note 7. This was the latest in a series of incidents for Samsung that led to a recall of the troubled phone and then a halting of the Note 7's production and sales. The product recall joins a list of similar

historic events, such as Johnson & Johnson's recall of Tylenol in 1982, Toyota's recall of 8 million vehicles in 2008, and the massive Takata airbag recall initiated in 2016.

In the wake of this crisis for one of Korea's most renowned companies, there were many questions to be answered. Were these phones properly designed and tested? Was Samsung too passive in its response to this crisis? Why did some regulators fault the company for botching the initial recall? And could Samsung rebound from this disaster and rebuild trust with its customers? This final case of the chapter examines this product safety controversy and illustrates the challenges of making a strategic decision about a product recall with little time and a lack of sufficient information.

Samsung Electronics

The Samsung Electronics Company is a South Korean electronics giant headquartered in the city of Suwon, South Korea. It is the flagship division of the Samsung Group, a diversified, global conglomerate. The Samsung Group, founded in 1938, includes Samsung Heavy Industries and Samsung C&T, which is one of the world's largest construction companies. Its other businesses include financial services and shipbuilding. The conglomerate employs around 370,000 people in its



AP Photo/Ahn Young-joon

various operations and production facilities scattered throughout the world. Under the leadership of chairman and CEO Lee Kun-Hee, Samsung has narrowed its broad focus by divesting some of its defense and chemical businesses.

Despite its diversity, the core business of Samsung is electronics, which accounts for about 70% of the group's revenues. Samsung ranks as the second-largest information technology company, just behind Apple. The electronics business is divided into four segments: mobile communications, consumer electronics (including TVs), semiconductors, and display panels. Products from the latter two divisions include DRAMs (memory chips), flash memory, and LCD panels. In recent years the company has made major capital expenditures on technologies such as 3-D NAND flash memory and organic light-emitting diode (OLED) displays to drive the profits of these divisions.¹¹⁷

The mobile communications division, which accounts for 46% of Samsung Electronics's revenue, produced the Samsung line of smartphones. Like Nokia and other competitors, the company initially lagged behind Apple, the pioneer in smartphones, but soon surpassed its American rival. By 2016, the company was selling over 300 million smartphones a year. Samsung Electronics earned \$18 billion in 2016 on revenues of \$167 billion. About 50% of its sales come from the Asia/Pacific region.

The Galaxy Smartphone Series

In 2007, Steve Jobs unveiled to the world the first version of Apple's smartphone technology. The iPhone was a "revolutionary" product that reinvented the phone and changed the course of mobile telephony. The iPhone ran on a modified version of the Mac operating system (iOS), and its touch-screen interface allowed users to navigate the system without a physical keyboard. Compressed into a small device was a powerful networked computer. Apple worked with wireless carriers such as AT&T and Verizon, which provided phone service. A key driver of the iPhone's phenomenal success was the plethora of applications or apps that ran on the phone, available for download at Apple's App Store.¹¹⁸

Samsung had competed for some time in the mobile device industry, jockeying for competitive positioning against companies like BlackBerry and Nokia. Soon after Apple's iPhone debut, Samsung introduced its own line of smartphones. Most of the company's smartphone profits come from its two premium phones, the Galaxy S and the Galaxy Note, even though they accounted for only a small proportion of overall shipments. For a time, the Galaxy S2 was its flagship product. The Galaxy Note Series was launched by Samsung in 2011. It was a "point of pride" for the Korean company, which had been seen as a follower and imitator rather than a technology leader. The phone had a bigger screen than the Apple iPhone, and this feature appealed to many consumers. It also had a handsome design. The shift to bigger handsets led to the nickname "phablet," an amalgam of a smartphone and a tablet. By the time Samsung released the Note 3, the product was a big hit, and it sold 10 million units in its first two months on the market. Riding a wave of success, the company decided to skip revision number six and jump right to number seven. This decision conveyed its desire for direct, head-to-head competition with Apple's iPhone 7, which was released in the fall of 2016.¹¹⁹

Like the vast majority of Samsung's smartphones, the Galaxy series ran on the open-source Android operating system made by Google. Android was free and open

for customization, so manufacturers could modify this platform to suit their needs. Other companies like HTC, Huawei, and LG also ran on the Android OS, but Samsung quickly dominated the expanding Android market. Many app developers quickly realized Android's potential and provided products for this platform. Unlike other smartphone manufacturers (such as HTC), the mobile division was vertically integrated. The company designed its own phones and did not outsource manufacturing the way Apple did. Samsung was also integrated “upstream”—it made many of its own components such as chips, batteries, and LCD screens. Its Super AMOLED display screen was considered to be one of the brightest and best in the entire industry.¹²⁰

But while Samsung has been the undisputed leader in Android devices, it has faced stiff competition from upstart companies like China's Xiaomi and Huawei, who were challenging Samsung in the key China market. Both companies undercut Samsung on price to gain competitive advantage. Samsung also had to contend with newer products like Google's Pixel. But in the premium market segment, its toughest competitor continued to be Apple Inc., which now relied on the iPhone as its core technology. Apple sells other products, such as its Macintosh computers, and services such as iCloud, but the lion's share of its revenues and profits derive from the iPhone. In mid-2016, just before the Note 7's release, Samsung had a 22% share of the smartphone market. Apple was in second place with a 14% share.¹²¹

Exploding Batteries

On August 19, 2016, the company launched its new Galaxy Note 7 to much excitement and fanfare among its loyal customers. It came to market just weeks ahead of Apple's new iPhone 7, which incorporated only incremental improvements. The Note 7 was by far Samsung's most advanced smartphone technology. It was loaded with new features, such as an iris scanner, water resistance, and about 16% more battery life than its predecessors. The phone was an immediate success, and Samsung hoped that increasing sales would cement its position as the undisputed industry leader.¹²²

Almost immediately, however, Samsung began receiving reports that its new smartphone had spontaneously caught fire and exploded on several occasions. The reports of overheated batteries and phones catching fire began to spread in September and capture headlines. Within a few short weeks after the product debut, the company received 92 complaints about batteries overheating in the United States, with 26 reports of burns and 55 reports of property damage. Samsung engineers promptly began a series of tests. They admitted the batteries on the Galaxy 7 could ignite, yet they were not able to get a phone to explode. Nonetheless, the company soon realized the Note 7 batteries of one of its suppliers, its affiliate, Samsung SDI Co., had these overheating problems while the batteries of another supplier did not. Scans of faulty devices showed the Samsung SDI battery protruded slightly.¹²³

By early September 2016, the company was in crisis mode as investors reduced the company's market value by \$20 billion. Samsung executives now had to determine what course of action to take. Some were skeptical that the incidents amounted to anything serious and recommended a “wait and see” approach. But others thought the company needed to take decisive action without delay. D. J. Koh, who headed the mobile communications

unit, believed he had adequate evidence to conclude that the problem lay with Samsung SDI's batteries. Koh wanted to do the "the right thing" and remove an unsafe product from the market. Others pressed him to wait for more information, but Koh's supporters argued that waiting would leave customers in the dark and perhaps allow the crisis to get even worse. Koh made the final decision to shift all battery production to its other supplier, Amperex Technology Ltd., and to recall the 2.5 million Note 7 phones that had been sold. The recall would cost Samsung \$5 billion, including lost sales.¹²⁴

When the recall was announced, frustrated Galaxy users were told to stop using and power down their phones. They were urged to trade in their Note 7's for new phones with different batteries (made by Amperex) at their wireless carrier or at the retail store where they purchased the phone. Consumers were also given the option of a full refund.

But how could Samsung efficiently manage the logistics of a recall of 2.5 million smartphones that had been distributed in 10 countries? Could the company supply enough replacement phones with different batteries? These were major challenges for Samsung. Unlike Apple, Samsung does not have a network of retail stores in the United States and relies on carriers to sell its phones. Despite these challenges, the recall proceeded smoothly. About 90% of customers turned in their phones and eventually got a replacement.¹²⁵

However, there were some "hiccups" in the recall. First, Samsung did not inform the Consumer Product Safety Commission (CPSC) in the United States, which coordinates all U.S. product recalls. Rather, Samsung acted unilaterally without working in conjunction with this safety agency. However, it's illegal for a company to recognize that it has a hazardous product and not inform the CPSC. The commission usually announces recalls in cooperation with manufacturers, but that did not happen in this case. The CPSC sets a framework for those recalls that all companies must follow, but Samsung's voluntary recall bypassed CPSC requirements. Second, some U.S. customers ran into trouble returning their phones to U.S. wireless carriers due to conflicting information and communications problems. Customers were told by Samsung that they could get a loaner from their carriers, but when they went to stores like T-Mobile, they were unable to get a loaner. Samsung had sent replacement Galaxy Note 7 phones to carriers, but the carriers had to wait for CPSC approval before distributing those phones.¹²⁶

As the company rushed to deliver these replacement smartphones, they hoped their product-safety nightmare would abruptly end with minimal damage to this flagship brand. But then there were more complaints. Batteries in these replacement phones were also overheating, causing phones to catch fire. There were at least four incidents of phones smoking up and causing fire, including the one on Southwest Airlines. These batteries were not made by SDI but by its other battery manufacturer, Amperex. Samsung engineers thought they had properly diagnosed the problem, which was isolated to the batteries made by Samsung SDI, but they were wrong. It was now apparent that the first sweeping recall was based on incomplete evidence. On October 10, 2016, Samsung pulled the plug on the ill-fated phones. The drastic move is unusual in the technology industry, where companies try to improve a product rather than pull it from the marketplace. The discontinuation of the Galaxy 7 culminated in a two-month period of chaos during which the company was under intense scrutiny from investors, consumers, and regulators. It was highly unusual that two separate sets of defective batteries made by two different suppliers had ended up in Samsung phones, especially when that phone was supposed to be its "marquee" product to rival Apple's iPhone.¹²⁷

Despite its prompt action, Samsung was criticized for a lack of urgency or nonchalance in how it handled the second recall. The company seemed to downplay the gravity of the situation and the risks posed by the overheating batteries. For customers to determine the status of the troubled smartphone, they had to click on a link on the company website titled “Updated Consumer Guidance for the Galaxy Note 7.” Buried on that page was a notice that Samsung had stopped production of the Galaxy Note 7 along with information telling customers to contact the outlet where they bought the phone for a refund or an exchange. The company did not communicate this information through its Twitter account or on its Facebook page. For crisis management experts, this was an “overly passive” way to deal with a prominent safety problem. The notice should have been far more visible and accompanied by some expression of care and concern on Samsung’s part. As one consultant pointed out, “This is a phone that can literally catch fire and burn your house down with you in it,” and this threat needed to be better highlighted in Samsung communications.¹²⁸

As Samsung’s smartphone safety crisis came to a head in October 2016, the South Korean conglomerate’s heir apparent, Lee Jae-Yong, stayed in the background. Mr. Lee made the final decision to close down production of the Galaxy Note 7, but the leader of the mobile division, D. J. Koh, was most prominent throughout the controversy. As Samsung shares tumbled further, executives at Samsung wondered whether Mr. Lee should continue to remain behind the scenes or assert himself more publicly to allay investor concerns.¹²⁹

Testing Batteries and Diagnosing the Problem

Samsung engineers continued to research the problem as the company’s battery testing procedures came under scrutiny. To sell smartphones in the United States, producers are required to test phone batteries at one of the 28 laboratories that have been approved and certified by the U.S. wireless industry trade group known as the CTIA. Samsung is the only smartphone manufacturer that uses in-house battery testing facilities for CTIA certification. Other companies, including Apple, use third-party CTIA-certified labs to test their batteries. These test labs have autonomy from smartphone manufacturers—they are in a separate building and under separate control. The use of independent CTIA-certified testing labs has greatly reduced the battery safety failure rate in cell phones and smartphones. Samsung said its internal testing revealed no problems with these batteries. But some industry insiders say that allowing manufacturers to test their own batteries creates the potential for conflicts of interest.¹³⁰

Also, Samsung’s situation may have been compounded by the company’s rush to market to compete with the iPhone 7. The Samsung phone was a sophisticated device with many new features that complicated technical issues and made thorough testing more challenging, especially when suppliers and quality assurance testers faced tight deadlines.

Samsung has acknowledged that it did not have adequate quality controls to identify battery problems before phones were sold to consumers. To prevent a recurrence of the battery problems, Samsung said it would put into place “multi-layer” safety measures during the design phase of its smartphone projects. Samsung will do more testing for durability and leakage, and it will open the battery cell to inspect tab welding and

insulation tape conditions; in the past, suppliers did the latter test, but now both the supplier and Samsung will run this test. Also, both Samsung and suppliers will use X-ray tests to look for any internal abnormalities. Samsung has taken responsibility for its lack of quality controls, but it puts the primary blame on its suppliers for the defective batteries. However, does Samsung also share more of the blame than it recognizes because of the specifications and deadlines it set for the Note 7 batteries in its haste to get this product to market before the launch of Apple's iPhone 7?¹³¹

Months after the Galaxy Note 7's discontinuation, Samsung finally believed they had uncovered the likely causes of the battery problem. According to the company, the batteries provided by one of its suppliers, Amperex Technology Ltd., had "manufacturing flaws" that were most likely linked to the rapid ramp-up in production. There were apparently welding issues caused by a manufacturing defect, which didn't appear until after the battery was pulled from the market. The other supplier, Samsung SDI Co., a subsidiary of Samsung, used battery cases that were not big enough. In one case the problem was the flawed manufacturing process, but in the other it was a design issue—there was inadequate space inside the battery casing to allow the battery's electrodes to expand. According to one expert, "The design of the cell pouch did not provide enough room."¹³² With this disclosure, Samsung hoped to put the Galaxy Note 7 controversy behind it.

Restoring the Samsung Brand

The valuable Samsung brand has been damaged by these battery problems. The company has apologized, but will that be enough to placate frustrated consumers? Concerns about public safety continue to weigh on the brand as it tries to restore consumer trust after fumbling the initial recall. The company must also contend with a global slowdown in smartphone sales, which will not help its recovery.¹³³ Thanks to the discontinuation of the Note 7, Samsung lost its number-one position to Apple in the last quarter of 2016, the first quarter in two years in which Samsung was not the leader in smartphone shipments.¹³⁴

In April 2017, Samsung introduced the Galaxy S8, its first product launch since the Note 7 was pulled from the market. Samsung hoped the phone's innovative features, such as its new virtual assistant, Bixby, would counter competitors like Apple and some of its lower-cost rivals making strides in China. According to Koh, "If the product is really good, it will help bring back the loyalty and trust in the Galaxy brand."¹³⁵ Early sales for the Galaxy 8 were quite promising. Five million smartphones were sold within the first three weeks of the product launch. Most of these sales were in Samsung's domestic market.¹³⁶

EXHIBIT 8.3 ■ Samsung Electronics: Selected Financial Data (in millions)

	2014	2015	2016
Revenues	\$187,606	\$170,655	\$167,327
Operating Income	22,676	22,464	24,232
Net Profit	21,000	15,899	18,580

- What grade would you give the Samsung recall? What things did they do right and what did they do wrong? How could the company have better managed this product safety controversy?
- What are the most pressing ethical issues in this case? In your view, has Samsung acted in a morally responsible way in how it handled these defective batteries?
- What can Samsung do to restore trust with its smartphone customers?

EXHIBIT 8.4 ■ Market Share by Shipments (fourth quarter, 2016)¹³⁷

Apple	18.3%
Samsung	18.1%
Huawei	10.6%
Oppo	7.3%
Vivo	5.8%
Others	40.0%

CONCLUSION

The general theme of this chapter has been the corporation's duties to its customers. The philosophy of *caveat vendor* generally prevails over the simplistic notion of *caveat emptor*. Adherence to the former principle helps to overcome the information asymmetries between companies and their customers. Those duties to customers include the requirement that products be safe and possess reasonable quality and durability. The chapter also addressed the question of responsibility in marketing, especially when the promotion of predatory products is involved. The cigarette industry represents the paradigm case of the challenges involved in selling and marketing such products. Safety is obviously a major concern in the automotive industry, but the cases in this chapter demonstrated how much the industry has struggled with providing safe products for its customers. However, as we saw in the Samsung case, the lack of due diligence in matters of safety can also be found in other industries.

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Review Questions

1. How would you summarize the corporation's obligations to its customers?
2. What are some guidelines for responding to product safety controversies?
3. Can the market find the necessary equilibrium in these matters, or does government need to exercise more control?

Discussion Questions

1. How could an organization like General Motors prepare itself to deal with product safety issues more efficiently?
2. How would you define a “safe” product?
3. Have your opinions about marketing or the cigarette industry changed after reading the cases in this chapter?

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