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ENCS4210: Computer Engineering Ethics

Term Paper

Volkswagen Emissions Cheating

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What Happened:

It was once termed the "diesel dupe". In September 2015, the Environmental Protection Agency (EPA) discovered that several Volkswagen vehicles purchased in America featured a "defeat device" - or software - in diesel engines that could recognize the time they were being tested and adjust behavior accordingly to enhance results. The company subsequently admitted to falsifying emissions tests in the United States. Volkswagen has strongly pushed to sell cars with diesel engines in the United States, supported by a massive marketing campaign emphasizing the cars' low emissions. The EPA's conclusions only apply to 482,000 vehicles in the United States, which include the VW-manufactured Audi A3 and Volkswagen models Jetta, Beetle, Golf, and Passat. However, Volkswagen has confirmed that around eleven million vehicles are operating globally, with eight million in Europe [1].

In November, Volkswagen announced that it had discovered "inconsistencies" in carbon dioxide test results, potentially affecting around 800,000 cars in Europe, including petrol vehicles. However, in December, it stated that after conducting examinations, it had determined that this only affected approximately 36,000 of the cars it makes each year [1].

All the specifics of how it operated remain a mystery. Still, the EPA has stated that the engines included computer software that could detect test scenarios through tracking speed, engine function, air pressure, and even the orientation of the steering wheel. When the cars operated under monitored lab conditions, which often included placing them on a stationary test rig, the instrument appeared to have put the vehicle into a type of safety mode in which its engine ran at lower power and performance. Once on the road, the engines moved out of this test mode. The engines released carbon dioxide pollution up to 40 times more than what is permitted in the United States [1] [2].

The Environmental Protection Agency (EPA) identified that nearly 600,000 vehicles in the United States were equipped with the software. These included models like the Volkswagen Jetta (2009-2015), Beetle and Beetle Convertible (2012-2015), Passat (2012-2015), Golf (2010-2015), and Golf SportWagen (2015). Audi models such as the A3 (2010-2015) were also affected. In Europe, approximately 8.5 million cars were

impacted, including Skoda and Seat models not sold in the U.S. Additional affected vehicles included the Volkswagen Touareg (2009-2016), Audi A6, A7, A8, Q5, and Q7 (various years from 2009 to 2016), and the Porsche Cayenne (2013-2016). The scandal involved vehicles across Asia, Africa, and South America [2].

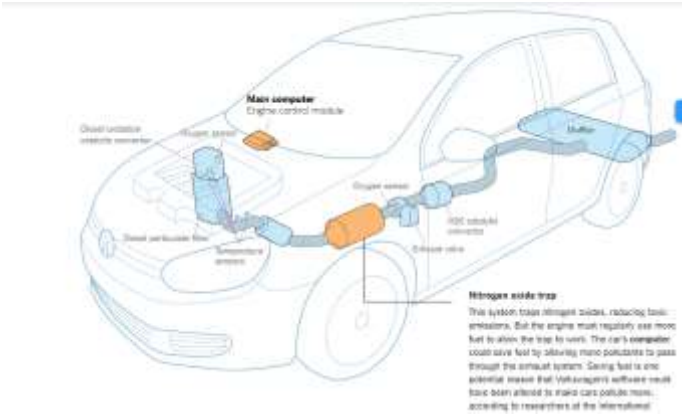

Figure 1: visualization of the VW car [2]

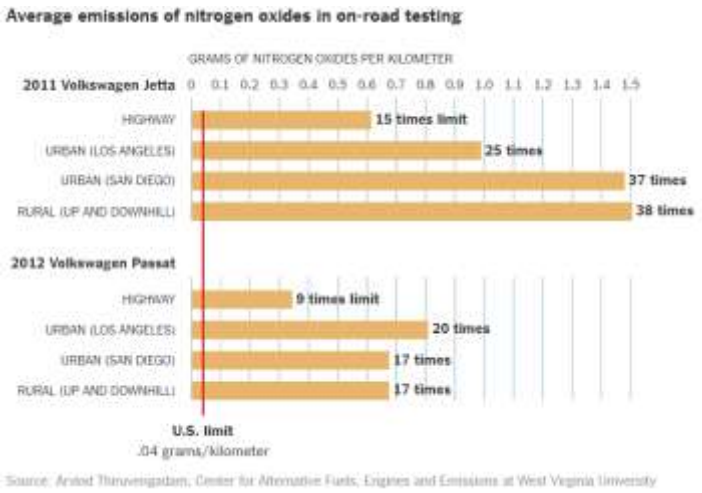

Figure 2: Average emissions of nitrogen oxides in on-road testing [2]

The International Center for Financial Regulation (ICFR) defines regulation capture as when an agency responsible for managing a sector or industry prioritizes commercial or political interests over the public interest. One month after the scandal, EU officials met in Brussels to discuss the repercussions. However, they did not advocate for alternative testing methods, such as testing auto emissions on the road, to counter the manipulation software [3].

The Spanish mission suggested a simplified assessment system to protect highly skilled employment and the Spanish economy. The British, French, Italian, and German delegates all took a similar approach. The EU commissioner worried the discussions would fail and encouraged everyone to support the watered-down proposal. The European auto industry, which employs 12.1 million people and accounts for 7% of the EU's manufacturing employment, has a tight relationship with the government. The government has been hesitant to take action that may jeopardize the sector's stability [3].

Who is Responsible:

Multiple parties at Volkswagen share the blame for the emissions crisis. Engineers who created and deployed defeat devices to cheat emissions testing were highly involved in illegal operations, changing engine functions to pass regulatory tests despite knowing that emissions were substantially higher than allowed under normal driving circumstances. This controversy also brought to light deeper faults within Volkswagen's corporate culture, where ethical violations were accepted, if not encouraged, to achieve economic objectives. Due to a lack of sufficient checks and balances, immoral activity went unnoticed for years. Furthermore, the board of directors failed to identify and address unethical acts in a timely fashion [4].

Newsweek has found that Volkswagen engineers and technicians attempted to inform supervisors about the emissions-rigging actions as early as 2011, but were disregarded. "We have received several complaints about people attempting to warn the company about this, which is being investigated via our external detective," Volkswagen's head of external and investor relations, Hans-Gerd Bode, told Newsweek. Volkswagen's external investigator, law firm Jones Day, which is monitoring an internal investigation, declined to comment [5].

Volkswagen's U.S. CEO was aware of the misbehavior since early 2014. Engineers faked tests due to pressure from management, and executives kept stakeholders in the dark. Cheating in the U.S. market has been attributed to aggressive market aims, technological flaws, deceptive marketing, unethical governance, and management's rationalization for ethical infractions, according to Lynch (2016). Volkswagen's ethical

failure may be attributed to its organizational culture, which emphasizes the necessity of an effective board and management architecture. This article cannot rationalize the decision-making process, but it is clear that it is immoral [6].

Ethical Frameworks:

Besides public apologies, Volkswagen has offered a voluntary recall of all Cars featuring TDI engines. Martin Winterkorn, CEO of Volkswagen, announced his resignation immediately, as did the company's senior US executive. Heinz-Jakob Neusser (head of brand development), Ulrich Hackenberg (head of Audi R&D), and Wolfgang Hatz (head of Porsche R&D) were all suspended. The Volkswagen headquarters in Wolfsburg and other offices were searched for investigative reasons. It's difficult to believe that the manipulation program was developed by a small group of individuals. The company's mistakes and strategies may have contributed to the controversy, but it was far from an accident. Firms must be transparent and honest with their owners, and management should be responsible to stakeholders. However, the issue went beyond simple deception. This case involves sophisticated arguments related to regulatory capture [3].

- ***Kantian Ethics and the Volkswagen Emissions Scandal***

Volkswagen's conduct during the emissions issue was immoral, according to Kantian principles. Kantian ethics points out acting according to universally applicable maxims and respecting persons as ends in themselves, rather than as means to an aim. Volkswagen's use of defeat devices to cheat emissions testing went against these objectives by engaging in deceptive activities that disregarded consumers and workers. This deceit undermined both stakeholders' confidence and rational agency by considering them as simple tools for profit maximization. Furthermore, if such unethical activity became widespread, it would undermine faith in the whole automobile sector. While Volkswagen has now endeavored to implement a structure of norms and duties to rebuild confidence, the original acts are nevertheless incompatible with Kantian ethics, showing a serious breach of moral obligation [6].

- ***Act Utilitarianism and the Volkswagen Emissions Scandal***

Act Utilitarianism examines the morality of acts based on their outcomes, to produce the most good for the largest number of people. Volkswagen's emissions cheating, however, did not maximize overall benefit; rather, it caused considerable harm to a variety of stakeholders. Although the corporation may have gained in the short term from increased sales and market share, the long-term effects included job losses, wage cutbacks, environmental harm, and a ruined corporate brand. The revelation of the deception resulted in widespread negative consequences that far outweighed any momentary advantages. Volkswagen's activities are undesirable from an Act Utilitarian stance since they failed to produce the greater good and instead caused widespread harm, necessitating a fee to deter future ethical transgressions [6].

- ***Rule Utilitarianism and the Volkswagen Emissions Scandal***

Rule Utilitarianism holds that acts ought to submit to rules that, if universally obeyed, would result in the greatest benefit. Volkswagen's obvious disdain for emissions laws, as well as its use of defeat devices to cheat testing, fundamentally breached the norms intended to safeguard public health and the environment. This disrespect for established laws did not maximize utility but rather caused severe harm to stakeholders and the environment. Volkswagen's failure to comply with emissions requirements is unreasonable under the Rule of Utilitarianism. The company's disrespect towards standards designed to guarantee the well-being of the larger society demonstrates a significant ethical failure, leaving its conduct irreconcilable with both Rule and Act Utilitarianism [6].

- ***Could Be a Solution:***

The Volkswagen Group has been left with the challenge of building confidence with its customers and stakeholders. There are no clear criteria for dealing with a company's damaged reputation. Volkswagen might relaunch under a new brand, join an independent verification agency, or form a bond. Volkswagen should make as many efforts as feasible to restore the company's confidence. The worst-case situation is inaction, which might lead to a consumer boycott. This would weaken revenues and eventually lead to the company's downfall.

- ***Re-branding:***

Over the last 60 years, Volkswagen has grown to become one of the world's largest automobile businesses. While some feel that the incident will be forgotten quickly, other Volkswagen executives have explored the notion of restarting the corporation under a new name. Restarting the corporation under a new name might enhance the brand image by creating a smaller and more efficient entity than the existing Volkswagen Group. Rebranding can improve productivity and save money for the organization. Rebranding can be costly and hazardous, but it can mitigate the negative publicity produced by the controversy. It is important that the rebranding not only focuses on exterior changes but also changes in other aspects of the company. The Volkswagen Group, led by CEO Matthias Mueller and a management board chaired by Herbert Diess, is facing severe issues following a huge scandal involving former CEO Martin Wintercorn, who is expected to get a large compensation despite his participation in the cover-up. Bernd Osterloh, Chairman of Volkswagen's General and Groups Works Council, proposes hiring a new CEO with significant technology knowledge to promote openness and a healthier company culture.

Rebranding initiatives should prioritize true sustainability and enhanced corporate social responsibility (CSR) standards. Volkswagen should work with regulatory agencies, suppliers, universities, and non-governmental organizations (NGOs) to incorporate CSR into all activities, to reduce energy consumption, carbon emissions, water use, and waste. Transparent communication, including an updated website, yearly reports, and clear financial statements, as well as engaging social marketing initiatives, will be critical to rebuilding public confidence and strengthening the company's image [6].

- ***Joining an Independent Verification Agency:***

In addition, Volkswagen should work with independent verification authorities such as WCSBD, FLA, FTC, and LMOP to regain customer confidence and credibility. These organizations encourage sustainable business practices, uphold ethical standards, protect customers, and minimize emissions. Partnering with them would help Volkswagen get recognition for its corporate social responsibility activities and boost its performance in global sustainability benchmarks such as the Dow Jones Sustainability Indices [6].

- ***Posting a Bond:***

Volkswagen may rebuild consumer trust by issuing a high-value bond as a guarantee against future fraud. This bond would be paid to the European Commission in the event of misbehavior, driving greater regulatory audits. The bond funds might be used to promote green vehicle research and development, as well as decarbonization activities. To pay the bond, Volkswagen may explore selling its truck manufacturing subsidiary, MAN SE, which would provide considerable money for innovation and claims compensation. This decision would allow Volkswagen to concentrate on producing cleaner hybrid and electric vehicles, perhaps decreasing their pricing to encourage customer uptake and reclaim its market dominance [6].

- ***Recommendation:***

Volkswagen should work on regaining credibility. While rebranding is improbable, collaborating with independent verification organizations is practical and useful. The most expensive alternative is to sell a brand to fund a bond, which, while costly, would restore enormous trust in Volkswagen.

A combination of joining verification agencies and posting a bond is advised. This strategy would help gradually recover customer trust and boost sales. While stock prices may not rebound immediately, displaying sorrow and a commitment to improved corporate social responsibility might help Volkswagen reclaim its position in the global automotive sector [6].

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