



**ELICITING MILLENNIAL PERSPECTIVES ON ETHICS,
INDIVIDUAL MORALS, AND SUSTAINABLE DEVELOPMENT
IN THE AUTO INDUSTRY**

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Abstract:

Integration of moral values with ethics for sustainable development in the auto industry research analysis on 5 auto industry related incidents; GM faulty ignition left 100 dead and paid \$2 billion in civil settlements and fines; and Toyota recall of the unintended acceleration caused 89 deaths United States and costed over \$1.2 billion to address the economic loss. The 1978 recall of the 14.5 million Firestone and 2000 Ford Explorers highway rollovers equipped with firestone tires killed 271 people; Takata defective airbags by Japanese Auto makers agreed to pay \$1 billion in penalties and fines in recall of 70 million airbags in 42 million vehicles with 11 deaths and 150 injuries and 100 million worldwide recalls; and Volkswagen emission deceptions in violation of Clean Air Act and with payment of \$4.3 billion in criminal and civil penalties with overall settlement of \$22 billion in fines and settlement in United States for 600, 000 vehicles. What are the perspectives on ethics and sustainability in the auto industry by millennials who are projected dominate the workforce Auto Industry by 2020? The research findings detailed the agreement of participants that Volkswagen cheating software; Firestone treads peeling off; Takata airbag explosions; and Toyota sticky gas pedals were all unethical actions; the strategies shared by participants included selection of individuals with moral thus improving company culture.

JEL: L62, Q52, Q53, D23, D83, F63 M12, M14, K32, O13, Q54, Q56

Keywords: ethics, auto industry, recall, pollution, Green House Gases, millennials, sustainability

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1. Introduction

Auto industries scandals have been evident since the 1960's with both the government regulators and the public scrutinizing the scandal thus impacting their sustainability. The lack of federal regulatory laws contributed to 1.9 million injuries and 50,894 deaths; this was 5.50 deaths for each hundred million vehicle miles travelled (VMT) (Graf, 2015). To address the fatality rates congress enacted Highway Safety Act and National Traffic and Motor Vehicle Safety Act; without the enacted regulations in 1966 in 2014, there would have been 167,956 but there were only 32,675 deaths a decline of 80% in the past 50 years (Graf, 2015).

Regulators take measures to enact policies that are stringent to minimize the unethical conduct from re-occurring this puts pressure on auto industries to address the unethical events that occur (Levin, 2015). In the pollution aspect; the reason behind the stringing measures against pollution has a correlation to the 150 million Americans living in areas that are below federal air quality standards with heavy-duty trucks and passenger vehicles emitting high percentage of Greenhouse Gases (GHG) emissions as shown in Appendix A (COP21, 2016; Union of Concerned Scientists, 2014). The control of the air quality is essential to minimize respiratory ailments that include bronchitis, asthma, and cancer; the air quality that contributes to 30,000 premature deaths yearly (Union of Concerned Scientists, 2014).

Environmental Protection Agency (EPA); the federal government in the United States has the responsibility for the air quality standards; the transportation industry is ranked as the second largest in (GHG) emissions as shown in Appendix A (COP21, 2015; Union of Concerned Scientists, 2014). Part of the culprit is Volkswagen who pled guilty for knowingly installing software that detected when pollution tests are being conducted; the software allowed Volkswagen to cheat and be in adherence with the United States Clean Act; an action that was set to defraud car owners and regulators (CNN Money, 2015; Ewing & Boudette, 2017).

What are the perspectives on ethics and sustainability in the auto industry by millennials who are projected dominate the workforce Auto Industry by 2020? The research focused on millennials from age group 18 – 35 using interview questions listed in Appendix B. The objective was to understand the millennials perspectives on the ethics behind auto industries as they are projected to dominate the United States workforce by 2020 (Hyder, 2016).

2. Literature Analysis

2.1 General Motors Main Incidents

Dating back to 1965 Ralph Nader publication revealed that General Motors (GM) cut corners to save cost on the Corvair's swing-axle rear suspension and the single-piece steering that impaled driver in collision; GM retaliated by destroying Nader's reputation (Levin, 2015). GM also came to surface with unethical conduct when six models made from 2003 to 2007 unexpectedly turned off; 13 deaths occurred but GM didn't recall but treated the defect as customer service satisfaction and GM later recalled 1.6 million vehicles (Goodman, 2014; Klayman, 2014; Stout, Ivory, & Wald2014). Federal safety was in receipt of 260 complaints over the 11 years before investigations were completed; GM later recalled the affected cars with totals that included United States with 1,367,146; Canada with 235,855; Mexico with 15,073; and 2,591 exported outside North America; (Klayman, 2014; Stout & Ivory 2014). GM's faulty ignition recalls contributed to 124 deaths; the investigations revealed that GM engineers had knowledge of the defective switches for a decade and were ordered to pay \$900 million fines (Levin, 2015).

Comparing auto industries, Statista research confirmed that GM is championing in the number of recalls as shown in Appendix C; GM also recalled 4.28 million vehicles worldwide (3.6 million from the United States) from 2014-2017 for the defect in the air bag software in Cadillac, GMC, Chevrolet, and Buick; a recall linked to 1 death and 3 injuries (Associated Press, 2016; McCarthy, 2014). The 2014 recall was related to software not mechanical such as the ignition recall that costed \$2 billion regulatory fines, criminal investigation settlements, and victim compensation (Gardner, 2016). CBS news reported that GM settled \$300 million class-actions from shareholders; \$275 million to 1385 injury and death cases; \$600 million to 399 claims of which 275 were injuries and 124 were deaths (CBS News, 2016; Gardner, 2016).

2.2 Ford Explorer-Firestone Tires 1978 and 2000

2.2.1 The 1978 recall of the 14.5 million Firestone. "500 steel belted radial" tires were considered unsafe by the Department of Transportation; a problem that was traced to the change in technology (radial tire building machinery) to compete with Michelin and Goodyear (Kramer, 1978). National Highway Traffic Safety Administration (NHTSA) survey of 100,000 owners confirmed defects in the tires that failed at high speed and a recall was issued for the 14.5 million steel belted radials (Sull, 1999; The Center for Auto Safety, 2009). NHTSA fined Firestone \$500, 000 for knowingly selling tires that didn't meet the requirement of high speed safety standard 109; this incident sent the company

downhill with billions of dollars in debt and a later sale of Firestone to the Japanese Bridgestone for \$2.6 billion cash (Brooks, 1988; Hicks, 1988; Sull, 1999; The Center for Auto Safety, 2009).

2.2.2 2000 Firestone tires produced by Bridgestone Corp. Firestone tires came under pressure from the public, advocates, major retailers, and government regulators for to stop and pull all tires; a risk that would cost the company millions in sales and reputation (CNN Money, 2000). The tires as reported by Wall Street Journal and CNN Money were failing; the treads peeled off and the core of the tire separated leading to crashes (CNN Money, 2000; Simison, Lundegaard, Shirouzu, & Heller 2000). The Economist (2001) reported the 1997 to 2000 tire production of 2.9 million was given to Goodyear and Firestone; findings reported 2 complaints from Goodyear and 1.183 tread separations from Firestone with majority of the production from Decatur, Illinois.

The 2000 Firestone tires recall was confirmed by the National Highway Traffic Administration as the reason behind Ford Explorer tires shredding (Levin, 2015). The recalled tires included P235/75R15 in Wilderness AT tires, ATX, and ATXII; this recall was second largest since Firestone's 1978 recall of 14.5 million tires (CNN Money, 2000). The 2000 recall of tires were in the Ford Explorer that was considered as the world top selling sports utility vehicle (SUV) when the incident contributed to Firestone recalling 6.5 million tires causing shares to drop drastically (See Appendix D) (Ackman, 2001; Levin, 2015; The Economist, 2001). The failure to detect and address the 1990's Ford Explorers highway rollovers equipped with firestone tires killed 271 people; the United States Congress reacted by enacting a regulation for automakers to notify the safety agency of incidents reported associated to deaths and injuries (Stout, Ivory, & Wald, 2014).

Firestone supplied 41% of Ford tires prior to the 2001 crisis (Bradsher, 2001); Ford and Firestone pointed fingers at each other for the defective tires as Ford received lawsuits for over \$590 million for damages (Greenwald, 2001). CNN Money reported that Ford and Firestone shared the cost of the recall in 2000 that totaled \$1 billion (Isidore, 2001). CBS News report in 2005 confirmed the Firestone payment of \$240 million to Ford Motor for the 2000 recall of the defective tires claim settlements; overall Ford lost more than \$900 million from the reputation, low production, and competition (Roberts, 2005).

2.3 Toyota Motor Corp 2009 Recall

Toyota is a well-liked brand with 243,229 vehicle sales in December 2016 an increase of 2% from 2016 is ranked as the number 1 retail brand with Toyota Camry as the favored

model that had 33,412 unit sales earning the title of top car sales 15 years in a row in December 2016 (Toyota Press, 2017). Toyota lost good standing among consumers when federal regulators enforced Toyota to take measures on Camry, Prius, and Lexus sedans accelerators crisis came to light (Vlasic & Bunkley, 2009). The complaints were of the gas pedal being stuck and drivers' inability to stop the car; the recall affected almost half of the Toyota sales in the United States causing 89 deaths and 57 injuries of the 6,200 complaints (CBS News, 2010; Vlasic & Bunkley, 2009).

Toyota's reputation was tarnished from this 2009 recall when United States regulators declined Toyota's request of treating the crisis as "special service campaign" and required a recall for the sticking gas pedal to be conducted to inspect 7.5 million cars worldwide (Reuters, 2012). The recalled vehicles amounted to 8 million, the recall impacted Toyota sales and stock (See Appendix E) (Reuters, 2012; (Vlasic & Bunkley, 2009). Other sources reported a 9.3 million car worldwide recall with 2.3 million with sticky accelerators, 5.2 million with floor mat issues, and 1.8 million with floor mat and sticky pedals (Wasserman, 2014). Toyota Motor Corp's 2009 recall was termed as the largest paid crisis to avoid criminal prosecution; Toyota recall of the unintended acceleration spent over \$1.2 billion to address the economic loss (Klayman, 2014; Levin, 2015; Ross, 2014). CBS news reported fines of \$16.4 million for the delayed recalls and slow response (CBS News, 2010).

2.4 Takata Airbag Recall and Honda

Airbags as confirmed by Department of Transportation saved 37,000 lives between 1987 to 2012; the Takata airbag deployment crisis totaled 1.2 million over 15 years with 88 ruptures in a span of 15 years (Consumer Report, 2017). The most complex safety recall in the United States as confirmed by NHTSA was linked to Takata airbags that were installed in 2002 through 2015; the airbags could explode killing or injuring the occupants (Consumer Report, 2017). The airbag incidents date back to 2000 when Times Magazine reported that Takata and Honda were aware of the defective airbags but no steps were taken and regulators weren't informed; the first recall of 4,000 Honda vehicles was announced in November 2008 (Tabuchi, & Boudette, 2017); followed by NHTSA confirmation of 42,000,000 vehicles affected and about 7 million worldwide; (Tabuchi, 2014; NHTSA, 2017).

NHTSA identification of the root problem as the airbags with ammonium nitrate-based propellant and no drying chemical agent; the findings influenced the NHTSA to require recall of 35 million United States air bag inflators amassed by Takata by 2019 because of the (Reuters, 2016). The high-risk cars of airbag rupture as confirmed by NHTSA were Honda and Acura models in the range of 2001 – 2003 with 7, 122, 510

airbags already repaired by Feb 12, 2016; other vehicles included BMW, Ford, Tesla, Toyota among others of the 100 million plus affected as confirmed by Bloomsburg (Berfield, Trudell, CroninFisk, & Plungis, 2016; Consumer Report, 2017).

Takata airbag explosion was considered as the largest world auto recall; the Takata airbag inflator exploded launching metal within the cabin and contributed to 11 deaths in the United States, 5 deaths in Malaysia, and hundreds of injuries by the exploding inflators (Campbell, 2017; Reuters, 2016). As the death toll correlated to the defective airbags raptures increased millions of airbags were recalled worldwide in amounts of 28 million in 24 million vehicles; projected to reach 42 million vehicles and 65 to 70 million airbag recalls in the United States and 100 million worldwide (Campbell, 2017; Kiley, 2016). Federal prosecutors charged Takata \$1 billion fines for providing falsified data with Takata chief executive accepting that the company actions were unacceptable (Tabuchi, & Boudette, 2017).

2.5 Volkswagen 2015 Emission Scandal

German automaker Volkswagen 2015 recall was the highest in the history of emission scandals with 40 times excess (see Appendix F) of the permitted nitrogen oxides emitted to the environment (CNN Money, 2015; Gates, Ewing, Russell, & Watkins, 2017). The scandal came to light when clean energy advocacy group who had a concern on emissions requested the West Virginia University Laboratory to test the Volkswagen process; testing confirmed that the “defeat devices” software would detect the test and change performance for lower emissions (CNN Money, 2015; Hotten, 2015). Volkswagen dishonest behavior on the diesel emission testing results was a scandal that outraged the public on a global level; the unethical conducted involved the manipulation of the auto software to hide the percentage of emissions that were produced during testing (Levin, 2015).

Volkswagen purposely put software in more than 11 million diesel vehicles within 2008 to 2015 to cheat the tests that were to detect the nitrogen oxide emissions contributing to Europe’s 8.5 million and 500,000 cars to be recalled (CNN Money, 2015; Hotten, 2015; Makortoff, 2015). Other irregularities included 800,000 vehicles with petrol (gas) engines on carbon dioxide emissions in Europe from the 36,000 that Volkswagen had reported (CNN Money, 2015; Hotten, 2015). Volkswagen admitted to their unethical conduct of cheating on emission tests on their diesel cars in the United States and Europe that included 2009-15 Audi A3; 2014-15 Passat; 2009-15 Golf; 2009-15 Beetle; and 2009-15 Volkswagen Jetta (CNN Money, 2015; Hotten, 2015; Snyder & Jones, 2015).

EPA official announcement of the scandal contributed to the stock price plummeting to 30% (See Appendix G), posted a loss of \$1.9 billion, and cost of recalls at \$7.3 billion (CNN Money, 2015; Snyder & Jones, 2015). The penalties against Volkswagen included tarnished reputation that affects their car sales, \$37, 500 fines per car for a total of \$18 billion in penalties; the overall cost to Volkswagen would be \$2.2 billion in the carbon dioxide emission scandal (CNN Money, 2015; Makortoff, 2015; Snyder & Jones, 2015). The Volkswagen CEO Martin Winterkorn resigned and Matthias Mueller from Porsche taking the CEO position with hopes of helping turnaround the tarnished reputation (Hotten, 2015).

3. Method

3.1 Purpose and Procedures

GM underwent bankruptcy restructuring in 2009 and in and was involved in faulty ignition that left 100 dead; the 2009 Toyota acceleration recall contributed to 89 deaths in United States; and Firestones faulty tires in Ford Explores caused 271 deaths. Other auto related industries in the research were Japanese Takata defective airbags that left 11 dead and Volkswagen that knowingly installed software in their diesel vehicles to meet United States Clean Air Act standards. The selected companies had evidence of unethical conduct that impacted the auto industries reputation and sustainability.

The objective in this research was to answer the overarching question: What are the perspectives on ethics and sustainability in the auto industry by millennials who are projected dominate the workforce Auto Industry by 2020? To answer the overarching questions in this qualitative case study; the questions in Appendix B were formulated from research analysis. Case study and interview questions were most suitable in this research to capture millennials process information related to ethics, how they would solve, and make decisions to remain sustainable (Ritchie, Lewis, Nicholls, & Ormston, 2013). The case study sample size was 85 participants from Northeast New Jersey/New York region in the range of 18 – 34 who are considered as millennials, 40 of whom were surveyed and 35 interviewed. The research data was coded as Auto Ethics Q1 (AEQ 1) to AEQ 85 and analyzed using software NVivo 11.

3.2 Research Findings

Interview Question 1: Volkswagen admitted to installing software that would cheat on emission tests and have since paid heavily for the 2015 emission scandal; (a) were they actions ethical? What are your views on Volkswagen knowingly installing software to cheat on the emission testing? The participants shared that the Volkswagen cheating

software wasn't ethical; participant AEQ11 shared *"the company did unethical actions to lie about the emission of pollutants by their cars, cheating on the government and on their customers."* Participant AEQ34 shared *"I would not say that Volkswagen actions were ethical because their main goal was to cheat on tests; if there was a problem with the engine and they were unintentionally passing the test that is a different story; I do not like this because they were making an obvious attempt to cheat on the tests."* Participant AEQ48 shared *"I think that it's unethical because anything that any company does in secret to cheat is something is completely unethical; Volkswagen should have worked to make their cars better instead of cheating the system."* Participant AEQ71 shared *"their actions were not ethical but it is good that they admitted their wrong doing; my own opinion of Volkswagen is now worse since I learnt of their scandal."*

Volkswagen as the second largest automaker that sold 600,000 vehicles did come into terms and pled guilty to felonies of the diesel emission scandal that came to light when Virginia University students were conducting the emission tests; Volkswagen installed cheating software allowing vehicles to emit 40% excess pollution (Muoio, 2017, April 11; Shepardson, 2017). The scandal affected 11 million vehicles worldwide; the settlement of \$14.7 billion as reported by Business Insider was paid to EPA for knowingly being deceitful in meeting emission regulation standards and lost (Leon, 2015; Muoio, 2017, April 11). Due to the public scrutiny and expansion of the emission scandal, Volkswagen stopped the sale of diesel vehicles in late 2015 with reports documenting that there aren't no near future to sell diesel vehicles (Shepardson, 2017). Volkswagen fines in the United States came to about \$22 billion for 600,000 diesel vehicles; in comparison to Europe with 8.5 million diesel Volkswagen the company would have been destroyed if they were ordered by Europe to pay \$300 billion in fines and settlements (Ewing & Boudette, 2017). Investment towards autonomous and electric vehicles would help companies like Volkswagen be competitive in the auto industry because the Clean Air Act is tightening their grip on the pollution emitted by cars (Ewing & Boudette, 2017).

Interview Question 2: Why do companies (CEO and employees) like Volkswagen choose the unethical route when reputation is essential in their industries reputation and sustainable development? Participant shared that industries such as Volkswagen choose the unethical path because of greed; participant AEQ28 shared *"because they want to make money and if no one finds out their reputation doesn't change."* Participant AEQ58 shared *"they do things like this because they would rather cheat and save money rather than work to fix the problem and hope it never gets out."* Participant AEQ61 shared *"they choose this route because they think they can pass the test without getting caught; almost thinking that they are invincible."* Participant AEQ77 shared *"because it is very hard to build*

a car that is powerful and is according to the set emission limit; so as they needed to have a car with these characteristics and couldn't do so; they had to cheat to match their customer and government expectations of a powerful and eco-friendly vehicle."

The findings concur that the Volkswagen emission scandal was unethical; just like the faulty ignition on the GM Chevrolet Cobalt led to 124 deaths and \$900 million in fines for the federal criminal charges; regulators findings confirmed that GM engineers were aware of the faulty switches (Levin, 2015). Continuing sale of cars without recall and the 13 deaths that occurred when GM didn't recall but treated the defect as customer service satisfaction and GM later recalled 1.6 million vehicles brought were all unethical practices (Goodman, 2014; Stout, Ivory, & Wald2014). Similarly, the GM airbag recalls of airbags that didn't deploy as planned endangered passengers of injury because of the airbag being disabled are also unethical and such practices shouldn't be part of any industries business model (Limbach, 2017).

Interview Question 3: The Firestone/Bridgestone 2000 recall of tires used on Ford Explorer vehicles contributed 271 deaths, Fords loss of \$900 million in sales, and Firestone recalling 6.5 million tires causing shares to drop drastically; Federal prosecutors charged Takata \$1 billion fines for providing falsified data with Takata chief executive accepting fault; What would you do if you were working for the Firestone or Taka when cases of Firestone defective tires and Takata airbag recall occurred? The participants were in agreement that they would be ethical in their processes while working through the recall; participant AEQ03 shared *"with the crisis in such companies, most employees like me would be fired because there wasn't enough money to pay us; but if I don't get fired, I would continue working for them and focusing attention to see I things are done correctly; and if another problem like this happens I would quit the job."* Participant AEQ 18 shared *"well, unfortunately the mishap in each product lead to death which would require an apology as well as a new system for testing the products since they released poor products out in use as well as recovering everything from that time period."* Participant AEQ30 shared *"I would try to suggest fixing the problem and communicate with customers to fix the problem and not ruin a reputation; I would also suggest not keeping any secrets;"* and participant AEQ79 shared *"I would not do anything unless my pay went down."*

Firestone tires recalls in 1978 were in the amounts of 14.5 million Firestone "500 steel belted radial"; the tires were unsafe to drive at high speed (Kramer, 1978). The 2000 recall as reported by CNN Money costed \$1 billion in recalls that were shared with Ford; CBS news also reported a payment of \$240 million by firestone for settlement of claims (Isidore, 2001; Roberts, 2005). The unethical conduct among Ford was correlated to their acknowledgement to CNN Money (2000) that they were aware of the tire

problems with SUV's that were sold in Venezuela in 1988; yet they continued to sell SUV with same tires that had incidents in Venezuela.

Japanese Takata airbags contributed to over 100 injuries and 8 deaths; the airbags deployed with excessive force and sent pieces of metal scraps in passenger cabin (Levin, 2015). The Takata airbags were used on Honda cars; National Highway Traffic Safety Administration confirmed that Takata and companies using the airbag were aware of the defect and failed to reveal to the public and do the recalls (Levin, 2015). New York Times reported that former workers advised of Takata having knowledge of the problems associated with airbags in the 50 tests performed after work hours where the airbags ruptured but executives ordered deletion of the testing data and disposing of airbag inflators in trash (Tabuchi, 2014). The Takata airbag crisis costed companies major destructions in sales and reputation; Honda and Ford have vowed to stay away of using Takata airbags in their vehicles; with small number in replacement Takata airbags being used by Honda until other suppliers provide similar airbags inflators (Kiley, 2016). Former employees also told New York Times that the airbags faced conditions that could lead to rupture as they cracked during secret testing; as engineers started to designing ways to fix the problem by recalling the products; they were ordered by Takata executives to destroy the evidence (Tabuchi, 2014). The deploying of Takata airbags continued for four years before its first recall in November 2008 with a recall of 14 million vehicles worldwide by 2014 (Tabuchi, 2014) and worldwide in amounts of 28 million in 24 million vehicles with projections of 42 million vehicles airbag recalls in the United States in 2017 (Campbell, 2017).

Interview Question 4: Toyota sticky accelerators recall in 2009 amounted to 8 million vehicles, the recall impacted Toyota sales, stock; and spent over \$1.2 billion to address the economic loss; as an executive making the final decision; what would you do in the Toyota sales of vehicles with defective accelerators? The participant results included "participant AEQ20 shared *"I would continue to sell the cars that are probably working, but I wouldn't sell the defective cars;"* and participant AEQ42 shared *"I would communicate with customers apologizing for the inconvenience and tell them that the company is working as fast as possible to resolve the issue; I would put most focus on fixing the accelerators."* Participant AEQ61 shared *"although you lose a lot of money, it makes sense for you to verify that every vehicle with a sticky accelerator is recalled that is because if you don't it will lead to more economic loss instead of just doing it the right way."* Participant AEQ78 shared *"I would have to take back all cars to fix their accelerator recalls; despite the loss of money with that, the money we would have to spend paying fines for selling broken cars would be much bigger."*

Participants were in agreement that Toyota was deceitful in the 2009 recall whereby the accelerator to stuck a term that was referred to as "sticky pedals"

contributed to 89 deaths; Toyota paid \$1.2 billion in fines and admitted that they knowingly concealed the defect thus misleading United States consumers (CBS News, 2009; Levin, 2015; Wasserman, 2014). An incident that Toyota had previously noted was connected to floor mats that were getting stuck on gas pedals yet consumers reported floor mats weren't the cause of the accidents (Ross, 2014). Toyota recalls were connected to the gas pedal being stuck and drivers' inability to stop the car; after the recall Toyota shorted the gas pedals three-quarters of an inch, in other cases padding was removed from the floor to ensure gas pedals don't get stuck on the floor mats (Vlasic & Bunkley, 2009).

Interview Question 5: Take into consideration your own individual moral values; as the CEO of an auto industry; what strategies would you introduce to minimize unethical conduct in the auto industry? Participants shared their strategies to include "AEQ06 shared *"talk to each candidate after hiring someone and just hire those with good ethical and moral conducts,"* participant AEQ19 shared *"it would be hard to monitor other companies, but I would try to do so if one of them is being unethical we could expose them."* Participant AEQ46 shared *"the main strategy is product testing because that is what verifies the product is okay; and just always take the ethical route because it will cause more problems down the road."* Participant AEQ83 shared *"I would inform customers about all drastic changes, be honest with my company, and make sure they are no problems; if there are, I would inform everyone and fix the problem."*

4. Limitations

The auto industry has evidence of unethical conduct with up to the recent scandal of Volkswagen knowingly being deceitful in their installation of software that could detect testing of diesel emissions. The qualitative case study research focused on interviewing millennials to understand their perspective on the auto industry ethical conduct; researcher used 5 different industries of GM faulty ignition; Toyota defective accelerator; firestone defective tires; Takata explosive airbags; and Volkswagen emission scandal) as a base for gouging the millennials perspectives. To account for research weakness, precautions were taken to ensure that data collection during the interview and survey sessions. The research limitations were the number of participants, the time limit the participants agreed to sit down for the interviews, and the limited time spent to complete the survey. The limited number of participants could contribute to bias results; future research can increase the participant pool, compare the ethical practices with other auto industries, and other age groups using the same interview questions.

5. Conclusion / Discussions

The purpose of this research was to understand the millennials perspectives on ethics and sustainability in the auto industry. The study findings confirmed that the unethical practices caused harm and as the unethical conducts continue to surface, NHTSA doesn't cut any corners with their stringent regulations; measures are taken to ensure forced recalls happen and that auto industries have accounted for all known failures (Kiley, 2016). In the case of Firestone recall in 1978 costed 14.5 million on the belted tires and the Ford Explorer equipped with Firestone tires contributed to \$1 billion in recalls were unethical; these events were evidence of lack of the integration of individual values with ethics that contributed to bad reputation and unsustainable development among the auto industry. The stringent rules could be correlated with the Voluntary recall Bridgestone-Firestone Recall in 2016 for the January 25, 2015 to January 27, 2016 replacement tires were recalled for failure correlated to tread separation from the body, air pressure loss, and risk of crash; the recall was on more than 36,000 heavy truck tires sold in the Canada and United States (Hatch, 2016; The Associated Press, 2016).

Takata airbag knew they were acting unethically as they continued to install defective airbags; the New York Times reported that in 2004 Takata conducted a series of tests (after work hours) to determine the root cause of the defective airbags; the testing confirmed they had knowledge of the problem (Atiyeh & Blackwell, 2017). Takata leaders acted unethically by ordering engineers to destroy all the physical evidence to the tests that confirmed defective airbags; the problem was hidden for 4 years before Takata publicly acknowledged their problem to regulators and consumers (Atiyeh & Blackwell, 2017; Tabuchi, 2014). Ethics in the processes of companies are essential in maintaining sustainable measures; the tainted individual moral values led to the cheating software installment in Volkswagen diesel vehicles to meet the EPA standards in the United States. The scandal brought about the scrutiny by public, advocates, and government officials before Volkswagen made a transition to address the concerns at hand and take measures of adhering to EPA Standards. Recent publications by the Business Insider confirmed that Volkswagen apologized for their wrong doing in the diesel emission scandal in 2015 and is taking measures to regain consumer trust by launching a United States based unit that is responsible for the handling of the \$2 billion investment in 0 emission infrastructure and awareness program (Joseph & Stuart, 2016; Shepardson, 2017). Volkswagen improvements to tackle emissions included vowing to install 500 nationwide charging stations ;300 stations in the 15 metro localities; 200 electric vehicle stations of high-speed, cross-

country network; launch “Green City” that includes zero emission transit program, electric car-sharing, and shuttle service with zero emission (Shepardson, 2017).

The excess emission penalty includes United States requirement of Volkswagen to spend \$1.2 billion investment through the United States and \$800 million to be spent in California (Shepardson, 2017). Volkswagen has taken the measure to combat the emissions seriously and will make for four \$500 million investment in every 30 months with EPA and California Air Resource Board to approve the steps and procedures that are taken by Volkswagen (Shepardson, 2017). Volkswagen also took measures to address emissions by adding electric cars by 2020, with projected sale of 5,000 electric cars yearly by 2025; the total sum of \$25 billion is required to be spent by Volkswagen for the violation, owner claims, environmental regulations, dealers, and buy back of the 500,000 polluting vehicles (Shepardson, 2017). In 2017, Volkswagen revealed their self-driving microbus that has a range of 270 miles (Muoio, 2017, January 09).

Integration of individual moral values with ethics are essential in the sustainable development of the auto industry; unethical conduct is widespread in the industry as there exists pressure to gain market share and stay competitive (Bowen & Zheng, 2015; Leonard & Weber, 1970). Take the example of Volkswagen; if the West Virginia students hadn’t tested the emission from the diesel vehicles the unethical conduct that was self-driven to meet EPA standards wouldn’t have been brought to light. The unethical conduct can take years to surface; in that time the auto industries take advantage to reap high returns on their investments; how can the auto industries take safety at firsthand and core to their business model without always focusing on being ranked high Wall Street? Future research can analyze the market to find out if the ranking at Wall Street pushes companies to act unethically.

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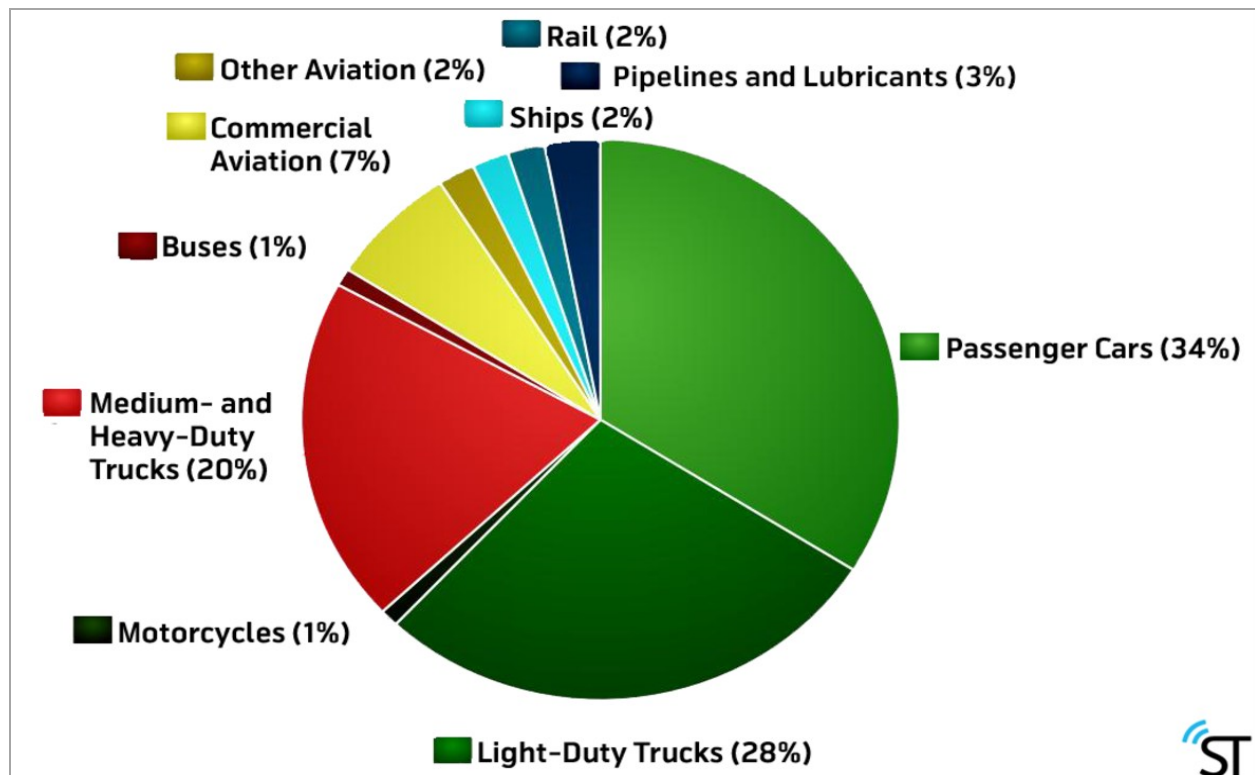
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Appendix A: Percentage of Emissions per Transportation Type



Source: Climate Dot Gov (2015).

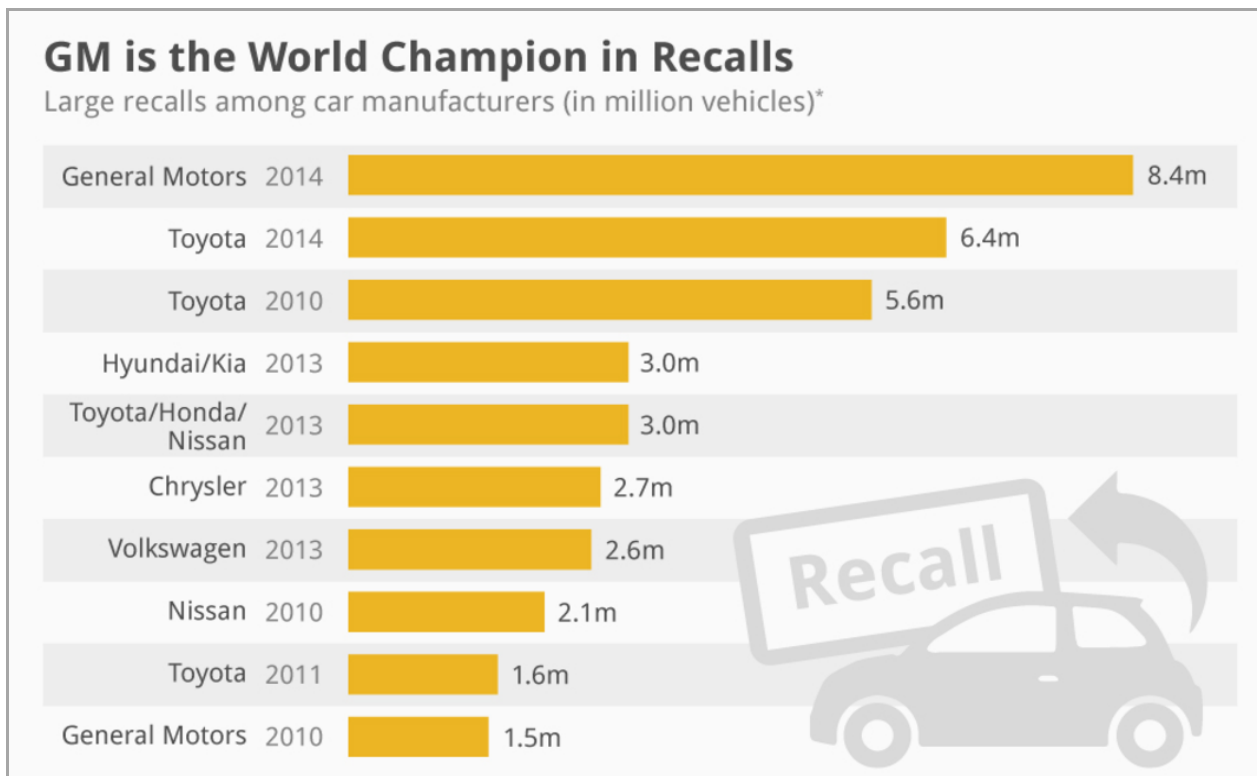
Appendix B: Interview Questions

1. Volkswagen admitted to installing software that would cheat on emission tests and have since paid heavily for the 2015 emission scandal; (a) were they actions ethical? What are your views on Volkswagen knowingly installing software to cheat on the emission testing?
2. Why do companies (CEO and employees) like Volkswagen choose the unethical route when reputation is essential in their industries reputation and sustainable development?
3. The Firestone/Bridgestone 2000 recall of tires used on Ford Explorer vehicles contributed 271 deaths, Fords loss of \$900 million in sales, and Firestone recalling 6.5 million tires causing shares to drop drastically; Federal prosecutors charged Takata \$1 billion fines for providing falsified data with Takata chief executive accepting fault; What would you do if you were working for the Firestone or Taka when cases of Firestone defective tires and Takata airbag recall occurred?
4. Toyota sticky accelerators recall in 2009 amounted to 8 million vehicles, the recall impacted Toyota sales, stock; and spent over \$1.2 billion to address the economic

loss; As an executive making the final decision; what would you do in the Toyota sales of vehicles with defective accelerators?

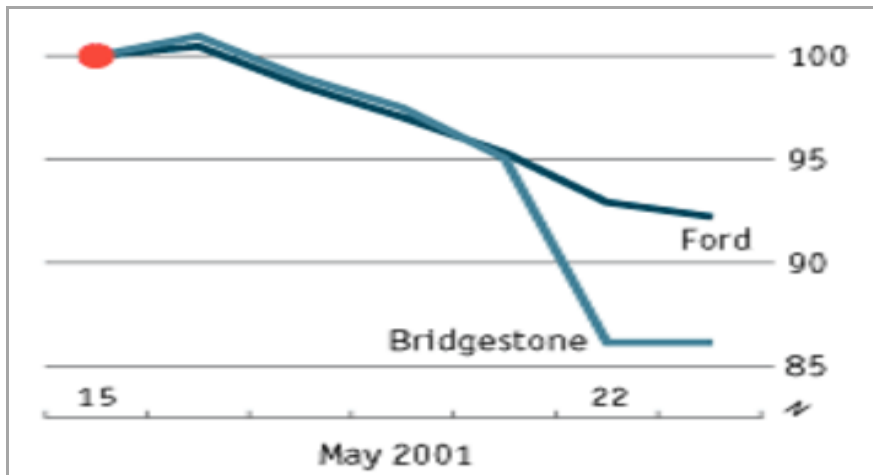
5. Take into consideration your own individual moral values; as the CEO of an auto industry; what strategies would you introduce to minimize unethical conduct in the auto industry?

Appendix C: GM is the world Champion in Recalls 2014



Source: Statista (McCarthy, 2014)

Appendix D: Blow Out Share Prices, May 15th 2001-100



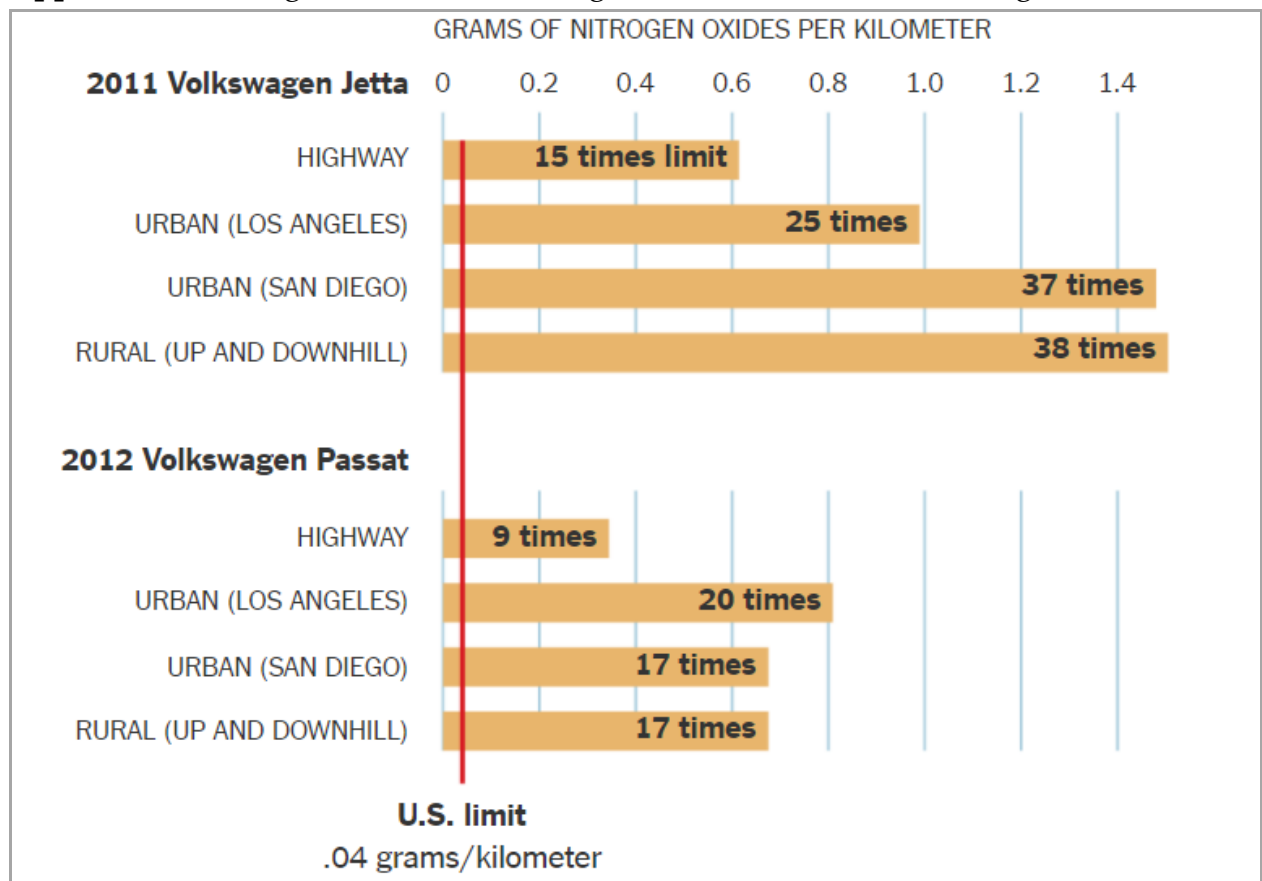
Source: The Economist; Thomson Financial Datastream

Appendix E: Toyota Motor Corporation Price



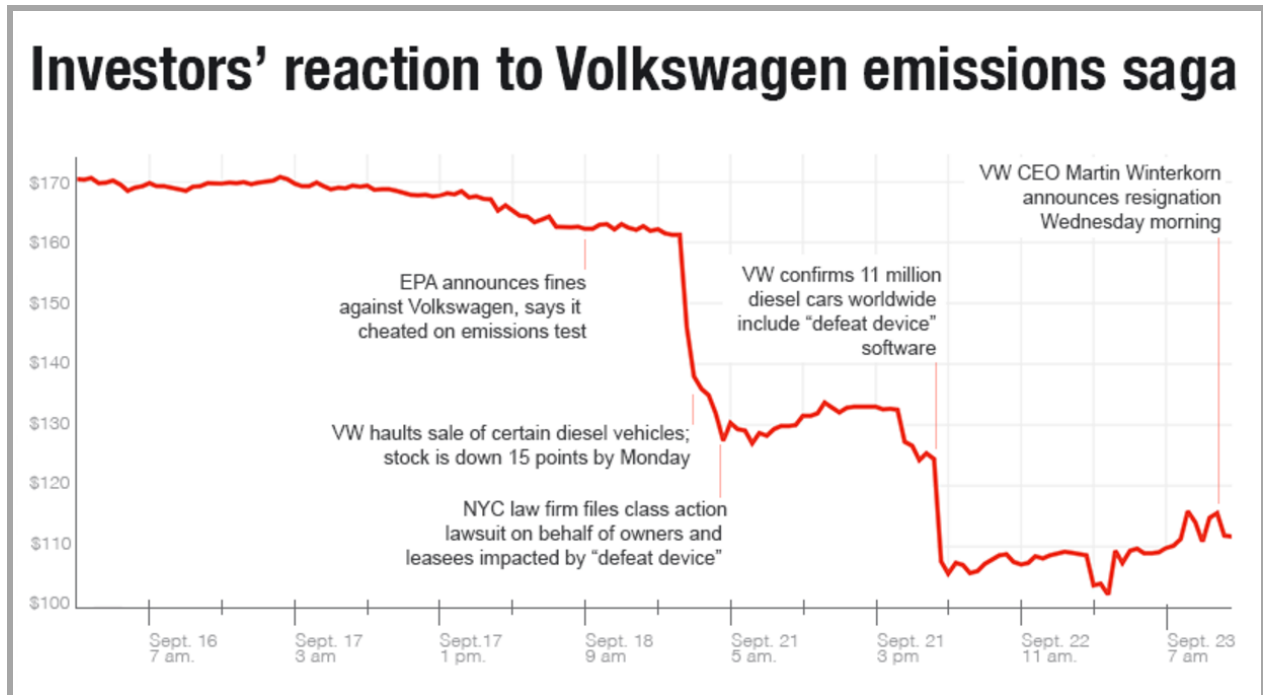
Source: Chicago Tribune (2012)

Appendix F: Average Emissions of Nitrogen Oxides in On-Road Testing



Source: NY Times, (2015); Arvind Thiruvengadam

Appendix G: Volkswagen Stock Market Reaction



Source: Bloomberg; Fortune (Snyder & Jones, 2015)

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