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Pintos with a side of Ethics



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The focus of this class had been the intricate study of engineering ethics and the practice and relevance of ethical decision making. We have learned a great deal about the impact that ethical and unethical decisions have both on the decision maker and those related. Ethics truly transcend into many facets of human existence and interaction. One of the most efficient means to demonstrate and reinforce these statements is through a case study analysis. By examining an actual event through various criteria, a practical method for understanding professionalism, morality, and other ethical related topics can be achieved. There are many events through history which could be considered logical candidates for a study of this nature. The case that I found appealing is centered on the history and demise of the Ford Pinto. Considered by many as a textbook example of an ethical dilemma, this story provokes discussion concerning professional behavior and relationships, responsibility and accountability, as well as moral theoretical frameworks. This story drew me in because of my interest in automobiles, and the influence that it has had on an entire industry.

The following piece will cover an array of information pertaining to the Ford Pinto topic. The actual events that took place will be covered in detail first, followed by the reasons for which these events and decisions were made. Then, the potential remedies and corrective actions will be noted with a descriptive mention of who should share in the blame. In addition to these details, the ethical relevance will be introduced. The ethical theoretical frameworks will receive special attention; while a lack of

"professionalism" or "conscientiousness" will be linked to the failure. Finally, I will make a personal educated judgment in regard to the optimal decision.

In the late 60's, the automotive market in America was experiencing notable changes. The competitiveness of foreign automakers and the popularity of compact cars were beginning to worry domestic manufacturers. The need to produce a compact and affordable car that could compete with the likes of Volkswagen and Honda, among others, was recognized by all of the major car makers in the U.S. Lee Iacocca, the President at Ford Motor Company, sought to produce a car that could give Ford secure footing in this regard. The car to place Ford firmly into the compact car market would be named the Pinto. The first obstacle he identified was limited time. To Iacocca, the window of opportunity to get the Pinto out and capture the market was rapidly diminishing.

Lee Iacocca wanted that little car in the showrooms of America with the 1971 models. So he ordered his engineering vice president, Bob Alexander, to oversee what was probably the shortest production planning period in modern automotive history. (engineering.com)

The Pinto received a hastened development schedule deadline of 25 months opposed to the 43 month norm. The car's design was conventional, with unibody construction, a longitudinally-mounted engine in front driving the rear wheels through either a manual or automatic transmission and live axle rear end. Suspension was by unequal length A-arms with coil springs at the front and the live axle rear was suspended

on leaf springs. The rack and pinion steering had optional power assist, as did the brakes. Seating was very low to the floor, and styling somewhat resembled the larger Ford Maverick in grille and tail light themes. (Wikipedia.org) Along with this, the car would also be required to meet stringent and uncompromising specifications. For one thing, "The Pinto was not to weigh an ounce over 2,000 pounds and not cost a cent over \$2,000."(Willis) Also, a top-secret product sheet was created summarizing the primary objectives that had to be met and to keep the project focused on the qualities that would make the car a success.

1. TRUE SUBCOMPACT

- Size
- Weight

2. LOW COST OF OWNERSHIP

- Initial price
- Fuel consumption
- Reliability
- Serviceability

3. CLEAR PRODUCT SUPERIORITY

- Appearance
- Comfort
- Features
- Ride and
- Handling Performance

With the Pinto project underway, the beginnings of an ethical dilemma were waiting in the midst. A number of completed Pintos were chosen to partake in the crucial crash test portion of the development process. Disturbing findings were discovered by the Ford engineers when they witnessed the Pinto being hit from behind at over 25mph. The rear-end collisions at that speed and above resulted in a majority of the cars bursting

into flames. The tests were ran as much as 40 times in secret to verify these findings, according to internal documents.(Dowie) The causes of these burning Pintos were rather simple. As the included picture shows, the placement of the tank behind the rear differential and inches from the rear bumper was the most crucial problem. With the car



buckling under the force of a rear-end collision, the filler neck on the gas tank would be knocked off allowing leakage. With a great enough force, the already leaking tank could impact the bolt heads of the differential case, puncturing the

tank and leaving the car and its occupants a spark away from an inferno. To make matters worse, in certain cases, the doors could jam if the chassis was twisted enough. This left the engineers and designers an urgent task to explore various means to remedy this dangerous design deficiency. After all, the safety and welfare of the consumers is of high priority.

Surprisingly, this scenario regarding the gas tank was almost avoided. In pre-production planning, engineers seriously considered using in the Pinto the same kind of gas tank Ford uses in the Capri. (Willis) What was different about this option was the placement of the tank. Instead of being positioned behind the rear differential, it was placed above it. This gas tank configuration was successfully tested over fifty times in impacts approaching 60 mph. This proven and Ford patented “saddle-type” design could have made a drastic difference. In this instance, however, the ruling decision turned out

to be a management-based one. Management was unwilling to sacrifice the storage space that would be lost with the usage of the Capri tank. Instead, engineers and designers returned to the drawing board contemplating more “favorable” options.

A number of rather simple yet very effective options were quickly devised and eventually tested. One of the options required that a plastic baffle was to be placed between the gas tank and the differential. This plastic piece would reduce the likelihood of the differential bolts puncturing the tank. Another option had a steel reinforcement bar placed behind the rear bumper to improve the rigidity of the car and reduce the crumpling results of a collision. Probably one of the best safety methods that they tested involved the installation of a simple rubber bladder into the gas tank. This rubber bladder was not only a cheaper solution than the others, but it functioned successfully at containing fuel upon tank rupture. The interesting correlation between these fixes happened while a crash test of eleven Pintos was undergone. Only three of the cars survived without ruptured tanks; each having one of the three possible solutions implemented. (Dowie)

These tests, along with the aforementioned alternatives proved that this problem could be solved, and that multiple options existed. Unfortunately, some large decisions from higher up on the management chain would influence the course of the Pinto project forever.

This point in the story is where blame responsibility comes into the equation. After all of the tests, explored remedies, and subtle recommendations from the engineers, it was up to managers and Lee Iacocca himself to decide the next course of action. It was decided that the Pinto would be released as scheduled with no modifications performed.

There are a number of reasons to explain this seemingly obvious disregard for safety. As mentioned before, the Capri tank could have been used, but it was decided against because of the reduction in trunk space. One important aspect to remember is that this car was termed “Lee’s” car by many who worked with him. (Dowie) After his success with the industry-changing Mustang, he was set on a repeat. This commitment to succeed in the same fashion, undoubtedly lead him to aggressively pursue the project. His shorter-than-usual production timeframe for the Pinto meant that the tooling of the machines and castings was conducted nearly simultaneously to the design phases. It was too late in the process to make chassis changes or gas tank modifications before the car would roll off the assembly line. (Dowie) Did this bother Iacocca? Probably not seems to be the general consensus. Not only does the product sheet above contain no mention of safety, but Iacocca himself has been described as having little regard for safety matters.

When it was discovered the gas tank was unsafe, did anyone go to Iacocca and tell him? "Hell no," replied an engineer who worked on the Pinto, a high company official for many years, who, unlike several others at Ford, maintains a necessarily clandestine concern for safety. "That person would have been fired. Safety wasn't a popular subject around Ford in those days. With Lee it was taboo. Whenever a problem was raised that meant a delay on the Pinto, Lee would chomp on his cigar, look out the window and say 'Read the product objectives and get back to work.'"(Dowie)

Coupled with his opinions of safety, were his personal understanding of the automotive industry. He believed that even the added cost of a piece of protective plastic could “price a car right out of the market.” (Dowie) This strict adherence to his beliefs

and target goals made him a very intimidating figure that did not get to where he was in life by being a compromiser.

Although Iacocca carried his fair share of influence at Ford, there were other forces affecting efforts to remedy the Pinto. In the 60's, the movement to improve car safety was taking off. The effects of many advocates of safer automobiles such as Ralph Nader instigated a trend of government regulations being imposed on what many considered "last great unregulated business" (Dowie) After the Safety Act of 1966 was signed into law, those who fought against such government intervention like Henry Ford II were now left to return home and begin the implementation process. One of the most crucial ideological decisions that were made regarding safety after this point was the use of the cost-benefit analysis. This moral ethical framework was to be the agreed upon bases by which safety requirements would be measured and deemed plausible in the automotive industry. The significance of Ford using this utilitarian-based analysis method will be seen later in the discussion.

And so the Pinto began appearing in Ford dealerships across the country in late 1970. Almost immediately, the little car began to sell quickly; fulfilling the ambitions of Iacocca and Ford. It was the smallest and most inexpensive car in Fords lineup and eventually seemed to take on a mainstay role; outselling the Maverick and Mustang. With Pinto sales of 322,000 units in 1972, and the Arab oil embargo lingering in the midst, the public's embracing of small economy cars was apparent. (Lewison)

However, a few years after its initial release, the Pinto's and even Ford's public image began to come under fire; the cat was getting out of the bag. Just as numerous

tests had shown in 1970 and 1971, people were getting into wrecks and witnessing the tank of their Pinto catch fire. Soon lawsuits, rumors, and allegations began to immerge from the scars and injuries of Pinto owners who suspected possible negligence. Ford's response to these liability suits was to take it to court and let the juries back them up. They made major miscalculations though, believing that jury members would follow the industry doctrine which attributed accidents to poor drivers, not to car design (Dowie). After surprising loses at the hands of the juries, Ford switched to a different mentality. They would now try to settle out of court with plaintiffs instead of engaging in the long drawn out and sometimes public exposure of a trial case. This strategy was only marginally successful; leaving Ford to continually deal with some serious criticism and historic jury cases. The stresses of dealing with lawsuits, settlements, the pressuring of safety regulatory agencies, and negative publicity began to amount. Ford persisted though, selling Pintos, successfully lobbying against safety standards, and avoiding any major recourse until 1977. 1977 saw both the passing of Standard 301, a piece of government legislation which would finally set standards for rear-end collision safety, and the publishing of an influential article by Mark Dowie of Mother Jones Magazine, that revealed the dangers of the fuel tank. These factors lead to an Orange County jury awarding Richard Grimshaw \$125 million in punitive damages for injuries he sustained while a passenger in a 1971 Pinto, and the Center for Auto Safety followed through with a petition to crash test a batch of 71-76 Pintos. (autosafety.org) It should also be noted that a 1977 Pinto passed the National Highway Traffic Safety Administration's (NHTSA) rear-end test thanks to the piece of plastic that was proven in early tests and that that car was built in Canada where stricter collision requirements were in place. (Dowie)

The findings of the NHTSA and the increasing publicity finally convinced Ford in 1978 to recall and modify 1.5 million Pintos produced from 1971 through 1976.

The modifications included a longer fuel filler neck and a better clamp to keep it securely in the fuel tank, a better gas cap in some models, and placement of a plastic shield between the front of the fuel tank and the differential to protect the tank from the nuts and bolts on the differential and another along the right corner of the tank to protect it from the right rear shock absorber. (Safetyforum.com)

Unfortunately for some, between the time the recall notice was announced and when the modification parts were available to dealerships, six more people died in Pinto accidents.

From 1978 to 1981, more lawsuits were filed, further damaging Ford's public relations and resulting in millions of dollars going to victorious plaintiffs.

In February of 1978, a California jury created a nationwide sensation when it awarded the record-breaking sum of \$128 million in a lawsuit stemming from a Pinto accident (Weinberger Romeo, 45). This one lawsuit was three times what Ford executives and engineers had estimated their final cost would be. And in the 1979 landmark case *State of Indiana v. Ford Motor Co.*, Ford notoriously became the first American corporation ever indicted or prosecuted on criminal homicide charges. Though Ford was acquitted of reckless homicide in March 1980, the Pinto's reputation had plummeted disastrously. (Engineering.com)

A famous quote by Oscar Wilde in reference to the Pinto puts the public view of the car quite eloquently. To him it is "A barbeque that seats four." (Uncyclopedia.org) Ford

also had its advertising agency, J. Walter Thompson, drop a line from the end of a radio spot that read "Pinto leaves you with that warm feeling." 1980 would be the last production year for the Pinto. The unanticipated financial losses from settlements and an irreparably damaged image tarnished what could have been another success for Iacocca and Ford.

With this amazing story laid out and explored, the ethical intricacies can now be addressed. A question that probably lingers through this entire ordeal is: why did Ford decide to engage in legal matter rather than make corrections? This decision was influenced by Ford's reliance on the cost-benefit assessment method. Below is an excerpt from an actual internal memo summarizing the costs of modifying their cars to meet the proposed standards compared to the benefits of avoiding lawsuits; all stated monetarily.

BENEFITS & COSTS ANALYSIS		
<i>Excerpt: Ford Inter Office Memo, September 18, 1973</i>		
BENEFITS		
180 burn deaths	\$200,000 per death	\$36,000,000
180 serious burn injuries	\$67,000 per injury	\$12,060,000
2,100 burned vehicles	\$700 per vehicle	\$1,470,000
		\$49.5 Million
COSTS		
11,000,000 cars	\$11 per car	\$121,000,000
1,500,000 light trucks	\$11 per truck	\$16,500,000
		\$137.5 Million

From Ford's calculations, it was more financially justifiable to pay out legal settlements than to modify the cars and protect their consumers. It is difficult to

comprehend the logic in this method when you consider the truly immeasurable intrinsic value of the people you love and care about. Would Iacocca have made different choices if he had been in a car fire, or had someone he knew die in a similar instance? Would Henry Ford II have lobbied so vigorously against safety regulations if one of his family members decided to buy a Pinto? These questions may be difficult to answer. We can all be sure that there were those at Ford that saw the respect for persons aspect of this situation. In many industries including automotive, there are engineers who, as we have learned, strive to uphold the principles and ideals of professionalism as well as prioritized the safety and well-being of the public. But there are also managers, supervisors, and presidents, who tend to have different motivations. It is the struggles between these types of people and moral frameworks that shape every aspect of product development and manufacturer liability.

Early efforts of the government to impose automotive fuel system crash safety standards were met with resistance by Ford and other auto manufacturers. On November 1970, Ford opposed strengthening of the federal fuel tank safety standard (FMVSS 301) while its own safety engineers were urging in an internal memo that "technology should be developed to provide rupture protection for the fuel tank for 30 mph side and rear impacts." (Safetyforum.com)

The truth of the matter is that many of today's products are safer because of lawsuits and injuries. The motivations of most managers and people in similar occupational positions are profit-based and deadline driven. If a company loses enough money and has it's imagine infringed upon, you can be certain that the safety and well-being of the consumer will rise up to the top of those people's list and that product will be changed. Sometimes

the only way for the respect for person's mentality to become recognized is through lawsuits showing that defendants have somehow violated the plaintiff's *rights*.

So where should the blame go and what other facts matter? Those at Ford who had the greatest amount of influence and control (executives/upper management) obviously carry the most responsibility. No matter what decisions were made at lower levels, these people were the final word. This case is a definite example of what a lack of conscientiousness can do to a company and the lives of many. The overall mentality of the Ford Company may also be to blame. As one Ford engineer put it: "This company is run by salesmen, not engineers; so the priority is styling, not safety." In defense of Ford, it should be declared that the low figures given to the value of a person's life in the cost-benefit analysis were actually based on the NHTSA's estimates. (Newmark) And as of 1991, it has been argued that the case against the Pinto was less clear-cut than commonly assumed. Only 27 people ever died in Pinto fires which given the production figures was no worse than typical for the time, and far less than the "hundreds" claimed by the consumer safety advocates whose allegations are largely responsible for the reputation of the vehicle. (Schwartz)

In conclusions I feel that Ford took the wrong platform and should have just installed the cheap, yet effective, rubber bladder. They ironically hurt themselves more than gain a competitive lead against the competition. The Pinto had potential and the addition of a few more dollars would not have doomed a car that people were pleased with. I was surprised to find out that even Ford's own estimates were made inaccurate to continue their delay of regulation acceptance and adoption. Discovering that the

installation of the internal gas tank bladder would have only, in reality, added a mere five dollars to the car was somewhat intriguing. To find out that when they actually got around to fixing the tanks, it only cost them a dollar, I was shocked. (Huppi.com) The scope of this case is actually bigger than just fixing a dangerous car. Between Ford's inaccurate internal estimates, relentless resistance to regulation and irresponsible consideration for each and every consumer, I believe they were trying to fight change. Henry Ford II and Lee Iacocca knew how to play the game well. They fought to preserve an industry that had been good to them and got them where they were at that point.

Many of the engineers should be commended on their efforts. It can be difficult to disagree or stand up against superiors when you have a family and bills to pay, but there were surely those that exercised some form of organization disobedience to proclaim their moral principles and commitments. Although my research did not expose any whistle blowing, I have faith that a number of engineers at Ford found some way to display their loyalty to professionalism and upholding the dignity and respect of their profession. I believe that there are two distinct changes that would have made a tremendous difference to the outcome. First, an accurate cost-benefit analysis should have been enforced. Accurate numbers would have had a better chance at achieving a creative middle way with management. Second, the choice to make the corrective changes seems more like a *proper engineering decision*. The gas tank defect involved technical matters that the engineers understood better than anyone else, and the decision falls within ethical standards embodied in engineering codes. I close with a line chart analyzing the considerations of the Pinto defect.

PED/PMD: The Pinto Defect

Feature	PMD	Test	PED
Technical expertise	Not needed	-----X--	Needed
Safety	Not important	-----X	Important
Cost to fix	Important	-----X-----	Not Important
Scheduling (delays)	Important	-----X-----	Not Important
Marketing	Important	-----X-----	Not Important

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