

ORGANIZATIONAL AND INSTITUTIONAL FACTORS THAT INTENSIFY THE USE OF GREENWASHING BY THE WORLD'S MAJOR CAR MANUFACTURERS

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1 INTRODUCTION

After the mid-20th century, the consumption of natural resources and severe changes to the environment have increased so far. The use of fossil fuels, rapid deforestation for cattle pasture, inter alia, have depleted the ozone layer and caused serious problems for the whole planet (ASSADOURIAN, 2010). Thus, companies are required to comply with indirect (e.g., customers' demands and pressures) and direct norms, which state how companies should act to enhance socio-environmental conditions (CARROLL, 1979; COMMISSION WORLD ON ENVIRONMENT AND DEVELOPMENT, 1991).

According to Tachizawa (2006), consumers in Brazil and elsewhere have considered not only the price and quality of goods produced but also the manufacturers' relationships with society and the environment. Many companies have observed these consumer trends toward sustainable products and practices, as well as the increasing international awareness of most governments about environmental conditions. As a result, companies employ business strategies based on sustainability to relate their processes to more environmentally responsible activities. As such, they make changes in their structures and then become more environmentally responsible.

Companies often disclose their actions when they become more sustainable or environmentally responsible. For example, companies that practice social marketing (i.e., activities that aim to improve the living conditions of a particular group of people) seek to achieve higher levels of social welfare and sustainability (FELIX, 2004; MELO NETO; FROES, 2001).

Although some companies do not have sustainable products or perform sustainable activities, they seek ways to convince the general public that they are concerned with sustainability. This behavior is mostly due to the desire to participate in markets that have strict sustainability standards and the possibility of obtaining consumers' trust for being, at least apparently, more socially or environmentally responsible. According to Kärnä et al. (2001), when a company promotes environmental marketing without further actions in this sense, one can characterize such behavior as *greenwashing*.

Mainly producing vehicles powered by fossil fuels, the automotive industry dominates the international scenario because it employs millions of workers and profits billions of dollars every year. However, it is also responsible for negatively impacting society and the environment. Due to this socio-environmental impact, governments from different continents, based on scientific institutions studies and regulatory agencies reports, have been creating laws that oblige automakers to reduce their environmental damage mainly caused by the emission of toxic gases originated in the automotive engines. Besides, automakers have been pushed toward the development of new technologies as a way to substitute pollutant fuels (MINISTRY OF INDUSTRY, EXTERIOR COMMERCE, AND SERVICES, 2017; 2018).

With the increasing international regulation related to socio-environmental concerns, automakers have invested in the development of technologies that improve the efficiency of the use of fossil fuels, reduce further socio-environmental impacts, and employ alternative energy sources such as solar-powered engines. Although some vehicle manufacturers have complied with such demands, other automakers have practiced greenwashing and used illegal methods such as defrauding vehicles so that they appear far more environmentally friendly during emissions testing than they would in the real world (THE NEW YORK TIMES, 2017).

Many scholars (e.g., BARRETT et al., 2015; JONSON et al., 2017; JUNG; PARK, 2016; WANG et al., 2016) have focused on the fraud committed by Volkswagen and the Dieselgate case as interrelated events. Nevertheless, little research to date has investigated the factors that intensify the use of greenwashing by the world's major automakers. In an attempt to fill this gap, this study identifies the organizational and institutional factors that have intensified the use of greenwashing by key automakers at the international level.

In addition to contextual relevance, this research contributes to greenwashing literature by offering an in-depth understanding of the Dieselgate scandal. Managerial insights are also recommended. It is noteworthy that fraud and dishonest sustainable strategies might cause severe harm to car manufacturers. As a result, further investments in innovation are necessary to increase competitive advantage.

2 GREEN MARKETING, SUSTAINABLE MARKETING, AND GREENWASHING

In the 70s and 80s, when environmental regulatory bodies and international commissions were created to discuss environmental problems, companies were concerned with the ecological issue, but this did not reflect the massive concern of society with nature and its resources. At that time, the responsible businesses were only those companies that caused direct harm to the environment, for example, the auto industry, chemical industry, oil extraction, and agrochemical industry (SHETH; PARVATIYAR, 1995; PEATTIE, 2001).

According to Peattie (2001), the early 1980s witnessed an increase in the number of laws that tackled the environmental damage caused by companies. The advent of the Ecological Green Marketing took place. However, companies put great emphasis on legal aspects by creating measures and making improvements that were practical, cheap, and in harmony with little aspects of the law. Indeed, companies did not want to make significant investments to change products and operations (MENON; MENON, 1997; PEATTIE, 2001).

In the first phase of the Ecological Green Marketing, some companies chose to invest in differentiated marketing strategies and sustainable improvements, such as 3M and the Body Shop. However, these companies were not part of the large group of businesses that opted for faster and more incremental changes (MENON; MENON, 1997; PEATTIE, 2001). Without crucial changes in the business operations and consumers' mindset, one could see that marketing professionals did not act in consonance with the need for environmental awareness. Instead, they were focused on not infringing environmental laws at their workplace (PEATTIE, 2001).

The second phase of the Green Marketing started in the late 1980s. Besides highlighting the need to preserve nature, Green Marketing also addressed the need to care for human beings, given the existence of extreme socio-economic inequalities (PEATTIE, 2001). Between the late 1980s and early 1990s, Peattie and Crane (2005) point out that academic and market studies had already signaled an increase in the interest of European and North American companies in promoting green products.

During that time, more companies were required to address environmental issues, even if their operations and products caused impacts that were indirect and of less damage to nature and society. Another change was that a significant part of consumers began to receive further information and to consider relevant problems in regard to the environment and society. Consequently, they started to act individually or collectively to change their consumption patterns. This type of consumer is known as the *green consumer* (PEATTIE, 2001).

Unlike the first phase, marketing professionals had a vital role in the intermediation and promotion of environmental, social, and economic dimensions of sustainability.

Companies and products that did not adapt to this trend would lose their reputation (PEATTIE, 2001). However, during the second phase (1990–2000), there was a decrease in the sales of socially and environmentally responsible products, as evidenced in market studies (PEATTIE; CRANE, 2005).

However, there were no further improvements over the past 30 years. Indeed, many businesses have contributed to worsening social and environmental problems. They have also done little to enhance natural capital (PEATTIE; CRANE, 2005).

Then, the third phase emerges and is identified as *Sustainable Marketing*. Some changes have affected not only the practice of green marketing but also the market as a whole (PEATTIE, 2001).

Young et al. (2010) surveyed 81 self-declared green consumers in the United Kingdom, between 2004 and 2005, to analyze their green purchase intention toward technology products such as cars, domestic appliances, electronics, personal computers, and other similar items. The decision criteria were related to product environmental performance (energy efficiency, durability, water consumption, LPG conversion, fuel type, fuel consumption, and energy ratings), product manufacturing (recycled material content, chemical content, and reparability), and second-hand availability (YOUNG et al., 2010). As regards the facilitators of green purchasing, it is worthwhile mentioning that green consumers found green labels, specialist information, availability of green products in mainstream retailers, and guilt as facilitators of green criteria in their purchases (YOUNG et al., 2010).

Due to changes in consumer behavior, the sales of sustainable products started to expand in the first decade of the 2000s. Following legal, economic, ethical, and moral reasons, many companies have sought to associate themselves with a sustainable cause. This goal can be achieved through a clear set of ideas and practices to protect the environment and society, yet some companies make false promises and business promotions or even disclose partial information, which can generate greenwashing (DELMAS; BURBANO, 2011). There is evidence that companies have attempted to greenwash their products in the past decade, which can be highly risky because one can see an increase in the number of engaged and sustainable consumers, activists, and non-governmental organizations (NGOs) (LYON; MONTGOMERY, 2015).

Due to a diversity of actions that range from the strategic selection of good practices to the misrepresentation of eco-friendly behavior, there is no universally accepted definition for greenwashing (LYON; MONTGOMERY, 2015). However, Lyon and Montgomery (2015) argue that greenwashing often refers to business actions that cover products and activities with expressions of sustainability concerns, misleading consumers into believing that a product or service is environmentally friendly.

For Delmas and Burbano (2011), greenwashing simultaneously encompasses a company's poor environmental performance and positive disclosure of environmental performance. According to Cherry and Sneirson (2011), the term greenwashing was coined by environmentalists and involves deceptive advertising and corporate social responsibility activities. Walker and Wan (2012) state that greenwashing is a business tactic that attempts to show consumers a positive attitude toward sustainability, but in reality, no sustainable actions are deployed, which implies a difference between symbolic and practical actions.

Lyon and Montgomery's (2015) research identified some examples of greenwashing through:

- the selective disclosure of sustainable information: companies deliberately publish data and news that are favorable to them;

- the false commitment to sustainable policies and agreements, which are not effectively pursued or implemented;
- the pursuit of quality measures and standards: although these mechanisms can inform particular characteristics of a company to the public, they can be regarded as greenwashing when other suspect business attitudes are considered as well;
- NGOs support and sponsorship: companies might join or contribute to environmental or social organizations only as a form of self-promotion;
- the business involvement in public and volunteer programs: it relies on the spontaneous engagement of companies but without actually achieving the desired sustainable performance; and
- false and misleading sustainable discourse: companies try to convince consumers through continuous misleading messages, which state that their environmental or social performance is better than it seems to be.

Delmas and Burbano's (2011) study analyzes the main factors that cause a company to promote itself through false and deceptive actions. They classify the factors that influence businesses to practice greenwashing into three categories. First, the external category is composed of market agents (customers, competitors, and financial institutions) and non-market agents, such as activists, NGOs, and the government, which are responsible for creating laws and checking for compliance. Second, the organizational category includes the company's organizational structure and quality, organizational and ethical climate, and the quality of its internal communication. Third, the individual category includes positive trends and continuous discounts actions. It is noteworthy that flexible and superficial laws, associated with a low amount of information about sustainable issues, negatively impact the abovementioned categories, hence enhancing greenwashing (DELMAS; BURBANO, 2011).

Some companies believe that greenwashing contributes to postponing the implementation of strict sustainable laws because, in the public eye, they would be voluntarily carrying out responsible actions. Notwithstanding this belief, some researches have shown that whether consumers are aware of greenwashing, the company's reputation can be damaged. In this regard, the sales volume of the company is affected once consumers perceive greenwashing attitudes (LYON; MONTGOMERY, 2015).

As a result, companies may suffer from a lack of trust and commitment at the internal and external levels, which include various individuals, businesses, and groups. At the internal level, for example, once employees perceive deceptive and unethical practices, they become less engaged with daily tasks and even refuse to perform certain activities. In the company's external environment, suppliers and partners, for example, often seek reputation, so they may end contracts with the company because they fear being seen as greenwashers as well (WALKER; WAN, 2012).

Due to false marketing claims, consumers, activists, inspection agencies, NGOs, and the media have started to demand documents and reports to observe if companies comply with sustainable indicators or only invest in environmental and social claims for profiting (CHERRY; SNEIRSON, 2011). Transparency in communication is vital to legitimize the actions of a company (FONT et al., 2012).

3 METHODOLOGY

This research is descriptive in nature (COLLIS; HUSSEY, 2014) and adopts a qualitative approach (GODOY, 1995). Godoy (1995b) states that qualitative research can be

carried out in different ways. In this sense, documentary research is the most common technique. Therefore, documentary research is used here.

Herein, the unit of analysis refers to the major automakers at the international level. These companies often stand out for commercial strategies that affect their image, operations, and the sustainable conditions of different regions in the world.

This research follows Collis and Hussey's (2014) highlights as regards the adequate number of companies to be selected in a study. Accordingly, the criterion for this research should focus on the extensive, holistic, and detailed description of a given event.

The representativeness criterion was chosen to define the companies that would integrate this research (VERGARA, 1998); therefore, the selected companies should have contributed to sustainability issues through actions designed by commercial, R&D, and marketing departments over the past 15 years.

Volkswagen emissions scandal, or the Dieselgate scandal, began in 2015. Car consumers often identify Volkswagen as the only automotive manufacturer that committed fraud in emission tests. However, other major automotive manufacturers also ended up being investigated and penalized for similar actions. Amid them, one can mention Mercedes-Benz, Porsche, Audi, and BMW. Therefore, this research considers sufficient reasons to study the actions of all these five companies. They were also selected because the international media associated them with the Dieselgate scandal.

Herein, documentary research was vital to retrieve and synthesize online newspapers, specialized websites, scientific articles, technical books, reports, statistics, and graphs, and images. These sources are characterized as secondary because they were produced by actors who did not have direct contact with the Dieselgate scandal (GODOY, 1995b).

Godoy (1995b) highlights some advantages of documentary research: the study of subjects and events from which there is no available physical access; the information retrieved from documents remains the same across the time and, consequently, impossible to be altered— in this sense, the information is characterized as “natural and non-reactive” (GODOY, 1995b). These features preserve the historical event, which is observed in the Dieselgate scandal investigations and possible ramifications.

Content Analysis was employed to analyze the retrieved data (BARDIN, 2002). The key steps here considered are as follows. The pre-analysis consisted of selecting the research material. Next, the material was explored. Finally, the treatment of the results included inferences and interpretations of the material.

This research developed a data set that includes news and government and NGO reports. A historical report also detailed the car manufacturers' activities that were publicly and intensively investigated owing to the Dieselgate scandal. This research followed Bardin's (2002) representativeness, homogeneity, and pertinence criteria to analyze the collected material.

4 RESULTS ANALYSIS AND DISCUSSION

The analyzed greenwashing cases occurred between 2014 and July 2019 and involved Volkswagen, Audi, Porsche, Mercedes-Benz, and BMW. These companies were investigated because they had installed emissions softwares that caused part of their diesel vehicles to emit a higher amount of nitrogen oxides than allowed by European and North American legislation.

4.1 Discovery and starting point

The International Council on Clean Transportation (ICCT) joined in 2014 the West Virginia University (WVU) to carry out a study in the US. The researchers tested different diesel cars in order to measure their level of pollutant emissions and found out that some Volkswagen cars were emitting more pollutants than legally expected. Some cars showed emissions 35 times higher than allowed by the United States (US) emission standards for engines and vehicles (EGER; SCHÄFER, 2018; ICCT, 2014a, 2014b; THOMPSON et al., 2014).

According to The New York Times (2017), some Volkswagen models were tested on the road and were found to emit almost 40 times the permitted levels of nitrogen oxides. According to the ICCT (2014a), the excessive emission of pollutants cannot be attributed to an inappropriate or exaggerated use of the tested vehicles, which eliminates the possibility that the misuse of those cars could be the cause of the irregular emission of pollutants.

4.2 Greenwashing: distributing selective information

Based on data from the ICCT and the WVU, the Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) contacted Volkswagen. These two North American environmental agencies questioned Volkswagen concerning the contradictory results related to its diesel vehicles (EPA, 2015a).

After months of explanations given by Volkswagen that did not satisfy either the EPA or the CARB, the company could not get the required legal approval to sell its new 2016 diesel cars in the US, unless the diesel emission discrepancies could be explained. After several trials, Volkswagen then admitted having developed and equipped part of its vehicles with a defeat device to cheat the pollutant emission tests (EPA, 2015a).

According to the EPA (2015a), Volkswagen hid that some cars were equipped with defeat devices. Besides being illegal, this practice caused risks of diminished reputation for the Volkswagen Group and posed risks to humans and the environment's health. Before the scandal went public, Volkswagen had alleged in advertisements that its diesel vehicles polluted less than its competitors'; however, the advertised Volkswagen models were also involved in the fraud (OEHMKE, 2017).

Volkswagen disseminated positive marketing campaigns and performed harmful activities to the environment simultaneously; this attitude fits Delmas and Burbano's (2011) definition of greenwashing, in which a company has a reduced environmental performance yet discloses forged environmental information. Likewise, Walker and Wan (2012) argue that greenwashing can be observed at the intersection of practical and real actions and symbolic and false actions.

Volkswagen only disclosed selective and partial information to avoid legal sanctions and economic damages. Nevertheless, this attitude hindered the socio-environmental balance. According to Lyon and Montgomery (2015), a company that takes benefit from biased information seeks to increase self-promotion and self-preservation; this is one of the most studied greenwashing varieties in the literature.

4.3 Greenwashing: disclosure of selective, false, and deceptive information; and fraud of events

On September 18, 2015, the EPA issued the Notice of Violation (NOV) and accused the Volkswagen Group of fraud. Both Volkswagen and Audi (subsidiaries of the Volkswagen Group) were mentioned in this first NOV. The EPA stated that many vehicles with 2.0 diesel engines, manufactured between 2009 and 2015, were equipped with defeat devices and,

therefore, were producing up to 40 times more nitrogen oxide than permitted by the US law, besides disrespecting the Clean Air Act (CAA) (EPA, 2015a).

After the first EPA's notification, many other investigations were carried out to scrutinize suspicious car manufacturers worldwide. These companies include the Porsche Company, which is also identified as Porsche AG and a subsidiary of the Volkswagen Group; Daimler; and BMW. Some Volkswagen, Porsche, Audi, Mercedes-Benz, and BMW models had to be recalled due to deceitful emissions. As a result, the companies paid multimillion-dollar fines for their adulterated vehicles.

Three days after the US official notification, the Volkswagen Group stated that approximately 11 million of its vehicles could be equipped with the defeat devices. Volkswagen Group's fraud admission caused significant drops of approximately 5% in the shares of other vehicle manufacturers due to fears that other automotive companies would also be using defeat devices in their vehicles (CREMER, 2015; KNAPTON, 2015).

On November 2, 2015, the EPA accused Volkswagen, Audi, and Porsche of having committed the same types of irregularities. According to the second EPA's NOV, these three vehicle manufacturers installed the same type of defeat device in some of their diesel-powered vehicles with 3.0 engines; however, the accused companies denied these allegations (EPA, 2015b). The EPA's notification was later confirmed since Volkswagen, Audi, and Porsche confirmed the frauds. Consequently, the Volkswagen Group's credibility dropped sharply. Further investigations and requests for clarification were carried out worldwide, hence demanding answers, actions, and pieces of evidence from the German group. In order to resolve claims from the US legal authorities, including one that accused Volkswagen of having disseminated false advertisements regarding a "clean diesel" engine model, the Volkswagen Group spent approximately \$20 billion on fines and penalties between 2016 and 2017 (DOJ, 2016b; 2017b; EPA, 2017).

Volkswagen, Audi, and Porsche have admitted to installing defeat devices in many vehicles. Volkswagen has also admitted to using false advertising concerning the emissions scandal (EPA, 2017). The German legal authorities ordered Porsche AG (CNBC, 2019; DEUTSCHE WELLE, 2019) and Audi (ABC, 2018; KOTTASOVA, 2018) to pay €535 million and €800 million fines, respectively, for their part in the Dieselgate scandal.

Greenwashing is thus observed in the fraud committed by the Volkswagen Group through the defeat devices and the use of false information to advertise non-pollutant vehicles. These actions align with previous findings, in particular with Lyon and Montgomery's (2015) study, which highlights that greenwashing can range from a minor exaggeration to complete production of environmental related activities. The Volkswagen Group employed the defeat device in its cars as the company attempted to bypass US and international laws.

Some of Volkswagen's engineers, executives, and CEOs were investigated, denounced, or arrested in the US and Europe. These events led the US and German authorities to conclude that the Volkswagen Group fraud was spread across different levels of the company.

On September 9, 2016, Volkswagen's engineer James Robert Liang pleaded guilty to conspiring to defraud US legislation and agreed to provide further information to federal prosecutors investigating the carmaker's conduct. The complaint against Liang included charges of fraud against the US, financial fraud through information technology or telecommunications resources, and breach of the CAA regulations (DOJ, 2016a; KASPERKEVIC, 2016; TOVEY, 2016).

On January 11, 2017, the US government denounced six senior German executives at Volkswagen, among them, Oliver Schmidt, who was arrested for having participated in the diesel engine fraud for seven years. According to FBI deputy director Andrew McCabe, it was evident that “Volkswagen’s top executives knew about this illegal activity and deliberately kept regulators, shareholders and consumers in the dark” (DOJ, 2017a; RAWLINSON, 2017; SHEPARDSON, 2017).

The US filed charges against the former Volkswagen CEO Martin Winterkorn, accusing him of conspiring to cover up the German carmaker’s emissions scandal. In total, Winterkorn was being charged with one complaint of conspiracy and three complaints of fraud (EPA, 2018; RUSHE, 2018; SMITH, 2018).

Winterkorn would again be denounced, this time by prosecutors in the German city of Braunschweig, on April 15, 2019. Winterkorn and four other Volkswagen executives, who did not have their identities revealed, were accused of multiple crimes in a single criminal action, including a serious case of fraud, an infraction of the law against unfair competition, and broken fiduciary obligations for having committed practices that were against the best interests of Volkswagen Group’s shareholders (JOLLY, 2019; BURGER; MARTIN, 2019; MCGEE; STORBECK, 2019).

The other four executives, who may or may not have been working for the Volkswagen Group, were charged with aggravated fraud and unfair competition. Each of the five defendants could also be forced to forfeit sales bonuses ranging from around €300,000 to €11 million, and to face six months to 10 years in prison if convicted of the alleged crimes (JOLLY, 2019; BURGER; MARTIN, 2019; MCGEE; STORBECK, 2019).

The Mercedes-Benz company became suspicious of having committed some irregularities related to the emission of pollutants in February 2016, when the EPA contacted the company to provide further clarification in this regard at the end of that month. The North American private law firm Hagens Berman Sobol Shapiro LLP accused Mercedes-Benz of deceiving its consumers through a misleading advertisement in which it was alleged that some of its cars, the BlueTEC vehicles, would have “the world’s cleanest and most advanced diesel” cars. This law firm accused Mercedes-Benz of having manipulated its cars so that, under certain circumstances, they emit pollutants at a level more than 65 times higher than the US regulation permits (TAYLOR, 2016; HUNGERFORD; MATTHEWS, 2016; HAGENS BERMAN SOBOL SHAPIRO, 2016).

Daimler defended itself by stating that Mercedes-Benz had not equipped its vehicles with any irregular or illegal software. According to Daimler, existing laws allowed, in certain situations in which the balance and safety of the vehicle’s engine were at risk, that the performance of the treatment of pollutant emission could be diminished in favor of the longevity and integrity of the vehicle’s engine set (TAYLOR, 2016; HUNGERFORD; MATTHEWS, 2016).

The situations in which the safety of the engine would be at risk are related to low-temperature situations. For these cases, the European legislation established a level of thermal variation, known as a *thermal window*, so that the vehicle manufacturer could regulate the emission treatment performance of their vehicles to keep their engines set safe. However, some vehicle manufacturers were setting not so cold risk temperatures under the pretext of ensuring the integrity of their engine, increasing the amplitude of the thermal window, making the car interpret environments that were not as cold as being risky cold environments. Then, some car models had an excessive decrease in their emission treatment performance, polluting more than they should (WACKET; TAYLOR, 2016).

Then, the German Federal Motorized Transport Authority (in German, Kraftfahrt-Bundesamt) carried out tests and evaluated 53 different vehicles, from national and international manufacturers, and concluded that 22 vehicles were programmed to decrease their pollutant emission treatment performances in supposedly low-temperature situations. The German Transport Minister Alexander Dobrindt decided, along with the vehicle manufacturers, to recall 630 thousand vehicles. Of these, 247 thousand cars would be Mercedes-Benz (FORTUNE EDITORS; REUTERS, 2016; KREIJGER, 2016).

According to Delmas and Burbano (2011), the existing laws that seek to combat greenwashing are indeed insignificant and hence the main trigger of greenwashing. As can be seen in the abovementioned case, Mercedes-Benz agreed to recall 247,000 of its vehicles, as these cars would be twisting a law that created the so-called thermal window. This law, initially created to protect the integrity of vehicle engines in relatively extreme cold situations, ended up being misused by vehicle manufacturers for other purposes.

On June 11, 2018, Germany's Transport Ministry announced that 774,000 Mercedes-Benz cars in Europe contained unauthorized software defeat devices, 238,000 of which were in Germany. Because of Germany's limited authority, Mercedes-Benz was only forced to do a recall of those vehicles within the German territory. Daimler denied any wrongdoing of Mercedes-Benz's part and stated that the illegality of the referred software was still unclear. This company also declared that it would fix all 774,000 vehicles, and therefore it would avoid a fine (BBC, 2018; BEHRMANN, JENNEN, RAUWALD, 2018; STUMPF, 2018; TAYLOR, 2018b).

5 CONCLUSION

Under the increasing pressure to be environmentally friendly, some companies deliberately disclose benign events to create an impression of transparency and conceal their real performance. In this sense, this study aimed to identify the organizational and institutional factors that have intensified the use of greenwashing by the world's biggest vehicle manufacturers. To this end, a qualitative-descriptive approach was adopted along with documentary research.

The analysis shows that the selected companies have promoted themselves through false and deceptive practices. The first category is associated with external actors, such as the government, agencies that approve the sales of new cars, and consumers. All investigated automakers, at different times, used software that caused part of their respective diesel vehicles to emit smaller amounts of nitrogen oxides than allowed by the European and North American legislation, hence seeking the approval of regulatory agencies and consumer acceptance.

The second category is internal, in which the investigated companies have sought to avoid legal sanctions and economic losses through fraud, hence causing socio-environmental harm. Through selective and partial disclosure of information, vehicle manufacturers sought self-promotion and self-preservation.

Delmas and Burbano (2011) explain that flexible and weak laws, associated with a low amount of information about sustainable issues, facilitate greenwashing. Future research could investigate the laws that emerged as a result of well-known socio-environmental scandals and unethical and illegal methods adopted by vehicle manufacturers around the world.

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