CST373 – Assignment 2: VW Case Study

My name is Sam and I am in the CST 373 online Ethics class at CSU Monterey Bay. My time at CSUMB so far has been extremely positive. I have learned many different flavors of programming technology in a technical sense. CST 373 really takes that technical knowledge and focuses it into a behavioral construct involving ethical decisions revolving around such technology. As a class we take a look at the broader picture of how technology affects our lives. Importantly we discuss many issues surrounding privacy, security, and legality. Within my daily life as a career System Administrator I deal with ethical decisions involving technology all the time. As a Sysadmin I am the arbiter of private employee data, and proprietary company information. I have to be held to a standard of excellence and ethical resolve in order to execute my job worry free. The lines cross in my career between information/data to programming in a DevOps sense. I have responsibilities to give credit to authors when my projects involve code taken from external sources. In this ethical research paper I will discussing the actions of Volkswagen that intentionally deceived international law. We will take a look at the historical context leading up to the illegal actions, as well as the history and timeline throughout. We will also have a good look into the reactions of many key stakeholders at the time including the environment, stock holders, and government agencies. Lastly I will go in depth on the clear ethical challenges and wrongdoings illuminated by this case study. This is a great topic because it is a huge scandal

that is taking place in present day. Usually huge scandals that involve a long trail of illegal activities are case studies far in the past. It is most interesting to me, and shocking to be frank, that a company could evade consequences of such deception for so long. It seems absurd in fact that the truth was under our very nose the whole time, and shines a light on other corporations that we trust now – but may in fact be very deceptive. It is healthy for a case like this to come around and align the public in a heightened sense of awareness for ethical issues taking place in modern day.

The Volkswagen Diesel cheating emissions testing is also known as Emissionsgate. The coining of this term was made popular by Watergate which was arguably the largest public government scandal in the United States. To find out the motivations behind why VW would cheat the emissions testing we must first dive into the automotive climate during the time. No doubt VW is always under a lot of pressure to beat the competition, impress shareholders, and make a large profit. It's easy to see how poor direction can be trickled down to the software programmers to make decisions perhaps even they think is unethical. Diesel engines have a notorious reputation for running dirty in the environment, producing soot and other contaminants. However, the benefit of diesel is improved efficiency to name one. Another key factor is how strict US emissions laws have become, for our own public health and the health of our planet. Mixing these conditions together is a breeding ground for deceptive activity, and dishonest ways of conducting a business. This is not the first time emissions scandals like this have taken place, according to ArsTechnica

(http://arstechnica.com/cars/2015/10/volkswagens-emissions-cheating-scandal-has-a-long-complicated-history/) “Between 1991 and 1995, GM sold approximately 470,000 Seville, DeVille, Eldorado, and Fleetwood model Cadillacs with 4.9L V8 engines that turned off the emissions control system when the driver turned on the air conditioner.” During moments when users of the vehicle would turn on their air conditioner, the vehicles computer would use more gasoline during combustion which greatly increased the CO2 emissions and bypassed the control system. In this case the legal rulings with GM settled at $45 million. And according to the same article, “In 1998 the EPA reached a settlement with Ford over defeat devices found on 60,000 1997 Econoline vans. Ford was accused of equipping its electronic control module with instructions to increase fuel economy (and override the emissions control system) when the vans were driven at highway speeds.” This case for Ford ended in them recalling the affected models and the EPA slapped an additional $2.5 million dollar fine.

Computers in cars has now become so advanced, and the code proprietary, companies and individuals can achieve new levels of deceit – and it is very hard for the EPA to audit this. The VW scandal affected upwards of 11 million cars worldwide, which makes it quite possibly the largest automotive scandal in history. (http://detroit.cbslocal.com/2015/09/21/epa-volkswagon-thwarted-pollution-regulations-for-7-years/) 500,000 of them including “Jetta, Golf, Beetle and Audi” were found to be in violation within the United States. What exactly did VW program in the car to cause such a scandal? They internally wrote software in the vehicles computer to detect when an

emissions test scenario was occurring – during which time the vehicle acts differently to become “more clean”. This is known in the industry as a defeat device, and is strictly illegal in the United States unless outfitted to an emergency vehicle. In a basic sense this led to real world driving scenarios showing vastly different emissions numbers than tested in the laboratory. NPR author Bill Chappell states, “Installed in four-cylinder cars, the software, which the EPA calls a ‘defeat device’ that's meant to trick official tests, allowed diesel Jettas, Beetles and other cars to ‘emit up to 40 times more pollution’ than allowed under U.S. emission standards.”

It’s very hard to justify cheating the Environmental Protection Agency if the vehicle emissions were double the legal limit – it is almost unthinkable to find out VW’s emissions were in fact up to 40 times more polluting of nitrogen oxide. Computerworld describes in simple terms the behavior of the defeat software: “According to the EPA, ‘the position of the steering wheel, vehicle speed, the duration of the engine's operation, and barometric pressure’ -- all very specific indicators of an emissions test -- acted as the activation switch for the ‘defeat device.’ Essentially, the vehicles' electronic control module (ECM) was set to ‘clean’ mode for the remainder of the emission's test procedure.” (http://www.computerworld.com/article/2986355/telematics/epa-details-how-vw-software-thwarted-emission-tests.html) Fundamentally the software engineers at VW engineered a software to somewhat intelligently detect when a car was in a lab emissions testing setting and instantly made the engine and ECM behave completely different than

under normal conditions. This is a direct evasion of environmental protection laws and was later admitted by the CEO Winterkorn of Volkswagen, “We’re putting everything on the table as quickly, rigorously, and transparently as possible. To be frank with you, manipulation and Volkswagen—that must never be allowed to happen again. I would like to make a formal apology to our customers, to the authorities, and to the general public for this misconduct.” (http://www.autoguide.com/auto-news/2015/09/in-quotes-vw-execs-speak-on-the-diesel-scandal.html) It is very easy to blame the leadership for poor decision making, after all someone has to be responsible right? According to a report by UPI just last month, the responsibility falls on all levels (http://www.upi.com/Business_News/2016/09/09/VW-engineer-admits-conspiracy-to-cheat-US-regulators-with-emissions-device/9571473441964/) an engineer at VW “James Robert Liang made the plea before judge Sean Cox in the U.S. District Court for the Eastern District of Michigan in the first criminal case against the German automaker. Liang had been indicted by a grand jury on charges of conspiring to commit fraud.” And later stated that his sentence included a $250,000 fine and possible 5 years in prison.

The media as a whole was outraged by this event, as were shareholders, lawmakers, and the general public. The sentiment of deception was plastered over most headlines of mainstream internet and television media. It was a complete widespread negative exposure for the German auto-maker. Such headlines as “What Was Volkswagen Thinking?” by the NYTimes, and The Globe and Mail “Volkswagen has made a fool of its customers”. The

evidence provided by the scientists at Virginia university and independent verifications were enough evidence for the media to start a frenzy. One article described the VW software as “evil ingenuity incarnate.” (http://www.theglobeandmail.com/opinion/editorials/volkswagen-has-made-a-fool-of-its-customers-with-emissions-scandal/article26463892/). From my research and estimation, I feel that most of the credible media has been very accurate and unbiased in the portrayal of this news. In this particular case there is a clear victim and assailant, in addition to the evidence provided by scientific research – it was a cut and dry verdict. The research involved West Virginia University researchers devising a study between a Passat and Jetta “NOx emissions for “Vehicle A” (the Jetta) were 15 to 35 times higher than the EPA standards, and those for “Vehicle B” (the Passat) were 5 to 20 times higher.” (http://www.citylab.com/crime/2015/09/the-study-that-brought-down-volkswagen/407149/) .

There are some very obvious ethical issues surrounding this scandal. The most glaring being the deceit, manipulation, and damage to the general public. Not only were consumers spending millions of dollar on a product that was marketed a lie, but the environmental protection agencies regulations were effectively mocked. It’s particularly hard to pin point where exactly we begin our ethical search with new technology, as Ricardo Hashimoto puts it “Because the cheating is encapsulated in software, the malicious actions can happen at a far remove from the testing itself.“ In a way it’s multiple layers

disconnected between the ethical decision and the consequences of that decision. Let's first look at this from an ethical virtue-based framework point of view. Even though we are questioning the ethical actions of a corporate, we have to always remember a corporation is made up of individual decision makers. In a virtue-based framework, and individual has their own moral virtues that they believe a human being should strive to become or be. Though I am no expert on this ethical framework, I find it to be a rather subjective one. When faced with the decision of whether or not to start programming a software that cheats United States EPA laws, in a virtue based system you have to ask: Is this decision in line with the type of person I strive to be? The leaders of the organization have to ask: Does this decision line up with the business/corporation I am striving to create? And lastly, can one understand deal with the consequences of such decisions. Different people will have different opinions on their answers to these questions, but we can all agree there should be standards of ethics defined when operating a business. Certainly if these questions were asked before the engineers and managers decided to write the software that effectively cheats the EPA's regulations – we may have had a different outcome in this scandal. The second ethical framework is Utilitarianism. If we look at this issue from a Utilitarian framework point of view, we ask the questions: Will this decision be a benefit or a detriment to a great number of people? The decision of VW motors and the individuals therein to deceive the entire populate have put a large detriment to society. The health hazards alone have led to deaths with the increase nitrogen oxide emissions. According to Green Car Reports: "Researchers claim that if cars are recalled before the end of 2016, 130

additional early deaths may be avoided." In addition, "if the problem isn't dealt with relatively soon, the excess emissions could cause an additional 140 premature deaths." (http://www.greencarreports.com/news/1102397_illegal-vw-diesel-emissions-tallying-public-health-damage) This issue is far reaching beyond legal, monetary, and environmental concerns. It is a concern for public health, which is part of the reason these EPA laws and regulations exist in the first place. VW decision makers had no regard for the public good, therefore went against the fundamental framework of Utilitarianism. The third and last ethical framework I will use as a lens is environmentalism. This is a very easy one to discuss since the decisions of VW to bypass Environmental Protection laws directly affects our planet. With CO2 and NOx levels that far exceed regulation standards, the decision makers clearly did not have environmental impacts in mind. The point of view of an environmentalist would find it unethical to unnecessarily harm the environment, which is exactly what the decision of cheating emissions testing directly led to. Over the 6 years these automobiles emitted "between 10,392 and 41,571 tons of toxic nitrogen oxides (NOx) into the air every year, based on typical annual mileage counts. If those vehicles had complied with federal pollution standards, they would have emitted just 1,039 tons per year." (http://earthtalk.org/volkswagen-emissions-scandal-impact/) The view from the three ethical frameworks have maintained a sentiment of negativity. I believe the tests for each framework have failed in perspective with the decisions made by Volkswagen.

What is the future like for this issue after the ethical conversation has been laid to rest? Volkswagen on the plus side has made fairly big commitments to fix the wrong actions

and poor decisions. They already issued recalls on some 500,000 cars to fix the main emissions issue. Within the next 5-10 years they will work on fixing the main issue with cheating emissions. Beyond 10 years Volkswagen seems to be heading towards the electric car market. According to sources from ArsTechnica the German automotive brands are to release "30 new electric vehicles across Volkswagen, Audi, Porsche, and its other brands by 2025." Later in the article it was stated "Beyond commenting on the diesel issue, VW Group added that it would be investing in developing units to lead the company on battery technology, digitalization, and autonomous driving." I believe a large portion of the automotive industry sees the trend of electric vehicles and are developing the technology now so they don't fall behind. Of course this won't solve ethical issues as a whole, but no one can argue it will be better for human health and the environment. (http://arstechnica.com/cars/2016/06/after-emissions-scandal-vws-roadmap-for-the-future-is-aggressive-on-electric/)

There is no doubt that I believe what Volkswagen perpetrated was deeply wrong and unethical. I could talk for days about the effects and consequences of the decisions of the few. As a consumer I certainly don't trust them anymore, and can't see myself purchasing any of their products in the future. Me aside, I know they have lost trust with the general public as well. With that being said, now that Volkswagen has effectively gotten "caught" their remediation plans are respectable. According to the New York Times, "set aside 6.5 billion euros, or about $7.3 billion — the equivalent of half a year's profits — to cover the

cost of making the cars comply with pollution standards."

(http://www.nytimes.com/2015/09/23/business/international/volkswagen-diesel-car-scandal.html) Before researching this issue I had just read about it very briefly when the story was first breaking. I didn't pay too much mind to the details. Now that I have near completed this research paper I can say I was completely blown away by the details in this case study. I really didn't fully appreciate the widespread impact and consequences brought about by the actions of Volkswagen. The remediation has another double-edged sword for customers and shareholders in the fact that the advertised performance of the engine will be worse after they fix the emissions issues. That hammers the point home for me. It also widens my gaze among other corporations and makes me wonder how many others are involved with unethical practices, and how I can better arm myself as a consumer to not become a victim.

Citations

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