



Facultad de Ciencias Humanas y Sociales
Grado en Relaciones Internacionales

Trabajo Fin de Grado

The Boeing 737 MAX

Analysis of the crisis from a
reputational perspective

Estudiante: Kieffer Duarte, Mark

Dirección: Prof. Pedro Palencia Alacid

Madrid, Abril 2022

Summary/Resumen

Two Boeing 737MAX aircraft crashed within a very few months of each other between late 2018 and early 2019. At the time, that type of aircraft had only been in commercial service for a short time, and had been sold by the company as a technological revolution and a leap in efficiency. Investigations resulting from the accidents however found that Boeing had omitted crucial data on how to operate in the event of a system failure from its manual, in order to avoid pilot training costs. This lack of transparency continued throughout the crisis, seriously damaging the company's reputation. It is precisely this damage that this paper aims to measure.

Dos aviones Boeing 737MAX se estrellaron un plazo de muy pocos meses entre finales del 2018 y principios del 2019. Por aquel entonces, ese tipo de avión llevaba poco tiempo en servicio comercial, y había sido vendido por la compañía como una revolución tecnológica y un salto en eficiencia. Investigaciones resultantes de los accidentes sin embargo encontraron que Boeing había omitido datos cruciales de cómo operar en caso del fallo de un sistema de su manual, con el fin de evitar costes de entrenamiento de pilotos. Esta falta de transparencia se mantuvo durante toda la crisis, dañando seriamente la reputación de la compañía. Justamente ese daño es lo que pretende medir este trabajo.

Key Words: Reputación, Comunicación, Crisis, Boeing, Aviación, Aeronáutica, Avión, Accidente

Palabras Clave: Reputation, Communication, Crisis, Boeing, Aviation, Aeronautic, Aircraft, Accident

Index

<i>Index</i>	2
1. Introduction	4
1.1. Introduction to the 737 MAX Crisis	4
1.2. Objectives	7
1.3. Hypothesis	8
1.4. Methodology.....	9
1.5. Tackling the case	9
2. Corporate Reputation	10
2.1. Ethimology	10
2.2. Reputation as a concept	11
2.3. Measuring corporate reputation.....	18
3. State of the Art	23
4. History of Boeing	25
5. The 737 MAX Debacle: Analyzing how it happened, how it was told, and its aftermath	28
5.1. The perfect storm.....	28
5.2. Investigation and reaction by Boeing	34
5.3. Reputational and economic impact.....	36
6. Conclusions	40
7. Bibilography	42

1. Introduction

1.1. Introduction to the 737 MAX Crisis

The Boeing 737 is undoubtedly one of the most iconic aircraft in history. Everyone, knowingly or unknowingly, has seen one of these aircraft and almost everyone has flown aboard one of them. While its design dates back from the mid 1960s, the aircraft has proven to be so successful and reliable that it has evolved through four generations ever since. As of November 2021, 15,000 units have been ordered and well over 10,500 units have been delivered worldwide. As a matter of fact, this airframe held the record of highest-selling aircraft of all times up until late 2019, when it was surpassed by the Airbus A320, its main competitor.

And it's that competition which has marked the recent history of the aircraft in the past decade. Up until the release of the A320 in 1988, Boeing only faced competition from fellow American company McDonnell Douglas, which was never even close to be as big of a competitor as the then-young European conglomerate would turn out to be. But as the saying goes, competition is good for business. It forces companies to step up their efforts, dragging them out of the comfort zone they had settled themselves in, forcing new efforts towards innovation, creativity, pricing and so on and so forth. Businesses become nimble, resourceful in their efforts at finding solutions to outsmart and outsell the competition. Competitive environments demand the very best from companies. They must be good at what they do, be agile in adapting to new scenarios and they have to give everything they have often only win a small edge over their competition. To summarize, it forces companies to not take anything for granted. Even the best product is not a guarantee of long-term success. The reputation the company holds, the way it is viewed through the eyes of the public and ultimately, the customer is often a much greater asset than the product itself.

Reputation, just like competition, can bring a company great success as well as its downfall. Building up a positive business reputation is a hard-earned process that often takes years, only to be lost in a few weeks. It's an intangible asset that holds great value for businesses. It's a factor that plays a key role for companies to differentiate themselves from other players in the same industry.

On a chess board in which any misstep can cause an unexpected checkmate, taking care of the reputation has become as, if not more important than the product the business provides. Executives are well aware of their importance of their companies' reputations. Firms with strong and positive reputations often attract more motivated employees, better perceived value and ultimately, loyal customers willing to acquire broader ranges of products of services. In the airline industry, airlines often stay loyal to their aircraft manufacturers, making big orders years ahead of time, often before the aircraft has entered the test flight stage.

However, as Benjamin Franklin once said and similarly to what has been mentioned in the lines above, it takes many good deeds to build a good reputation, and only one bad one to lose it. A good reputation also implies a great risk. The harder they come the harder they fall. Without a proper risk prevention plan, crises, ultimately, arrive. And they arrive hard. Once the critical point in a crisis has been reached, there is little companies can do besides damage control. Boeing is, as this study will show later, aware of this.

Bearing this fact on competition and reputation in mind and going back to the Boeing 737 and its competition with the Airbus A320, it is easy to see why Boeing was forced to seek for innovative solutions to try and undermine the growth of its European rival. In the late 1990s, the rivalry with the A320, which took Boeing by surprised after they managed to land orders from previous Boeing-loyal airlines such as Lufthansa and United, meant that the company agreed to upgrade its previously hegemonic aircraft. Thus, the 737NG (NG as in Next Generation) was born. This plane was more efficient than its older brother, came in different sizes, had a longer range and a more comfortable cabin. While the Airbus had come to stay, this aircraft was able to, at the very least, keep up with the Europeans. But Boeing had fallen in a business strategy trap: reacting to what the competitor is doing in order to stay in business, rather than discovering other alternatives or making moves ahead of the rival.

And so, when in 2010 Airbus released its upgrade A320neo, Boeing reacted a year later with the Boeing 737MAX. This new aircraft once again included more powerful and efficient engines, even surpassing the efficiency claimed by Airbus. But certain aspects in the design of the MAX felt rushed. While the aircraft included top of the line technology, the airframe had hardly changed from its original design. Because of this, the bigger engines, because of their added weight, affected the way the aircraft behaved in flight. It was during test flights when Boeing discovered that these larger engines tended to push the nose of the plane up during certain maneuvers, especially during take-off. Instead of restructuring the plane, which would have elevated the price of the project and increased delivery times, Boeing opted to solve the problem through software. The MCAS (which stands for Maneuvering Characteristics Augmentation System) was built to counteract this effect, making the handling of the aircraft like what pilots that had flown the previous generation 737 were familiar with. Thus, less training was required and the 737MAX would receive a certification as another variant of the 737, instead of another separate aircraft. In an unfortunate series of events, Boeing requested to the American Federal Aviation Administration that any trace of this MCAS system was to be removed from the aircraft manual. It was approved. When the aircraft entered official service in 2017, pilots were completely unaware that this system even existed.

Then, in 2018, tragedy ensued. Lion Air Flight 610, which was due to flight from Jakarta to Pangkal Pinang, crashed into the Java Sea 13 minutes after taking off, killing all 189 people on board the plane. The first investigations were quick to find the culprit. This flight alone had become the deadliest accident in the history of the Boeing 737. A design flaw in the MCAS system had caused the plane to stall. The pilots, who did not know the system even existed, were left helpless. Even after this event, Boeing continued to deny the existence of the system. It was not after many requests for information by worried airlines that Boeing finally admitted that the system existed and that it could affect the way the plane behaved in the air without pilot input. Boeing revised the checklists for the aircraft and sent an update to companies operating the aircraft. Far from mending the error they had committed, Boeing simply won time to cover up the incident.

And in 2019, tragedy struck again. Ethiopian Airlines Flight 302, operated by another 737MAX, crashed again shortly after take-off, leaving no survivors among the 157 occupants onboard the flight. Less than five months after the Lion Air crash, another 737MAX had crashed in similar circumstances. As a result, all operators immediately ceased to operate the aircraft, putting its units into long term grounding. Investigations immediately ensued to investigate how a plane carrying such a deadly flaw had been approved to service in the first place. These tragic incidents launched Boeing into a reputational crisis from which the aircraft manufacturer has been trying to recover ever since. The effects of 346 fatalities of both crashes on their reputation were enormous, from widespread negative news coverage to legal proceedings by the victims and families, all the way to official investigations by governments.

Billions of dollars of revenue were lost, which along with the sum of the total costs, left financial scars at the American aircraft manufacturer. But just how bad were the effects of the crisis on Boeing's reputation and ultimately, its balance sheet? What mistakes led up to these events? And – ultimately, was Boeing's reputation irrecoverable after such a massive loss of life?

1.2. Objectives

Those three questions mentioned above are the ones this study will try to find answers for. The 737MAX crisis, which gathered lots of media attention throughout 2019 and early 2020 up until the major outbreak of the SARS-COV-19 pandemic began, is a prime example of reputational damage and a perfect case to study reputational damage on a major corporation. The accident, along with the circumstances surrounding it, such as the omission of the MCAS system from the manuals (which is suspicious at first glance), make it an interesting case with many separate events and errors that led up to the tragic accidents in Indonesia and Ethiopia.

As it can therefore be deduced from the previous questions, the goal of this study is to analyze the reputational damage the 2018-2019 Boeing 737MAX crisis had on The Boeing Company from a business strategy perspective. The crashes and the ensuing groundings asked serious questions of Boeing's strategy and goals, which seemed to favor profits and cost efficiency over flight safety.

The previously mentioned objective can be divided onto the following objectives:

1. To acquire a proper understanding of the concept of reputation, its predominant theories and its measurement
2. To establish, for later analysis of their effect on Boeing's reputation, the events that led up to the 737MAX crashes and groundings, as well as the events that followed
3. To establish, for later analysis of their effect on Boeing's reputation, the coverage the 737MAX crashes and groundings had from the media.
- 4 To interpret the data acquired from the objectives 2 and 3 in order to analyze the reputational and financial damage the 2018-2019 Boeing 737MAX crisis had on The Boeing Company.
5. To give estimates as to whether Boeing will recover of these events and how this recovery might take place.

1.3. Hypothesis

The large number of lives lost in both 737 MAX crashes, in addition to the irregularities that led to them, caused great damage to the company. Under the assumption that the 737MAX was a crisis caused by poor management rather than negligence, this paper will seek to discover is just how great that reputational damage was, and which mistakes or incidents led up to such a massive reputational crisis, which ended up becoming one of the biggest corporate crisis of all times.

1.4. Methodology

This study will be carried out using literature review as its main methodology. In order to achieve the objectives mentioned above, different sources of information will be used, which may include but are not limited to academical sources, articles from major international mass media outlets that covered the 737MAX crisis as well as official reports and documents.

Mass media will play an important role in the methodology employed, as they are one of the major factors that ultimately determine the impact of a crisis on corporate reputation. Additionally, a history of the crisis will be created in order to place the events that led up to the crisis as well as those that followed over time. Financial data will be collected and analyzed to measure the economic impact of the reputational crisis. Finally, the data obtained from research will be analyzed to determine the effects of the crisis on Boeing's reputation and finances, the mistakes that led up to these events. And ultimately, whether Boeing's reputation will recover and how it might recover after such a massive loss of life.

1.5. Tackling the case

In order to fulfill the previously mentioned objectives, this study will be carried out in the following steps. First, I will dive into a theoretical introduction of the concept of reputation. The aim of this introductory step is to explain and contextualize the theory surrounding the concept of corporate reputation, which has evolved over time and has grown to become an important field of study as companies realized the importance of reputation.

After that, I will explain the Boeing 737MAX crisis from the moment to begin up until today, exploring the events that were mentioned in the introduction even further. It is important to remember that the crashes have had repercussions for The Boeing Company that last to the present day. Therefore, providing context of the crash in detail will help the reader understand future stories related to the 737MAX, should they occur. Following that, an analysis of the reputational impact of the 737MAX crisis will be carried out, using the literature, media content and financial information that was previously mentioned in the methodology. Media coverage on the crisis will be of particular importance, as media tends to hyperbolize stories, which can sometimes damage the reputation of the company more than the event itself.

Thus, this analytical part will also attempt to determine whether that was the case in this crisis or not. Finally, after having analyzed all relevant information, this study will conclude by giving estimates as to whether Boeing will ever fully recover of the Boeing 737MAX crisis, and what steps the American aeronautical company might follow to achieve said objective.

2. Corporate Reputation

2.1. Ethimology

Before diving deeper into the concept of corporate reputation, it is useful to investigate the origin of the word itself. Ethimology is a useful tool to gain a first superficial understanding of a concept that some people might be unfamiliar with. The roots of the word alone can provide some initial insight to the real meaning of the word, as well as understanding of where the word came from. In some cases, the word itself might resemble a word from an ancient language but the definition it had back in the day might have evolved to be slightly different to the definition it has nowadays.

In the case of the word “reputation”, the core word within the concept of corporate reputation, its roots lie in the Latin word reputationem or reputatio which roughly meant “consideration”. Specifically, the second part of this word, -putation, comes from the Latin word "Putare", which can essentially be defined as the concept of estimating something, considering an idea, refining it and even calculating. Consideration is perhaps the most important element of the origin of the word reputation and one that has lasted to this day. It’s about the way you are seen, how others perceive you, what their opinion on you is based on what they know. Whether the things that are said are true or not, does not really matter. All that matters is what is known and what people think of it. That’s how companies with bad products might have a better reputation than other companies with better products. It is all down to how the costumers perceive your company.

To be exact, the Cambridge Dictionary defines “Reputation” as “the opinion that people in general have about someone or something, or how much respect or admiration someone or something receives, based on past behavior or character. (“Intangible Assets: Protecting Your Brand and Reputation ...”) The notion of character, of behavior is one that is very interesting and one that will be relevant later in the study. To summarize, if Boeing had taken a different approach during the crisis, their reputation might have received less damage than it ended up getting.

2.2. Reputation as a concept

Although reputation is a concept that is as old as mankind, it is only recently that the concept has become one of particular importance in the business world. The press and its coverage of immoral, erroneous and harmful behavior of large companies and corporations has been one of the factors that gave birth to the concept of corporate reputation. Nowadays, corporate reputation is an important point to be taken care of by companies. Failure to do so could seriously affect their economic performance.

Reputation is a term that is commonly used to vaguely describe, how a company, organization or institution is perceived by society. Of course, its background is much deeper and has been the subject of study by marketing and business researchers for some decades now - almost 40 years. Although a common dictionary definition has been used in the previous section, there are many definitions and, above all, many approaches that can be given to this concept when defining it. (McKenna & Olegario, 2012). For example, Charles Fombrun, a former Wharton professor, defines corporate reputation as:

“A corporate reputation is a collective representation of a firm’s past actions and results that describes the firm’s ability to deliver valued outcomes to multiple stakeholders. It gauges a firm’s relative standing both internally with employees and externally with its stakeholders, in both its competitive and institutional environment’.”

(Fombrun & Van Riel, 1997)

However, as previously mentioned, a universal definition of corporate reputation does not exist. It is, in fact, a fundamental problem in corporate reputation related studies. (Wartick, 2002). As a matter of fact, there are up to twelve well recognized definitions in the field of corporate reputation (Barnett *et al*, 2006). However, the most referenced definition is the one by Fombrun shown above.

Table 1: Some of the other most common Corporate Reputation Definitions

Author (Year)	Definition
Weigelt and Camerer, 1988	“A set of attributes ascribed to a firm, inferred from the firm’s past actions.”
Fombrun, 1996	“A perceptual representation of a company’s past action and future prospects that describes the firm’s overall appeal to all of its key constituents when compared with other leading rivals.”
Cable and Graham, 2000	“A public’s affective evaluation of a firms’ name relative to other firms.”
Whetton and Mackey, 2002	“Organizational reputation is a particular type of feedback, received by an organization from its stakeholders, concerning the credibility of the organization’s identity claims”.
Rindova et al., 2005	“Stakeholders perceptions about an organization’s ability to create value relative to competitors.”
Rhee and Haunschild, 2006	“The consumer’s subjective evaluation of the perceived quality of the producer.”
Carter, 2006	“A set of key characteristics attributed to a firm by various stakeholders.”

Source: Walker (2010)

However, while other definitions exist, as shown on the table above, the most cited one is Fombrun’s. As a matter of fact, a source used in this work states that, out of sample of 43 reviewed articles only 19 provided a definition, five of them being Fombrun’s. (Walker, 2010). Therefore, it is safe to say that, within the plethora of definitions that exist in this community of research, that definition is the closest thing to a widely accepted definition. Perhaps, because out of all definitions that have been written so far, Fombrun’s is the one that attempts to point out all important aspects of corporate reputation.

The first one is that corporate reputation is a phenomenon based, for the most part, on perceptions. Because perceptions are based on individuals’ interpretations of their environment and individual’s reactions to different stimuli, everyone may have a completely different reaction to any particular event, which in turn means that corporate reputation is often beyond the control of the company or institution itself. (Brown *et al*, 2006)

This is something that Fombrun himself explains, stating that because it is not really within anyone's reach or control, reputation is difficult to manipulate. (Fombrun, 1996) Not only that, but some researchers, such as Berger and Luckman, have gone so far as to say that reputation can be something "independent of reality" and that it is also a social construct. (Berger & Luckmann, 1966)

This is in line with the argument that reputation is the sum of the perceptions of internal and external stakeholders. Reputation is something that is built, in one way or another, based on some facts or others, but it is built. But because it is based on perceptions, and because perceptions are highly subjective, reputation is something that is seldom 100% factual or "true" to what happened. (Fombrun, 1996)

This way of looking at the concept, as a sum of perceptions on the part of stakeholders, or as the esteem in which they hold the company, is not without its problems. The first problem to mention is that reputation is something that is often not so much unitary, but specific to different aspects or sections of a company. Issues such as economic performance, environmental performance, social responsibility, product quality or the quality of the working environment can have completely different reputations. To put this in perspective with the case of this paper, Boeing may have an excellent reputation in the field of new technology development for having found a sustainable and revolutionary material - and at the same time it may have a bad reputation for having been less than transparent about product failures. (Walker, 2010) The problem is that these two reputations can be completely unrelated to each other. Smith, in his study, says that it would therefore be ill-advised to simply add these different "sub-reputations" together. In a brilliant analogy, Smith describes it as "looking in a mirror, having your hair on fire but saying you feel good because you're sitting on ice". (Smith, 2002) Therefore, as I will explain a little later, it is more appropriate to sum reputation, but to sum these "sub-reputations" by section or area of interest.

Summarizing this point, in which I have gone a little bit off the deep end, it can be concluded that reputation is formed by several reputations divided into themes and areas and that reputation does represent a sum of perceptions, but on a particular area. Remember the Boeing example I mentioned earlier

The second aspect of reputation implicit in Fombrun's definition is precisely what has just been mentioned that reputation is the sum of the perceptions of all stakeholders. In other words, corporate reputation is a social or collective construct. However, it is a curious fact, and supported by research such as that of Scott and Lane, that although reputation is made up of many individual and subjective perceptions, corporate reputation as such is something objective. (Fombrun, 1996)

This is because, as mentioned a few lines ago, corporate reputation exists on a "different plane" of reality (reality being here, again, what happened, not the way it has been perceived, or told. Additionally, it should be added that Fombrun (1996) has also come to define corporate reputation as a "the esteem in which relevant publics hold a company, association or institution."

The third aspect is that reputation is something that is formed through comparisons made consciously or unconsciously. Fombrun, in fact, specifies that in general the reputation we give to a company is formed by how we see it in relation to others (Fombrun, 1996). (Fombrun, 1996) Wartick, in his comments on the subject, goes even further, stating that not only do we compare companies with each other, but that when forming a new perception, we also compare our previous perception of a company in comparison to the current one. (Wartick, 2002)

Fourthly, it is important to mention that reputation can be both positive and negative. (Brown et al., 2006; Rhee & Haunschild, 2006) Even though on many occasions, and especially in the media, reputation is talked about or is news in a negative context, such as the Boeing crisis that we will see in this paper. This is supported by the fact that reputation derives from a process of comparison. Fifth and finally, it should be mentioned that corporate reputation is stable and long-lasting. It is something that lasts over time, it is the result of an action in the past whose impact is maintained in the future. At the same time, reputations, despite being stable and lasting, have the capacity to change very abruptly in the event of an event of special importance (both for the better and for the worse). (Mahon, 2002; Gray and Balmer, 1998)

These 5 points, aspects or attributes implicit in Fombrun's definition describe the main features or the most important ones of corporate reputation. That is why this definition by Fombrun is the most common and the cornerstone in most of the works, studies and case studies carried out in the field of corporate reputation. A stable, subject-specific concept, but formed by the sum of perceptions, representing the impact of an action in the past that endures into the future, through a comparison against a standard of "right" or "wrong".

However, having now given a definition of what corporate reputation is, it is also important to explain and mention those concepts that are often confused or misidentified as such. And the fact is that there are two concepts whose definition, seen from above, can be similar, especially in the case of someone who is not familiar with them. These are corporate identity, corporate image and the concept I have just explained - corporate reputation.

No one is guilty of confusing the three concepts. Barnett admits that identity, image and reputation are widely used interchangeably. (Barnet et al., 2006) However, it is still useful to understand the who's-who of the corporate reputation world. That said, let's start with corporate identity before moving on to corporate image, which is most often confused with corporate reputation. The most common definition used when talking about corporate image is that of Whetten and Mackey, who defined the concept in 1985 as "that which is most central, enduring and distinctive about an organization." (Whetten & Mackey, 2002) Barnett also speaks of it as the "core" or "character" of an organization, as seen by those who make it up. That which employees retain about their company, that which they mention and emphasize when asked about it. (Barnet et al., 2006)

The definition (which is not so much a definition as a rhetorical question) that is most striking is Whetten's: Who are we or what do we think we are? As employees working for a company, or even as students at a university, how do we perceive ourselves as part of it? (Whetten, 1997) This is what is called the real corporate identity, but there is also a desired corporate identity. The difference between the two is that the first is how internal stakeholders perceive the company and the second is how the company wants to be perceived by internal stakeholders.

However, this second definition is less common, appearing more prevalent in Balmer's work, which rightly differentiates between the real identity as the corporate identity and the desired identity as the vision of the CEO or leadership. Finally, it should be added that corporate identity, like corporate reputation, is based on perceptions and can be both good and bad. (Balmer, 2005) On the other hand, corporate image is a concept related to corporate communications. Corporate image is "the external communication channels used by organizations to get their messages across to customers and other stakeholders." (Balmer & Greyser, 2006). Others add that corporate image is "a gauge of external opinions" (Dutton & Dukerich, 1991) and Keller (1993) as the perception of the company by customers.

As you can see, although it is more of a communicative process, some of the terms used to define reputation and identity are repeated. Whetten, to the rescue, offers another question that can help clear up this confusion: "how do we want others to see us? Corporate image is, at its core, how an organization communicates its vision of itself. (Whetten, 1997) It is a desired image and may be a concept comparable to the internal desired identity mentioned in previous paragraphs. However, it differs from it in that it deals with the perceptions of external stakeholders, not internal ones. In the concept of corporate image, it is assumed that organizations always project an image, but this does not mean that those that do not do so lack a corporate image. If that were the case, it would allow for organizations to only have a negative corporate image if they wanted to have one, which of course, goes against all logic. (Walker, 2010)

Having defined what corporate reputation is, and what it is not, it is time to move on to the theories that try to explain how corporate reputation is built. In this sense, 3 theories stand out, which are the most common, well-known and used: institutional theory, signaling theory and resource-based theory (usually abbreviated by its acronym, RBV). To understand these theories and how they are used to analyze corporate reputation, it is necessary to understand that they analyze or pretend to explain the reputation building process in three separate phases: before it, during it, and after it. What happens before is called "pre-action", followed by "action" and what happens after is called "post-action". (Walker, 2010)

In the pre-action phase, institutional theory seeks to explain how the context in which reputation is built, its genesis, is formed. This theory analyzes how organizations acquire legitimacy and support in the context of their industry. (Deephouse & Carter, 2005) To acquire this legitimacy, organizations must carry out actions considering the environment in which they find themselves, otherwise their efforts may be in vain. (Rhee & Haunschild, 2006) For example, launching a product without having analyzed how replaceable it is, no matter how good it is, may result in that company not acquiring as good a reputation as it "should have".

Then there is the signaling theory. This, unlike the previous one, focuses on the messages used by the organization to primarily maintain and defend the reputation it has achieved. This takes the form of strategic actions and messages that companies send to (as far as possible) influence the perceptions of stakeholders. (Fombrun & Shanley, 1990)

It should be remembered that this is only possible to a certain extent. In any case, this theory stands out for its way of examining the ability of an organization's social performance to influence its reputation. In other words, it is appropriate for measuring the effect of, for example, corporate social responsibility campaigns and distinguishing them from mere greenwashing. In addition, this theory can be used to examine the detailed effect on each stakeholder. (Turban & Greening, 1997) How do my messages affect the reputation that my suppliers give me? Do I attract young talent as a result of my LinkedIn campaigns? These are the kinds of questions that this theory aims to answer.

Finally, and to conclude this section of theories, there is the resource-based view, the RBV. This theory, which is used in an after-action, analyzes how a reputation, a valuable and rare commodity, becomes a competitive advantage in the long term. In other words, this theory understands reputation as a resource, another one to be used by an organization. (Deephouse, 2000; Roberts & Dowling, 2002) It is also, in this sense, important to remember that reputation is ambiguous, and that perceptions among different individual stakeholders may vary. Thus, the greater the ambiguity, the greater the reduction in ambiguity when a company, for example, decides to invest in the best possible product quality. (Rindova et al., 2005).

Table 2: The three main theories of corporate reputation, summarized

	Main contribution:	Focus:	Stage
Institutional Theory	Context	Building reputation	Pre-action
Signaling Theory	Impression formation	Building and maintaining reputation	Action
Resource-based view	Added value, competitive advantage	Outcome	Post-action

Source: Deephouse and Carter (2005), Fombrun & Shanley (1990), Deephouse (2000), Roberts & Dowling (2002)

2.3. Measuring corporate reputation

Measuring corporate reputation is easier said than done. It is a fundamental problem in the study of corporate reputation, as it is something that is not tangible and yet has an important impact on organizations. At the same time, it is ambiguous and subjective, depending on the sum of many perceptions about a subject that come together to form just one. This makes measuring corporate reputation complicated, as there is no single answer as to how to carry out said measurement. There are several that exist, and their use depends on the situation.

In this paper, three different corporate reputation measurement models will be considered. Two subjective metrics and one objective metric. The objective metrics try to determine, redundantly, in an objective and precise way what is the corporate reputation of an organization. These metrics are commonly used in audits and are carried out by experts of different types: from analysts or consultants to specialized journalists or reputation researchers. In this paper, I will look at the most popular of them all: Fortunes Most Admired Companies.

A metric born in 1984 and by means of which the reputable magazine generates its famous Fortune 500 and Fortune 100 rankings, which ranks, respectively, the five hundred and one hundred best American companies. There is also a worldwide ranking, called Fortune Global 500. (Fortune, 2019) These lists are carried out by collecting information from questionnaires, conducted to people belonging to different levels of the business world: employees, executive managers, members of the executive committee, analysts, CEOs ... etc. (Fortune, 2019)

In these questionnaires, they must evaluate a list of companies, giving them a score of 0 up to 10. It couldn't be simpler. Remember Fombrun's point above about reputation having "sub reputations"? Well, this metric makes it clear, as it asks the respondent to evaluate these companies based on eight separate topics: attraction and retention of talent, management, corporate social responsibility, innovation, quality of products and services, use of corporate assets, value of long-term investments and finally, financial strength. However, this index has not escaped criticism. Some studies, such as that of Fryxell and Wang, argue that it analyzes companies primarily by their financial performance, i.e., it captures the reputation of the company primarily according to how it is perceived financially. An organization is valued in the same way that a house, or a car, or a computer is valued: by its economic value derived from its perceived quality. (Fryxell & Wang, 1994) An objective but limited metric, but still an excellent way to quickly check how a company is perceived.

Table 3: Example of the Fortune Global 500 ranking

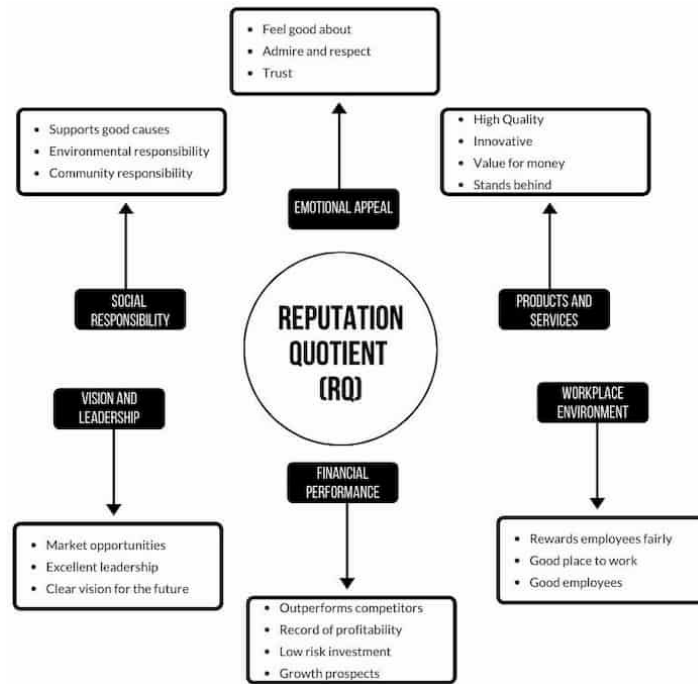
RANK	NAME	REVENUES (\$M)	REVENUE PERCENT CHANGE	PROFITS (\$M)	PROFITS PERCENT CHANGE	ASSETS (\$M)	EMPLOYEES	CHANGE IN RANK	YEARS ON GLOBAL 500 LIST
1	Walmart	\$559,151	6.7%	\$13,510	-9.2%	\$252,496	2,300,000	-	27
2	State Grid	\$386,617.7	0.7%	\$5,580.4	-30%	\$666,088.5	896,360	1	21
3	Amazon	\$386,064	37.6%	\$21,331	84.1%	\$321,195	1,298,000	6	13
4	China National Petroleum	\$283,957.6	-25.1%	\$4,575.2	3%	\$626,616.7	1,242,245	-	21
5	Sinopec Group	\$283,727.6	-30.3%	\$6,205.2	-8.7%	\$343,289	553,833	-3	23
6	Apple	\$274,515	5.5%	\$57,411	3.9%	\$323,888	147,000	6	19
7	CVS Health	\$268,706	4.6%	\$7,179	8.2%	\$230,715	256,500	6	26
8	UnitedHealth Group	\$257,141	6.2%	\$15,403	11.3%	\$197,289	330,000	7	25
9	Toyota Motor	\$256,721.7	-6.5%	\$21,180.1	13.1%	\$562,994	366,283	1	27
10	Volkswagen	\$253,965	-10.2%	\$10,103.5	-35%	\$608,368.1	662,575	-3	27

Source: Fortune Global 500 (2022)

However, there are methods to measure or reflect the corporate reputation of an organization in a way that is more akin to the concept as defined above. Not as a physical or real object, but as a social construct, a sum of individual perceptions that gives rise to a collective perception. These are the subjective metrics. Subjective, because they seek to capture the real opinions of stakeholders - subjective perceptions. These can be how people think about the company, how they feel about the brand, whether it deserves admiration and recognition or repulsion. These are all subjective ideas, but their existence points towards flaws and strength of a company's reputation. In this paper, I will mention two of them: the Reputation Quotient (which I will abbreviate as RQ) and one that may be familiar to the reader, RepTrak.

The Reputation Quotient, of course, is a metric that was developed by the star author of corporate reputation: Fombrun. It is a metric that is clearly adapted to how Fombrun conceives corporate reputation, not as a single reputation but as several reputations from various areas of an organization. Thus, Fombrun takes a multi-stakeholder view, seeking the point of view of the public but also of employees, consumers, suppliers and investors. Remember which Fortune method has shortcomings? Well, it uses this metric as a basis, adding dimensions suggested by the authors. (Fombrun et al., 2000) Therefore, from the mainly economic KPIs in the Fortune rankings, RQ measures emotional appeal, the quality of products and services, the trust they generate, the level of innovation, leadership and its vision, the work environment, corporate culture and social responsibility, as well as, inevitably, financial performance. Thus, this metric improves the concept of the Fortune metric, bringing it closer to the ideas of the authors of corporate reputation. It is a more appropriate measurement tool, implemented worldwide. However, as will be seen below, there is not as much RQ data. In that sense, the Fortune ranking is the world leader in reputational measurement. (Fombrun et al., 2000)

Figure 1: The RQ, summarized



Source: Fombrun et al. (2000)

Still far from being the perfect metric, Fombrun continued to research in search of a measure that would capture corporate reputation as well as possible. Thus, with the collaboration of another group of researchers, the RepTrak index was born. This scale, or index, adds a disproportion between cognitive and affective dimensions to RQ, something that was appropriately determined after numerous interviews with key corporate reputation professionals, such as communication, marketing, human resources or finance managers.

Through them, a list of items to be analyzed was obtained and assigned a weighted reputation score, since not all of them have the same weight in reputation. Thus, the RepTrak scale analyzes the following sections of an organization:

- 1. Products and Services:** The visible part of an organization. Quality and degree of satisfaction are important factors for reputation, since customer perceptions are strongly influenced by them.
- 2. Innovation:** Innovation says a lot about how willing an organization is to adapt to changing times. Its existence arouses admiration, respect and interest. Its absence makes a company go unnoticed.
- 3. Work environment:** An important factor for the internal reputation of the company. A good work environment motivates employees and attracts talent, a bad environment has the opposite effect.
- 4. Corporate governance:** The values and transparency of a company are decided and guided at this level. Executive decisions are fundamental to reputation.
- 5. People, in general:** People look for companies that not only offer good products, but also comply with certain ethical values. This trend is still on the rise.
- 6. Leadership:** Bosses are the biggest advertisement a company can have. If they identify with the company and "pamper" it, its reputation will be good.
- 7. Finances:** The economic performance of a company is essential to measure its good performance, its growth and therefore, its reputation.

It is worth remembering that these three ways of measuring reputation are not the only ones, but they are some of the most common and the most famous. Of course, there are other ways to measure reputation, but these three are the most appropriate to follow and measure Boeing's reputation during its 737 MAX crisis.

3. State of the Art

As long as there have been companies, there have been crises. Having a company and problems have always gone hand in hand. One of these problems are reputation crises, consequences of an accident, carelessness, negligence or even a premeditated act. Of course, it is not the same thing for a group of employees to complain about low wages as it is for a product production failure to have deadly consequences for hundreds of people. But both situations, in different circumstances, can have serious consequences for the future of a company. The first situation can result in the inability to attract talent, the second in the inability to attract talent, the second in the inability of anyone to trust your company again, your partners to break their relationship with you and your bankruptcy to come. As they say, every cloud has a silver lining. In the case of reputational crises, that silver lining is the lessons learned for the future of the affected organization itself, as for all others in its industry or even others. And since lessons can be learned from crises, they have been studied thoroughly. In this section, I will highlight some of the work that has caught my attention in this area.

The first of these is a paper by John J. Pauly and Liese L. Hutchinson, both professors of communication at Saint Louis University. In it, Pauly and Hutchinson (2005) compare the famous cases of Tylenol and Exxon Valdez, two of the greatest reputational crises in history. In the Tylenol case, seven people died in Chicago in less than a week after consuming the analgesic drug. They turned out to contain cyanide. It was a huge crisis for Johnson & Johnson pharmaceuticals, but because they acted effectively and quickly, they were able to mitigate the damage caused. On the other hand, the Exxon crisis occurred when in March 1989, the Exxon Valdez oil tanker ran aground in Alaska, rupturing its hull and releasing some 11 million gallons of oil into the sea. It was one of the biggest environmental disasters in the United States, but also a disaster in terms of reaction to a crisis. Exxon reacted late in a situation that required an immediate response. While the first crisis was an example of how a company should act in the face of a crisis, the second was the opposite. Thus, this paper analyzes both crises comparatively, drawing lessons on how and how not to react to a major reputational crisis. (Pauly & Hutchison, 2005)

The second paper I want to refer to is one that analyzes a much more recent crisis: that of the exploding Samsung Galaxy Note 7. The paper by Yun et al. (2018) analyzes the crisis that took place in 2016, after several Samsung Galaxy Note 7 phones exploded shortly after their launch, due to a problem with their battery and electrical system. Because of this crisis, Samsung had to recall some 2.5 million copies of its then new mobile phone. The spontaneous ignition of its batteries cost Samsung an estimated 2.8 billion euros. This work, carried out by a group of South Korean researchers from different universities in their country, analyzes the crisis from a corporate strategy perspective and how seeking to reduce costs ended up being expensive for the Korean technology giant. (Yun et al., 2018)

Finally, to conclude this section, I will mention two texts that have been written about the crisis I am going to analyze: the Boeing 737-MAX crisis and its accidents. This crisis, even though some years have already passed, has not yet accumulated many studies on it at the reputational level. That is precisely the reason why this topic was selected for this paper, to contribute my insight to understand what happened and possibly help prevent something similar from happening in the future. There are, from an aeronautical perspective, several studies on good engineering habits, using Boeing's mistakes to teach future engineers what to avoid doing. One of these texts, however, combines elements from both the reputational and engineering domains. It is worth remembering, again, that Fombrun mentions products and innovation as subject areas that affect reputation. That work is that of Herkert et al. (2020), written as can be seen from the recent citation. In it, they explain the accidents suffered by the 737 MAX, before analyzing it from an ethical point of view. Specifically, this paper seeks to explain the reasons why engineers should have a stronger voice within large companies such as Boeing, precisely to avoid accidents of this type. (Herkert et al., 2020)

The other text I would like to highlight is that of Cioroianu et al. (2021). In this case, it is a paper that analyzes not so much the reputational impact of the 737 MAX crisis as such, but the secondary reputational effects of it. That is, the effects that the Boeing accidents had on customers. The airlines, because of the groundings of these models, were unable to receive the airplanes they needed to increase their fleets for months. In addition, because of the media coverage, once the planes were cleared to fly, customers had serious doubts about whether they wanted to book a flight aboard a 737MAX. (Cioroianu et al., 2021)

4. History of Boeing

Boeing is a company that really needs no introduction. Even for those with little interest in the world of aviation, Boeing is a name that, if you have flown, you have undoubtedly come across in your life. It is a company with a long history in the world of aviation and one that, in large part, has contributed to the existence of the modern airplane as we know it.

The history of this company begins in 1909. At that time, a wealthy young carpenter, William E. Boeing (who would give his surname to the company), saw an airplane for the first time at the Alaska-Yukon Pacific exposition. Boeing, who was fascinated by the then innovative and revolutionary flying machine, decided to buy a shipyard on the Duwamish River. This would become Boeing's first factory. However, Boeing didn't really know much about airplanes beyond having seen one at that event. So, in 1915, Boeing decided to travel to Los Angeles, where he would learn to fly and buy his first plane, a seaplane, which he would take home by train. Unfortunately, this plane was damaged and when Boeing learned that spare parts would not be available for months, he decided to build his first plane. To do so, he enlisted the help of George Conrad Westervelt, a U.S. Navy engineer, who collaborated with Boeing to build what would become the first Boeing in history: the B&W seaplane (B for Boeing, W for Westervelt). On June 15, 1916, this aircraft would complete its maiden flight. A year later, in April 1917, Boeing registered the company in the state of Delaware under the name "Boeing Airplane Company". Boeing had officially taken off. (Boeing, 2021)

In the beginning, the company had serious problems finding customers. At that time, the USA had not yet entered World War I. Boeing, seeing that a commercial launch was not yet possible, preferred to lay the foundations for the company's future. Boeing's Duwamish plant was renamed Boeing Plant 1. At the same time, it hired Wong Tsu, a Chinese engineer from MIT. It was he who designed the Boeing Model 2, the successor to the B&W and the company's first success. He would go on to become a company legend. (Dumovich, 2006) With the Americans finally entering the war, demand for aircraft soared, and Boeing won its first major contract: 50 seaplanes for the U.S. Navy.

From there, Boeing grew by leaps and bounds. In the late 1920s, it acquired several companies that would be key to Boeing's history: Sikorsky and Pratt & Whitney. The former would go on to build helicopters. The latter, engines. (Boeing, 2021)

In the 1930s, Boeing would make the leap into civil aviation, acquiring a series of airlines that it would unite under the name of none other than United Airlines. That's right, but only briefly, because a few years later Boeing was forced by law to separate from the air transport business, United Airlines belonged to the aircraft manufacturer. During World War II, the company would build some of the most legendary aircraft of that conflict: the legendary B-17 bomber and the B-29, the type of aircraft that would drop the first nuclear bombs. Notably, those planes were built almost entirely by women; the men were fighting. (Stockwell et al., 1962) In the 1950s, with the advent of jet engines, they brought out the famous B-52 Stratofortress, a long-range bomber in active service with the U.S. to this day, and the Boeing 707, Boeing's first "modern" commercial jet aircraft. This was followed in the 1960s by the small 727, an aircraft mainly for regional use, and in 1967, the great-grandfather of the aircraft that is the subject of this work was born: the original 737. An aircraft as legendary as the 747, the famous jumbo jet, which would debut at the Everett factory, to this day Boeing's main factory. In the 1970s, the company would go through serious economic hardship between the end of the Vietnam War, the closure of money related to NASA's Apollo project and the recession of 69-70. (Boeing, 2021) In addition, in 71, it would lose budget for the development of the 2707, a supersonic aircraft that was to be positioned as an alternative to the French-British Concorde. 7000 employees lost their jobs. (Associated Press, 1971)

In the 1980s, the economic situation began to improve significantly, and with it, the shopping came back. Boeing sold its 1,000th 737 at a time when Airbus had already reached the international market. With new competition, Boeing came up with two aircraft that would also become historic, the 757 and the 767, medium to long-haul airliners. In addition, the company was important in cutting-edge technology projects, such as the space shuttle and the B-2 stealth bomber.

The 90's started like the 70's: badly. Boeing lost a major contract for the new advanced fighter for the U.S. Air Force to Lockheed Martin. (Miller, 2005) But they were able to pick up the pace with the release of the 777, a leading aircraft to this day, and the modernization of the 737, the 737NG. In addition, in 1997, they managed to acquire one of the companies that until then had been one of their major competitors: McDonnell Douglas. (Boeing, 2021)

The 2000s arrived, and its first decade also had ups and downs. It started badly, with the loss of four of its aircraft, which were hijacked and used in the 9/11 attacks. In addition, it lost a lot of ground to Airbus, falling behind the European company. The company took another blow when it had to cancel the Sonic Cruiser, an aircraft that was supposed to revolutionize the civil market. It was more successful with the 747-8, the modernized version of the legendary 747-400, which had a market opportunity when the A380 was delayed. It also won several important defense contracts, including orders from the U.S. Navy for the P-8 Poseidon, the submarine hunter version of the 737, and the KC-46 aerial refueling aircraft. In the following decade and up to the present day, it was relatively quiet in terms of innovation except for the MAX. In 2011, the sketch of the 737MAX, the catastrophe aircraft, began, and by that time Lion Air had already received orders for it. A decision that the airline would come to regret. (Ostrower, 2011) In 2017, Boeing would reach its order and revenue record, closing 745 orders for the 737, among others. But in October 2018, it happened. The first 737 MAX crashed. On March 10 of the following year, the other one did. (Boeing, 2021) That's when the crisis that I will analyze below began.

5. The 737 MAX Debacle: Analyzing how it happened, how it was told, and its aftermath

5.1. The perfect storm

The story of the 737 MAX, like that of many major accidents throughout history, is a tragic tale. An avoidable tragedy that cost the lives of hundreds of people for reasons as simple as not wanting to lose, the human fear of defeat, of falling to second place. In the case of Boeing, and as explained in the introductory text at the beginning of this paper, this crisis began by falling into one of the biggest traps of corporate strategy: reacting with a move identical to the competitor, instead of seeking alternative innovation strategies. Boeing did not have the advantage of moving first and chose to simply step in its competitor's footsteps.

Boeing's competitor in this case, named Airbus and surnamed A320neo, was to upgrade the technology and performance of the original A320, giving it greater passenger comfort, greater fuel efficiency and longer range. When the Toulouse-based company announced the Neo, Boeing did not have a new version of the 737 in mind. At the time, Boeing was in the process of studying whether it wanted to retrofit the 737 with more modern engines or whether the time had come to develop a new aircraft to replace it, which would have been the Boeing 797 and which would have followed the design line of the 787. In fact, that project was launched as early as 2006. This project was linked to a possible acquisition of Embraer, the reputable Brazilian aircraft manufacturer, with the idea of integrating talented Brazilian personnel into their company and developing a new medium-range aircraft. (Gates, 2018) A project that would have been more costly, but who knows if it would have been more profitable in the long run. Something similar would later be done by Airbus, when it completed the purchase of the Canadian company Bombardier and adopted its C-series aircraft under the name A220. (Garcia, 2020)

However, Boeing was unlucky, Airbus moved first. When Airbus launched the A320neo in December 2010, the U.S. firm was still convinced that the best idea was to bring out a new aircraft. McNerney, who was CEO of Boeing at the time, insisted that they would bring out a new aircraft. (Freed, 2011) Instead, Boeing was quickly faced with reality. At the 2011 Paris Air Show, the Airbus A320neo would break the all-time order record. (Airbus, 2011) The U.S. firm needed to react.

Thus, on August 30, 2011, Boeing announced the start of the re-engined 737 projects. Interestingly, perhaps in an act of foretelling, all the initial communication from Boeing was not about the characteristics of its aircraft, but the statistics in which it outperformed Airbus. (Ostrower, 2019) In the academic community, it is said that the true effect of the first-mover advantage is not something to be taken for granted but depends very much on the circumstances and the industry in which it operates. (Suarez & Lanzolla, 2014) In this case, in an industry where due to the small number of players any competitive advantage is enormous, Airbus took full advantage of the first-mover advantage. Boeing, from the beginning, had to face an uphill struggle, or risk losing its market to the new A320. Airbus had the high ground.

Having forced itself to keep up with the Europeans, Boeing went ahead with the reengined version of the 737, rather than designing an entirely new airframe as the US company had originally intended. However, as mentioned in the introduction, this this was not an easier task nor cheaper. Redesigning the 737 and creating the 737MAX entailed an important technological challenge for the American company. The main challenge Boeing had to overcome was the fact that in comparison to the Airbus A320, the 737 airframe had less ground clearance. Therefore, installing larger engines, meant that they would have to be installed not only further forward on the wings but also significantly higher. These changes altered the aerodynamics of the 737 and made it possible that, under certain circumstances the plane would face upwards and potentially stall and fall out of the sky.

Boeings solution for this problem was the MCAS system. This system, which stands for Maneuvering Characteristics Augmentation System, was created to avoid the aircrafts tendency to pitch up, an aerodynamic result of its larger and heavier engines.(Glanz get The idea behind it was, that not only would it stabilize the aircraft in conditions where the plane is facing upwards (such as during take offs), but also give it similar flight characteristics to the 737NG, the previous generation 737, thus reducing training requirements for transitioning pilots to a minimum. For the system to activate, three things were necessary.

The plane had to be flown manually, facing upwards at a steep angle and the flaps had to be in an up position. Under these circumstances, which usually happen during take-off, a single Angle of Attack sensor (out of the two on board) would monitor the angle at which the plane was flying and adjust accordingly, pushing nose of the plane down. (Boeing, 2020) Relying on a single sensor alone, however, was a dangerous affair. Should the sensor malfunction, it was possible for the consequences to be deadly for everyone involved.

Weirdly enough, there is evidence people at Boeing were aware of the risks of the system working the way it did. Apparently, and according to an investigation by the New York Times, Mark Forkner, a pilot leading the technical team, wrote an email to a work colleague precisely on the weird behavior he had noticed when trying out the system, stating that the system was “running rampant” during flight simulations. Forkner himself would admit that he lied to the Federal Aviation Agency (FAA), for the be plane to be certified (Gelles & Kitroeff, 2019a).

However, the FAA, whether knowingly or unknowingly, also contributed to the problem. In 2016, with the plane certified and ready for commercial use, the FAA asked to remove any evidence off the system from the flight manuals. The agency agreed, claiming after the crashes that because of it being mere software, the system did not have to be explicitly mentioned in any manual. Should pilots see that plane started to face downwards, the FAA claimed that they believed that the crew would be able to go around the failed system and stabilize the aircraft. Boeing on the other hand, never gave any statements as to why it left the system out of the manual, simply saying that “the FAA approved the MCAS system as it was”, when asked about it. (Laris, 2019)

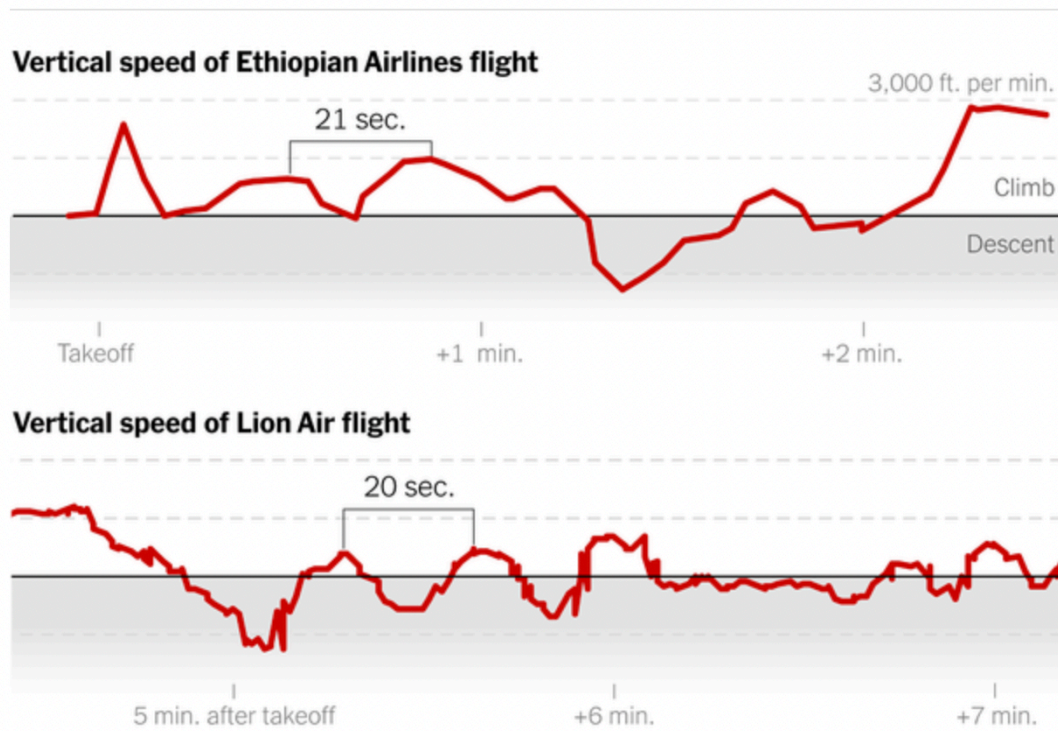
Tragedy then struck on October 29th, 2018. Shortly after takeoff, a Boeing 737MAX operating Lion Air Flight 610 out of Jakarta, asked air traffic controllers to return to the airport as soon as possible. Minutes after, the plane disappeared from radar. It had crashed into the Java Sea, killing all 189 people on board. Indonesia’s National Search and Rescue agency reported that the scenes at the crash site were “devastating”. Boeing expressed that they were “deeply saddened” by the crash. FlightRadar24, a famous flight tracking app, stated that the plane showed a fast increase and speed and rate of descent. In other words, the plane was plummeting into the ground. (Suhartono & Beech, 2018)

Seemingly aware of it, Boeing reacted to the Lion Air crash by issuing a bulletin on “Uncommanded Nose Down Stabilizer Trim Due to Erroneous Angle of Attack (AOA) During Manual Flight Only” in order to “emphasize procedures in case of AOA sensor failure”. A guide telling crews how to deal with the situation should it appear. (Boeing, 2018) It would later be revealed that that bulletin was the first-time airline pilots knew about the existence of the flawed system. (Bushey, 2019) The FAA also had a first initial reaction to the crash, as the agency carried out a Risk Assessment, which concluded that 15 more 737MAXs would have crashed within the next 45 years if the issues were not fixed. However, this report, for some reason, was not released until well into the investigation in 2019. (Arnold, 2019)

In fact, that guide was on board the second 737MAX that crashed in Ethiopia on March 20th, 2019, in similar circumstances to the one in Indonesia. Ethiopian Airlines flight ET302 crashed only 5 minutes after take-off from Addis Ababa airport, bound for Nairobi. 157 people lost their lives. Flight data showed that the plane took off, had a sharp change in vertical speed, before losing control and disappearing from radar. Back then, 350 737MAXs had been delivered worldwide. The pilots followed the information in the bulletin, but sadly, were not able to save the passengers and themselves (Ahmed et al., 2019)

After days of pressure by the media and public opinion, the 737MAX was grounded, as announced by then-US president Donald J. Trump. The FAA stated, even then, that it had “not seen any performance issues” that would justify stopping all flights. (Kaplan et al, 2019)

Figure 3: Similar patterns of air speed before both crashes



Source: The New York Times (2019)

5.2. Investigation and reaction by Boeing

Boeing has a history of not reacting well to accidents. More often than not, Boeing's reaction to crashes of one of their aircraft has been to shift the blame over to either the airline or the crew or simply not admitting design flaws. In 1991, a 737 crashed when approaching Colorado Springs, killing 25 people. A two-year long investigation concluded that a malfunctioning rudder was to blame for the crash and requested Boeing to deliver a modified part to fix the problem. Boeing never admitted that it was the case and failed to provide said part. When in 1994, another crash caused by the same part killed all 132 passengers on final into Pittsburgh, Boeing also insisted that the design was not flawed, blaming the pilots. (Hall & Goetz, 2019)

A shocking culture of denial, which withstood the pass of time, as shown in the 737 MAX case. This time, Boeings reaction was similar. Boeings CEO at the time, Dennis Muilenberg, was quick to blame the pilots for failing to follow procedures. After briefly apologizing for the accidents and the people that passed away, Muilenberg reiterated Boeing's safety record and stated that "the procedures were not followed completely" when asked about whether the crashes were possibly caused by a mistake. The CEO had dismissed the possibility of a design flaw in the question that came before. "We haven't seen a technical slip or gap in terms of the fundamental design and certification.", Muilenberg said. (Economy, 2019) Unfortunately, for Boeing, by that point it had already been widely reported that the company had not notified customers about the system. (Glanz et al., 2019) However, experts of the industry were quick to counter Muilenbergs statements. Chelsey Sullenberger, the famous pilot that managed to land his plane in the Hudson River, commented that "inadequate pilot training exists worldwide, but it does not excuse the flawed design of the MCAS. It was a death trap (...) it should have never been approved and these accidents should have never happened" (Sullenberger, 2020)

The authorities, despite the FAA behaving like Boeings accomplice during the crisis by allowing the company to remove the system from the manuals, also never sided with Boeing. The final Indonesian report concluded that while the pilots had not received proper training, the primary cause of the crash was a design flaw in the MCAS system. (Neuman, 2019) Neither did the Ethiopian Aircraft Accident Investigation Bureau, which concluded that the design flaws were the sole cause for the crash, blaming Boeing for the crash that killed all 157 people onboard. (Marks & Dahir, 2020) US authorities also concluded that Boeing was to blame for the fatal crashes. The National Transportation Safety Board stated that Boeing underestimated the flaw its system had. (NTSB, 2019) Even the FAA ended up concluding that Boeing and the agency itself had committed mistakes during the certification process. (König, 2019)

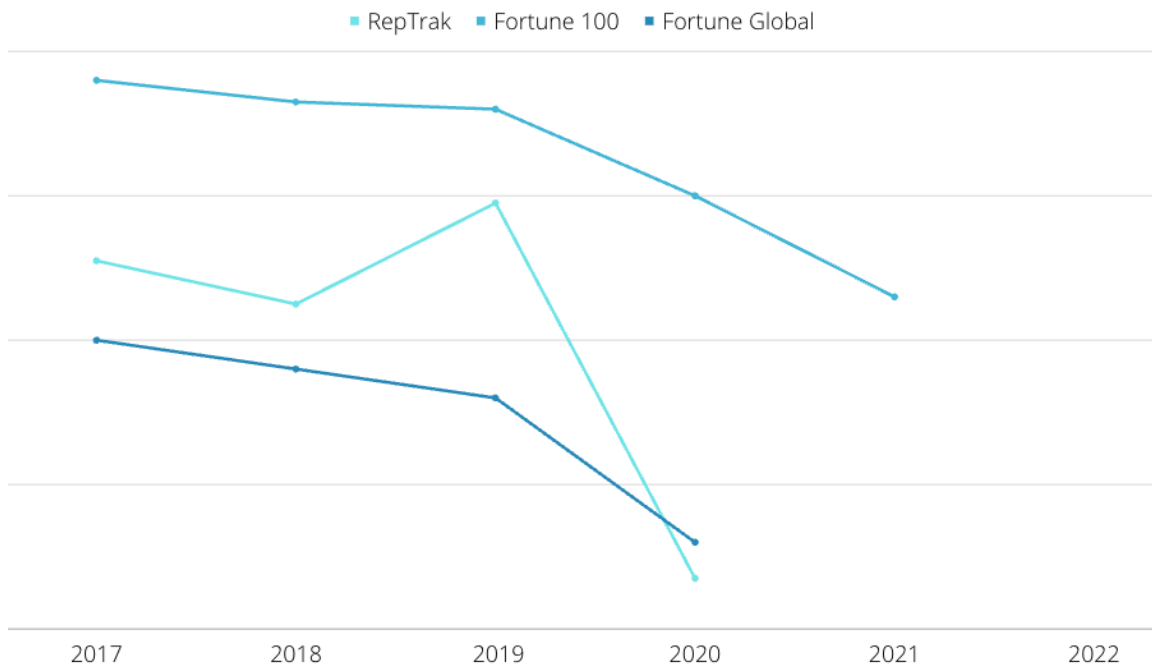
After insisting for months that the MCAS system had not been blamed, Boeing was left with no other choice other than working on a fix the system and providing training programs, if it wanted the aircraft to fly again. (McDermid, 2021) On December 30, 2020, the 737 MAX flew again commercially. (AP, 2020)

5.3. Reputational and economic impact

The 737MAX crisis caused significant damage on Boeings reputation. The US aircraft manufacturer failed in being transparent during the crisis, dismissing accusations and pointing fingers at the deceased crews, using denial tactics instead of addressing the problem, directly putting public safety at jeopardy even after the first plane had crashed. As one can imagine, Boeings reputation plummeted in all leading national and global reputation rankings.

On Reptrak 100, marked in turquoise below, Boeing was sitting at rank 49 before the crisis. In 2018, when the first crash occurred, the company fell to rank 55. At the time, not much was known about the crash besides the fact that some sort of failure had forced the pilots to return to the airport, before they crashed. In 2019, the second crash took place. Shortly after, both independent and government investigations started, shedding light onto Boeings flawed MCAS system. Results such as the fact that they hid from the manuals as the New York Times concluded (Glanz et al., 2019), caused Boeings reputation to fall to rank 61, only to disappear in the following years. As of 2022, Boeing has yet to reappear on the RepTrak 100, meaning that its corporate reputation has yet to show signs of recovery.

Figure 4: Reputational trackers in comparison



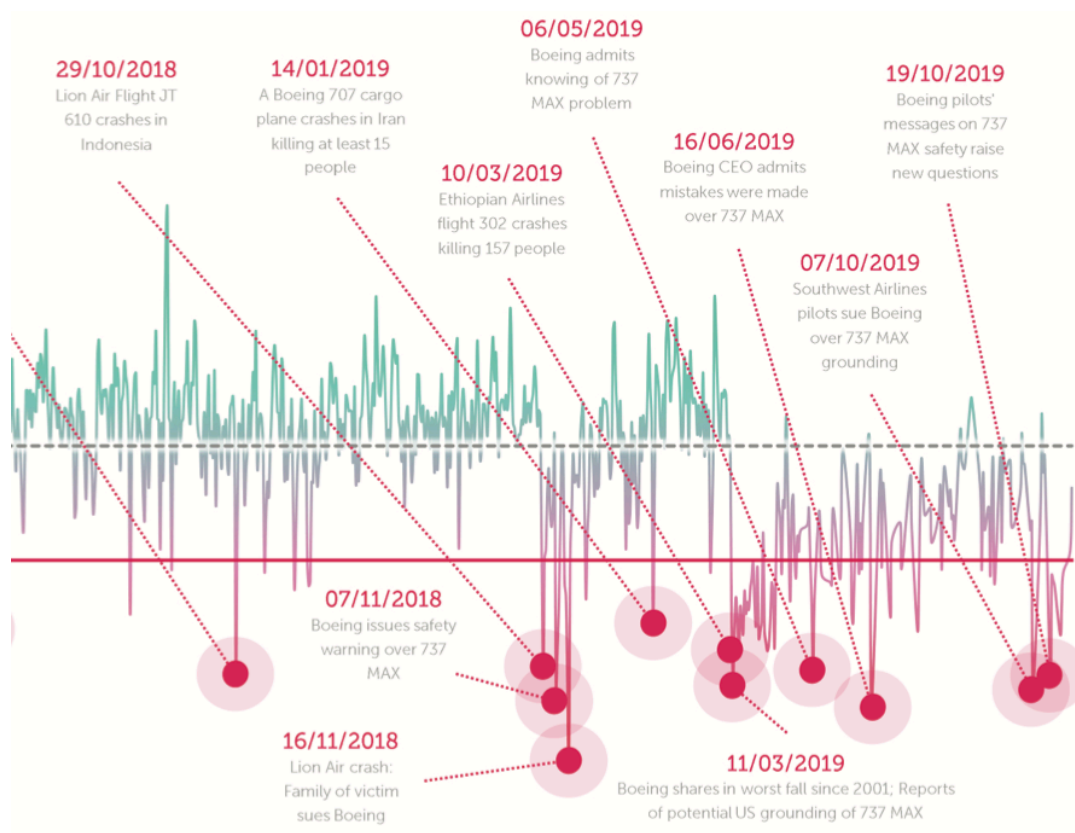
Sources: Reprtrak, Fortune 100, Fortune Global (2017-2022)

It is important to remember that with the Boeing crisis, many different stakeholders were affected, but above all, its customers: the airlines. The airlines that had already received their aircraft found that they could not use them as they were grounded, having assets on stand-by, constantly burning money as they had to be maintained. In addition, once the aircraft were recertificated, many passengers avoided flying the 737MAX, thus affecting the airlines even after the groundings. This, of course, made airlines doubt Boeing as a business partner for the future. (Cioroianu et al., 2021) When, 20 months after stopping all 737MAX flights, the plane was given the green light to fly again, the airlines were faced with the difficult challenge of convincing passengers that the plane was safe. American Airlines even offered free rebooking in the event that a customer did not want to fly on the MAX. "The problem airlines have to face is how to reintegrate the plane into their operations without being detrimental to customer confidence," said Mark Dombroff, an aviation expert with the law firm Rothschild, at the time. "It's an aircraft that has been checked meticulously, down to the every inch." (Popken, 2020)

However, this was less an issue of whether the aircraft was safe or not, but rather an issue of a total loss of reputation and the total disruption of public confidence in Boeing. So much so, that in a survey conducted by Bank of America, only one-fifth of respondents said they would have no problem flying the plane once it was reintroduced. Meanwhile, two-thirds of them said they would wait at least six months before flying with it, or would never do so at all. (Josephs, 2019) This lack of confidence was shared by the media.

A case study conducted by avla, discovered this obvious tendency in Boeing's reputation. After the Lion Air crash, Boeing's reputation fell to critical levels. One of the factors that avla discovered, is the overwhelming amount of negative reporting. In late 2018 and early 2019, despite the crashes, little was known about the causes, and negative coverage was not as predominant. However, after investigations started making conclusions proving that Boeing was mostly to blame, its reputation stayed at critical levels. The graph below captures those conclusions to perfection. (avla, 2021)

Figure 5: avla's tracking of Boeing's reputation



Source: avla (2021)

This effect on its reputation had serious economic repercussions for the company. For starters, numerous companies canceled their orders in the wake of the groundings, forcing Boeing to temporarily suspend production in December 2019, which came at a cost of some \$6.3 billion. (PRNewswire, 2019) And that was just the top of the iceberg. In its Q2 2019 results, Boeing reported losing \$3 billion, and its stock market value had fallen by \$62 billion. Specifically, groundings cost the U.S. company \$4 billion per quarter. (The Economist, 2019) As can be seen in the chart below, Boeing's revenues dropped considerably since the 737MAX crisis, from \$101 billion to just \$76.5 billion in just one year (from 2018 to 2019). (WSJ, 2022) Caution should be exercised with the 2020 data, as it should be noted that this is when the pandemic began, which hit the airline industry hard. (Bogaisky, 2020) In November 2020, some banks estimated that the 737MAX crisis could cost Boeing more than \$80 billion in direct and indirect costs.

CNN went so far as to call the MAX crisis "the biggest corporate blunder ever." (Isidore, 2020) And that is without considering that the costs to be paid are not yet finished. In January 2021, Boeing was ordered by the supreme court to pay an additional \$2.5 billion for the manual debacle that left out MCAS, including \$1.77 billion to various airlines and \$500 million to a fund set up for victims of the 737MAX accidents. (USDOJ, 2021) In addition, it is still involved in several litigation processes awaiting resolution.

Table 4: Boeing's key financial indicators, 2017-2021

Fiscal year is January-December. All values USD Millions.	2021	2020	2019	2018	2017	5-year trend
Sales/Revenue	62,286	58,161	76,559	101,127	94,005	
Sales Growth	7.09%	-24.03%	-24.29%	7.58%	-	
Cost of Goods Sold (COGS) incl. D&A	55,804	57,148	72,068	81,490	76,612	
COGS excluding D&A	53,660	54,902	69,797	79,376	74,565	
Depreciation & Amortization Expense	2,144	2,246	2,271	2,114	2,047	
Depreciation	1,860	1,929	1,940	1,842	1,807	
Amortization of Intangibles	284	317	331	272	240	
COGS Growth	-2.35%	-20.70%	-11.56%	6.37%	-	
Gross Income	6,482	1,013	4,491	19,637	17,393	
Gross Income Growth	539.88%	-77.44%	-77.13%	12.90%	-	
Gross Profit Margin	10.41%	-	-	-	-	

Source: The Wall Street Journal (2022)

In addition, the groundings not only caused hundreds of deliveries to be delayed without a final date. In 2020, as a direct consequence of the groundings, customers cancelled as many as 650 aircraft orders, losing an additional 1,000 aircraft under agree-to-purchase contracts during the pandemic, i.e. future purchases pending confirmation. This resulted in Boeing delivering only 157 aircraft in 2020, a record low, the fewest since 1984. (Josephs, 2021) These horrible financial results are clearly visible on Fortunes 500 and Fortunes Global rankings. It is important to remember that these rankings measure companies by their economic performance. As Fombrun explained, while economic performance should never be a sole indicator of reputation, it certainly is one of the indicators. (Fombrun, 1997) In this case, for a company historically among the largest in the United States and thus largely exposed to the scrutiny of the media and public, its economic performance is a prime indicator of the company's reputation. In 2017, the company was on rank 24 of the Fortune 500, falling progressively until they hit rock bottom in 2021, on 54th position, Boeings historical lowest. (Fortune, 2021) On the Fortune Global ranking, Boeing started falling from 2017 onwards, disappearing from the ranking. (Fortune, 2019) However, it is still important to remember that the pandemic may distort the results from 2020 onwards. (Fortune, 2019)

6. Conclusions

This Boeing case study has shown what not to do to protect your reputation as much as possible, and the effects it can have on your company if a reputation crisis is handled this badly. From the very beginning to the very end, Boeing acted in a negligent manner that was bound to destroy its reputation as soon as the media and authorities would start to uncover the mistakes that led up to both crashes.

The first mistake Boeing made was to fall into the trap of wanting to follow in Airbus' footsteps when the European firm announced the A320neo, instead of continuing with its project to build an aircraft from scratch. Subsequent investigations would uncover that during the 737 max development process, there were great internal pressures to meet A320neo deadlines, which caused, for example, any design changes that would lengthen the certification process to be vetoed. (Gelles et al. 2019)

In addition, after Boeing acquired McDonnell Douglas, the corporate offices were moved to Chicago, while the R&D corps remained in Seattle. Relations between the two locations were apparently distant. (Useem, 2019) Ultimately and as this crisis has shown, the desire to cut costs won out over the desire for a proper project that would ensure the safety of the aircraft. Self-imposed pressure from within the company to compete with Airbus unleashed a series of serious mistakes and planning failures that cost the lives of hundreds of people.

The mistake that unleashed everything was, without a doubt, the fact of leaving out of the manual the existence and operation of the MCAS system, in order to omit any additional cost that might be involved in having to train the crews to adapt and transition from the previous 737 to the 737 MAX. Subsequently, Boeing made another mistake by not being transparent once the accidents took place and placing the blame on the crews, which exposed them to the scrutiny of the media and its investigative power, causing investigations that finally uncovered what the company was hiding. A total failure in terms of public relations and corporate communications.

As a result, Boeing has paid for its reputational crisis, with record losses of up to \$80 billion from which it is unlikely to recover in this post-pandemic context. It appears that Boeing is now having serious problems even competing for government contracts, as it does not have the budgets to carry out development projects. With its reputation seriously damaged to this day, it remains to be seen whether the 777X, the next generation of the legendary 777, will succeed in bringing back, even if only partially, the company that 100 years ago was started by a rich young carpenter on the banks of the Duwamish River. That is, if Airbus has nothing to say about it. Ultimately, Boeing's intention to compete with Airbus was a failure. At no time before the accidents, let alone since, has the U.S. firm surpassed the European firm in aircraft orders. In the six months between Airbus announcing the A320neo and Boeing announcing the MAX, alone, the Europeans were a thousand orders ahead. In 2019, Airbus finally surpassed Boeing as the highest-earning airline, reaching \$78.9 billion. (Morrison, 2020)

Finally, it is important to mention a problem I encountered during this investigation. Reputational rankings, such as RepTrak and those by Fortune, are only available to the public by paying a fee to access them. I was lucky enough to find a way those rankings, because I found someone that had a subscription to both. If I had not found someone, this paper would have been complicated to carry out. Even then, the information I found was scarce, and mostly limited to financial information. Reputational information should be made available to the public, as it would certainly force companies to be transparent about their mishaps and their consequences.

7. Bibliography

- Ahmed, H., Onishi, N., Searcey, D., & Beech, H. (2019, March 10). *Ethiopian Airlines plane is the 2nd Boeing Max 8 to crash in months*. The New York Times. Retrieved from <https://www.nytimes.com/2019/03/10/world/africa/ethiopian-airlines-plane-crash.html?action=click&module=Intentional&pgtype=Article>
- Airbus. (2011, June 23). *Airbus with New Order Record at Paris Air Show 2011*. airbus. Retrieved from <https://web.archive.org/web/20170317054849/http://www.airbus.com/presscentre/pressreleases/press-release-detail/detail/airbus-with-new-order-record-at-paris-air-show-2011/>
- alva. (2021). Boeing: the alva reputation case study. *Reputational Case Studies*. Retrieved from <https://www.alva-group.com/case-studies/boeing-the-alva-reputation-case-study/>.
- Amir, A. R. (n.d.). *Boeing Company*. Encyclopædia Britannica. Retrieved April 26, 2022, from <https://www.britannica.com/topic/Boeing-Company>
- AP. (2020, December 30). *Boeing 737 Max flies again, carrying paying passengers from New York to Miami*. Fortune. Retrieved April 2022, from <https://fortune.com/2020/12/30/boeing-737-max-flies-again-american-airlines/>
- Arnold, K. (2019, December 12). *FAA report predicted there could be 15 more 737 max crashes*. Dallas News. Retrieved from <https://www.dallasnews.com/business/airlines/2019/12/11/faa-chief-says-boeings-737-max-wont-be-approved-in-2019/>
- Associated Press. (1971, March 25). *Seattle Confronts Worse Economy*. Google News Archive Search. Retrieved from <https://news.google.com/newspapers?id=SvkRAAAAIBAJ&sjid=j-0DAAAIBAJ&pg=6507%2C2890808>

- Balmer, J. M. T. (2005). Corporate brands: A strategic management perspective. *Working Paper Series*, 5(43), 2–22.
- Balmer, J. M. T., & Greyser, S. A. (2006). Corporate marketing – Integrating corporate identity, corporate branding, corporate communications, corporate image and corporate reputation. *European Journal of Marketing*, 40(7/8), 730–741.
- Boeing . (2018, November 6). . : *Uncommanded Nose Down Stabilizer Trim Due to Erroneous Angle of Attack (AOA) During Manual Flight Only - Flight Crew Operations Manual Bulletin for The Boeing Company*. Retrieved from <https://www.extracrew.com/wp-content/uploads/2018/11/TBC-19-Uncommanded-Nose-Down-Stab-Trim-Due-to-AOA.pdf>
- Boeing. (2021). *Boeing History Chronology*. Retrieved April 26, 2022, from https://www.boeing.com/resources/boeingdotcom/history/pdf/Boeing_Chronology.pdf
- Boeing. (2021). *MCAS*. Boeing 737 MAX Updates. Retrieved from <https://www.boeing.com/737-max-updates/mcas/>
- Bogaisky, J. (2020, March 18). *Boeing seeks \$60 billion bailout for U.S. Aerospace*. Forbes. Retrieved April 2022, from <https://www.forbes.com/sites/jeremybogaisky/2020/03/17/boeing-seeks-60-billion-bailout-for-us-aerospace/?sh=67d12a23661c>
- Brown, T. J., Dacin, P. A., Pratt, M. G., & Whetten, D. (2006). Identity, intended image, construed image, and reputation: An interdisciplinary framework and suggested terminology. *Journal of the Academy of Marketing Science*, 34(2), 99–106. <https://doi.org/10.1177/0092070305284969>
- Bushey, C. (2019, October 29). *The tough crowd boeing needs to convince*. Crain's Chicago Business. Retrieved from <https://www.chicagobusiness.com/manufacturing/tough-crowd-boeing-needs-convince>
- Cioroianu, I., Corbet, S., & Larkin, C. (2021). Guilt through association: Reputational contagion and the Boeing 737-Max Disasters. *Economics Letters*, 198, 109657. <https://doi.org/10.1016/j.econlet.2020.109657>
- Deephouse, D. L. (2000). Media reputation as a strategic resource: An integration of mass communication and resource-based theories. *Journal of Management*, 26(6), 1091–1112. <https://doi.org/10.1177/014920630002600602>
- Deephouse, D. L., & Carter, S. M. (2005). An examination of differences between organizational legitimacy and organizational reputation*. *Journal of Management Studies*, 42(2), 329–360. <https://doi.org/10.1111/j.1467-6486.2005.00499.x>
- Dumovich, E. (2006). *The first and the best*. Retrieved from https://www.boeing.com/news/frontiers/archive/2006/december/ts_sf12.pdf

- Dutton, J. E., & Dukerich, J. M. (1991). Keeping an eye on the mirror: Image and identity in organizational adaptation. *Academy of Management Journal*, 34(3), 517–554. <https://doi.org/10.5465/256405>
- The Economist. (2019, August 24). *Boeing's troubles cost the aerospace industry \$4bn a quarter*. The Economist. Retrieved April 2022, from <https://www.economist.com/business/2019/08/22/boeings-troubles-cost-the-aerospace-industry-4bn-a-quarter>
- Economy, P. (2019, April 30). *Boeing CEO puts partial blame on pilots of crashed 737 MAX aircraft for not 'completely' following procedures*. Inc.com. Retrieved April 27, 2022, from <https://www.inc.com/peter-economy/boeing-ceo-puts-partial-blame-on-pilots-of-crashed-737-max-aircraft-for-not-completely-following-procedures.html>
- Flight Global. (2019, December 27). *Boeing firms up 737 replacement studies by appointing team*. Flight Global. Retrieved from <https://www.flightglobal.com/boeing-firms-up-737-replacement-studies-by-appointing-team/66022.article>
- Fombrun, C. J. (1996). Reputation: Realizing value from the corporate image. *Choice Reviews Online*, 33(10). <https://doi.org/10.5860/choice.33-5807>
- Fombrun, C. J., & Shanley, M. (1990). What's in a name? reputation building and corporate strategy. *Academy of Management Journal*, 33(2), 233–258. <https://doi.org/10.5465/256324>
- Fombrun, C. J., Gardberg, N. A., & Sever, J. M. (2000). The reputation quotient: A multi-stakeholder measure of corporate reputation. *Journal of Brand Management*, 7(4), 241–255. <https://doi.org/10.1057/bm.2000.10>
- Fombrun, C. J., Ponzi, L. J., & Newbury, W. (2015). Stakeholder tracking and analysis: The RepTrak® System for measuring corporate reputation. *Corporate Reputation Review*, 18(1), 3–24. <https://doi.org/10.1057/crr.2014.21>
- Fortune. (2019, June 30). *Methodology for Fortune 500*. Fortune. Retrieved from <https://fortune.com/fortune500/2017/methodology/>
- Fortune. (2019, June 30). *Methodology for Global 500*. Fortune. Retrieved from <https://fortune.com/global500/2017/methodology/>
- Fortune. (n.d.). *Fortune 500 2017-2021*. Fortune 500. Retrieved April 2022, from <https://fortune.com/fortune500/>
- Fortune. (n.d.). *Fortune Global 2017-2019*. Fortune Global. Retrieved April 2022, from <https://fortune.com/global500/>
- Freed, J. (2011, February 10). *Boeing CEO: 'new airplane' to replace 737*. NBC News. Retrieved from <https://www.nbcnews.com/id/wbna41517601>

- Fryxell, G. E., & Wang, J. (1994). The fortune corporate 'reputation' index: Reputation for what? *Journal of Management*, 20(1), 1–14.
<https://doi.org/10.1177/014920639402000101>
- Garcia, M. (2020, February 13). *Airbus buys Bombardier out of commercial aviation for \$591 million*. Forbes. Retrieved from
<https://www.forbes.com/sites/marisagarcia/2020/02/13/airbus-buys-bombardier-out-of-commercial-aviation-for-591-million/>
- Gates, D. (2018, January 11). *Boeing's bid to buy Embraer could see Brazilian engineers work on the 797*. The Seattle Times. Retrieved from
<https://www.seattletimes.com/business/boeing-aerospace/boeings-bid-to-buy-embraer-could-see-brazilian-engineers-work-on-the-797/>
- Gates, D. (2018, November 28). *Pilots struggled against Boeing's 737 Max Control System on Doomed Lion Air Flight*. The Seattle Times. Retrieved from
<https://www.seattletimes.com/business/boeing-aerospace/black-box-data-reveals-lion-air-pilots-struggle-against-boeings-737-max-flight-control-system/>
- Gelles, D., & Kitroeff, N. (2019, October 18). *Boeing pilot complained of 'egregious' issue with 737 MAX in 2016*. The New York Times. Retrieved from
<https://www.nytimes.com/2019/10/18/business/boeing-flight-simulator-text-message.html>
- Gelles, D., Kitroeff, N., Nicas, J., & Ruiz, R. R. (2019, March 23). *Boeing was 'go, go, go' to beat Airbus with the 737 MAX*. The New York Times. Retrieved April 2022, from <https://www.nytimes.com/2019/03/23/business/boeing-737-max-crash.html>
- Glanz, J., Creswell, J., Kaplan, T., & Wichter, Z. (2019, February 3). *After a Lion Air 737 MAX crashed in October, questions about the plane arose*. The New York Times. Retrieved from <https://www.nytimes.com/2019/02/03/world/asia/lion-air-plane-crash-pilots.html>
- Gray, E. R., & Balmer, J. M. T. (1998). Managing corporate image and corporate reputation. *Long Range Planning*, 31(5), 695–702. [https://doi.org/10.1016/s0024-6301\(98\)00074-0](https://doi.org/10.1016/s0024-6301(98)00074-0)
- Hall, J., & Goetz, P. (2019, July 17). *The Boeing 737 MAX crisis is a leadership failure*. The New York Times. Retrieved April 27, 2022, from
<https://www.nytimes.com/2019/07/17/opinion/boeing-737-max.html>
- Herkert, J., Borenstein, J., & Miller, K. (2020). The Boeing 737 MAX: Lessons for Engineering Ethics. *Science and Engineering Ethics*, 26(6), 2957–2974.
<https://doi.org/10.1007/s11948-020-00252-y>
- Isidore, C. (2020, November 17). *Boeing's 737 MAX debacle could be the most expensive corporate blunder ever*. CNN. Retrieved April 2022, from
<https://edition.cnn.com/2020/11/17/business/boeing-737-max-grounding-cost/index.html>

- Josephs, L. (2019, December 12). *Travelers hesitant to fly the Boeing 737 MAX, survey finds*. CNBC. Retrieved from <https://www.cnbc.com/2019/12/12/travelers-hesitant-to-fly-the-boeing-737-max-survey-finds.html>
- Josephs, L. (2021, January 12). *Boeing's 2020 aircraft cancellations worst on record, despite December Max orders*. CNBC. Retrieved from <https://www.cnbc.com/2021/01/12/boeings-2020-aircraft-cancellations-worst-on-record-despite-december-max-orders.html>
- Kaplan, T., Austen, I., & Gebrekidan, S. (2019, March 13). *Boeing planes are grounded in U.S. after days of pressure*. The New York Times. Retrieved April 27, 2022, from <https://www.nytimes.com/2019/03/13/business/canada-737-max.html>
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based Brand Equity. *Journal of Marketing*, 57(1), 1. <https://doi.org/10.2307/1252054>
- König, D. (2019, October 12). *Boeing, FAA both faulted in certification of the 737 MAX*. AP NEWS. Retrieved April 2022, from <https://apnews.com/article/us-news-business-wa-state-wire-ap-top-news-il-state-wire-470abf326cdb4229bdc18c8ad8caa78a>
- Laris, M. (2019, June 20). *Changes to flawed Boeing 737 MAX were kept from pilots, defazio says*. The Washington Post. Retrieved from https://www.washingtonpost.com/local/trafficandcommuting/changes-to-flawed-boeing-737-max-were-kept-from-pilots-defazio-says/2019/06/19/553522f0-92bc-11e9-aadb-74e6b2b46f6a_story.html
- Mahon, J. F. (2002). Corporate reputation. *Business & Society*, 41(4), 415–445. <https://doi.org/10.1177/0007650302238776>
- Marks, S., & Dahir, A. L. (2020, March 9). *Ethiopian report on 737 Max Crash blames Boeing*. The New York Times. Retrieved from <https://www.nytimes.com/2020/03/09/world/africa/ethiopia-crash-boeing.html>
- McDermid, J. (2021, January 18). *Boeing 737 MAX: Why was it grounded, what has been fixed and is it enough?* The Conversation. Retrieved April 2022, from <https://theconversation.com/boeing-737-max-why-was-it-grounded-what-has-been-fixed-and-is-it-enough-150688>
- McKenna, C., & Olegario, R. (2012). Corporate reputation and regulation in historical perspective. *Oxford Handbooks Online*.
- Miller, J. (2005). *Lockheed Martin F/A-22 raptor: Stealth fighter*. Aerofax.
- Morrison, M. (2020, October 5). *Airbus displaces Boeing as Aerospace's biggest company*. Flight Global. Retrieved April 29, 2022, from <https://www.flightglobal.com/aerospace/airbus-displaces-boeing-as-aerospaces-biggest-company/140026.article>

- Neuman, S. (2019, October 25). *Indonesia report: Pilots, ground crew share blame with Boeing for Lion Air Crash*. NPR. Retrieved April 2022, from <https://www.npr.org/2019/10/25/773291951/pilots-ground-crew-share-blame-for-lion-air-737-max-crash-indonesian-report-says>
- Ostrower, J. (2011, November 17). *Lion Air commits to up to 380 Boeing 737s*. Flight Global. Retrieved from <https://www.flightglobal.com/lion-air-commits-to-up-to-380-boeing-737s/103115.article>
- Ostrower, J. (2019, December 27). *Boeing says 737 MAX to meet or exceed A320neo range*. Flight Global. Retrieved from <https://www.flightglobal.com/boeing-says-737-max-to-meet-or-exceed-a320neo-range/103947.article>
- Pauly, J. J., & Hutchison, L. L. (2005). Moral fables of public relations practice: The Tylenol and Exxon Valdez cases. *Journal of Mass Media Ethics*, 20(4), 231–249. https://doi.org/10.1207/s15327728jmme2004_2
- Popken, B. (2020, November 18). *Airlines will let 737 MAX passengers change their tickets for free*. NBCNews.com. Retrieved from <https://www.nbcnews.com/business/consumer/airlines-will-let-737-max-passengers-change-their-tickets-free-n1248175>
- PRNewswire. (2019). *Boeing to recognize charge and increased costs in second quarter due to 737 MAX grounding*. MediaRoom. Retrieved April 27, 2022, from <https://boeing.mediaroom.com/2019-07-18-Boeing-to-Recognize-Charge-and-Increased-Costs-in-Second-Quarter-Due-to-737-MAX-Grounding>
- RepTrak. (n.d.). *RepTrak 100 2017-2019*. RepTrak 100. Retrieved April 2022, from <https://www.reptrak.com/rankings/>
- Rhee, M., & Haunschild, P. R. (2006). The liability of good reputation: A study of product recalls in the U.S. Automobile Industry. *Organization Science*, 17(1), 101–117. <https://doi.org/10.1287/orsc.1050.0175>
- Rindova, V. P., Williamson, I. O., Petkova, A. P., & Sever, J. M. (2005). Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. *Academy of Management Journal*, 48(6), 1033–1049. <https://doi.org/10.5465/amj.2005.19573108>
- Roberts, P. W., & Dowling, G. R. (2002). Corporate reputation and sustained superior financial performance. *Strategic Management Journal*, 23(12), 1077–1093. <https://doi.org/10.1002/smj.274>
- Stockwell, R. E., Peck, M. J., & Scherer, F. M. (1963). The Weapons Acquisition Process: An Economic Analysis. *Technology and Culture*, 4(2), 233. <https://doi.org/10.2307/3100935>
- Suarez, F., & Lanzolla, G. (2014, August 1). *The half-truth of first-mover advantage*. Harvard Business Review. Retrieved from <https://hbr.org/2005/04/the-half-truth-of-first-mover-advantage>

- Suhartono, M., & Beech, H. (2018, October 29). *Indonesia plane crash adds to country's troubling safety record*. The New York Times. Retrieved from <https://www.nytimes.com/2018/10/28/world/asia/indonesia-lion-air-plane-crash.html>
- Sullenberger, S. (2020, April 9). *My letter to the editor of New York Times Magazine*. Sully Sullenberger. Retrieved from <http://www.sullysullenberger.com/my-letter-to-the-editor-of-new-york-times-magazine/>
- Turban, D. B., & Greening, D. W. (1997). Corporate Social Performance and organizational attractiveness to prospective employees. *Academy of Management Journal*, 40(3), 658–672. <https://doi.org/10.5465/257057>
- USDOJ. (2021, January 7). *Boeing charged with 737 max fraud conspiracy and agrees to pay over \$2.5 billion*. The United States Department of Justice. Retrieved April 2022, from <https://www.justice.gov/opa/pr/boeing-charged-737-max-fraud-conspiracy-and-agrees-pay-over-25-billion>
- Useem, J. (2019, November 20). *The long-forgotten flight that sent Boeing Off Course*. The Atlantic. Retrieved April 2022, from <https://www.theatlantic.com/ideas/archive/2019/11/how-boeing-lost-its-bearings/602188/>
- Walker, K. (2010). A systematic review of the corporate reputation literature: Definition, measurement, and theory. *Corporate Reputation Review*, 12(4), 357–387.
- Wartick, S. L. (2002). Measuring corporate reputation. *Business & Society*, 41(4), 371–392.
- Whetten, D. A. (1997). Part II: Where do reputations come from?: Theory development and the study of corporate reputation. *Corporate Reputation Review*, 1(1), 25–34. <https://doi.org/10.1057/palgrave.crr.1540011>
- Whetten, D. A., & Mackey, A. (2002). A social actor conception of organizational identity and its implications for the study of Organizational Reputation. *Business & Society*, 41(4), 393–414. <https://doi.org/10.1177/0007650302238775>
- Yun, J., Jeon, J. H., Park, K. B., & Zhao, X. (2018). Benefits and costs of closed innovation strategy: Analysis of Samsung's Galaxy Note 7 Explosion and withdrawal scandal. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3), 20. <https://doi.org/10.3390/joitmc4030020>