

**BRAND SABOTAGE: MANAGING SOCIAL MEDIA AND  
REPUTATIONAL CRISES IN UTILITY COMPANIES**

Raquel Gomes Freire Gonçalves

Nº 34061

MMA1

Dissertation submitted as partial requirement for the conferral of Master in Marketing

Supervisor:

Prof. Doutor Ricardo Godinho Bilro,

Invited Assistant Professor

Department of Marketing, operations and management

ISCTE Business School,

ISCTE – IUL

March 2019

BRAND SABOTAGE: MANAGING SOCIAL MEDIA AND REPUTATIONAL CRISES IN UTILITY COMPANIES



**Raquel Gomes Freire Gonçalves**

## Acknowledgements

The current dissertation was the culmination of two years of intense hard-work and long hours of managing a full-time job together with a full-time investigation in order to provide important answers to some questions and necessities I found while working in a Utility company. All of this would not be possible without my academic experience in two of my greatest passions: Communications and Marketing. Both bachelor and masters gave me the tools and opportunities to pursue a career in the Marketing world and the urge to create a thesis focused on one of my main interests.

This two-year period gave me important lessons not only on how to manage my time effectively but also to learn more about myself as an individual and as a professional. Furthermore, this experience and achievement of an important milestone in my life would not be possible without my Master Thesis Advisor, Professor Ricardo Godinho Bilro, and I would like to truly thank him for all the time, patience and unwavering support throughout this experience.

Developing this thesis and working at EDP at the same time, helped me understand in a greater depth how an Utility company works and all the steps it needs to take in order to sustain its credibility and trustworthiness, and at the same time, grow within a market that is now highly competitive. I would like to thank all my colleagues and mentors that guided me throughout my professional experience and for everything I learned and continue to learn.

Love, friendship, perseverance and outmost unconditional support was given by Vasco through all the steps of the way. With you, I continuously learn to better myself and grow as a person and as a professional. Thank you for keeping me inspired and motivated.

Finally, I would like to express my deepest gratitude and love to my parents, who always provided me with all the tools and support in order to grow as an individual and to become whomever I would like to be. Thank you for always believing in me and see the best in me, even when I couldn't see it myself.

This thesis is dedicated to the memory of Rafael Gomes Freire, who is in my thoughts in all the special moments of my life.

## Resumo

No ano de 2011, a empresa líder no mercado de energia em Portugal, colocou um fim à sua presença ativa nas redes sociais, após a tomada de uma decisão estratégica que levou à massificação de críticas de clientes e seguidores. Atualmente, a empresa continua cautelosa em estar nas redes sociais, mantendo apenas uma presença limitada no YouTube e, mais recentemente, através de uma página de Instagram específica para divulgação de eventos patrocinados ou desenvolvidos pela mesma. Esta estratégia de comunicação online da EDP, revela que os eventos vividos em 2011 foram duradouros e prejudiciais para a reputação e imagem da mesma junto dos seus *stakeholders*.

Nesta dissertação, é desenvolvido um conjunto de práticas para uma melhor gestão de redes sociais, com foco especial no Facebook. Esta análise tem como objetivo ajudar as empresas de Energia Portuguesas a prevenir crises virais relacionadas com a sua política de comunicação nestas plataformas e, por conseguinte, melhorar a *brand awareness* e reputação destas empresas no contexto de uma economia digital e globalizada.

Para tal, caracterizamos os principais desafios de diferentes estratégias de comunicação, envolvendo redes sociais por parte de empresas internacionais no setor da Energia. Consequentemente, são então identificados os potenciais canais e ações destas empresas que poderão deteriorar a relação da empresa com os seus *stakeholders* e levar, eventualmente, a uma situação de crise. Para fazer face a tal possibilidade, são estudados exemplos de empresas líderes no setor de energia no Reino Unido e em Espanha, através de uma netnografia quantitativa, utilizando técnicas de *data scrapping* e *text analytics*.

Através desta análise, são realçadas as principais melhores práticas que poderão ajudar empresas Portuguesas a prevenir eventuais crises de comunicação online nas suas páginas e plataformas sociais. O objetivo último desta dissertação é permitir a estas empresas gerir eficazmente a sua *brand awareness* e reputação e, simultaneamente, fomentar de forma eficiente e transparente a sua relação com os seus *stakeholders*.

**Keywords:** *brand awareness*; crises em redes sociais; empresas de utilidades; comunidades online e *followers*; marketing relacional; reputação; gestão de marca; estratégia de comunicação.

## Abstract

In 2011, the market leader in the Portuguese energy sector decided to delete its presence on Facebook, its most active social media platform, after a poorly perceived social media management decision went viral and unleashed a series of accusatory comments that harmed the company's brand and reputation. Today, in 2018, this company is still opting not to be fully present on its social media platforms, revealing that the effects of the 2011 crisis were both long-lasting and harmful for the company's image with its main stakeholders.

In this thesis, we develop a set of best practices in social media management that can help prevent social media crises in the Portuguese energy sector and, simultaneously, provide energy companies with the tools to improve their brand awareness, image, and reputation through social media platforms in the current digital and globalized economy.

We start by characterizing the main challenges faced by utility companies on their daily social media activities. Related to this, we identify the potential channels that can lead these companies into social media crises, and we study the best actions undertaken by the market leaders in the Spanish and UK energy markets against these reputation threats. To do so, we undertake a quantitative netnography analysis on these markets, using state-of-the-art data scrapping and text analytics techniques.

Finally, we use the main results from the netnography analysis to clearly define the most important social media strategies followed by the Spanish and UK energy market leaders. We highlight the managerial implications of our analysis by developing a unifying social media strategy to help Portuguese energy companies prevent new social media crises and to allow them to effectively manage their brand awareness and reputation by using social media platforms. We conclude with the implementation of this strategy using a best practices framework that Portuguese energy companies could follow in the near future.

**Keywords:** brand awareness; social media crises; utility companies; online communities and followers; relational marketing; reputation; brand management; communication strategy.

## Table of Contents

Chapter 1 - Introduction .....	10
1.1 Relevance of the Topic .....	10
1.2 Research Questions and Objectives.....	13
1.3 Methodology.....	15
1.4 Dissertation Structure .....	16
1.5 Main Conclusions .....	18
Chapter 2 - Literature Review .....	21
2.1 Social Media Usage by Companies .....	21
2.2 Social Media Usage in Portugal and Worldwide.....	22
2.3 Social Media Usage by Utility Companies.....	23
2.4. Social media Crises in Companies .....	25
2.5 Types of Social Media Complains .....	27
2.6 How to address the six Social Media complaints.....	30
2.7 Best Practices in Utility Companies – Reputation Management.....	33
Chapter 3 - Methodology.....	38
Chapter 4 - Company Analysis.....	45
4.1 Social Media Analysis .....	48
4.2 British Gas .....	50
4.3 EDF Energy UK .....	61
4.4 npower UK .....	72
4.5 Scottish Power .....	82
4.6 SSE UK .....	93
4.7 Endesa ES .....	104
4.8 Iberdrola ES .....	116
4.9 Gas Natural Fenosa ES .....	127
Chapter 5 - Aggregated Results.....	139
Chapter 6 - Conclusion.....	147
6.1 Theoretical Contributions .....	149
6.2 Managerial implications .....	153
6.3 Limitations.....	164
6.4 Future research .....	166
Chapter 7 - References.....	168
Chapter 8 – Appendices.....	176

## Figure Index

Figure 1 - Comment that led EDP to close its Facebook Page.....	11
Figure 2 - Dissertation structure.....	18
Figure 3 - Social media usage worldwide.....	23
Figure 4 - Hawaiian Electric Instagram update post after severe storm.....	33
Figure 5 - SSE Facebook Page with response time.....	34
Figure 6 - Main topics of discussion in Utilities tweets.....	36
Figure 7 - Example of how the scrapped information appears in Excel.....	40
Figure 8 - Example of how the scrapped information appears in Excel.....	40
Figure 9 - Access token provided by Facebook.....	41
Figure 10 - Example of how the scrapped information appears in excel.....	41
Figure 11 - Example of how the scrapped information appears in excel.....	42
Figure 12 - Example of how the scrapped information appears in excel.....	44
Figure 13 - Example of how the scrapped information appears in excel.....	44
Figure 14 - Example of response comment from British Gas .....	51
Figure 15 - npower’s Super Hero Winners .....	73
Figure 16 - Campaign "Blue go Green" for sustainable energy.....	79
Figure 17 - Example of Endesa’s unanswered comments from Customers.....	105
Figure 18 - Iberdrola’s lack of response to customers comments .....	117
Figure 19 - Example of “Sabías que?” Gas Natural Fenosa’s Campaign.....	128
Figure 20 - Valentine’s Day Posts.....	133
Figure 21 - Netnography analysis (comparison fields).....	139
Figure 22 - EDP’s Instagram Page .....	148
Figure 23 - Wilbur and the Smart Meter (British Gas) .....	162
Figure 24 - British Gas interactions throughout the years .....	176
Figure 25 - EDF UK interactions throughout the years .....	176
Figure 26 - npower interactions throughout the years .....	176
Figure 27 – Scottish Power interactions throughout the years .....	177
Figure 28 – SSE UK interactions throughout the years .....	177
Figure 29 – Endesa interactions throughout the years .....	177
Figure 30 – Iberdrola interactions throughout the years .....	178
Figure 31 – Gas Natural Fenosa interactions throughout the years .....	178

## Table Index

Table 1 - Types of Social Media Tools .....	24
Table 2 - Social Media Presence Utility Companies in Spain and in the UK vs Portugal.....	47
Table 3 - Topics Found and Respective Clusters Defined .....	49
Table 4 - British Gas Comments for 2017 .....	50
Table 5 - British Gas status updates and respective interactions for the posts of 2017...	50
Table 6 - British Gas Comments (sentiment analysis) .....	52
Table 7 - Confidence analysis of British Gas Interactions .....	53
Table 8 - Sentiment Analysis (Irony, Agreement and Objectivity).....	54
Table 9 - Clusters Frequency of British Gas’s Comments.....	55
Table 10 - Clusters Polarity for British Gas’s Comments.....	57
Table 11 - Clusters Average Polarity for British Gas’s Comments.....	60
Table 12 - EDF UK Comments for 2017.....	61
Table 13 - EDF UK Facebook Posts for 2017 and respective interactions.....	62
Table 14 - EDF UK Comments (sentiment analysis).....	62
Table 15 - Confidence analysis of EDF’s Interactions.....	63
Table 16 - Sentiment Analysis (Irony, Agreement and Objectivity).....	64
Table 17 - Clusters Frequency of EDF’s Facebook Comments.....	65
Table 18 - Clusters Polarity for EDF’s Facebook Comments.....	67
Table 19 - Clusters Average Polarity for EDF’s Facebook Comments.....	71
Table 20 - npower Comments for 2017.....	72
Table 21 - npower Facebook Posts for 2017 and respective interactions.....	72
Table 22 - npower Comments (sentiment analysis).....	74
Table 23 - Confidence analysis of npower’s Interactions.....	74
Table 24 - Sentiment Analysis (Irony, Agreement and Objectivity).....	75
Table 25 - Clusters Frequency of npower’s Facebook Comments.....	77
Table 26 - Clusters Polarity for npower’s Facebook Comments.....	78
Table 27 - Clusters Average Polarity for npower’s Facebook Comments.....	81
Table 28 - Scottish Power Comments for 2017.....	82
Table 29 - Scottish Power Facebook Posts and respective interactions.....	83
Table 30 - Scottish Power Comments (sentiment analysis).....	84



Table 31 - Confidence Analysis of Scottish Power’s Interactions.....	85
Table 32 - Sentiment Analysis (Irony, Agreement and Objectivity).....	85
Table 33 - Clusters Frequency of Scottish Power’s Facebook.....	87
Table 34 - Clusters Polarity for Scottish Power’s Facebook Comments.....	88
Table 35 - Clusters Average Polarity for Scottish Power’s Facebook Comments.....	92
Table 36 - SSE Comments for 2017.....	93
Table 37 - SSE Facebook posts for 2017 and respective interactions.....	93
Table 38 - SSE Comments (sentiment analysis).....	95
Table 39 - Confidence Analysis of SSE’s Interactions.....	96
Table 40 - Sentiment Analysis (Irony, Agreement and Objectivity).....	96
Table 41 - Clusters Frequency of SSE’s Facebook Comments.....	99
Table 42 - Clusters Polarity for SSE’s Facebook Comments.....	100
Table 43 - Clusters Average Polarity for SSE’s Facebook Comments.....	103
Table 44 - Endesa Comments for 2017.....	104
Table 45 - Endesa Facebook posts for 2017 and respective interactions.....	105
Table 46 - Endesa Comments (sentiment analysis).....	107
Table 47 - Confidence Analysis of Endesa’s Interactions.....	107
Table 48 - Sentiment Analysis (Irony, Agreement and Objectivity).....	108
Table 49 - Clusters Frequency of Endesa’s Facebook Comments.....	111
Table 50 - Clusters Polarity for Endesa’s Facebook Comments.....	112
Table 51 - Clusters Average Polarity for Endesa’s Facebook Comments.....	115
Table 52 - Iberdrola Comments for 2017.....	116
Table 53 - Iberdrola’s Facebook Posts for 2017 and respective interactions.....	116
Table 54 - Iberdrola Comments (sentiment analysis).....	118
Table 55 - Confidence Analysis of Iberdrola’s Interactions.....	119
Table 56 - Sentiment Analysis (Irony, Agreement and Objectivity).....	119
Table 57 - Clusters Frequency of Iberdrola’s Facebook Comments.....	122
Table 58 - Clusters Polarity for Iberdrola’s Facebook Comments.....	123
Table 59 - Clusters Average Polarity for Iberdrola’s Facebook Comments.....	126
Table 60 - Gas Natural Fenosa’s Comments for 2017.....	127
Table 61 - Gas Natural Fenosa’s Facebook Posts and respective interactions.....	127
Table 62 - Gas Natural Fenosa’s Comments (sentiment analysis).....	129
Table 63 - Confidence Analysis of Gas Natural Fenosas’ Interactions.....	130

Table 64 - Sentiment Analysis (Irony, Agreement and Objectivity).....	131
Table 65 - Clusters Frequency of Gas Natural Fenosas´Comments.....	135
Table 66 - Clusters Polarity for Gas Natural Fenosas´ Comments.....	136
Table 67 - Clusters Average Polarity for Gas Natural Fenosas´ Comments.....	138
Table 68 – Comparison of all the Companies Analyzed.....	140

## Chapter 1 - Introduction

### 1.1 Relevance of the Topic

Nowadays, the existence and constant expansion of social media platforms are contributing to the creation and development of a more present and engaging relationship between the company and its customers. The benefits for both brands and consumers are vast, such as “finding new customers, sourcing talent, building brand awareness” (Weston, 2008), and even helping conduct brand intelligence and market research (Bolotaeva and Cata, 2011).

However, and even though there are many benefits when it comes to the usage and presence in such platforms, one should never forget the problems and risks companies can suffer from having such an “open relationship” with its customers. There will always be unsatisfied customers, who will feel the need to communicate their problems and complaints through these channels and, together with them, can come even more consumers corroborating the same problems or criticizing even more, turning what could be a simple problem resolution into a much bigger crises situation.

Therefore, it is important to bare all these risks in mind, and not just opt for not being present in this type of platforms or not respond to customers at all, hoping that no one will notice and that the matter will go away on its own. Nowadays, people are even more demanding, and they will do everything it takes to resolve their problem, even if it means they have to come forward publicly for all the world to see (Rauschnabel, Kammerlander & Ivens, 2011; Tripp & Grégoire, 2011).

It is also important to know that, even though there are people who have an actual reason to be dissatisfied and unhappy with the company, there are others who simply want to steer problems and damage brands.

The key is to understand that, even if a company is not present on social media, it does not mean they are not going to be talked about and that they are not going to be criticized (Lewis, 2016). They need to be prepared to forefront and resolve these types of crises, if they want to keep their good reputation alive.

Specifically speaking of Utility Companies, which, according to the Legal Dictionary of Farlex, are any organization which provides services to the general public, even if they are privately owned (these include electricity, gas, telephone, water,

television services, and so on) it is important to underline and express the uniqueness of the goods/services provided by these types of companies. As it is commonly considered in any modern-day society, electricity is a necessary good/service, and this yields asymmetric reactions for stakeholders. In good times, stakeholders hold this good/service as a given, and have a tendency to provide mostly neutral feedback (or not even give feedback) to the operations of any Utility company. In bad times, the consumers reveal their frustration and need for electricity, by being particularly active on social media platforms and by providing extremely negative feedback to their Utility company.

Therefore, the main challenges that Utility companies face by being present on social media is due to the specificity and necessity of the goods provided by them and the need to go beyond what they offer as a main service to what can benefit the customer in a greater sense. Sometimes, companies are not able to handle such pressures and, when a more drastic case arises, and there isn't a specific plan to follow, companies may find themselves in a crossroad and feel pressured to act in the worst way possible. An important Portuguese example in order to understand the power that one person has to destroy a brand's reputation is the case of EDP.

In 2011, EDP (Energias de Portugal), the most powerful energy company in Portugal with more than 80% of the market share, and present in several other countries such as Spain and the United States, saw its Facebook page with about 23 thousand followers crumbling down after a consumer made a comment about her dissatisfaction towards the building of dams – “I did not ask for a national plan of dams”. Afterwards, the company responded to this comment stating that they had to eliminate it due to the fact that it was against company policies and conduct codes (see image below).

Figure 1 - Comment that led EDP to close its Facebook Page



This action of deleting the comment, unleashed a series of accusatory comments from other Facebook followers - clients, non-clients, other consumers - who joined the page after knowing about this fact, which then led to the company opting to change the privacy definitions and not accepting more comments on the page and even banning some of the people who made these publications. A few days after this incident, the brand decided to put an end to the page for good.

So, why is this happening? What are the reasons that led the company to such a crisis? And why do some companies even prefer not to be present in social media at all? Do they believe it's safer not to create risky environments where people can say what they want and only come to criticize?

Several studies already suggested that being present on social media is relevant (Weston, 2008; Kaplan and Haenlein, 2011; Elefant, 2011; Kane, 2015). In the US and UK, most Utility companies own a page and are regularly present in various social media platforms (Duke Energy, British Gas, E-ON UK, and so on) and Facebook is one of the most important platforms to actually develop a relationship with customers and let them know about important information.

In 2013, a study by Oracle stated that more than 57 million customers worldwide used social media to engage with their Utility companies and that number would dramatically increase to 624 million in 2017. Moreover, most of the interactions were taking place on platforms such as Facebook, Twitter, YouTube and LinkedIn.

Therefore, Portuguese Utility companies need to be thinking about how to develop the best customer service and relationship with its customers, which should surely happen through social media as well. Critics, negative comments, a sea of people getting irritated about a specific action or a set of actions developed by the company will always exist. Take Samsung's example in a 2013 Christmas campaign that had all the ingredients to be a successful campaign but had a backlash due to one of the interviewees, a Portuguese blogger, stating that her dream gift for Christmas was to receive a Chanel bag. Samsung had thousands of comments swirling around its social media pages and thousands of shares, but they still found a way to correct the issue and actually made a public statement apologizing for the situation (Dinheiro Vivo, 2013). Carlos Coelho (2013), a Portuguese specialist in brand management, even stated in an article made by *Expresso*, that great and powerful brands like Samsung, when committing an error or being in the wrong, come forward and apologize for the mistakes made. This action just shows how great of

a brand Samsung is, since it performed a gesture and came forward just like “great people would do”.

Once more, and bringing back EDP’s example, even though they do not have a Facebook page for over 7 years, it didn’t stop people from actually creating fake Facebook Pages using the name of the company and complaining about the flaws it has. The most worrisome part? Is that they don’t even get a response, they are simply creating a world wide of negative comments, bring and calling out people to join, and EDP does not do anything about the matter. People will always have the necessity to talk, and a lot of times, when especially thinking about Utility Companies, this will include negative comments. However, they need to come forward and make people know that they care about them and that they actually are in the center of everything the company does. It is important to practice what you preach and actually hear what clients are saying in every platform or channel, online or offline. More importantly, they need to work around it in order to mitigate things that are easily taken care of and actually contribute to the reduction of the number of angry customers.

Utility companies will just have to prepare for these events, adapt to the different types of problems and realities that may arise and rise above them, with patience and most importantly a good and well-designed crises communication strategy.

## **1.2 Research Questions and Objectives**

Considering the previously mentioned facts and the specific situation that happened to EDP about 7 years ago, and others that followed the same path, it became apparent that there is a great necessity in having an efficient and effective social media strategy. This can actually help Utility companies succeed in fostering a more positive online relationship with its customers, without risking its own reputation due to crises that may arise. Nowadays, not being present on social media shouldn’t be even considered an option for companies. The use of social media by customers and people in general has grown so much, that Nielsen (2012) even discovered that people spend more time on social media than in any other category of sites.

With the aim of understanding the impact that these platforms have on the company and the respective relationships fostered with its customers (if more negative or more positive), it was important to define three core research goals in order to help the

author reach a strategic set of communication opportunities from which companies can benefit from when using social network platforms: 1) how can Utility Companies efficiently use social media platforms to manage and improve their reputation? 2) what are the best responses and actions to be undertaken by Utility companies in reaction to the unlikely event of a reputation crisis? 3) what are the best practices in social media management that allow utility companies to prevent reputation crises, by minimizing the likelihood of a downfall in their brand's trust and reliability?

Having all of these questions answered, through the netnography analysis of all the content posted by each company, as well as the text mining and sentiment analysis used to hear what customers have to say, the final aim of this thesis is (i) to propose a new marketing/communications crises strategy to be implemented in the Utilities' social media platforms, (ii) to propose a strategy to manage negative reviews and complaints (and mitigate them without putting the integrity of the company at risk), and (iii) how to actually take advantage of these platforms in order to foster a more positive relationship with the consumer, using these as powerful tools to display the company's values and identity, as well as the business itself. All these three fronts will be considered as one global strategy plan that should be followed in order to prevent a crisis, contributing to the creation and maintenance of a healthier relationship with the customers.

In order to do this, it is important to study not only what happened with Utilities that decided to end their pages on social media or the ones that don't even have the intent of being present and never were but also study and understand what is happening with Utilities which are actually having success in their social media strategies.

Several companies will be analyzed in depth in terms of their behaviors on social media platforms, in order to understand the type of relationships they have with their followers and what do they actually feel towards the company analyzed (this can be done through social media analytics).

The analysis of these organizations will be done through the examination of the companies' publications, comments, responsiveness to consumers, previous crises that the companies already been through, gravity of the crises and all the key factors that may revolve around managing a platform such as Facebook.

Many studies have been made when it comes to analyzing the effects social media has when it comes to customer engagement. However, there seems to be a lack of

propositions when it comes to the study of energy Utility Companies who actually decided to end its presence on social media platforms due to a crisis.

Moreover, and even though there are already some studies concerning the type of social media comments and negative reviews a company might have and how to try and mitigate them, there is still not a concise strategy than can be applied universally to manage social media crises.

In this context, the intention is to also understand what consumers want, what do they believe is the most adequate and accurate way for an Utility Company to respond to their needs through social media.

Finally, there seems to be a higher concern with these types of topics in the US and UK, however, when it comes to the Portuguese context, specifically thinking of these types of companies the studies are almost inexistent.

### **1.3 Methodology**

This dissertation is meant to explore how energy Utility companies are cultivating a relationship with its customers or future customers through the use of social media platforms, what are the customers perception and interactions towards them and how is the company mitigating certain situations that could become actual crisis, specifically, on their Facebook pages.

With the purpose of attaining and finding the responses to the previously mentioned goals, the selected methodology for this thesis was to do a Netnography. According to Kozinets (2002), netnography refers to “a new qualitative research methodology that adapts ethnographic research techniques to the study of cultures and communities emerging through computer-mediated communications”. For Berthon et al. (2015), this type of methodology has become increasingly relevant especially because customers are becoming more and more active when it comes to online activities and interactions with their services providers. In result, large masses of information are created and can be used to the company’s advantage in order to provide better quality and personalized services (Rust and Huang, 2014).

In order to go further with the netnography, it was important to define the research questions as previously identified, followed by the selection of the energy Utility



companies to be analyzed in further detail and which social media platform to choose according to the online presence of each company and respective number of followers.

Finally, it was essential to perform the data scrapping (or text mining) of all the information present in those companies' social media platforms (posts, comments and reactions) in order to gather all the information possible to follow to the next and final phase of this methodology which was to perform an in-depth sentiment analysis report of all the consumer's interactions with each company.

#### **1.4 Dissertation Structure**

In order to pursue relevant answers to the goals defined in the previous section, this dissertation is going to be divided into four sections. The first section, will start with the literature review, which includes the following topics: 1) the use and application of social media in three fronts: by companies in general worldwide; by customers and users worldwide and specifically in Portugal; and by Utility companies specifically; 2) social media crises in companies and specifically in Utility companies and types of social media complaints and how to address each one; 3) best practices in the world of Utility companies and how are they addressing and using social media to their advantage;

This primary investigation through articles and papers by other authors will be extremely helpful in order to start finding preliminary answers to some of the main research questions and objectives and will also help the investigator understand what was already explored and thought regarding this topic.

The second part of the dissertation, concerning the methodology and conceptual framework, focuses on the netnography and text mining analysis which cover the process of identification of consumers' interactions on the social media platforms chosen for each company. Here, eight well-known companies, present in the the UK and Spanish markets will be chosen and analyzed in detail in order to understand how they are using social media to their advantage and what are the best practices that can be applied in the Portuguese context – within British Gas, EDF UK, npower, Scottish Power, SSE, Iberdrola, Endesa and Gas Natural Fenosa. In order to this, it was also relevant to define which social media platform would be the

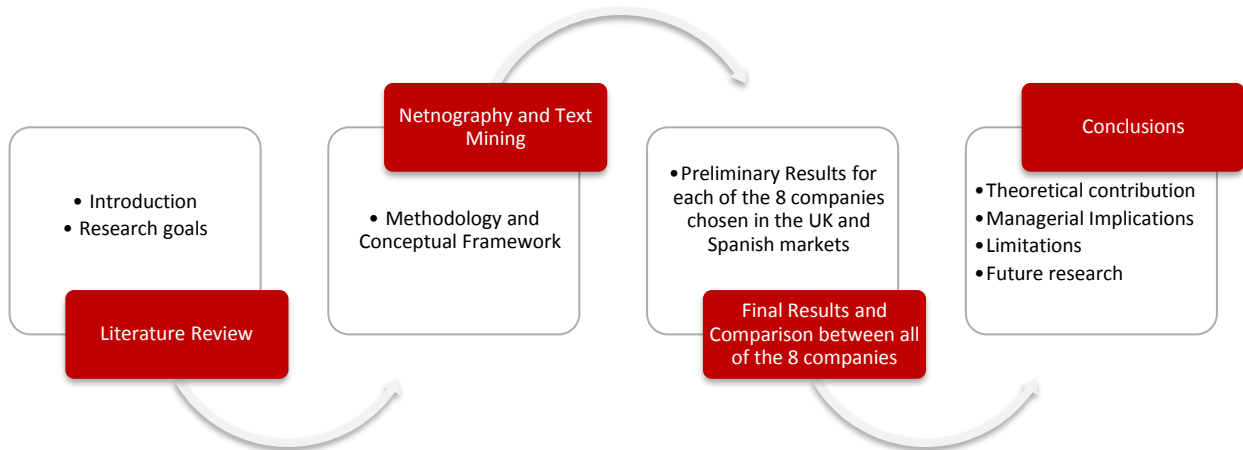
most suitable for the analysis, having in mind the type of companies described and their presence in the world of social media as well as the followers they have in each.

Having the process of data scrapping and information collection complete, the next phase of the process, concerning the sentiments associated to the information attained, is achieved in two fronts 1) performance of a sentiment analysis in order to identify the polarity of the consumer's interaction within each company's social media platform 2) performance of a topic sentiment analysis in order to understand the main concepts and themes addressed by the followers in each of the company's social media platforms.

After the contextualization, the data gathering, as well as the sentiment analysis performed to each company and specific results found, comes the next phase of this investigation, which is focused on the comparison of all the eight companies (similarities and main differences found). This preliminary findings and most relevant results will be the main drivers to help in the design and proposition of a successful communication strategy to be utilized in the future by Utility companies.

Having all the previous results in mind, the fourth and final part is the conclusion, in which the author responds to the main questions asked in the beginning of this dissertation and, more importantly, proposes a specific framework to follow in order for other Utility companies, for example EDP, to use it in their advantage when developing a communication strategy for their social media platforms (managerial implications). This will be a more in-depth part of the result analysis, since it is highly focused on specific results that were similar amongst all companies and that were actually beneficial for all and, on the other hand, what are the main behaviors/themes that the company shouldn't follow since it was seen that weren't beneficial to the other companies analyzed. Finally, the author also describes all the limitations found while developing this dissertation and what are the next steps and suggestions for a future research plan.

Figure 2 - Dissertation Structure



Source: Own Elaboration

### 1.5 Main Conclusions

The main conclusion of this study is that social media networks are, in fact, important tools for a company to improve not only its brand image, but also its reputation and proximity with the customer. Therefore, a comeback to Facebook by EDP, following almost a decade without a meaningful social media presence, would be an important milestone for the company. We tailor our managerial implications to the case study of EDP, and we describe how such a change would transform and improve this landmark company for the Iberian energy markets. For this to happen in the most successful way possible, an important path and guidelines must be followed in order to avoid at all costs what happened almost 10 years ago.

Several market leader companies were analyzed in two well-known European markets (the UK and Spanish markets), in order to help companies such as EDP to follow specific best practices and avoid other actions that contributed in a negative way to damage reputations of other fellow companies.

Therefore, and through the analysis, we were able to assess and highlight the two most important pillars to a successful social media strategy - an effective customer service provision and a creative communication strategy.

Having these two pillars in mind, it was possible to understand that for the first one, there is a high necessity to have an “always on” attitude and approach when thinking

of a social media strategy and customer service provision. Social media does not have a closing hour and, therefore, works as 24/7 contact center to help customers resolve issues that they were not able to solve through other company's channels. Therefore, a highly specialized and permanent team that knows the business and operations inside out should always be on call in order to help customers resolve their problems as fast as they can.

At the same time, the communications part of the business should always be present, in order to engage customers in a more positive way. Reminding him of what the company has to offer and that it always works towards serving him the best way possible – placing the customer at the center of everything the company does. Consequently, using themes such as holiday related, discounts, contests, special events, specialized information about smart meters, green energy, social tariffs, power outages updates and so on, can contribute in a higher level to more positive feedback from the customers and a higher interest in what the company has to say and offer.

It is also important to bear in mind that the “servicing” part of the energy business is normally the number 1 topic in terms of dissatisfaction (the reader is able to confirm this further down the investigation), especially when thinking of companies that provide energy as a service to an extremely high number of people which are not able to live without this service. There will always be people dissatisfied with the service and that is why the company must work on a daily basis to improve the way they work towards the customer to provide the best service they can and, at the same time, reduce the complaints made regarding this topic. Social media comments can actually help companies understand the worst-case scenarios as well as the most consistent problems. This would help companies to mitigate these problems in a macro level which would therefore result in a reduction of costs.

Therefore, the company should always work towards being proactive and not reactive. However, and having in mind that the company is not always able to avoid or prevent a specific problem, it must work as fast and as effectively as it can to mitigate the appearance of a crisis. In order to do so, it must publicly address the problem, explain what happened and what it is doing to provide the best solution possible with its teams working around the clock to solve the situation and that it is available to help anyone directly affected by the circumstances in order to overcome the situation. If needed so, the company must acknowledge its fault and apologize for the matter.

Finally, a special mention must be made to the fact that this thesis investigation and development was made between the years of 2017 and 2018 and may not reflect some new changes that may be have occurred after these years, to EDP or other companies analyzed throughout this analysis. As an example, it was seen on February 2019 that EDP had finally opened up its barriers regarding its brand and communication strategy online through the alteration of its Instagram profile to “EDP Oficial” and is now communicating not only its events, but also products and services provided by the Company. However, the impact of the 2011 social media crisis is still seen today, since EDP has still no official Facebook page today.

## **Chapter 2 - Literature Review**

### **Part I - How is social media being applied and used?**

#### **2.1 Social Media Usage by Companies**

The use of social media has grown significantly among consumers. According to Nielsen (2012), people spend more time on social media than any other category of sites, with an average of 121.18 min per day (Guesalaga, 2015).

Moreover, a study made in 2014 by eMarketer (in which it surveyed several US companies with more than 100 employees), showed that about 88% of the companies were using social media in some capacity for marketing purposes. They expected that these figures would raise to 89.5% in 2016. The online magazine Social Media Examiner, in 2016, also performed a study in which it tried to understand what companies felt towards social media and came to the conclusion that 90% of the marketers believe that social media platforms are important to their business nowadays.

Therefore, companies have been trying to understand the meaning of social media for their work and its importance when it comes to an engaging relationship with its customers. Obviously, companies begin to use social media platforms for marketing purposes, which means their initial foray often commences with communicating with their customers via consumer-facing platforms. However, times are changing, and companies are using social media for internal collaborations, talent management and event operations (Kane, 2015).

In order to benefit from social media, companies need to build up capabilities to monitor activities on its social media platforms and to engage with the community in a positive manner. By using and applying social media analytics, companies can monitor the user's opinions about them, their products and services and to obtain relevant feedback for future improvements (Kaplan and Haenlein, 2011). One example given by Kaplan and Haenlein (2011) is Starbucks, which monitored closely its twitter account during its introduction of the new instant coffee product "Via". With several conversations with customers through this social media platform, they managed to get consumers samples of new coffee and help them surpass their bad perceptions of instant coffee. At the same time, this helps the company to lower costs of qualitative and

quantitative research since it gathers information directly from the source (Parent et al., 2011).

Therefore, social media has become crucial for companies in several of its value chain activities. When specifically speaking about marketing, social media is not just an optional element within the promotional mix, but actually mandatory for many companies' marketing strategy (Hanna et al. 2011).

However, and even though these types of platforms are incredibly important for any company which aims to directly and positively engage with its customers, it is also important to understand and be prepared to face a number of difficulties, not only regarding the possibility of a reputational crises but also economic risks (Aichner and Jacob, 2014).

Mainly, the world of social media moves rapidly, and users expect their answers to be answered within hours. If companies decide to ignore their users or even take too long to respond, this may evolve to a larger problem and global discussions about the weaknesses of the company itself, its products and services, and everything that revolves around it. This may lead to an economic and reputational risk for the company (Aichner and Jacob, 2015).

Besides this, not all social media platforms are relevant for companies and it also depends on the type of business the company is inserted in. Having this in mind, social networks, video-sharing and business networks are of high interest, while other types of social media, such as photo sharing, social bookmarking or social gaming, may be less important in general, since the scope is more limited (Aichner and Jacob, 2015).

Finally, it is also important to adapt each type of social media platform to the several activities a company has and bear in mind that companies cannot just "be there". They really need to update their profiles and websites on a regular basis and be highly active/reactive to customers' requests, since this is the only way to make sure their presence is effective and positive (Aichner and Jacob, 2015).

## **2.2 Social Media Usage in Portugal and Worldwide**

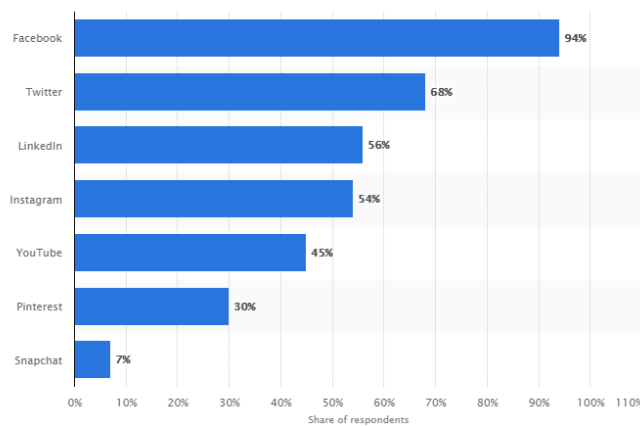
A study provided by Marketest in 2017, named "The Portuguese and the Social Networks" found that Facebook had the highest penetration amongst the Portuguese people representing 95,5% of references, followed by Instagram (50,5%). This study also

showed that the penetration of social media in the lives of the Portuguese grew almost three times between 2008 and 2017 (17,1% to 59,1%). Nowadays, only 825 thousand people from the 11 million, state that they do not use social media while navigating online.

Following the same trend, Statista (2017) showed that Facebook continues to lead Worldwide with about 1.968 million active users (monthly). In second place comes WhatsApp, with 1.200 million active users and YouTube with 1 million.

Finally, when it comes to what the actual companies and marketers use in order to better communicate with their customers, Statista (2017) found that Facebook continues to prevail as the most used social network (with about 94% usage) followed by Twitter (68%), LinkedIn (with 56%) and Instagram (54%).

Figure 3 – Social Media Usage Worldwide



Source: Statista 2017

### 2.3 Social Media Usage by Utility Companies

According to the Elefant (2011) if a company seeks to get a customer’s attention online, a social media presence is indispensable.

Therefore, and given the dozens of social media platforms available (with new ones emerging each year), it is important to categorize each social media tool in terms of the features that they are able to offer to its users (Elefant, 2011).



Table 1 - Types of Social Media Tools

Category	Functions	Examples	Utility Use
Directories	Resume type listing with ratings by clients and colleagues	LinkedIn	Advertising, employment, creation of "company" page
Communication	Disseminates writings and information on an ongoing or real-time basis	Blogs, twitter	Describe new programs or policy complementary (blogs), crisis communication (via twitter)
Communities & rating sites	Collegial or less formal interaction at closed site	Facebook, Facebook Fan Page, Foursquare, Yelp	Promote events, share company photos and physical location. May be also subject of rating.
Archiving & Sharing Sites	Stores, shares and redistributed video, slides and documents with opportunity for feedback	YouTube, SlideShare, Docstoc, Scribd, Flickr	Share educational video, presentations, photos, copies of regulations and tariffs

Source: *Energy Law Journal*, 2011

Having said this, it is also important to highlight the fact that several Utilities realized incredibly fast that these tools would be an important ally in a variety of purposes such as crisis communications, customer education or brand awareness. Moreover, they started using them in order to create and develop a better and closer relationship with their customers (Echeverria, Davis & Fabbri, 2010).

In terms of crisis communication, one of the examples given revolve around the companies PSNH and Pepco which have received media coverage on their usage of Twitter to communicate, report and warn its customers of existing outages (Elefant, 2011). More recently, in 2013, when Hurricane Sandy occurred, the New Jersey energy company PSE&G used its twitter page to report, in real time, information about power restoration progress and respond to doubts and questions its clients asked (two-way communication) (Press-Release from PSE&G Corporate Website, 2013). They assigned about 22 staff members to read and send tweets for 15 hours a day, having sent more than 9 thousand tweets. This action led to an incredible increase of about 40 thousand followers after the storm.

As it is commonly known, Utilities are constantly receiving critics and negative comments. However, and instead of ignoring this, they have been utilizing social media in order to communicate in a positive way. One example is Avista, an American energy company, which used social media to communicate about energy efficiency and

renewable energy, which is now something often used by energy Utilities when communicating with its customers (Elefant, 2011).

Finally, and related with customer education comes South Carolina Energy & Gas, which created a blog in order to provide energy efficiency tips to customers (Elefant, 2011).

In 2013, a study from the Wall Street Journal confirmed the power of social media for Utility companies, stating that Utilities once used social media as a minor tool which was only interesting for press releases and marketing messages, but now, it has become a primary source of contact with its customers and extremely important to achieve customer satisfaction. Moreover, an Accenture specialist in Energy Consumer Services (Greg Guthridge) confirmed that some Utilities have even been able to reduce customer turn over by 20% due to the use of social media.

In terms of types of platforms mostly used by Utility companies, Wall Street Journal found through a survey made by E-Source that within 53 US and Canadian Utilities the most used is platform is Twitter (92%) followed by Facebook (86%).

## **Part II - How are social media crises being perceived, treated and avoided?**

### **2.4. Social media Crises in Companies**

In the “analog days”, consumers who felt dissatisfied with a brand had only a limited set of options to expose their dissatisfaction (Rauschnabel, Kammerlander & Ivens, 2016). They could either remain loyal to the firm (Singh, 1990), end the relationship or voice complaints to the firm (Fornell and Wernerfelt, 1987). The power given to the customers were very little and limited and companies rarely felt obliged to actually respond in a specific way or respond at all. Only in specific and rare occasions the customer was able to, in fact, change the company’s behavior (Rauschnabel, Kammerlander & Ivens, 2016).

The great majority of dissatisfied consumers failed to complain after a bad experience because the costs of complaining were perceived as being greater than any potential benefits (Chebat, Davidow & Coddjovi, 2005).

However, nowadays, these types of situations have changed drastically, due to the rise of social media platforms. Consumers do not need to call the company, navigate confusing automated telephone systems and spend hours on hold while passing from representative to representative. In a short period of time, consumers can make a complain online for everyone to see (Rauschnabel, Kammerlander & Ivens, 2016).

Due to the development of social media platforms, many customers now turn to these platforms to vent their frustrations and seek retribution by being slighted or ignored by a company (Tripp & Grégoire, 2011). Social media have empowered consumers to complain online and, according to Lithium Technologies (2013), 78% of people who complain to a brand via Twitter expect a response within an hour. Moreover, a cross industry study by ConverSocial (2011) revealed that 88% of consumers are less likely to buy from a company that ignores online customer complaints.

Furthermore, social media gives the customers the opportunity to not only consume content but also to create and share content that, in turn, will be consumed by other users in real time or later on (Rauschnabel, Kammerlander & Ivens, 2016).

The authors Grégoire, Salle & Tripp (2015) give an example of a group of young people in France which made a song listing all the reasons why they were switching from cell phone provider Orange to Free, the new industry cost leader. This video gained more than 1.5 million views overnight and became viral. This example is one of the worst situations on a company's perspective.

Having this type of actions in mind, in which customers come together to criticize a brand, the authors Rauschnabel, Kammerlander & Ivens (2016), speak about a behavior called CBA (Collaborative Brand Attacks). These types of acts are based on the joint and user generated content, provided by a large number of internet users which aim to harm a brand or to force it to change its behavior, spreading everything online and offline.

There are several ways in which CBA can be triggered, such as the consumers perceiving unethical behavior, business problems, unfair or unprofessional communication behavior and unfair use of brand's power (Rauschnabel, Kammerlander & Ivens, 2016).

Therefore, it is important to understand that even a single consumer can cause a brand to lose a series of customers and potential customers, leading to a loss worth millions of dollars, by simply using digital platforms, let alone a sea of consumers fighting for the same thing. Therefore, managers and marketers need to understand this

phenomenon and especially what drives consumers to behave in such a way (Karh, Nyffenegger, Krohmer & Hoyer, 2016).

Finally, and when speaking about crises, it is important to understand the types of crises within the “Crisis Communication Theory” (SCCT). It distinguishes victim, accidental and preventable crises. The first one is caused by external events, such as natural disasters, rumor, work place violence and so on. This type of crises attributes less responsibility to the company/brand itself, therefore, the reputational damages are obviously going to be milder. The second one, arises when organizations are responsible for the crises. However, those actions were unintentional (e.g. industrial accident caused by an equipment and product failures caused by technology failures). In this type of crises, the stakeholders attribute a minimal responsibility to the organization, obviously resulting in a stronger reputational threat. The third and last one, is caused by a conscious misbehavior of the company or its members, such as inappropriate actions or violation of laws. In this type of crises, stakeholders attribute higher levels of responsibility to the organization, leading to very serious and negative impacts on the reputation of the company (Coombs, 2004).

## **2.5 Types of Social Media Complains**

The authors (Grégoire, Salle & Tripp, 2015) describe six different ways in which consumers use social media platforms to announce their bad and negative experiences (which are neither random nor unrelated).

*- Directness: Directly contacting the company online*

One of the most common types of responses or actions taken concerning a bad experience prevails when the customer contacts the firm directly and privately in order to attain resolution/satisfaction. However, the difference in the current social media usage days is that consumers prefer to capitalize on the convenience of social media to directly and more efficiently reach the firm to find a solution to their problems, instead of going back to a store or spending time on the phone in order to address the matter.

Several companies already have in mind and predict these types of actions and are implementing best practices in response to this form of public complaining. An example

is Best Buy, which instituted the “Twelpforce”, a twitter community composed by 3,000 employees that quickly answered tweets and complains about the products. Between 2009 and 2013, the company responded to 68,000 tweets. However, in 2013 the company moved its “Twelpforce” into the Best Buy Unboxed online community, which is an even greater move since now not only the company can respond to online queries but company’s customers can do so too.

*- Boasting: Positive publicity about extraordinary service recovery*

If customers see their problems addressed in a positive matter, following a service failure, they may forgive and continue to have a relationship with the company and can even share their positive experiences with others. A good service recovery can be the perfect opportunity to generate positive publicity about the company.

*- Badmouthing: Negative Word-of-Mouth without contacting the firm*

Unfortunately, not all complaints are directly addressed to the firm. Another common tactic used by consumers, involves sharing unsatisfactory experiences without even warning the company beforehand. This type of tactic is far worse than the other common word-of-mouth action which is done in person, since it reaches more people and potential customers. What makes this worse and frustrating for the company is that this form of complaint can be done just after a single service failure and it doesn’t give the company the benefit of the doubt to try and fix the problem without making it public. Furthermore, it can also become viral, such as the example of a British Airways customer who bought a promoted tweet in order to reach a higher audience and complain about his lost luggage.

*- Tattling: Complaining to a third party for help*

A case in which the risk almost doubles for companies is when there is a double deviation, meaning a combination of a service failure and a failed recovery (Grégoire et al, 2009). After experiencing this double deviation, customers persist in obtaining resolution. When this happens, they seek help from an online third-party organization.

New service websites have emerged and, for modest fees, will handle customer's complaints or help customers negotiate with firms.

- *Spite: Spreading negative publicity to get revenge*

After a double-or more-deviation, a customer may look for revenge against the firm by sharing his/her bad experience on social media. The aim of this tactic is to bluntly punish and cause an inconvenience to the firm. Spite-driven complaints are the most likely to go viral, also because customers will do whatever it takes to destroy the firm's reputation. The high degree of virality and desire for revenge classifies this type of complaint as one of the worst ones and creates a dangerous crisis for a firm. Moreover, and even if the company tries to redress the situation it won't be able to fully change it, having the rest of its online community doubting the company's good intentions.

Having in mind this background and type of behavior, but in a deeper and more aggressive way, comes a new concept proposed by Karh, Nyffenegger, Krohmer & Hoyer (2016) named consumer brand sabotage (CBS), which is a form of hostile and aggressive behavior (from the consumer part) which is directly designed to harm a brand. This type of behavior agglomerates five key components: 1) "deliberate act", which implies that an action was taken consciously and intentionally; 2) the word "behavior" means that some action must be undertaken. Meaning that in order to commit CBS, the person in question must engage in some sort of activity or preliminary activity and this activity can be done offline or online (e.g. creating and publishing a video online); 3) can be executed by customers or non-customers; 4) the main objective is to actually harm the brand. The "aggressor" will engage in activities that will actively contribute to the harming of the brand; 5) the brand "saboteur" tries to harm the brand by bringing together brand-related associations other consumers have/created around the brand itself.

The main conducts that distinguish CBS from all the types of behaviors consumers may have towards a brand is the obvious "aggression" exerted by the consumer. Moreover, the consumer does not want to establish any type of relation with the brand, he/she are not interested in making amends or receiving some sort of compensation (bridges are completely burned). Finally, it is also relevant to highlight that this type of behavior is actually well thought out, it is not unconsciously done. It has been planned

with a high level of effort and investment, making it the worst type of action with the highest level of potential damage to the company.

*- Feeding the vultures: How competitors take advantage of the competitors social media disaster*

From the moment a customer's complaint goes viral, competitors are able to take advantage of the firm's situation, which will result in the ugliest possible consequence for a firm and the worst form of public crisis. An example of this type of situation happened with American Airlines. Anthony Bourdain, a famous chef and television host criticized the airline company, through twitter, for the delays he was experiencing travelling from Miami to Grand Canyon. However, the company never got back to him.

Furthermore, Anthony continued sending more tweets for about 2 hours and, in that time, a fellow chef and TV personality responded to his tweets by sharing with all its followers. The next morning, Virgin Atlantic pointed out American Airlines poor service and offered the chef the opportunity to travel for free. This was shared in the chef's twitter page, making this act available for a sea of people to see.

## **2.6 How to address the six Social Media complaints**

The moment a company is able to identify a complaint, it needs to respond in an appropriate manner, according to the situation and type of crises. However, and in order to assess what type of situation a company is involved in, it needs to carefully monitor its social media platforms. Nowadays, that is simple, due to the several programs available to do so - *Google Alerts, TweetDeck, Social Mention*, etc. (Grégoire, Salle & Tripp, 2015).

Moreover, and besides the technology needed for the monitoring of the social media platforms, it is also important to have a team of experts, able to monitor and address each complaint. Many companies have now a specific number of employees specifically working towards responding to all its customers on social media (Jet Blue is an example, with about 11 employees).

Therefore, in order to address each type of the complaints already presented in the previous chapter, the authors propose a set of recommendations:

*- For Directness*

The customer isn't looking for any type of revenge. He/she only wants to see the problem fixed. Having this in mind, companies must acknowledge any problem encountered by the customer and rapidly fix it, in order to keep double deviation out of sight. Since no trouble has occurred yet, the company should view this as an opportunity to provide a superior service and actually avoid what can be a much harder task to resolve later on.

Timing becomes crucial, and the best social teams, such as Jet Blue, are able to provide an answer within 15 minutes. More importantly, no comment should be ignored or erased as this can be a recipe for disaster.

Finally, how the company chooses to address the problem (publicly or privately) depends mainly on the severity of the problem.

*- For Boasting*

After an excellent recovery in which the problem was actually resolved, many customers want to share the story online. This type of actions can be very effective to companies as it brings positive publicity. It is important, however, not to overpublicize the positive acknowledgment as it may be seen as an orchestrated act.

*- For Badmouthing*

In this type of complaint, companies are not able to see the customer's complaint, unless they have a monitoring system. Therefore, these systems play an important role, since it's the only way to identify potential problems and unsatisfied customers who don't engage with the company. Having this in mind, and after identifying the individuals, companies need to publicly contact them and try resolve the situation.

*- For Tattling*

Cooperate with customers through the third-party online organization. It is important to do so because the company will have to engage with the customer regardless



(since he/she is being defended by the third-party organization) and also because these types of customers may actually have a case (if not, the defending organization would not help them at all). Finally, it can also benefit the company since they are involved with a sort of “neutral” party and can even seek for help by another third-party organization or legal counsel.

*- For Spite*

Obviously, the best strategy for a sort of complaint that becomes viral is to prevent at all cost that this in fact happens. However, sometimes, this is not possible, and a double deviation occurs. To try and resolve this situation, the company needs to assess the problem quickly and publicly acknowledge it. Basically, when this happens, the company needs to become even more active and respond quickly on its social media platforms as well as to the customer in question, to try and control the damages.

Then, the company needs to perform two different types of actions that are dependent of each other in order to succeed - 1) privately contact the complainer in order to achieve a solution and 2) then take this matter to the public in general and explain all the actions that it took to resolve the actual problem (there’s a need to tell the public that the company was able to resolve the problem, if not, the public will assume they did not).

*- For “Feeding the Vultures”*

The authors give the case of La Redoute has an example. This company had a scandal regarding the publication of a picture in which there were children on the beach playing, however, in the background was a naked man. Other companies used this situation to their advantage, showing the picture, but dressing the man and saying that “some people don’t know that we sell swimsuits for 9.99€”. La Redoute, didn’t gave up on this situation, on the contrary, they pursued another path by using humor. They launched a contest where they invited customers to search for problems and errors in several pictures present on the website. The customers that found those problems were given a substantial promotion. In the end, La Redoute increased their traffic on the website by 70% during the contest, gained more than 100,000 Facebook fans and profited over \$1M.

## 2.7 Best Practices in Utility Companies – Reputation Management

According to Nikki Gilliland, in the article “How Utility brands use social media for reputation management” (2017), reputation management is related with how the company responds to customer conversation. Whether the content is good or bad, the company should always address the person in question as it may be subject to a detriment in its overall reputation.

Some of the most important pillars according to Gilliland (2017) when it comes to managing reputation in the most positive and effective way are: monitoring mentions; quick response; transparency; always be prepared for a crisis; acknowledging and addressing criticism.

### Hawaiian Electric

Hawaiian Electric was able to utilize Instagram in a successful way and actually communicate with its costumers as effectively as possible through this online tool.

When several cities in Hawaii were hit by a storm in 2014, the company centralized its forces on Instagram in order to let customers know about areas which were affected by power outages and which ones were already being repaired or needed repairing (figure 4). Moreover, they reinforced messages about safety.

Figure 4 - Hawaiian Electric Instagram Update Post after severe storm



Source: Hawaiian Electric

Since this situation, the company continued to use this channel, specially focusing on the local community (Gilliland, 2017).

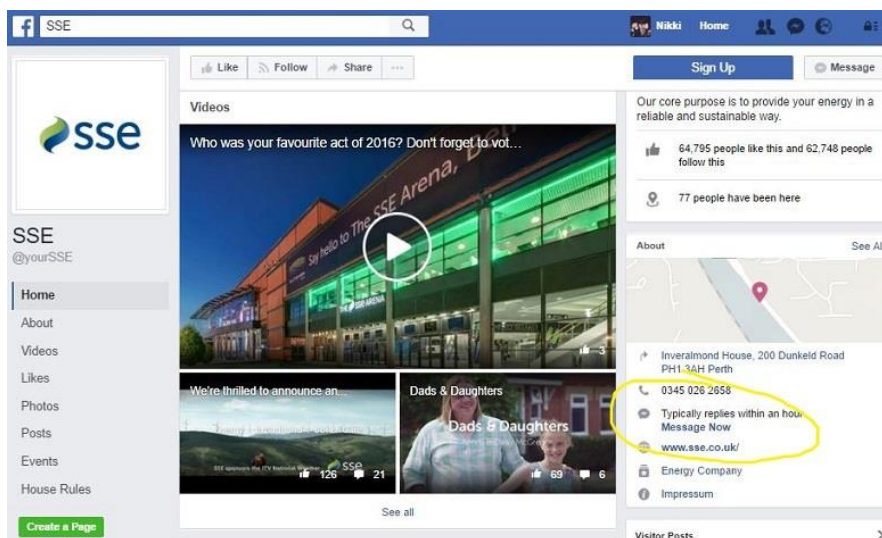
When using such a visual tool like Instagram, the brand was not only able to develop a positive image of itself as well as portray an image of transparency and reassurance to its customers in everything they do.

SSE UK

According to a Citizens Advice study, the UK Utility SSE was considered the energy supplier with the lowest number of customer service complaints in 2016, making it the most successful energy supplier in terms of customer satisfaction in the United Kingdom.

So, what could be one of the main drivers that contributed to their success in comparison to several energy suppliers in all of the UK market? The way SSE handles queries and criticism on social media, with quick timely responses as well as a polite tone of voice. This is particularly evident in SSE’s Facebook Page, in which the company replies within an hour to any enquiry. Even though complaints are a common theme, they are still able to effectively approach its angry customers in a calm way. In fact, 77% of the customers stated that valuing customer’s time is the most important feature for a company to follow imperatively – being the fast response one of the most effective ways for brands to ensure that they can maintain and improve positive reputation (Gilliland, 2017).

Figure 5 – SSE Facebook Page with response time



Source: SSE

*Ovo Energy UK*

Using specific and adequate channels for each type of business is an important first start for a successful social media strategy applied by any company. However, and specifically for Utility companies, the importance of choosing the “right one” is an even major concern (Gilliland, 2017). Utility companies are not normally well-liked and considered favorite companies for the common consumer. The tendency, in terms of interactions, is more associated to complaints regarding the lack of electricity in a customer’s home, rather than to actually praise the company for having electricity in the house without any problems, since in a first world society, power is a primary necessity and, a lot of times, taken for granted.

Therefore, not all channels will be suitable for every company and the importance of choosing it wisely may help to use this social tool as an important ally in order for companies to foster a better customer relationship.

When British Gas tried using Twitter for Q&A’s, the result was catastrophic, being bombarded with a backlash of angry customers extremely unsatisfied with price hikes. The result? British Gas had to leave this channel with an even more damaged reputation (Gilliland, 2017).

However, there are some other companies, especially the smaller ones and with a more recent existence that are able to use Twitter to their advantage. Ovo is one brand that has applied an “always on” strategy in order to monitor brand mentions and, as a result, draw in new customers often using Q&As to highlight the shortcomings of competitors.

For Lewis (2016), a Digital Content Specialist, Global Marketing & Communications for Black & Veatch, “Social media is an added customer service tool. Don’t think that if you don’t have a presence on social media people won’t share their views – they will establish a reputation for you even if you aren’t on there to share the facts. It’s a whole new level of customer service – very fast, very immediate.”

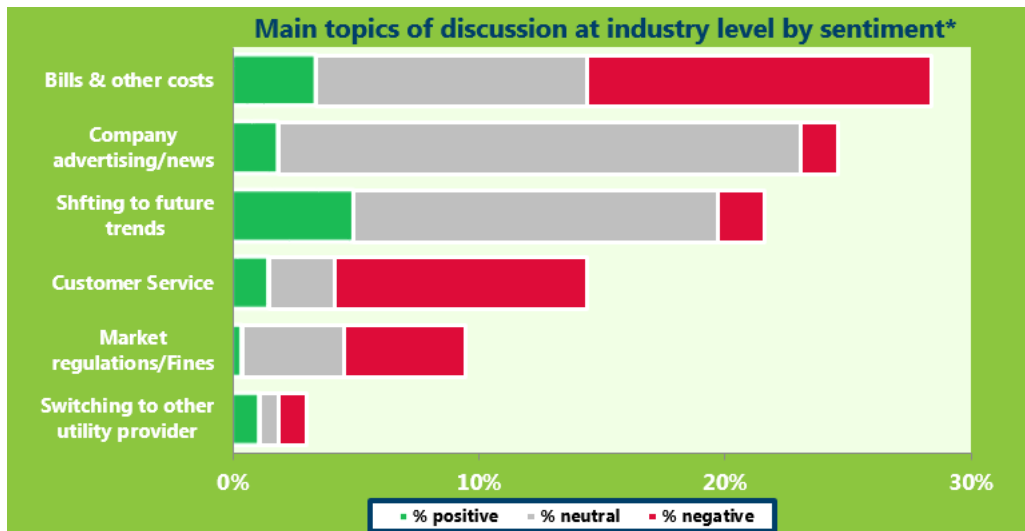
Moreover, and according to Gioga and Tinda (2016), Social Insights advisor from IBM, in the article “How Social Insights Can Power up the Energy and Utilities Industry”, social media can be considered a 24/7 contact center for the Utilities market and a direct path to a customer service representative.

Gioga and Tinda analyzed samples of tweets in two major European Markets, Spain and UK, for about a year. They used advanced social analytics in order to measure the social buzz created around certain Utility brands. From their analysis, it became apparent that “social media has moved from a nice to have to an essential part of the businesses strategy for many electric, gas or water providers”.

For the UK market, through the analysis of representative samples of conversations, it was possible to see how different social networks were giving more power to consumers, enabling them to ask for more honest conversations about their bills and energy efficiency. Moreover, and even though the invoice costs were still the most discussed subject (and the biggest source of dissatisfaction), it was also interesting to discover the increase of attentiveness and preoccupation for other topics such as saving energy in order to reduce environmental impact or the actual impact of the falling oil prices on the overall energy industry (Gioga and Tinda, 2016).

Furthermore, and through text analytics, Gioga and Tinda (2016) found that negative sentiment prevailed specially when discussing topics such as high costs, customer support, billing and payment.

Figure 6 - Main Topics of Discussion in Utilities Tweets



Source: IBM Study

Now, for the Spanish energy Utilities, and when comparing it to the UK market, it was seen that users are even more prone to complain about the high costs of bills, but less about customer service. Regarding the main topics of discussion on

Twitter, Gioga and Tinda found that there is a correlation between high cost conversations, particularly with families at risk of poverty, who tell their stories through eloquent tweets.

Spanish people often complain about how they are overcharged and pay the most out of all European countries for energy. Moreover, it was also found that power outages and no live updates infuriates customers the most. This information goes hand-in-hand with the global trends in which 76% of Utilities believe that outage communications is the most important topics for their social media content. The creation of automatic alerts on outages are an important strategy to what it seems to be a recurring issue in the industry (Gioga and Tinda, 2016).

Finally, and for those two markets equally, customers expect a response within 60 minutes. Therefore, the importance of staying on top of this, together with the use of an effective social media listening tool, is crucial.

## Chapter 3 - Methodology

According to Eirinaki, Pisal & Singh, (2011), with the “proliferation of social networking and e-commerce, the information contained in the opinions/reviews expressed by the people has grown by leaps and bounds”. These amount of information in the form of opinions play a major role in influencing public opinion’s behavior (Mostafa, 2013). Moreover, and according to Zhang et al. (2009) it is also known that user generated content and web-based opinions (such as in blogs, wikis or social networks) have recently gained importance and actually became a valuable resource for mining users and follower’s sentiments in order to address the most various topics such as customer relationship management, public opinion tracking and text filtering (as cited in Mostafa, 2013).

Essentially, this online mining technique called “web mining” (Calheiros, Moro and Rita, 2017) gives researchers the possibility to perform analysis on sentiments and/or opinions based on published online reviews and comments. The aim is to extract the text from these written online comments and reviews for a certain brand, product or service and classifying it into positive or negative opinions according to the polarity of those comments and reviews (Cambria, Shculler, Xia & Havasi, 2013; Casaló, Flavián, Guinalú & Ekinici, 2015).

Having this in mind as well as the goals previously defined for this dissertation, it was decided that the most suitable methodology to be used would be mainly focused on a netnography analysis together with a text mining approach. This approach helps the author find, within the several Facebook pages and respective interactions and opinions transmitted by the followers, answers for the main research objectives of the study. Moreover, these tools can also contribute for the author to feel as if she was in the shoes of all the customers/follower’s present on each company’s social media pages and better understand their feelings towards the company.

Furthermore, and according to Mostafa (2013), the knowledge obtained from the opinions found in social networks are of an extreme value for any company or competitor, since this incredibly large number of opinions expressed about a certain topic or content are highly unlikely to be biased.

Therefore, Mostafa (2013) states that to obtain the sentiments of these comments and opinions in a larger scale, sentiment analysis should be used. This

basically concerns a “natural language processing application (NLP) that uses computational linguistics and text mining to identify text sentiment, typically as positive, neutral or negative”. To calculate a sentiment score, the sentiment attributed to the text is compared to a lexicon or dictionary to determine the strength of the sentiment (Mostafa, 2013).

In order to have a considerable number of opinions and interactions for each company, it was decided that this analysis would contemplate a one-year period (2017).

Having all of this in mind, the first step of this process was to explore in depth the several social media platforms existent for each company chosen, in order to understand the trends and how are they fostering a relationship with their followers. This can be done through the method of netnography.

The netnography will be developed with the help of a scrapping tool called python, which will enable the collection of the information present on each company’s Facebook pages.

Firstly, in order to scrap the information, the researcher tested two plug-ins that are easily added to chrome, called “scrapper plug-in” and “data miner”. However, while trying to extract information from one of the companies, it was easily found that the researcher could not choose a specific year to extract information (only the most recent one) and the plug-ins were not easily prepared for the researcher to extract specific parts of the information provided on the Facebook page. To do so, more advanced programming skills would be needed.

As an alternative, the researcher found a programming language called python with which it was possible to apply some pre-defined codes available online (as well as detailed explanations of all the process it takes to make the scrapping) in order to extract all the information needed.

To correctly perform the data scrapping, the researcher followed all the steps available on the website “nocodewebscrapping” in the article “How to Scrape Facebook Page Posts and Comments to Excel (with Python)”. This extraction will enable the researcher to gather the following information:

- All the Facebook statuses or posts of the page or group;
- The number of likes, shares and comments for each post;



- The number of Facebook reactions (like, love, haha, wow, sad, angry) for each post;
- Each post status type, link and published date;
- All the comments with comment’s author and number of likes for each comment (if any), published date.

Figure 7 - Example of how the scrapped information appears in excel

	A	B	C	D	E	F	G
1	status_id	status_message	link_name	status_type	status_link	status_published	num_reactions
2	889307941	Your courage is inspiri	Ghazala Khan: Trump	link	https://www.wa	01-08-16 7:47	3171
3	889307941	Watch the exclusive new video: Hillary, Tim	video	https://www.fac	31-07-16 20:58	18998	
4	889307941	Sometimes great thin	These are unsettling	link	http://www.chrc	31-07-16 18:30	21876
5	889307941	Road trip.	Timeline Photos	photo	https://www.fac	31-07-16 16:32	35256
6	889307941	Thank you, Joe Biden.	Timeline Photos	photo	https://www.fac	31-07-16 13:57	42104
7	889307941	"Will we be a nation where there's only one	video	https://www.fac	31-07-16 11:10	19724	
8	889307941	The women of the U.S. Senate are fighting t	video	https://www.fac	31-07-16 9:09	18148	
9	889307941	A night to remember.	video	https://www.fac	30-07-16 20:30	28614	

Source: no code data scrapping

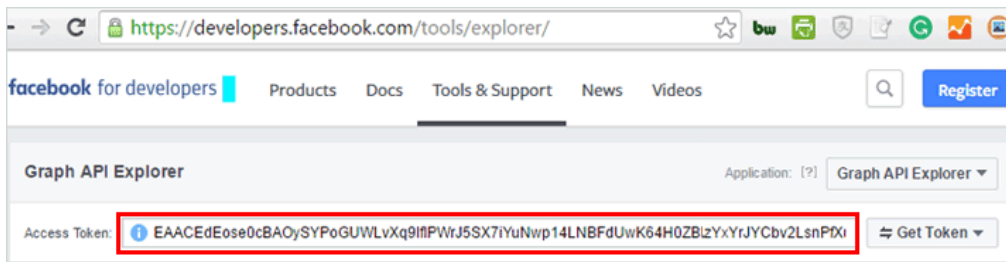
Figure 8 - Example of how the scrapped information appears in excel

G	H	I	J	K	L	M	N	O
num_reactions	num_comments	num_shares	num_likes	num_loves	num_wows	num_hahas	num_sads	num_angrys
3171	227	195	2794	313	9	10	41	9
18998	1682	5318	16025	2791	83	37	11	52
21876	2035	1201	19656	1981	37	50	9	143
35256	1835	800	32918	2116	50	111	5	56
42104	2019	2665	38686	3052	66	213	11	76
19724	1576	1740	17177	2348	59	34	6	101
18148	1340	2308	16168	1811	88	28	6	47
28614	2542	5737	24716	3579	95	44	13	167

Source: no code data scrapping

Once the python program is installed and prepared, the python scripts will access the data present on Facebook using the Facebook Graph API (prepared for developers). In order to perform the scrapping on python, the researcher needs to fill in the access token available in a specific page provided by Facebook called “Facebook Graph Builder”. Once the researcher gets the access token exactly how it is shown in the image provided, he had to save it, since it was going to be used in a later stage. It is also important to mention that the token is only available for two hours. If, for any reason it expires, the researcher is able to ask for a new one.

Figure 9 - Access token provided by Facebook



Source: no code data scrapping

The script also needs to be downloaded through a google document in [posts.py](#) and saved on the computer for later use. This will be the same folder in which the script will save the excel spreadsheet after the scrapping.

For the script to work correctly it is necessary to use the access token and Facebook page name such as “ [https://www.facebook.com/britishgas/?ref=br\\_rs](https://www.facebook.com/britishgas/?ref=br_rs)”, since these will be the inputs for the scripts. The script will start running and will ask the researcher to paste the Facebook page ID. The researcher needs to paste it on the script and click “enter/return key”. Then, it will ask the researcher to paste the access token. The researcher needs to follow the exact same steps followed for pasting the Facebook page ID. It is important to confirm that there is no space in between or after that is not supposed to be there, since it might cause processing errors.

When the script finishes running, it will provide the final report showing how many statuses were processed and how much time it took. The statuses will be saved in the folder where the script resides as a CSV file. This file is easily changed to .xlsx in order to be used for further analysis. Moreover, the CSV file will have the following columns of data included: “status id”, “status message”, “link name”, “status\_type”, “status\_link”, “permalink\_url”, “status\_published”, “num\_reactions”, “num\_comments”, “num\_shares”, “num\_likes”, “num\_loves”, “num\_wows”, “num\_hahas”, “num\_sads”, “num\_angrys”.

Figure 10 - Example of how the scrapped information appears in excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	status_id	status_message	link_name	status_type	status_link	status_published	num_react	num_com	num_shar	num_likes	num_love	num_wow	num_haha	num_sads	num_angry
2	204153042	BRAND NEW HIT Chege Feat.	video	https://you	07-08-16 6:21	2557	115	75	2523	29	2	3	0	0	
3	204153042	My @princess_ti	Timeline P/ photo	https://ww	05-08-16 16:01	27104	3137	432	26485	501	108	10	0	0	
4	204153042	Niko 88.1 East Africa Radio T	video	https://ww	05-08-16 6:14	3908	402	116	3861	35	8	3	1	0	
5	204153042	Hakikisha Unasik	Timeline P/ photo	https://ww	05-08-16 3:47	7985	373	262	7914	55	12	3	0	1	
6	204153042	Chege ft Me Wa	Timeline P/ photo	https://ww	03-08-16 9:28	11566	2164	406	11457	74	25	7	2	1	
7	204153042	2939851_11698486	Timeline P/ photo	https://ww	02-08-16 5:03	56673	4212	1222	56164	376	90	32	3	8	
8	204153042	Muda mfupi ujac	Timeline P/ photo	https://ww	02-08-16 1:58	11571	657	345	11487	69	8	6	0	1	
9	204153042	Let's end our weekend with	video	https://ww	31-07-16 13:22	5599	723	471	5476	102	15	6	0	0	
10	204153042	I really wanna thi	Timeline P/ photo	https://ww	29-07-16 8:18	4978	544	130	4932	35	5	4	2	0	
11	204153042	Oya come make	video	https://ww	28-07-16 14:00	6144	582	393	6059	62	7	16	0	0	
12	204153042	MERU!!!! KENYA	Timeline P/ photo	https://ww	28-07-16 13:44	8119	640	402	8041	51	19	6	1	1	

Source: no code data scrapping

The next step is to scrape all the user comments from each Facebook page analyzed. In order to do so, the researcher needs to assure that the outputs CSVs obtained from previous steps exist, since the python script will read “status\_id” from the CSV files obtained in the previous steps and use the data to generate the comments.

For this step, it is also required to download a specific comment script, which the researcher is able to find in the link [comments.py](#) and once the researcher runs it, the script will ask for the Facebook page name. It is necessary to use the same name as previously used in the other steps and then add the access token. The output, in this case, will provide the columns with the following information “comment\_id”, “status\_id”, “parent\_id”, “comment\_message”, “comment\_author”, “comment\_published” and “comment\_likes”.

Figure 11 - Example of how the scrapped information appears in excel

	A	B	C	D	E	F	G
1	comment_id	status_id	parent_id	comment_message	comment_author	comment_published	comment_likes
2	1174765902545	204153042939851	1174765902545	mashallah all the best i	Ally Hassan DaShifter	09-08-16 10:40	1
3	1174765902545	204153042939851	1174765902545	Keep up brother	John Pol Kerepino Kajel	09-08-16 10:40	1
4	1174765902545	204153042939851	1174765902545	CONGRATS	Amina Saidi	09-08-16 10:41	1
5	1174765902545	204153042939851	1174765902545	Guda	Khaled Da	09-08-16 10:41	0
6	1174765902545	204153042939851	1174765902545	Big up	Twarq Twaha	09-08-16 10:41	1
7	1174765902545	204153042939851	1174765902545	Kweli brazah simbaaaa	Max Pato	09-08-16 10:41	4
8	1174765902545	204153042939851	1174765902545	Congratulations	Winniefred Lyn Lwande	09-08-16 10:41	0
9	1174765902545	204153042939851	1174765902545	Hakuna kama ww hapa	Goodluck Bereda Mtoto	09-08-16 10:41	0

Source: no code data scrapping

Both the output CSV files include a column with “status\_id”, which can be used to map the comment to the original post and also a column named “parent\_id”, if the comment is a reply to another comment<sup>1</sup>.

Finally, the researcher has all the information needed to perform further analysis with the information gathered, understand which posts have more reactions (comments and likes) and why, which themes cause more reactions and what type of reactions there are, if there was a difference between months in terms of posts and why and other relevant outputs that will be shown next.

After gathering all this information, the researcher will need to analyze in more detail the comments existent for each post. In order to do so, the researcher used the

<sup>1</sup> Unfortunately, and since the analysis made, Facebook had changed its privacy and security policies and this type of coding and respective codes given by Facebook are now unavailable

program “Meaning Cloud”, an excel-ad-on that analyzes in detail each single comment, performing data analysis.

According to Fan et al. (2006), this type of analysis, named text mining or “web mining” is a specific type of data mining that consists in the analysis of textual contents in order to reach and unveil specific patterns that may be translated into actionable knowledge (as cited in Calheiros, Moro and Rita, 2017). These contents are then analyzed through the mining tasks, which can vary between text categorization, text clustering, sentiment analysis and others directly (Srivastava and Sahami, 2009 as cited in Calheiros, et.al, 2017,).

As previously stated, and with the help of the data mining program “Meaning Cloud”, the author has the ability to perform identification of text sentimental polarity, text and theme classification as well as text clustering, among others. This tool supports several different languages to be used such as English and Spanish, which will be perfect for this investigation since the companies studied are present in the UK and Spanish Markets. Moreover, it is also important to highlight that Meaning Cloud uses Natural Language Processing techniques (NLP), in order to detect the relationship between sentiments and entities that appear in the text.

Meaning Cloud performs the text analysis in sentence levels, which basically means that it first identifies the polarities of a certain sentence and, with that polarities associated, it then determines the global sentiment of the text. The polarity of the sentiments can vary from N+ (extremely negative), N (negative), NEU (neutral), None (also considered as a 0 which means that the systems was not able to determine a polarity for that specific sentence), P (positive) and P+ (extremely positive).

This ad-on will help the researcher perform “text classification”, “sentiment analysis” and “topic grouping” and understand if there is a positive correlation between the content published and comments made by followers associated to it. The sentiment analysis provides two main types of information: the global sentiment analysis which delivers 5 specific topics of analysis: “level of polarity”, “agreement”, “subjectivity”, “confidence level” and “irony”; and the topic sentiment analysis, which aggregates the keywords present in the comments in specific topics: “topic category”, “rank”, “type” and “polarity level”.

Figure 12 - Example of how the scrapped information appears in excel

Text	Polarity	Agreement	Subjectivity	Confidence	Irony
Happy New Year x	P	AGREEMENT	SUBJECTIVE	100	NONIRONIC
Happy New Year	P	AGREEMENT	SUBJECTIVE	100	NONIRONIC
Happy New Year, Alan Wark!	P	AGREEMENT	SUBJECTIVE	100	NONIRONIC
Happy New year. X	P	AGREEMENT	SUBJECTIVE	100	NONIRONIC

Source: Own Elaboration

Figure 13 - Example of how the scrapped information appears in excel

Text	Form	Topic Category	Rank	Type	Polarity	Sense ID
Happy New Year x						
Happy New Year	Linsey	entity	1	Top	P	_5461947196115879612
	beryl	concept	1	Top>Product>Substance>Mineral	P	4793299cb4
Happy New Year, Alan Wark!						
Happy New year. X	Alan Wark	entity	1	Top>Person>FullName	P	_14135148666196036273
Happy new year to all at British Gas						
Happy New Year to you too, Liz!	Linsey	entity	1	Top	P	_5461947196115879612
British gas will rip you off !!!!	University of East Anglia	entity	1	Top>Organization>EducationalOrganizat	P	a504d8c985
	British	concept	1	Top>Person	NONE	d2b1ddc678
	gas	concept	2	Top	NONE	f3fca15327

Source: Own Elaboration

It is also important to mention that the sample for this investigation will consider 8 different energy companies in the UK and Spanish Markets, which in total will give the investigator more than 90 thousand comments to be analyze in the year of 2017.

Finally, and according to Mostafa (2013) it is still incredibly important to bear in mind that almost all online text-based communications ignore rules such as spelling and grammar. Furthermore, and according to Boiy & Moens (2009) web texts have been classified as noisy since they still carry considerable problems in terms of lexical and syntactic levels and language variations/expressions. Therefore, and even though the information extracted greatly contributed to understand interactions, sentiments and feeling towards the brands chosen, it is also imperative to be cautious and consider a determined level of failure in the attribution of sentiments to each interaction.

## Chapter 4 - Company Analysis

In order to understand what Utility companies are doing in terms of social media presence, the author decided to focus this analysis on two specific markets that are present in Europe and that have some similarities in terms of maturity (number of years present in the market), culture, market share, number of customers. Moreover, it was also important to choose specific markets in which the languages were closer to the authors knowledge: the UK and Spanish markets.

The criteria for choosing these companies were:

- Age (maturity);
- Market Share;
- Culture (specifically related with Spain);
- Number of clients;
- Largest Energy Supplier;
- Incumbent company belonging to the liberalized market (in the case of Spain, and as it occurs in Portugal as well, the companies still have a percentage of market share in the regulated market).

Having in mind these criteria, five companies were chosen in the UK market, which belong to the so called “big six” (the biggest companies in UK with highest market share and power): British Gas, EDF Energy, npower, Scottish Power and SSE; and three others were chosen for the Spanish market, “las tres grandes electricas”: Endesa, Iberdrola and Gas Natural Fenosa (the first two are also present in Portugal and are seen as a direct competitor for EDP).

### UK:

- **British Gas (1997)** = 15M customers, 20% market share in electricity supply and 30% in gas supply (in 2017);
- **SSE (1943)** = 9,1M customers and 14% market share in electricity supply and 11% in gas supply (in 2017).

- **npower (2000)** = 6,5M customers and 10% market share in electricity supply and 8% in gas supply (in 2017);
- **EDF Energy (1991)** = 5,6M customers and 11% market share in electricity supply and 8% in gas supply (in 2017);
- **Scottish Power (1990)** = 5,3M customers and 10% market share in electricity supply and 8% in gas supply (in 2017);

#### **Spain Regulated Market:**

- **Endesa Energía (1944)** = 46,4% market share (in December 2016);
- **Iberdrola Comercializadora (1992)** = 30,9% market share (in December 2016);
- **Gas Natural S.U.R (1991)** = 19,0% market share (in December 2016).

#### **Spain Liberalized Market:**

- **Iberdrola Clientes (1992)** = 38,2% market share (in December 2016);
- **Endesa Energia (1944)** = 30,7% market share (in December 2016);
- **Gas Natural Fenosa (1991)** = 13,5% market share (in December 2016).

It is quite easy to detect differences in social media presence and awareness across the foreign companies and the Portuguese ones,

According to the table shown below (table 2), energy companies in Spain and in the UK are present in more than one social media, being Facebook, Twitter and YouTube the common social media networks used amongst all of them (with thousands of followers associated).

However, and when specifically looking at Portugal's case, there is a common option to avoid Facebook as the primary source of information and relationship with the customer, especially when looking at the oldest companies in the market (such as EDP, Galp and Goldenergy). It is also interesting to see that the most recent companies such as LUZBOA, Audax and Simples Energia already have a different social media presence approach and opt to use Facebook as one of their primary sources of communication (instead of Youtube, for example). Moreover, it is also relevant to mention that GALP passed from a limited social media presence strategy

(with a limited presence only on YouTube), towards a more involving strategy comprising new Instagram and Twitter accounts, which were created during 2018. On twitter specifically, GALP seems to have a strictly media relations strategy in place, especially when looking at the name used “GALP@GalpPress” in which it is then mentioned “media relations” and in which the company only has about 300 followers.

Still, it is clear that the UK and Spanish markets are all following the same social media strategy, and all have in common the use of Facebook as a primary online source of relationship with its clients, and all the companies, without exception, follow this path.

Table 2 - Social Media Presence Utility Companies in Spain and in the UK vs Portugal

SOCIAL NETWORK	ENDESA ES	GAS NATURAL FENOSA	IBERDROLA ES	EDF Energy UK	SSE UK	Npower	Scottish Power	BRITISH GAS
Facebook	✓ 26 278 likes 27 791 followers	✓ 52 058 likes 51 613 followers	✓ 62 149 likes 62 625 followers	✓ 29 271 likes 28 856 followers	✓ 80 441 likes 78 622 followers	✓ 51 047 likes 51 522 followers	✓ 22 864 likes 22 741 followers	✓ 96 916 likes 96 194 followers
Twitter	✓ 25 100 followers	✓ 37 300 followers	✓ 48 200 followers	✓ 35 800 followers	✓ 18 000 followers	✓ 13 000 followers	✓ 29 400 followers	✓ 70 300 followers
Instagram	✓ 7 000 subscribers	✓ 3 500 followers	✓ 22 000 followers	✓ 2 129 followers	X	X	X	X
Youtube	✓ 10 939 subscribers	✓ 36 566 subscribers	✓ 2 661 subscribers	✓ 5 464 subscribers	✓ 3 553 subscribers	✓ 1 539 subscribers	✓ 1 543 subscribers	✓ NA
Google+	X	✓	X	✓ 549 followers	X	✓	X	X
Linkedin	✓	✓	✓	✓	✓	✓	✓	✓
Forums & Blogs	✓	X	X	X	X	✓	✓	X
Flickr	X	X	X	X	X	X	X	X

SOCIAL NETWORK	EDP	GALP	Goldenergy	AUDAX	LUZBOA	Simples Energia
Facebook	X	X	X	✓ 600 followers	✓ 8 000 followers	✓ 11 000 followers
Twitter	X	✓ 300 followers	✓ 6 followers	✓ 50 followers	X	✓ 60 followers
Instagram	✓ 3 552 followers	✓ 3 000 followers	X	✓	X	X
Youtube	✓ 3 946 subscribers	✓ 1 252 subscribers	X	X	X	X
Google+	X	X	X	✓	✓	✓
Linkedin	✓	✓	✓	✓	✓	✓
Forums & Blogs	X	X	X	X	X	X
Flickr	X	X	X	X	X	X

Source: Own Elaboration



#### **4.1 Social Media Analysis**

As already stated in the previous chapter, all Spanish and UK based energy Utilities give a great value of importance to being present on social media and available for their customers through these channels. In general, Facebook is the social network with more users involved and greatest interaction, followed by twitter.

Therefore, and since the main aim of this investigation is to propose an efficient social media strategy for Utility companies, it was decided that the social media channel chosen to be analyzed would be Facebook. This is due to the fact that this channel is still considered the most relevant in terms of usage and serves a great purpose, not only for customers but also for Companies and Public Organizations.

Finally, and before moving onwards to the sentiment analysis of all the companies chosen, it was important to actually consider all the topics extracted for each company, compare them between each other, and integrate all of them into a maximum of 20 topics that would have to be equal between all the companies. In the end, the author was able to reach 19 topics that were further used throughout this analysis (table 3, in the following page).

Table 3 – Topics Found and Respective Clusters Defined

Topics Identified	Clusters
Person	Person
Organizations	Artistic & Sports Organizations
	Companies
	Public Organizations (Government; Education; Health; Military;)
Location	Location
Nature	Nature
Products & Services	Cultural Products (newspapers; magazines; television; theatres; cinemas; music)
	Fashion Product (clothes; accessories; cosmetic; hair and others)
	Other products (e.g. food and beverages; electronic appliances; machines & vehicles; or other type of products)
	Services
ID	Contacts
	Hashtags
Entities	Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)
	Vocation & Titles
Events	Event (social event; meteorological; natural disasters; breakdowns)
Processes	Processes
Timex	Time (period; date; hour; year; century)
Units	Units (time, weight, currency, temperature, space or others)
Other	Other

Source: Own Elaboration

## 4.2 British Gas

Table 4 – British Gas Comments for 2017

#Comments Analyzed	Period
44,124	2017

Source: Own Elaboration

British Gas has about 96 194 followers and 96 916 likes (data from October 2018). In 2017, it posted about 70 statuses, which, in comparison to previous years, has seen quite a decrease. Since 2016, this decrease reached almost 70% especially in 2013 and 2015, when the number of posts were about 200. This may be related with the increasing number of comments that this company has seen throughout the last years. Even though, in 2013, for example, it posted quite a lot of statuses, the number of comments were only 6224. However, three years later and with fewer statuses (40) it reached 14750 comments and in 2017, with 70 posts, it has seen about 36896 comments. Most of the posts in 2017 were made in December (about 14) followed by November, July and October. However, this is not something followed each year, which means that there are no specific months throughout the year in which British Gas chooses to publish more content. Moreover, it is also important to mention the month of July specifically, since there was a boom of interactions with the company due to a special contest called “Merlin Annual Pass” which gives customers a free pass to 32 attractions in the UK and special discounts in the Resort Hotels (the number of interactions grew from 312 comments and 259 likes in June to 16994 comments and 15087 likes in July).

Finally, a special mention must be made in regard to the difference in the number of comments analyzed in table 4 and the actual comments written in this this last paragraph (36896) and present in table 5.

Table 5 –British Gas status updates and respective interactions for the posts of 2017

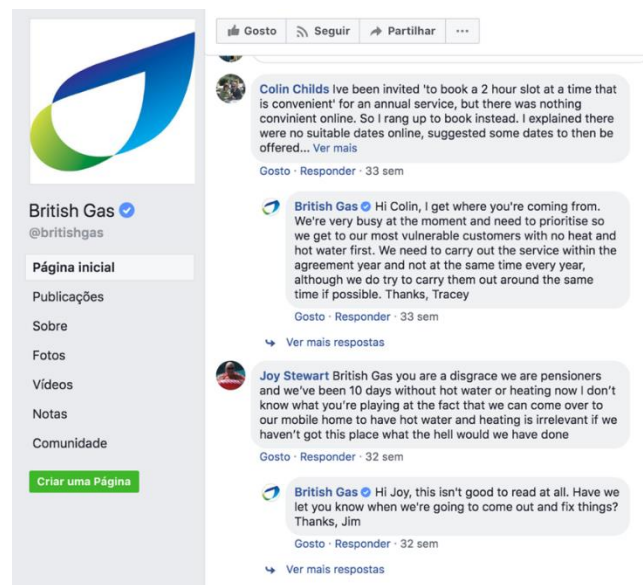
Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	3	1	6	3	2	7	9	2	6	10	7	14
Sum_Comments	1575	1382	597	595	1813	312	16994	66	4309	1601	2651	5001
Avg_Comment_Status	525	1382	100	198	907	45	1888	33	718	160	379	357
Sum_Likes	28871	6356	3628	3177	1937	259	15087	43	4702	3610	2193	6831
Avg_Likes_Status	9624	6356	605	1059	969	37	1676	22	784	361	313	488
Sum_Sad	13,0	2,0	5,0	1,0	1,0	0,0	7,0	0,0	16,0	5,0	4,0	7,0
Avg_Sad_Status	4,3	2,0	0,8	0,3	0,5	0,0	0,8	0,0	2,7	0,5	0,6	0,5
Sum_Angry	34,0	4,0	30,0	12,0	11,0	7,0	11,0	3,0	250,0	32,0	98,0	135,0
Avg_Angry_Status	11,3	4,0	5,0	4,0	5,5	1,0	1,2	1,5	41,7	3,2	14,0	9,6
Sum_AngrySad	47,0	6,0	35,0	13,0	12,0	7,0	18,0	3,0	286,0	37,0	102,0	142,0
Avg_AngrySad_Status	15,7	6,0	5,8	4,3	6,0	1,0	2,0	1,5	44,3	3,7	14,6	10,1

Source: Own elaboration

This is explained due to the fact that in table 4 the author is speaking and analyzing all the comments made in 2017 (independently of the comment being made in a 2017 British Gas post/status) and in the previous paragraph the author is speaking of all the interactions made in 2017 posts only. It was important to expand the analysis to all the comments made in 2017, despite the statuses made, since the previous statuses are also updated in 2017 when a customer makes a comment in an old status, turning it into a new/updated matter to be discussed.

Despite the increasing number of comments, the company makes the real effort of responding to almost every customer and, in average, the company reply's to customers within an hour maximum.

Figure 14 - Example of response comment from British Gas



Source: British Gas Facebook Page

When analyzing the actual statuses, it is possible to understand which themes generate the highest number of interactions: Holiday related (New Year, Christmas, Easter, Mother's day): "Merry Christmas from all of us at British Gas!", "Happy Mother's Day! :) To celebrate, we're giving away 4 Hive Starter Packs. It's about time the house started working for her, right? To enter, tag your Mum into this post & tell her why she's the best. Competition closes 27/03 at 9am."; Giveaways, contests and rewards (including loyalty program): "Today's the final day of our Christmas giveaway week but we're pulling out all the stops and giving you the chance to win a bundle that includes one of every prizes from this week's prize draws! To enter, join British Gas Rewards by visiting <https://m.me/britishgas> and writing

#lightupyourwinter.” and “You're not seeing double, Wilbur is just preparing for a spot of tennis with his friend! Tell us what you and your best mate like to get up to for a chance to win a Family Merlin Annual Pass. Prize draw closes at 00:00 on 17/07/2017”; Energy Efficiency related products & services, discounts and tips: “School's out! For everyone heading away on holiday, remember you can control your home from your phone with Hive from British Gas” and “It's day 5 of our Light Up Your Winter prize draw and today we're giving away two sets of Hive smart tech for your home including 1x Hive Hub, 1x Hive Active Light, and 1x Hive Window or Door Sensor to smarten up your home.”; relevant information such as hour changing, problems with power breakdowns, storms.

After the thorough analysis of all the status updates and respective number of interactions (including number of comments, likes and reactions), the next step of this netnography was to develop a sentiment analysis of all the comments made on the British Gas Facebook Page in 2017. To do so, the excel ad-on “Meaning Cloud” was used in order to provide the feelings associated with each of the comments made.

This sentiment analysis, as previously explained in the methodology section, highlights and identifies the polarity of each interaction, turning each comment into positive, negative or neutral. Moreover, and in the beginning of the sentiment analysis there were about 44,124 comments to be analyzed, however, and after discovering that 32,2% (14196) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of **29,928** comments considered.

Table 6 – British Gas Comments - Sentiment Analysis

Interaction's Polarity Levels				
Polarity Levels	Scale	Sum	Percentage	P-N%
P+	5	7442	24,9%	75,4%
P	4	15120	50,5%	
NEU	3	2153	7,2%	7,2%
N	2	4510	15,1%	17,4%
N+	1	703	2,3%	
Total		29928	100%	100%

Source: Own Elaboration

In British Gas specific case, and after erasing the level “None” of the equation it is possible to highlight that most of the interactions made by the customers have a positive sentiment (table 6) towards the brands content during the time period established. Among the interactions analyzed, 75% reveal a positive sentiment, 7,2% are neutral, 17,4% are negative and only 2,3% of the data reveals a strong negative sentiment.

In this analysis, it was also relevant to perform the test of the degree of confidence linked to the polarity of the user’s comments. This analysis is done through the attribution of a value from 0 to 100 to each one of the 29,928 comments existent for British Gas. Table 7 bellow shows that the confidence associated to the polarity results is extremely significant, 97,14, having a standard deviation of 1.10 meaning that the polarity levels show low dispersion.

*Table 7 – Confidence Analysis of British Gas Polarity Interactions*

<b>Confidence Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
97,14	1,10	1,05

Source: Own Elaboration

After identifying the level of polarity for each interaction (comment) made from each customer, it was possible to determine the irony, subjectivity and agreement levels of each comment (table 8). In British Gas Facebook page, most of the customers (followers) do not write ironic comments (only about 3,1%), however, most of the comments are subjective and can have double meanings (about 70%). At the same time, and even though most of the comments made may be subjective, it is also important to state that almost 80% of the comments made by the followers tend to agree with British Gas’s content posts, which is actually a positive outcome when it comes to the comments made in a Utility Facebook page.

Table 8 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

<b>Sentiment Analysis (Irony, Agreement and Objectivity)</b>								
<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>
Ironic	930	3,1%	Objective	8940	29,9%	Agreement	23714	79,2%
Non-Ironic	28998	96,9%	Subjective	20988	70,1%	Disagreement	6214	20,8%
Total	29928	100%	Total	29928	100%	Total	29928	100%

Source: Own Elaboration

Finally, and after analyzing the sentiment analysis for each comment/interaction made, follows the Topic Sentiment Analysis. This second analysis aims to define the main topics addressed by the followers present at British Gas's Facebook Page and the frequency that they are mentioned. Similarly to what was done for the Global Sentiment Analysis, for this Topic Analysis it was also possible to determine the level of polarity. When considering the 29,928 comments present on the British Gas's page, the topic analysis came up with 65,856 sentiment topics from those comments, which resulted in 228 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 228 topics into 19 clusters (table 9).

Table 9 – Clusters Frequency of British Gas's Comments

<b>Topic Sentiment Analysis – Clusters Frequency</b>		
<b>Clusters Defined</b>	<b>SUM</b>	<b>%</b>
Person	14,966	22,7%
Artistic & Sports Organizations	202	0,3%
Companies	3,834	5,8%
Public Organizations (Government; Education; Health; Military;)	1,190	1,8%
Location	8,576	13,0%
Nature	2,847	4,3%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	806	1,2%
Fashion Product (clothes; accessories; cosmetic; hair and others)	415	0,6%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	9,941	15,1%
Services	823	1,2%
Contacts	421	0,6%
Hashtags	353	0,5%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	3,031	4,6%
Vocation & Titles	1,801	2,7%
Event (social event; meteorological; natural disasters; breakdowns)	1,645	2,5%
Processes	455	0,7%
Time (period; date; hour; year; century)	1,011	1,5%
Units (time, weight, currency, temperature, space or others)	1,255	1,9%
Other	12,284	18,7%
Total	65,856	100%

Source: Own Elaboration



Those 19 clusters all have different frequencies and this specific analysis is detailed on table 9. According to the data provided on this table, it is possible to recognize that the most mentioned topic is “Person” (22,7%). This cluster includes all the mentions and references to a Person’s first name, last or full name. This conclusion may lead to two different possibilities: 1) the fact that when a customer wants to be contacted by the company, he normally gives he’s or her’s full name and some personal information; moreover, and when the company replies to him/her, customers normally mention the company “British Gas” in their comments, which, from the system point of view, is automatically associated to a person’s identity 2) when followers want to identify other individuals in their own publications in the company’s posts he or she has to do it by writing (mentioning) the other individuals name on the comment section. Having these outcomes in mind, it is possible to induce that the contents shared by British Gas’s Facebook Page promote a high engagement level from their followers, independently of when the follower is giving he’s information to the company in order for the company to give him feedback or mentioning others to inform them about a specific content shared.

The following cluster with highest frequency is “Other”, however, this cluster should not be included in this analysis since it aggregates the information that was not properly analyzed or rated.

Since the previous cluster was considered not proper to be analyzed, the next highest frequency cluster to be considered is “Other Products”. The existence of this cluster and the fact that it is the second most talked about topic makes a lot of sense, especially since this analysis is focused on Utility companies, specifically energy companies, from which every people depend on and without its products/services they are not able to do most of their day-to-day tasks around the house and have access to what it is considered “first necessities”, such as heating, cooking, hot water, lighting, and so on. In fact, in several comments, it was found that people complained about not having their heating system working in the house.

The third most talked about topic is “Location” which, once more, and similarly to the second most talked topic, makes a lot of sense when thinking of an Utility Facebook Page. It is known that these types of companies have a lot of complaints for technical, billing and scheduling problems, and this type of concerns are no stranger to British Gas as well. Basically, customers and followers write

comments regarding a technician that was supposed to go to their home but did not show up or are simply mentioning something in their homes that is influenced by the lack of energy or that they have received a billing that was incorrect, for example.

But there are also positive or at least “regular” mentions regarding the “location” factor that simply influence the number of comments associated with this topic, such as wanting to know more about a product/appliance that they have in their homes (kitchen, living room, bedroom) and how to save energy when using it, how to give readings and work with the new smart meters, and simply also praising British Gas for giving them energy and heat in some of the most colder days of the year. All in all, location is a central focus for any energy and Utility company in general since it obviously has a massive impact in a positive or negative way in the homes, buildings, offices, malls, lives of every human being, since everyone depends on it.

*Table 10 – Clusters Polarity for British Gas’s Comments*

<b>Interaction’s Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	14609	22,2%	72,9%
P	4	33376	50,7%	
NEU	3	2871	4,4%	4,4%
N	2	12758	19,4%	22,8%
N+	1	2242	3,4%	
Total		65,856	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed by the tool Meaning Cloud also enables the user to evaluate the polarity of the topics and clusters defined. As it is possible to verify on table 10, there is a high percentage of clusters with a positive polarity associated (about 72,9%) which is actually impressive, since we are speaking of a company that provides “basic necessities” and that is normally only considered when something goes wrong. Only 4,4% of the clusters have a neutral polarity and about 22,8% have a negative association.

Having these evaluations in mind, it is important to dive deeper and understand the polarity associated to each of the 19 topics defined (table 11). The cluster with the highest polarity average score in terms of positive feelings towards it (4.10) and

lowest standard deviation (0,87) is “Time”. This may be related with the seasonality of the communication made, especially in this specific year with about 31 posts (within 70) being made on the winter season, particularly in December (14). It is known that the Christmas season is a season in which people, in general, are more prone to be happier and festive. This type of spirit, together with the posts made by British Gas, specially concerning the contest “Light up your winter”, which was present throughout the month of December, was the perfect type of theme to rekindle happiness and more enthusiasm from the British Gas’s customers. The number of interactions were much higher than in any other month (excluding the month of July) and more positive, and the number of mentions to “winter”, “Christmas”, “holidays” and other types of keywords associated with time were highly mentioned in British Gas’s followers’ comments. Moreover, there are also other mentions to other types of seasonal holidays, such as Halloween, Summer, Mother’s Day and Easter, which normally bring contests associated and more interactions to go with it.

The second cluster with highest average polarity is “Hashtags” (4,05) and lowest standard deviation (0,79). Similarly, to what was already mentioned in the last paragraph, this cluster reflects the high number of comments which had an hashtag associated with it, especially in the winter season, with the contest “Light up your winter”. Moreover, and in about 340 comments associated with this cluster, about 240 had the mentions “#lightupyourwinter”, “#lightupmywinter”, “#lightup” which had a huge positive impact on the company’s Facebook page and follower’s comments. Finally, other hashtag mentions which were highly positive and resulted in happier comments were related with Halloween and contests which focused on family bonding time moments (with the contest “Family Merlin Annual Pass Prize”).

The third most positively talked about cluster is “Location” (4,04 average polarity), which may be related with posts that focus on activities done by British Gas’s customers throughout the year (at home, the park, the cinema, school, work and so on), but also regarding posts that inform people of power outages in specific locations. Moreover, it may be also associated to installations done by British Gas’s technicians in customer’s homes, comments about smart home solutions that highly impact the billing paid by customers (in a positive way) or even tips on how to help customers save energy on their homes, buildings, small businesses and so on.

Finally, the fourth most positively talked about cluster is “Artistic and Sports Organizations” which is highly related with posts and mentions to prizes that give customers the chance to go to concerts and sport events. Furthermore, these comments are also related with posts that bring together families in artistic and sport related events, such as “In this bank holiday, what are you going to do with your family?”, but also when it comes to the contest “Family Merlin Annual Pass”, the company uses this to bring out the meaning of family and friends and being together doing fun activities such as “Who's got spooky plans this Halloween? For a chance to win a Family Merlin Annual Pass, tell us what you and your family are dressing up as and why! Prize draw closes at 00:00 on 01/11/2017”; or “You're not seeing double, Wilbur is just preparing for a spot of tennis with his friend! Tell us what you and your best mate like to get up to for a chance to win a Family Merlin Annual Pass. Prize draw closes at 00:00 on 17/07/2017”. These types of posts made by British Gas received a lot of positive interactions, with followers actually sharing what they like to do and their experiences: “I'm dressing up as a devil, my daughters are a clown and zombie. We're attending the charity I co run Halloween family disco. Raising funds to support children fighting cancer x”. Lastly, this type of cluster is also largely associated to “memories” in which British Gas asks customers about their favorite memories regarding their first day of school, their preferred type of sport, the best events that people attended to and why, etc.

On the contrary, there is one specific cluster that stands out from all the other 18 in terms of negative polarity associated. With an average polarity of 2,89 and with the highest standard deviation of 1,36, the cluster “Services” has one of the worst associations possible regarding British Gas’s comments. This doesn’t come as a surprise to an Utility company since one of the highest types of complaints existent for this type of companies are related to the customer service or technical service not working correctly, or not getting a response to the complaint made, or even the fact the technician never actually went to the customers home to repair their boiler as it was scheduled, or that there was some type of error in the billing process, for example, “still sending me payment demands but no proof that I owe you money!!! Are you trying to up your pretax profits by demanding payment for pre-paid meters from ex customers who have not used you for over 7 years?!!! How do I owe money on pre-paid meter? Getting the run around from customer services”.

Table 11 – Clusters Polarity for British Gas's Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	3,77	1,03	1,07
Artistic & Sports Organizations	3,99	1,04	1,09
Companies	3,56	1,20	1,45
Public Organizations (Government; Education; Health; Military;)	3,94	1,07	1,14
Location	4,04	1,00	1,00
Nature	3,84	1,02	1,05
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	3,74	0,99	0,99
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,77	0,93	0,86
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,80	0,99	0,99
Services	2,89	1,36	1,86
Contacts	3,30	1,06	1,13
Hashtags	4,05	0,79	0,63
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	3,09	1,21	1,48
Vocation & Titles	3,29	1,22	1,50
Event (social event; meteorological; natural disasters; breakdowns)	3,30	1,18	1,40
Processes	3,32	1,21	1,47
Time (period; date; hour; year; century)	4,10	0,87	0,76
Units (time, weight, currency, temperature, space or others)	3,50	0,87	0,76
Other	3,51	1,18	1,41
Total	3,68	1,11	1,24

Source: Own Elaboration

### 4.3 EDF Energy UK

Table 12 – EDF UK Comments for 2017

#Comments Analyzed	Period
2,903	2017

Source: Own Elaboration

EDF Energy UK has about 28 856 followers and 29 271 likes (data from October 2018). In 2017, it posted 291 statuses and the average of statuses posted per year is about 200 (since 2014). In terms of interaction, the number of comments in 2017 was about 2,066 and these interactions are quite stable throughout the years (varying from 1500 comments to 2066 comments, which has been the maximum since the creation of this Facebook page). In terms of responses to queries and comments, this company is even quicker than the previous, normally responding within some minutes after the first interaction.

In terms of statuses themes, and just as it happens with British Gas, EDF has quite a tendency to receive a larger number of positive reactions when speaking of themes such as Energy Efficiency plans (Smart Home Solutions) and tips (saving money): “Want a smart home? We've got smart solutions to help you save energy and get your house working harder for you”; Clean or alternative types of energy from the grid: “Did you know we could salsa our way towards a more sustainable energy future? We're not joking! Discover some interesting new ways energy is being produced.”; Boiler and heating solutions and discounts: “Brrr feeling the chill? Want to make sure your home stays cozy this winter? Check out our central heating cover, if you sign up before 4 January 2018 you get a whole year's plumbing and wiring cover free.”; Awareness: “It didn't seem real until I reached the plane door' - that looked pretty real and pretty scary to us! Lucy and a brave group of our staff are skydiving to raise money for Breast Cancer Now. They've raised over £17,000 so far!”; Contests and prizes: Release your inner diva and send us a selfie of your bill and you could save up to £200!”.

Once more, it is important to mention that there is a difference between the number of comments analyzed in table 12 and the comments mentioned in table 13. This happens because in table 12 we are considering all the comments made in 2017,

independently of being a comment associated to a 2017 post. On the contrary, in table 13, the only comments considered are the ones made to 2017 posts made by EDF UK. Finally, most of the posts in 2017 were made in December (about 52), just as it already happened with British Gas.

Table 13 – EDF UK Facebook Posts for 2017 and respective interactions

Year 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	20	31	23	33	8	17	2	17	19	27	42	52
Sum_Comments	80	131	70	171	96	51	8	165	142	115	468	569
Avg_Comment_Status	4	4	3	5	12	3	4	10	7	4	11	11
Sum_Likes	435	990	383	622	261	651	8	113	117	171	4913	8403
Avg_Likes_Status	21,8	31,9	16,7	18,8	32,6	38,3	4,0	6,6	6,2	6,3	117,0	161,6
Sum_Sad	0	0	0	1	1	0	0	1	0	0	0	7
Avg_Sad_Status	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,1	0,0	0,0	0,0	0,1
Sum_Angry	7,0	0,0	16,0	4,0	12,0	3,0	1,0	6,0	3,0	3,0	32,0	110,0
Avg_Angry_Status	0,4	0,0	0,7	0,1	1,5	0,2	0,5	0,4	0,2	0,1	0,8	2,1
Sum_AngrySad	7,0	0,0	16,0	5,0	13,0	3,0	1,0	7,0	3,0	3,0	32,0	117,0
Avg_AngrySad_Status	0,4	0,0	0,7	0,2	1,6	0,2	0,5	0,4	0,2	0,1	0,8	2,3

Source: Own Elaboration

After the thorough analysis of all the status updates and respective number of interactions, the next step of this netnography was to develop a sentiment analysis of all the comments made on EDF's UK Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on "Meaning Cloud" which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of the sentiment analysis there were about 2,903 comments to be analyzed, however, and after discovering that 32,41% (941) of those comments had received a "None" level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 1962 comments considered.

Table 14 – EDF UK Comments - Sentiment Analysis (own elaboration)

Interaction's Polarity Levels				
Polarity Levels	Scale	Sum	Percentage	P-N%
P+	5	122	6,2%	52,2%
P	4	902	46,0%	
NEU	3	220	11,2%	11,2%
N	2	643	32,8%	36,6%
N+	1	75	3,8%	
Total		1962	100%	100%

Source: Own Elaboration

For EDF UK specifically, and after erasing the level “None” of the equation it is possible to highlight that most of the interactions made by the customers have a positive sentiment (table 14) towards the brands content during the time period established. Among the interactions analyzed, 52% reveal a positive sentiment, 11,2% are neutral, 32,2% are negative and only 3,8% of the data reveals a strong negative sentiment.

In this analysis, it was also relevant to perform the test of the degree of confidence linked to the polarity of the user’s comments. This analysis is done through the attribution of a value from 0 to 100 to each one of the 1,962 comments existent for EDF UK. Table 15, bellow, shows that the confidence associated to the polarity results is one of the lowest between all companies, with 95,93, having a standard deviation of 1.07, meaning that the polarity levels show a low dispersion.

*Table 15 – Confidence Analysis of EDF’s UK Interactions polarity*

<b>Confidence Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
95,93	1,07	1,15

*Source: Own Elaboration*

After identifying the level of polarity, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 16). In EDF UK Facebook page, the majority of the customers (followers) barely use ironic comments (only about 2%). When it comes to the subjectivity level, it was possible to understand that more than half of the comments are subjective and can have double meanings (about 53,6%), however, it is much more balanced than what happened for British Gas. At the same time, and even though a bit more than half of the comments made are subjective, it is also important to state that almost 72% of the comments made by the followers tend to agree with EDF UK content posts, which is actually a positive outcome when it comes to the comments made in an Utility Facebook page.



Table 16 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

<b>Sentiment Analysis (Irony, Agreement and Objectivity)</b>								
<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>
Ironic	44	2,2%	Objective	911	46,4%	Agreement	1416	72,1%
Non-Ironic	1918	97,8%	Subjective	1051	53,6%	Disagreement	546	27,8%
Total	1962	100%	Total	1962	100%	Total	1962	100%

*Source: Own Elaboration*

After this first analysis, the aim was to define the main topics addressed by the followers present at EDF UK Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the level of polarity was determined. When considering the 1,962 comments present on the company's Facebook page, the topic analysis came up with 3,678 sentiment topics from those comments, which resulted in 126 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 126 topics into the 19 clusters primarily defined in the methodology section (table 17).

Table 17 – Clusters Frequency of EDF's UK Facebook Comments

<b>Topic Sentiment Analysis – Clusters Frequency</b>		
<b>Clusters Defined</b>	<b>SUM</b>	<b>%</b>
Person	500	13,6%
Artistic & Sports Organizations	10	0,3%
Companies	260	7,1%
Public Organizations (Government; Education; Health; Military;)	40	1,1%
Location	311	8,5%
Nature	52	1,4%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	40	1,1%
Fashion Product (clothes; accessories; cosmetic; hair and others)	12	0,3%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	174	4,7%
Services	75	2,0%
Contacts	57	1,6%
Hashtags	1	0,03%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	230	6,3%
Vocation & Titles	214	5,8%
Event (social event; meteorological; natural disasters; breakdowns)	67	1,8%
Processes	49	1,3%
Time (period; date; hour; year; century)	18	0,5%
Units (time, weight, currency, temperature, space or others)	419	11,3
Other	1,149	31,2%
Total	3,678	100%

Source: Own Elaboration

According to the information provided in table 17 and taking out the equation the cluster “other”, which includes information that was not correctly analyzed or associated to a specific topic, the most talked about cluster is “Person”, with 13,6% of the mentions. Once again, and just as it also happened in the previous company

analyzed, it actually makes a lot of sense that this is one of the main topics mentioned, since it comprises all the mentions to a Person's first, last or full name. In a significant number of comments there are people mentioning other people through a "@" for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company's Facebook page; agreeing or disagreeing with another person; and so on. If the Company's comments were also being analyzed and included in this investigation, the number of mentions would be even greater since its customer services employees always respond to the followers mentioning their names and always ending the response with their own names as well. The fact that this cluster is the one with highest frequency shows that, for better or worse, it's Facebook posts generate interest and interactions among the followers of the company and may contribute to an increase in the number of followers.

The second highest frequency cluster is "Unit". This cluster comprises all the mentions related with "time", "weather", "currency", "space" and other types of measures associated. While navigating through all the comments related with this cluster, it is very clear to see that the specific mention and the reason why "unit" is the second most talked about topic in the comments is due to the word "meter". Meter is a physical object used by any Utility company (energy, water, gas) to measure the expenditure in terms of electricity, gas or water in each individual's home. To be more specific, in the UK, since 2018, almost 11 million homes were already offered a "smart meter" (according to the quarterly smart meter report of the UK's department for business, energy & industrial strategy), which substitutes the normal meter with which people would have to be obliged to give regular readings to the Utility company in order to be correctly billed. Moreover, the final aim of the British Government regarding the use of this tool is to actually apply it into every home or business until the end of 2020.

From the 419 mentions associated to "Unit" about 366 mention the meter, which is quite a large number. This may be related to the fact that this type of tool is still somewhat new to the customer's reality and generate a lot of hype and doubts regarding the use, attainment and actual advantages of this new meter. When reading the comments, they actually consolidate this assumption: "How do I get a smart meter & are there any costs involved whether monthly or one-off? You are my supplier";

“I joined EDF a couple of months ago and still haven't heard anything about my smart meters as yet. How long does it take?”; “I had new smart meter fitted but was not given any instructions about it and I have not been given the smart display to see what it is doing, plus it does not connect. Rang up about it but have not been sorted yet.”

The third cluster with highest frequency in EDF’s Facebook comments is “Location”. Once more, this is a specific topic that makes a lot of sense when thinking about Utility companies and the impact they have in the homes and businesses of every individual. People highly depend on this companies to feel and live comfortably in their homes and this is why “location” is one of the most talked about topics: “Cozy house that's the aim”; Merry Christmas EDF, and thanks for my warm home discount, I am so happy that I can have my heating on for hours, even had it on all night, last Saturday, as was so cold”; Hi just switched over recently to you. How will I know if my warm home discount has been done? I had an email saying they are checking my application that was about a month ago now”.

Table 18 – Clusters Polarity for EDF’s UK Facebook Comments

<b>Cluster’s Interaction Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	259	7,0%	49,6%
P	4	1567	42,6%	
NEU	3	290	7,9%	7,9%
N	2	1323	36,0%	42,5%
N+	1	239	6,5%	
Total		3,678	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 18, there is a higher positive polarity present in the customers comments towards EDF (about 49,6%). However, and if this numbers are compared to British Gas, for example, it is possible to see that in EDF’s case the positive and negative are closer in number which is a bit more worrying (42,5% vs 49,6%). Regardless, EDF should also be praised by the fact that they still manage to

get more positive mentions than extreme negatives (only 6,5%) and are working towards improving their customer service experience.

Having these evaluations in mind, it is important to dive deeper and understand the polarity associated to each of the 19 topics defined (table 19). However, and before stepping into the most positive and negative clusters, it is important to underline the most evident information in comparison to British Gas evaluation. For EDF UK none of the cluster's existent had an average that reached 4 or above. All of the clusters had an evaluation of 3,58 and bellow, which may indicate that most of these clusters do not have themes or posts associated that are actually generating more positive attitudes towards them.

Nonetheless, the cluster with the highest polarity average score in terms of positive feelings towards it (3.58) is "Public Organizations". While reading the comments associated with this cluster, most of the mentions are regarding the British Government and smart-meter roll outs. As previously explained, this was a measure applied by the British Government in the beginning of 2017 and it had created quite a lot of conversation around it as well as the use of it. People want to understand what the use of this tool is and how can they reduce their bill costs with the help of their energy supplier as well as the British Government.

The second most positive cluster with 3,54 average polarity is "Unit". As it was already mentioned previously, there has been a lot of doubts and talk around the smart meter topic. People are not sure of the benefits or disadvantages of this new type of meter. However, a lot of followers and EDF customers are aware of the benefits of having such a tool ("smart meters will only let you know your usage. The advantage of these is that your energy suppliers do not need access to your property to read your meter. Whether the savings they make by not employing Meter Readers will mean lower Bills in the future will have to be seen") and want to better understand how to have one and are just looking for help from their Utility company in order to comprehend how they can sign up for a smart meter plan. Moreover, there are also other customers that already have this type of meter and are simply sharing with the company how happy they are with their new meter and what they are able to know with it (e.g. such as understanding which appliances use more energy and how can they lower down their costs): "Well don't matter how much it costs you can't go

without shower /bath. I have a smart meter and was very surprised how much the coffee machine used”; “I love our smart meter!!!!”.

Finally, the third most positive cluster was “Nature” with about 3,33 average polarity. The comments associated with this cluster are mostly related with posts on “how to save energy in your home” and the usage of cleaner energy. EDF UK had the highest interactions when posting themes that helped the customer save energy in their homes and how to use everyday appliances to lower their energy bills and, at the same time, contribute to helping the planet and environment with a more sustainable energy use.

On the other hand, there are four clusters that stand out the most in terms of negative feelings towards it. The first one “Hashtag” has only 2,00 average polarity. However, this cluster will not be analyzed in more detail since it only has one comment associated to it and there is no possible way to compare it in terms of significance. Therefore, the analysis will move forward towards the second most negative cluster “Event”, with about 2,51 average polarity associated. This is due to customers being utterly angry at events such as power outages/power losses and the lack of support of the Company in sending the appropriate technicians to help in resolving the matter. British customers depend highly on appliances such as heating systems in order to keep warm at winter time (also related with the topic “event”) and when they are left with their heating systems or boilers not working, they express their anger in the company’s Facebook page.

The third most negative cluster is “Entities” (2,62 average polarity) and this is highly focused on comments that concern “complaints” for, once more, lack of a working heating system due to a technical problem or the inexistence of gas and electricity, which also contributes to comments regarding “sickness”, “flu”, “cold”: “How the hell can I do this with no Gas. An energy supplier that is shut between 24-27th December and actually default on their own policy for a 4 hour wait for priority customers. I’ve a child under 5 with flu and no heating or hob for a day and a half so far. No emergency line, no heat, no gas. Disgraceful service. You will lose my custom when you actually reopen. Complete joke. I will also share this publicly”.

Finally, the fourth most negative cluster associated to EDF’s Facebook comments is “Services”. This cluster is also highly related with the last one which focuses on the “poor customer service” given by EDF. Customers feel severely

frustrated for not being able to speak with the company and not having their problems resolved in a timely way: Appalling service. Could have been a pensioner freezing to death. It will be reported. I will be emailing watch dog and trading standards through the CAB”; “Worse customer services I've ever delt with”.

Table 19 – Clusters Average Polarity for EDF's UK Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	3,04	1,21	1,47
Artistic & Sports Organizations	2,90	1,20	1,43
Companies	2,90	1,28	1,63
Public Organizations (Government; Education; Health; Military;)	3,58	0,90	0,81
Location	3,00	1,13	1,27
Nature	3,33	1,26	1,60
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	2,95	1,28	1,64
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,00	1,21	1,45
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,05	1,13	1,27
Services	2,72	1,26	1,58
Contacts	2,82	1,10	1,22
Hashtags	2,00	n.a (only one comment associated)	n.a (only one comment associated)
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	2,62	1,01	1,01
Vocation & Titles	3,28	1,15	1,32
Event (social event; meteorological; natural disasters; breakdowns)	2,51	1,01	1,01
Processes	2,92	1,22	1,48
Time (period; date; hour; year; century)	3,06	1,06	1,11
Units (time, weight, currency, temperature, space or others)	3,54	0,84	0,70
Other	3,10	1,15	1,83
Total	3,08	1,15	1,32

Source: Own Elaboration



#### 4.4 npower UK

Table 20 – npower Comments for 2017

#Comments Analyzed	Period
4,920	2017

Source: Own Elaboration

npower UK has about 51 522 followers and 51 047 likes (data from October 2018). In 2017, it posted 53 statuses and the average of statuses posted per year has seen quite a fluctuation (in 2014 it posted 72 statuses, in 2015 68 and then it grew to 136 in 2016 but in 2017 it decreased again). In terms of interaction, the number of comments in 2017 was about 4524 and these interactions have been growing gradually since 2014 when it had 2384 comments (which may be a reason for the decrease of the number of posts in 2017). When it comes to actually responding to customers queries (through comments or private messaging) it normally takes the company until a day to give a response. Once more, and just as it already happened for both previous companies, the number of total comments made in table 20 is higher than what exists in table 21 (4524) since all the comments made in 2017 are being considered and not only the ones made in 2017 posts.

Table 21 – npower Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	6	2	5	1	1	3	5	14	1	3	5	7
Sum_Comments	190	532	215	64	29	54	86	146	366	1020	1140	682
Avg_Comment_Status	32	266	43	64	29	18	17	10	366	340	228	97
Sum_Likes	27	37	43	6	11	61	56	1043	1325	1626	2376	1640
Avg_Likes_Status	4,5	18,5	8,6	6,0	11,0	20,3	11,2	74,5	1325,0	542,0	475,2	234,3
Sum_Sad	0	3	0	0	0	0	0	1	0	14	2	0
Avg_Sad_Status	0,0	1,5	0,0	0,0	0,0	0,0	0,0	0,1	0,0	4,7	0,4	0,0
Sum_Angry	6,0	76,0	16,0	4,0	0,0	1,0	4,0	17,0	7,0	18,0	18,0	14,0
Avg_Angry_Status	1,0	38,0	3,2	4,0	0,0	0,3	0,8	1,2	7,0	6,0	3,6	2,0
Sum_AngrySad	6,0	79,0	16,0	4,0	0,0	1,0	4,0	18,0	7,0	32,0	20,0	14,0
Avg_AngrySad_Status	1,0	39,5	3,2	4,0	0,0	0,3	0,8	1,3	7,0	10,7	4,0	2,0

Source: Own Elaboration

Regarding the themes that contributed to a higher interaction from customers: Sports and societal related “Our Team Captain Jonnie Peacock joined some incredible Everyday Superhero teams at Winter Wonderwheels 2017. Inspired to take part in the Superhero Series in August? Sign up below and save the day!”; Clean energy and going green: “We put three solar lights, ranging from -£1.75 to -£40, to the test in our solar showdown! Watch what happened and find out how much you should pay to light up your garden. Find out more here:

<http://bit.ly/2rBBhaw>"; It seems that when specifically analyzing this year for npower there was a special focus on their special event "Superhero series" and a high percentage of the posts were related with this topic. This "Superhero series" exist since 2017 and was created by Npower. It's the only disability sport series for families and individuals who want to participate in sport activities and challenges in which people with disabilities "call the shots". Moreover, and for these challenges, there are always celebrity team captains participating and the winners will be able to spend a day with these celebrities.

Figure 15 – npower's Super Hero Winners



Source: npower

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on the npower's Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on "Meaning Cloud" which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning

of sentiment analysis there were about 4,920 comments to be analyzed, however, and after discovering that 43,94% (2162) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 2758 comments considered.

Table 22 – npower Comments - Sentiment Analysis

<b>Interaction’s Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	304	11,0%	50,4%
P	4	1087	39,4%	
NEU	3	289	10,5%	10,5%
N	2	915	33,2%	39,1%
N+	1	163	5,9%	
Total		2758	100%	100%

Source: Own Elaboration

For npower specifically, and after erasing the level “None” of consideration it is possible to highlight that more than half of the interactions made by the customers have a positive sentiment (table 22) towards the brands content during the time period established. Among the interactions analyzed, 50,4% reveal a positive sentiment, 10,5% are neutral, 33,2% are negative and only 5,9% of the data reveals a strong negative sentiment.

In this analysis, it was also relevant to perform the test of the degree of confidence linked to the polarity of the user’s comments. This analysis is done through the attribution of a value from 0 to 100 to each one of the 2,758 comments existent for npower. Table 23, bellow, shows that the confidence associated to the polarity results is highly significant and positive, with a level of confidence of about 96,16, having a standard deviation of 1.73, meaning that the polarity levels show a relative low dispersion.

Table 23 – Confidence Analysis of npower’s Interactions polarity

<b>Confidence Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
96,16	1,73	1,37

Source: Own Elaboration

After identifying the level of polarity and confidence, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 24). In npower’s Facebook page, the majority of the customers (followers) barely use ironic comments (only about 3%). When it comes to the subjectivity level, it was possible to understand that more than half of the comments are subjective and can have double meanings (about 58%). At the same time, and even though a bit more than half of the comments made are subjective, it is also important to state that approximately 71% of the comments made by the followers tend to agree with npower’s content posts, which is actually a positive outcome when it comes to the comments made in an Utility Facebook page.

Table 24 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

<b>Sentiment Analysis (Irony, Agreement and Objectivity)</b>								
<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>
Ironic	71	2,6%	Objective	1170	42,4%	Agreement	1959	71,0%
Non-Ironic	2687	97,4%	Subjective	1588	57,6%	Disagreement	799	29,0%
Total	2758	100%	Total	2758	100%	Total	2758	100%

Source: Own Elaboration

After this primary analysis, the intention was to define the main topics addressed by the followers present at npower’s Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the level of polarity was also defined. When considering the 2,758 comments present on the company’s Facebook page, the topic analysis came up with 5,621 sentiment topics from those comments, which resulted in 145 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 145 topics into the 19 clusters primarily defined in the methodology section (table 9).

According to the information provided in table 25, and taking out the equation the cluster “other”, which includes information that was not correctly analyzed or associated to a specific topic (24%), the most talked about cluster is “Person”, with 20% of the mentions. Once again, and just as it also happened in the previous

companies analyzed, it is obvious why this is one of the main topics mentioned, since it comprises all the mentions to a Person's first, last or full name. In a significant number of comments there are people mentioning other people through a "@" or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company's Facebook page; agreeing or disagreeing with another follower and so on (e.g. "Me and Laura Matthews have supported them since day dot now we are ready to get the green flag out and support them as green"). If the Company's comments were also being analyzed and included in this investigation, the number of mentions would be even greater since its customer services employees always respond to the followers mentioning their names and always ending the response with their own names as well. The fact that this cluster is the one with highest frequency shows that, for better or worse, it's Facebook posts generate interest and interactions among the followers of the company and may contribute to an increase in the number of followers.

The second highest frequency cluster, although much less talked about than the previous is "Companies", with about 11,2% and 631 mentions. This cluster comprises all the mentions related with "company" and "organization". While navigating through all the comments related with this cluster, it is very clear to see that the specific mention and the reason why "Companies" is the second most talked about topic in the comments is due to comments speaking about npower as company and not necessarily positive ("Shout out to the WORST company I've ever had the displeasure of dealing with. You've screwed up 4 times in just over a week, putting me on quarterly 3 times now despite me repeatedly ignoring my request to pay monthly and dropping huge bills randomly onto my account. To anyone that might see this, AVOID THIS DISHONEST AND INEPT company like the PLAGUE...").

The third cluster with highest frequency in npower's comments is "Entities" with about 10% of the mentions. This is mostly related with associations to negative keywords such as "Complaints", "Robbery", "Error", "Stress" and "Mistake" and also related to "Contract" and "Law".

Table 25 – Clusters Frequency of npower's Facebook Comments

<b>Topic Sentiment Analysis – Clusters Frequency</b>		
<b>Clusters Defined</b>	<b>SUM</b>	<b>%</b>
Person	1127	20,0%
Artistic & Sports Organizations	27	0,5%
Companies	631	11,2%
Public Organizations (Government; Education; Health; Military;)	28	0,5%
Location	292	5,2%
Nature	103	1,8%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	91	1,6%
Fashion Product (clothes; accessories; cosmetic; hair and others)	97	1,7%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	518	9,2%
Services	9	0,2%
Contacts	76	1,4%
Hashtags	21	0,4%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	579	10,3%
Vocation & Titles	252	4,5%
Event (social event; meteorological; natural disasters; breakdowns)	105	1,9%
Processes	73	1,3%
Time (period; date; hour; year; century)	17	0,3%
Units (time, weight, currency, temperature, space or others)	216	3,8%
Other	1,359	24,2%
<b>Total</b>	<b>5,621</b>	<b>100%</b>

Source: Own Elaboration

Table 26 – Clusters Polarity for npower Facebook Comments

<b>Cluster's Interaction Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	397	7,1%	42,0%
P	4	1965	35,0%	
NEU	3	525	9,3%	9,3%
N	2	2049	36,5%	48,6%
N+	1	685	12,2%	
Total		5,621	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 26, there is a highest negative polarity present in the customers comments towards npower (about 48,6%). Moreover, and if the analysis is focused on the extreme negative polarity this has also a very worrying factor since it represents about 12% of the mentions. So, it is sure to assess that customers and followers are extremely dissatisfied with the company and are looking for these social platforms to distress their anger towards it. Nevertheless, the positive sentiment associated is still about 42% and the neutral rounds about 9%.

Having these evaluations in mind, it is important to dive deeper and understand the polarity associated to each of the 19 topics defined (table 27) and which trigger an angrier attitude towards the brand or more positive and happier attitude.

Speaking firstly of the clusters that generate a more positive attitude and interactions towards the brand are: “Fashion Product” (3,75) and “Hashtag” (3,57).

When it comes to the Fashion Product cluster, it is not possible to assess this cluster since the program was not able to understand a type of traditional plate done in the UK called “jacket potatoes”, therefore, it triggered “jacket” as a piece of clothing. Nonetheless, there were quite a lot of comments regarding in which type of appliance do people prefer to cook this type of potatoes and this generated a more positive outcome and a lot of shares from people.

The second most positive cluster “Hashtag” comes from the several posts made by npower regarding the contest “superpowers” which is especially related with

green and sustainable energy, smart home, and tips to how can customers reduce their energy usage and therefore reduce their energy bills. Throughout the year of 2017, this contest also gave prizes to the best examples of customers who shared their “incredible superpowers”: “My #SuperPowers are changing nappies nearly one handed, in near darkness and without vomiting. The ability to clean, walk or talk with a clingy toddler hanging off my leg and super hero speed quickness to dodge all the food that's thrown (usually in my direction) at dinner time. Big thanks for the chance to #WIN npower”. Also associated with this cluster is the “Blue go Green” campaign that was associated to the “superpower series” and that also contributed to an extremely positive outcome in terms of interactions and comments from the followers. This was a “mockumentary” done in partnership with the late 00’s boyband “Blue” in which npower looked to raise awareness to the company’s new green energy plan “Go Green” (image below). This campaign developed quite a lot of positive comments and interactions in the company’s Facebook page with people praising the “hilarious” campaign and “cool” boyband Blue (“I absolutely love blue!! Would love to see them again simply cause I really love them!!xx”; Have loved blue since day 1!! Favourite boy band of all time!! Would love to see them at a small gig!!”). Moreover, npower offered its followers the chance to win 20 tickets to the intimate “relaunch” of Blue as the “Green” band in Proud Camden.

*Figure 16 - Campaign "Blue go Green" for sustainable energy*



*Source: Golin UK (2017)*



On the other hand, the clusters with most negative sentiment associated to it is: “Companies” (2,37). As it was already mentioned in the clusters frequency analysis, this cluster is quite mentioned and, from what is possible to understand from table 26, not in a positive way. Customers and followers are extremely angry with npower and the lack of resolution to the problems in a timely manner and are mentioning quite a lot the keywords “company”, “organization” and “npower”: “I have never met such an incompetent company! Get out while you can!”, “Disgusting company!!!!!! And one I'm STILL waiting to hear back from after sending message after message!!! Saying I owe them -£316 for 16 days of gas and electricity...NPOWER PULL YOUR FINGER OUT YOU BUNCH OF IMBECILES!!!!!!”. Moreover, it was also possible to assess that a high percentage of those comments mentioned wrong billings, and this seems to be the most problematic theme and the reason why customers are getting so angry: “Shocking company! Avoid at all costs. Sent me a bill for -£2500 for a property I didn't even live at anymore. 5 months later and still no resolution for mis-billing me for 4 years without them informing me even though they have admitted they knew there was a problem 7 months before I moved out”.

Finally, the second most mentioned cluster in terms of negative sentiment towards it is “Entities”. Once more, and as previously explained in the frequency section, this cluster comprises all the mentions to “complaints”, “stress” and “mistake”. People feel that they are not heard and that their complaints are not being taken care of and are resuming to the company’s social network to be heard: “Worse company ever. They ignore complaints”; “I have same. Two and half years of complaints then they turn round and say I ow them money when they have been billing me so high and all wrong all this time”.

Table 27 – Clusters Average Polarity for npower Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	2,98	1,28	1,65
Artistic & Sports Organizations	2,89	1,01	1,03
Companies	2,37	1,18	1,40
Public Organizations (Government; Education; Health; Military;)	3,32	1,28	1,63
Location	3,00	1,09	1,19
Nature	3,07	1,42	2,01
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	2,91	1,12	1,26
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,75	0,89	0,79
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,00	1,29	1,68
Services	3,33	1,00	1,00
Contacts	2,86	1,15	1,33
Hashtags	3,57	0,98	0,96
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	2,75	1,15	1,32
Vocation & Titles	2,90	1,16	1,35
Event (social event; meteorological; natural disasters; breakdowns)	2,93	1,23	1,52
Processes	2,93	1,22	1,48
Time (period; date; hour; year; century)	2,82	1,13	1,28
Units (time, weight, currency, temperature, space or others)	3,06	1,11	1,24
Other	2,89	1,14	1,31
Total	2,88	1,21	1,47

Source: Own Elaboration

## 4.5 Scottish Power

Table 28 – Scottish Power Comments for 2017

#Comments Analyzed	Period
7,687	2017

Source: Own Elaboration

Scottish Power has about 22 741 followers and 22 864 likes (data from October 2018). In 2017, it posted a total of 65 statuses and the average of statuses posted per year have been varying from 50 posts to 100 (except in 2014 when the company was investing in a massive change in their customer service channels only posting about 8 posts that year). In terms of interaction, the number of comments in 2017 was about 2461 which, in comparison to the years of 2014 (even though they only posted 8 posts, there was a large buzz around the customer service posts leading to a lot of angry customer comments) 2015 and 2016 was quite lower. In 2018, there are already 1159 comments, which is almost half of the comments that the company had in 2017. This increased number of reactions from the customers was related with the extreme weather conditions that the UK was experiencing in the first months of the year, which led to a high number of power outages.

Once more, it is important to highlight the difference between the number of comments present in table 28 and the number of comments for table 29. This is due to the fact that it was found extremely important to consider all the comments that were made in 2017, despite being actually made in 2017 posts (table 27), since these comments will bring older posts and themes on display again in more recent years.

When specifically speaking of customers queries (through comments or private messaging), the company normally takes a few hours to a day in order to provide a response.

Table 29– Scottish Power Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	2	3	15	3	3	13	1	10	9	3	1	2
Sum_Comments	153	118	272	104	84	262	48	302	397	334	139	258
Avg_Comment_Status	77	39	18	35	28	19	48	30	44	111	139	129
Sum_Likes	88	61	293	59	81	590	8	615	106	108	9	14
Avg_Likes_Status	44,0	20,3	19,5	19,7	27,0	45,4	8,0	61,5	11,8	36,0	9,0	7,0
Sum_Sad	0	0	0	0	0	1	0	0	1	0	0	0
Avg_Sad_Status	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,1	0,0	0,0	0,0
Sum_Angry	5,0	0,0	14,0	8,0	5,0	14,0	3,0	19,0	22,0	16,0	4,0	20,0
Avg_Angry_Status	2,5	0,0	0,9	2,7	1,7	1,1	3,0	1,9	2,4	5,3	4,0	10,0
Sum_AngrySad	5,0	0,0	14,0	8,0	5,0	15,0	3,0	19,0	23,0	16,0	4,0	20,0
Avg_AngrySad_Status	2,5	0,0	0,9	2,7	1,7	1,2	3,0	1,9	2,6	5,3	4,0	10,0

Source: Own Elaboration

The themes that contributed to the highest and more positive reactions from customers are related with: Company’s graduate program: “Our 2018 Graduate program has opened! Join us next year!”; Energy Efficiency tips: “Jessie Pavelka shows us some Power Tips. We especially like the push up combined with the mountain climbers. Well done to our employee Lisa. Great effort! #Sweat #Pretty Muddy”; Contests and prizes and societal matters: “After a nationwide search, the winner of our Energise photography competition is Aidan Kennedy with his shot, The Light In My Heart. The competition is just one element of the ScottishPower Foundation partnership with National Museums Scotland to encourage more young people to think about STEM careers.” and “Proud to support Pride Glasgow from our new HQ. Have a great weekend everyone! #braveEveryday”; Company events (participation and organization): “Preparations are underway for tomorrow's Power of Glasgow event on George Square. We hope you can join us between 12-5pm for family activities, freebies and fun”.

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on the Scottish Power Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on “Meaning Cloud” which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of this sentiment analysis there were about 7,687 comments to be analyzed, however, and after discovering that 68% (5250) of those comments had received a “None” level (meaning that the system was not able to take any

considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 2437 comments considered.

Table 30 – Scottish Power Comments - Sentiment Analysis

<b>Interaction's Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	146	3,7%	34,1%
P	4	741	30,4%	
NEU	3	341	14,0%	14,0%
N	2	1118	45,9%	51,9%
N+	1	146	6,0%	
Total		2437	100%	100%

Source: Own Elaboration

For Scottish Power specifically, and after erasing the level “None” of consideration it is possible to highlight that, on the contrary to what was possible to see in the previous companies, Scottish Power is the first company to have more than half of the interactions made by the customers associated to a more negative sentiment (51,9%) during the time period established. Even though the extreme negative (N+) only concerns 6% of the sentiment, it is still worrying that this company has had this outcome when it comes to comments being made towards it. Therefore, it is utterly relevant to analyze in more depth what may be the reasons behind this. Nevertheless, 34% of the interactions towards the company's content are positive and about 14% are neutral.

In this analysis, it was also pertinent to perform the test of the degree of confidence linked to the polarity of the user's comments. This analysis is done through the attribution of a value from 0 to 100 to each one of the 2,437 comments available for Scottish Power. Table 31, bellow, shows that the confidence associated to the polarity results is the lowest in comparison to all the companies analyzed, with a level of confidence of about 94,37, having a standard deviation of 1.05, meaning that the polarity levels show a low dispersion.

Table 31 – Confidence Analysis of Scottish Powers' Interactions polarity

Confidence Mean	Standard Deviation	Variance
94,37	1,05	1,11

Source: Own Elaboration

After identifying the level of polarity, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 32). In Scottish Power's Facebook page, the majority of the customers barely use ironic comments (only about 3%). However, and in terms of the subjectivity level, it is possible to assess that more than half of the comments are subjective (58%), which indicates that the comments made may have double meanings attached to them. At the same time, and also corroborating the assumptions made until now, 43% of the comments disagree with the content posted in this company's Facebook Page, which is quite a high value in comparison to the previous companies analyzed. Even though it continues to have more comments agreeing to the content shared, this is much more balanced than in the previous analysis.

Table 32 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

Sentiment Analysis (Irony, Agreement and Objectivity)								
Metric	Sum	%	Metric	Sum	%	Metric	Sum	%
Ironic	80	3,3%	Objective	1020	41,9%	Agreement	1388	57,0%
Non-Ironic	2357	96,7%	Subjective	1588	58,1%	Disagreement	1049	43,0%
Total	2437	100%	Total	2437	100%	Total	2437	100%

Source: Own Elaboration

After the primary analysis, follows the definition of the main topics addressed by the followers present at Scottish Power Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the level of polarity was also defined. When considering the 2,437 comments present on the company's Facebook page, the topic analysis came up with 7,014 sentiment topics from those comments, which resulted in 132 different categories of topics. After a thorough analysis of all the topics generated, it

was possible to reach and aggregate those 132 topics into the 19 clusters primarily defined in the methodology section (table 9).

According to the information provided in table 33 and taking out the equation the cluster “other”, which includes information that was not correctly analyzed or associated to a specific topic (27%), the most talked about cluster is, for the first time within all the companies already analyzed, “Companies”, with about 15,3% of the mentions. In 2437 topics, about 1076 concern the keywords “company” or “organization”, “provider” and “Scottish power”. This may also be related with some power outages that existed in this specific year due to the storm “Ophelia” which resulted in a high number of comments concerning the company and also concerning the customer service provided by the company.

The second most mentioned cluster, and just as it already is the norm for all the companies analyzed, is “Person”, with 11,5% of the mentions. Once again, and just as it also happened in the previous companies, it is obvious why this is one of the main topics mentioned, since it comprises all the mentions to a Person’s first, last or full name. In a significant number of comments there are people mentioning other people through a “@” or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company’s Facebook page; agreeing or disagreeing with another person; and so on (e.g. “Hi Patrick :) Sorry to hear of your problems too. We are expecting an engineer tomorrow, so we hope everything will be sorted after that. However, we will be following up our complaint with regards to their lack of care shown over the 3-week period”). The fact that this cluster is the one with highest frequency shows that, for better or worse, it’s Facebook posts generate a highest number of interactions among the followers of the company and may contribute to an increase in the number of followers.

The third cluster with highest frequency in Scottish Power comments is “Entities”, with around 11,3% of the frequency. This is especially due to comments regarding “sickness”, “complaints”, “error”, “legal action” and “contracts”. As it was already possible to understand, this company has a high frequency of negative sentiment towards it and a lot of it comes in the form of complaints and followers not being satisfied and pleased with the service provided by the company.

Table 33 – Clusters Frequency of Scottish Power Facebook Comments

<b>Topic Sentiment Analysis – Clusters Frequency</b>		
<b>Clusters Defined</b>	<b>SUM</b>	<b>%</b>
Person	806	11,5%
Artistic & Sports Organizations	72	1,0%
Companies	1076	15,3%
Public Organizations (Government; Education; Health; Military;)	31	0,4%
Location	399	5,7%
Nature	66	0,9%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	107	1,5%
Fashion Product (clothes; accessories; cosmetic; hair and others)	10	0,1%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	183	2,6%
Services	319	4,5%
Contacts	233	3,3%
Hashtags	11	0,2%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	790	11,3%
Vocation & Titles	384	5,5%
Event (social event; meteorological; natural disasters; breakdowns)	109	1,6%
Processes	97	1,4%
Time (period; date; hour; year; century)	18	0,3%
Units (time, weight, currency, temperature, space or others)	386	5,5%
Other	1,917	27,3%
<b>Total</b>	<b>7,014</b>	<b>100%</b>

Source: Own Elaboration



Table 34 – Clusters Polarity for Scottish Power Facebook Comments

<b>Cluster's Interaction Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	229	3,3%	29,1%
P	4	1811	25,8%	
NEU	3	532	7,6%	7,6%
N	2	3725	53,1%	63,3%
N+	1	717	10,2%	
Total		7,014	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 34, and according to the information already encountered in the previous tables, there is a really high negative polarity present in the customer comments towards Scottish Power (about 63,3%). This may mean that this company's customer service is not working as effectively as it should, the themes and content used are also not helping and followers are actually using this social tool to share their frustration towards the company any way they can. In fact, even the most extreme negative polarity is higher than in any other company analyzed (about 10%). The positive polarity only covers about 29% of the interactions.

Having this severe evaluation in mind, it is important to dive deeper and understand in which of the clusters the negative polarity is mostly prominent and which ones bring out a more positive outcome within the 19 topics defined.

On the contrary to what was done in the previous companies, this time, the most negative clusters will be evaluated firstly, especially since the overall average of all the clusters as whole is about 2,59, which is quite negative and alarming.

Excluding the cluster "other" and "hashtag" (in which only one comment is available and therefore we are not able to make any comparisons or assessments), it is possible to see that there are two clusters with a highest negative polarity associated: "Entities" and "Services", both receiving an average polarity of 2,23. It makes quite a lot of sense that these two are being considered the worst in terms of polarity since most of the comments identified in the case of Entities always mention the keywords "Complaint", "Lawsuit", "Contract", "Cold", "Disease" and the keywords mostly used in the cluster Services are "customer service", "poor customer

service”, “awful service”, “worst customer service” and so on. Moreover, these two clusters are directly related and almost work “hand-in-hand” when navigating through the comments existent in the company’s Facebook Page. The bad customer service practiced and lack of response to customers are leading to an incredible number of complaints being made in their social network: “I can't believe how many bad complaints Scottish power have!! I wish I'd never gone with them now!! Been having problems for months and have no gas meter fitted still! I need heating!!!!It's cold!!!!!! Meant to have had a manager ring me this evening at 8.45 but it's now 9.01pm!!!Disgusting service again!!!Surely Scottish power should be shut down the way they treat people and lack of staff answering the calls!!!!!! Very angry customer!”; “What a nightmare your company. I had a call back arranged today went ahead fine then put through to wrong department told to hang up and re-dial, when I asked to be put on to a manger and for representative to stop calling me honey she hung up on me. Also, online it say my complaint is resolved not by a long shot it is not. Anyone know who higher up chain I can contact? Thanks”. Moreover, and corroborating all of this, especially in the “Entities” case comes the standard deviation and variance which are both actually really low (0,74 and 0,55, respectively), which means that most of the comments have the same meaning and there are no variations whatsoever in the follower’s opinions.

The third cluster with highest negative polarity associated is “Companies”. Once more, and just as it happens in the previous two clusters, there are a lot of followers referring to the company itself when publishing their comments. This is also highly associated with the bad reviews and angry customers complaints and the need to actually refer and mention the name of the company itself in order to be heard: “Scottish Power funding the Tories, should be ashamed to have Scottish anything, bunch of snakes”; “Scottish Power, your customer service is totally appalling, and even the call handler agreed with me ("I was not alone"). Your management is completely inefficient, and your communication is the worst I've come across. I've had a boiler issue for over a month now. No one on the phone can sort it for me.... Friends and family who see this, please do not use Scottish Power”; “Worst company ever... please do not sign up to this joke of a company”.

Finally, the last cluster to be mentioned in this analysis within all the others which also had a negative sentiment associated, although not as bad, is “Cultural

Products”. Here, it is quite simple to understand what type of keywords may have triggered the negative sentiments associated. Clients and followers are getting so frustrated with the company and lack of resolution to their problems and complaints that they are actually involving the media to see if the resolution turns out to be quicker and more efficient: “Well, I didn't get my call to arrange for my meters to be read. This is a circle and I am going round and round in it. I keep getting replies to my complaint telling me how to read the meters, it doesn't work! I spent half an hour last week with a very nice gentleman who agreed that the meters need to be looked at as they appear to be digital and were supplied by e-on. The same gentleman arranged on my account for a phone call tonight so that we could arrange for the meters to be read and explained. He has reduced my direct debit but I'm still owed £50. Read an article today about a gentleman who has a similar problem. Even with the Daily Mail getting involved it took Scottish Power from August to sort his bill out. Looks like they are getting the wooden spoon award from the Daily Mail. I CANNOT READ THE METER THEREFORE I CANNOT SUBMIT MY READINGS ONLINE. HELLO! Just send someone to read the meters whether we are in or not THEN message me with the instructions”. Furthermore, in this same cluster, there are also people complaining about the false advertising done by the company and lack of transparent communication: “Well done to the workers. Scottish power are just trying to get publicity to rip off more folk”.

Now, having in mind the bad shape in which the company is in terms of negative sentiment towards it amongst its clients, it's important to understand if there are any clusters and content that may have a more positive sentiment associated and that may help in the future with more effective communication.

While navigating through all the clusters, it is evident that there are no clusters with a positive sentiment towards it. There are only three clusters which are neutral in terms of sentiment but have very few comments associated: “Public Organizations” (3,03), “Time” (3,00) and “Fashion Products” (3,00), however, the last one will not be considered due to lack of comparison of the existent topics and wrongly association to this topic. For the first cluster, “Public Organizations” the neutral sentiments come from the several comments made in regards to more information about people that belong or want to be included on the ESA (European Space Agency): “I sent away my documentation that I'm in receipt of ESA benefit I

hope it gets to you on time”; and also comments about free parking spots for customers who own electric cars and the need to involve the city council in order to approve this licensing: “Can you lobby Glasgow city council to reintroduce free parking for 100% electric cars? No PHEVs!”.

The second most positive cluster is “Time” and most of the neutral or more positive comments present in this cluster are associated to customers who want to know more about a specific deadline to apply to plans: “When do you have to apply for warm winter?”.

Lastly, and since it was not possible to actually find a considerable number of comments which were positive towards the most “neutral” clusters, it is important to follow other companies such as British Gas in order to understand how to create a more positive environment within the company’s Facebook Page.

Table 35 – Clusters Average Polarity for Scottish Power Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	2,75	1,17	1,37
Artistic & Sports Organizations	2,49	0,93	0,87
Companies	2,40	1,07	1,14
Public Organizations (Government; Education; Health; Military;)	3,03	1,17	1,37
Location	2,86	1,15	1,32
Nature	2,67	1,15	1,33
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	2,45	1,08	1,17
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,00	1,05	1,11
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	2,89	1,20	1,43
Services	2,23	1,10	1,20
Contacts	2,48	0,96	0,92
Hashtags	2,00	n.a (only one association)	n.a (only one association)
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	2,23	0,74	0,55
Vocation & Titles	2,85	1,10	1,21
Event (social event; meteorological; natural disasters; breakdowns)	2,50	0,94	0,88
Processes	2,75	1,10	1,21
Time (period; date; hour; year; century)	3,00	1,03	1,06
Units (time, weight, currency, temperature, space or others)	2,93	1,16	1,34
Other	2,63	1,05	1,10
Total	2,59	1,08	1,16

Source: Own Elaboration

## 4.6 SSE UK

Table 36 – SSE Comments for 2017

#Comments Analyzed	Period
9,820	2017

Source: Own Elaboration

SSE UK has about 78 622 followers and 80 441 likes (data from October 2018). In 2017, it posted 396 statuses and the average of statuses posted per year have been varying from 200 posts to 400. In terms of interaction, the year of 2017 has seen the biggest number of comments since the company created its Facebook page (7658 comments). This is especially due to the month of November in which there were two special contests: one regarding a sport event in which the customers children could win the chance to be the mascots of the SSE Scottish Women's Cup Final and the other was related to the chance for customers to win tickets for several concerts such as Queen and Adam Lambert in the SSO Hydro (“We're creating a week of winners with competitions for gigs at the SSE Hydro all week. Our first competition is for the Queen & Adam Lambert gig on Sunday 3 December. We've got 5 pairs of tickets to give away! To be in with a chance of winning, just comment below with the name of your favorite Queen song! Competition ends Thursday 30 November @ 12:00. T&Cs apply: <http://bit.ly/2zHz5DT>”).

The most peculiar year when comparing the number of posts with the number of comments was the year of 2014, in which the company posted about 400 posts and received only 500 comments (meaning that each status only received 1,2 comments from its customers).

Table 37 – SSE Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	43	34	18	24	41	19	29	23	40	44	53	28
Sum_Comments	567	1131	130	77	176	269	213	621	246	436	3696	96
Avg_Comment_Status	13	33	7	3	4	14	7	27	6	10	70	3
Sum_Likes	2770	7459	93	259	2859	778	2388	5790	1640	1493	5124	274
Avg_Likes_Status	64,4	219,4	5,2	10,8	69,7	40,9	81,7	251,7	41,0	33,9	96,7	9,8
Sum_Sad	3	2	3	0	6	4	0	1	1	1	0	17
Avg_Sad_Status	0,1	0,1	0,2	0,0	0,1	0,2	0,0	0,0	0,0	0,0	0,0	0,6
Sum_Angry	9,0	6,0	33,0	0,0	1,0	1,0	3,0	0,0	1,0	7,0	6,0	10,0
Avg_Angry_Status	0,2	0,2	1,8	0,0	0,0	0,1	0,1	0,0	0,0	0,2	0,1	0,4
Sum_AngrySad	12,0	8,0	36,0	0,0	7,0	5,0	3,0	1,0	2,0	8,0	6,0	27,0
Avg_AngrySad_Status	0,3	0,2	2,0	0,0	0,2	0,3	0,1	0,0	0,1	0,2	0,1	1,0

Source: Own Elaboration

Once more, and just has it happened for all the companies analyzed, it is important to mention that the number of comments analyzed present in table 36 and 37 are different, since in table 37 we are only speaking of comments actually made in 2017 posts. However, and for this analysis as a whole, it was found that it would make more sense to analyze all the comments made in 2017, despite of the posts being made that year. This is especially relevant due to the fact that if a comment is being made on an older post, it may mean that that specific content still develops some type of reaction to the followers and will probably be discussed again.

In terms of response to its customer queries, SSE UK normally takes a few hours to respond (through private messaging or public comment).

The statuses themes that received the largest customer reactions were: Competitions and contests: “Sammy Kerr, who won our amazing #TeamUp competition for the opportunity to meet and play tennis with Judy, Jamie and Andy Murray at Andy Murray Live last week. Watch how her day went!”; Reward and Loyalty programs: “Are you a SSE Reward member? Reward members who have pre-booked into our lounge can skip the queue at The SSE Hydro and enter through Guest Entry! Find out more: <http://bit.ly/2hywEHX>”; Energy efficiency plans and tips: “Now that the clocks have gone back, these 5 simple tips will help you stay warm at home.”; Sport/general events and societal matters: “Do you know a young football fan? We're giving two young football fans, aged 7-11, the chance to be Official Mascots at the 2019 FIFA Women's World Cup Qualifier between Scotland National Team and Albania on 24 October! Enter now at: <http://bit.ly/SSE-Mascot-competition!>” and “A team of SSE volunteers made a difference by completing the 26-mile Edinburgh Kiltwalk to raise money for the Scottish Association for Mental Health (SAMH). Congratulations to the team - what a fantastic achievement!”.

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on the SSE Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on “Meaning Cloud” which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of the sentiment analysis there were about 9,820 comments to be analyzed, however,

and after discovering that 51% (4996) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 4824 comments considered.

Table 38 – SSE Comments - Sentiment Analysis

<b>Interaction´s Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	1106	22,9%	70,0%
P	4	2272	47,1%	
NEU	3	278	5,8%	5,8%
N	2	969	20,1%	24,2%
N+	1	199	4,1%	
Total		4824	100%	100%

Source: Own Elaboration

Out of the 4824 comments considered and after erasing the level “None” of consideration it is possible to highlight that SSE is one of the best companies (after British Gas for the UK market) in terms of positive sentiment towards the content published during the period established. About 70% of the comments have a positive sentiment associated to it and only 24% have a negative sentiment towards the content, with only 4,1% extremely negative comments. This outcome doesn't come as surprise since in the beginning of this investigation and while discovering more facts about the companies chosen and best practices, it was found that SSE was the best company in terms of customer satisfaction (and lowest number of complaints) in the UK market, even overthrowing British Gas.

When it comes to the test of the degree of confidence linked to the polarity of the user's comments, this analysis is done through the attribution of a value from 0 to 100 to each one of the 4,824 comments available for SSE. Table 39, bellow, shows that the confidence associated to the polarity results is quite high, with a level of confidence of about 97,83, having a standard deviation of 1.16, meaning that the polarity levels show a low dispersion.



Table 39 – Confidence Analysis of SSE Interactions polarity

Confidence Mean	Standard Deviation	Variance
97,83	1,16	1,34

Source: Own Elaboration

After identifying the level of polarity and confidence, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 40). In SSE's Facebook page, most of the customers barely use ironic comments (only about 3%). However, and in terms of the subjectivity level, it is possible to assess that more than half of the comments are subjective (64%), which indicates that the comments made may have double meanings attached to them. Nonetheless, the level of agreement in regards to the content shared by the company is extremely high (85%), the best of all the companies, which means that followers are accepting of the content disclosed and that the company is following a good path.

Table 40 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

Sentiment Analysis (Irony, Agreement and Objectivity)								
Metric	Sum	%	Metric	Sum	%	Metric	Sum	%
Ironic	134	2,8%	Objective	1755	36,4%	Agreement	4079	84,6%
Non-Ironic	4690	97,2%	Subjective	3069	63,6%	Disagreement	745	15,4%
Total	4824	100%	Total	4824	100%	Total	4824	100%

Source: Own Elaboration

After the primary analysis, follows the definition of the main topics addressed by the followers present at SSE Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the frequency and level of polarity were also defined. When considering the 4,824 comments present on the company's Facebook page, the topic analysis came up with 7,573 sentiment topics from those comments, which resulted in 154 different categories of topics. After a thorough analysis of all the topics

generated, it was possible to reach and aggregate those 154 topics into the 19 clusters primarily defined in the methodology section (table 9).

While analyzing table 41 and taking out of consideration the cluster “other” which included all the topics that were wrongly associated or didn’t have a specific topic assigned to it (20,5%), it is possible to perceive that, once again, the cluster with highest frequency is “Person” (30,5%). It is obvious why this is one of the main topics mentioned, since it comprises all the mentions to a Person’s first, last or full name. In a significant number of comments there are people mentioning other people through a “@” or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company’s Facebook page; agreeing or disagreeing with another person; and so on (e.g. Catherine MacDonald oh yeah! Phil Collins on Friday (in his comfy chair) then Queen. X”; “Kerry, Tom and I are going on Sunday, soooo excited and looking forward to a great gig xxx”). The fact that this cluster is the one with highest frequency shows that, for better or worse, it’s Facebook posts generate a highest number of interactions among the followers of the company and may contribute to an increase in the number of followers. Moreover, and in this specific company and cluster, there were a lot of mentions to bands like the Queen, Adam Lambert, Phil Collins (comments above as an example) thanks to the contests posted by the Company, which also increased the number of comments associated to this cluster.

The second cluster with highest frequency, even though in a much lesser number than the first one, is “Location” with 8,3% of the mentions. Since this investigation is focused specifically on Utility companies, it actually makes a lot of sense that locations such as “room”, “home”, “house”, “living room”, “kitchen” or “bedroom” are common keywords present in any Utility company’s social network page, since its work, products and services impact the homes and businesses of any person. Moreover, and once again, the concerts and events happening on the SSE Hydro and SSE Arena as well as the women sport event also had a considerable impact and quite a lot of mentions in this cluster as well: “Well done SSE, if it wasn’t for the men and women of SSE that volunteered last year, Springfield School, Sunbury wouldn’t have there 12 ton woodlands path laid. Again thank you, I wish

more companies would do this for the local community”; “We're off to Liverpool on 6th December to see them she is so excited. Booked our hotel for overnight stay.”

The third and final highest frequency cluster to be remarked in this analysis is “Cultural Products” with about 7% of the mentions. Just as it was already mentioned in the previous clusters but in a lower scale (since there were other factors included in the comments) a topic that created a lot of buzz were the concerts in SSE Hydro and SSE Arena. While navigating through all the comments, the highlight is definitely present in the keywords “song”, “music”, “stage”, “show” and “concert”. This is due to the great outcome that came from the posts made by SSE regarding these concerts, that went beyond just giving tickets to the concerts but also influencing followers to interact with the company by posting questions such as which is their favorite song of all time when it comes to the band Queen: “Favourite Queen song has to be Bohemian Rhapsody, but like all the Queen songs, very difficult to pick out a major favourite”; “Don't stop me now. No x-factor sob story, I just love the song”.

Table 41 – Clusters Frequency of SSE Facebook Comments

<b>Topic Sentiment Analysis – Clusters Frequency</b>		
<b>Clusters Defined</b>	<b>SUM</b>	<b>%</b>
Person	2308	30,5%
Artistic & Sports Organizations	44	0,6%
Companies	312	4,1%
Public Organizations (Government; Education; Health; Military;)	24	0,3%
Location	630	8,3%
Nature	128	1,7%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	526	6,9%
Fashion Product (clothes; accessories; cosmetic; hair and others)	95	1,3%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	411	5,4%
Services	24	0,3%
Contacts	66	0,9%
Hashtags	23	0,3%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	433	5,8%
Vocation & Titles	509	6,7%
Event (social event; meteorological; natural disasters; breakdowns)	183	2,4%
Processes	126	1,7%
Time (period; date; hour; year; century)	18	0,2%
Units (time, weight, currency, temperature, space or others)	157	2,1%
Other	1,553	20,5%
Total	7,573	100%

Source: Own Elaboration

Table 42 – Clusters Polarity for SSE Facebook Comments

<b>Cluster's Interaction Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	1286	17,0%	68,9%
P	4	3993	51,9%	
NEU	3	469	6,2%	6,2%
N	2	1443	19,1%	24,9%
N+	1	442	5,8%	
Total		7,573	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 42, and according to the information already encountered in the previous tables, there is a high positive polarity present in the customer comments towards SSE (about 69%). This is an extremely positive outcome and result which may indicate that the company is working efficiently and effectively in order to make their clients happy and, at the same time, are working towards content and information that is actually interesting for their followers and that result in a higher and positive interaction. The negative sentiment polarity associated to the clusters count for about 25% and only 6% are neutral. It is also relevant to underline the fact that only 6% of the comments are extremely negative. Nonetheless, it is always important to investigate further and understand which are the clusters that generate the highest positive interaction from their followers and which are not the best and should be left out of their communication plans and strategy.

Observing table 43 and already excluding the cluster “other”, it is possible to perceive that there are two clusters that stand out from the others with their 4,09 and 4,00 polarity average. These are the clusters “Hashtag” and “Cultural Products”, respectively. Both clusters are highly associated with each other since, for the most part, the content shared regards the exact same event: the SSE Hydro Queen and Adam Lambert. Both clusters have quite a substantial number of mentions to this event: “Who wants to live forever, such a lovely ballad”; “I want to break free always reminds me of my late mother in law. She would sing at the top of her lungs while doing the housework. So, for that reason that would be my favourite Queen song”;

“All of them! Queen never recorded a bad song. They soundtracked my youth growing up through my teens into adulthood and I will always love them for it” “#Queen”; “#SSEHydro”. Furthermore, it is obvious that this contest almost took over most of the clusters and topics associated. However, all in all, this is a company that is not being constantly bombarded with negative comments, while going through all the comments made and that is something to look forward and follow as an example. Understanding the type of themes the company chooses to share, how can they generate positive feedback from it and how are they addressing the not so positive comments is a must for any type of company which aims to create and maintain a positive and confident relationship with its community.

Another highly important mention must be made to the third most positive cluster “Services”. This is the only company, within all the others, to actually have the highest positive sentiment towards the cluster “Services” with a polarity average of 3,96. This is especially due to the fact that most of the comments analyzed by Meaning Cloud weren’t actually associated to bad services reviews, but actually picked up on a lot of mentions to music groups and companies (or agencies). All in all, and even though most of the mentions do not refer specifically to the company’s services per se, it actually does not have such negative comments towards this cluster as well, and that is something to look forward to.

Finally, understanding what can be the clusters and topics that are triggering a not so positive reaction from the followers is also a vital part of this work. Therefore, and after analyzing in detail table 42 and the comments associated, the cluster that stands out most from the others in terms of a not so high average polarity associated, even though not alarming since it continues to be more neutral than negative, is “Entities” with an average polarity of 3,22. The fact that this cluster comes as the worst cluster amongst the others, is not a surprise, especially when we are also considering the other companies analyzed. All of them have this cluster in common which aggregates all the comments and mentions towards the keywords “Complaint” and “Disease”. These types of comments do not seem to appear in specific posts that generate a highest anger, they can appear in any post available just because the customer is extremely frustrated with he’s/her’s situation. A positive thing that is possible to take out of the analysis of this topic in this specific company

is that in about 7573 topics analyzed only about 148 actually include the mention to the keyword “complaint”.

It is also important to make a special mention to a cluster which has also one of the lowest scores in terms of average polarity, the cluster “Unit” (3,34). Just as it happens in other companies, there is a high number of comments regarding the issue of “smart meters” (not working correctly; not understanding how it works; not fitting properly; being perceived as a tool that makes the customer pay more than with the older one). From the analysis made, it is clear that this is, together with incorrect billing and the lack of efficiency from the Field Services technicians, one of the worst problems generating criticism in any company’s social network: “My smart meter keeps beeping and flashing a message. The message goes b4 we can read it. How can we stop it bleeping and how can we read the message”; “Please stay away from these meters. My gas monitor has never worked correctly since day one. I don't even look at display now as it's constantly incorrect. Stay with what you have. Be warned!!!”. This is clearly a problem that needs to be addressed by all UK energy companies since they generate a lot of angry opinions and this will continue to grow until 2020 when every house and business in the UK must be obliged to have this new meter working correctly. This is a problem that needs to be addressed as soon as possible.

Table 43 – Clusters Average Polarity for SSE Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	3,77	0,95	0,90
Artistic & Sports Organizations	3,55	1,09	1,18
Companies	3,35	1,23	1,50
Public Organizations (Government; Education; Health; Military;)	3,54	1,28	1,65
Location	3,69	1,02	1,03
Nature	3,41	1,27	1,61
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	4,00	1,02	1,05
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,95	0,40	0,16
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,42	1,14	1,29
Services	3,96	1,08	1,17
Contacts	3,32	0,99	0,99
Hashtags	4,09	0,67	0,45
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	3,22	1,27	1,62
Vocation & Titles	3,36	1,40	1,95
Event (social event; meteorological; natural disasters; breakdowns)	3,51	1,15	1,33
Processes	3,41	1,05	1,09
Time (period; date; hour; year; century)	3,83	0,92	0,85
Units (time, weight, currency, temperature, space or others)	3,34	1,12	1,25
Other	3,27	1,28	1,63
Total	3,55	1,15	1,32

Source: Own Elaboration



## 4.7 Endesa ES

Table 44 – Endesa Comments for 2017

#Comments Analyzed	Period
17,429	2017

Source: Own Elaboration

Endesa ES has about 27 791 followers and 26 278 likes (data from October 2018). According to the data research made through python, the company only started posting statuses in 2016 (108 to be exact). In 2017, it grew its posts to 308 statuses and until the middle of April 2018 it had already posted 80 statuses, which means that the company is investing largely on making more posts regularly. In terms of interaction, the year of 2017 has seen 14427 comments and the average comment per status is about 46,8. As it already happens to several companies analyzed, Endesa follows the norm when posting the highest number of posts in the month of December. However, this didn't mean that the number of comments also grew at the same level, even though they were quite high (about 2616), thanks to the several contest to win heating appliances. In fact, the highest number of comments happened in the month of April due to several contests posted on this page in order to win smart home appliances (such as “eReaders”) and discounts in stores such as Decathlon. Moreover, and an incredible post that was also posted in this month and didn't offer any “physical” object or discounts, but still generated a lot of interaction and positive reactions was the post “¿Estás preparado para ahorrar energía? 😊 Todas las ventajas de la eficiencia energética están al alcance de tu mano. 👍 Solo necesitas poner en práctica los sencillos consejos y trucos que hemos recopilado en una guía breve pero imprescindible. ¡Descárgatela!”. This post basically had games, myths and tips on how to save energy.

Table 45 – Endesa Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	23	22	30	26	30	27	21	17	26	27	27	32
Sum_Comments	112	62	170	5742	734	228	157	100	303	1102	3101	2616
Avg_Comment_Status	5	3	6	221	24	8	7	6	12	41	115	82
Sum_Likes	115	163	613	6296	1856	1029	548	370	842	1785	4216	3657
Avg_Likes_Status	5,0	7,4	20,4	242,2	61,9	38,1	26,1	21,8	32,4	66,1	156,1	114,3
Sum_Sad	0	0	0	17	15	3	1	0	6	1	3	11
Avg_Sad_Status	0,0	0,0	0,0	0,7	0,5	0,1	0,0	0,0	0,2	0,0	0,1	0,3
Sum_Angry	2,0	4,0	17,0	31,0	56,0	67,0	58,0	27,0	58,0	29,0	39,0	106,0
Avg_Angry_Status	0,1	0,2	0,6	1,2	1,9	2,5	2,8	1,6	2,2	1,1	1,4	3,3
Sum_AngrySad	2,0	4,0	17,0	48,0	71,0	70,0	59,0	27,0	64,0	30,0	42,0	117,0
Avg_AngrySad_Status	0,1	0,2	0,6	1,8	2,4	2,6	2,8	1,6	2,5	1,1	1,6	3,7

Source: Own Elaboration

Regarding customer queries or other types of comments and according to the information displayed by Endesa’s Facebook page, it takes a few hours to respond to a customer’s query. However, and from the analysis performed to several comments posted in each status, it is possible to confirm that the company does not respond to its customers as much as the other companies already analyzed. However, it is not possible to be sure if this also happens in the private messaging system.

Figure 17 - Example of Endesa’s unanswered comments from Customers



Source: Endesa Facebook Page

Another relevant information that should be highlighted in its Facebook page is the high number of angry status given by customers in most of the posts. To be exact, in the year of 2017 customers had given about 494 angry statuses, which means that per status 1,6 customers give this type of statuses to the company’s posts. This may seem small from a standard point of view, but when compared to a similar

company like EDF UK, with a number of followers and posts quite similar, and having only 197 angry statuses it is an actual problem. This number of “angry likes” may also be related to the lack of customer service given in this Facebook page, especially because the company makes the effort of posting new content regularly and should also be preoccupied with what customers are saying on their page.

Finally, and when speaking about status themes that generate the highest interaction from customers, this analysis found that messages related with holidays and energy efficiency solutions and tips to reduce energy at home cause the highest positive impact as well as a great number of shares: “¡Saca el chef que llevas dentro y prepara esta #receta navideña! Te enseñamos a hacer un flan de turrón en 2 minutos con el electrodoméstico que menos consume de la cocina”; Moreover, and as already seen in previous companies, messages related with contests and prizes are also winners: “Celebramos la Navidad regalando 24 magníficos premios. ¡Cada día tienes una nueva oportunidad!” and “¡Participa y gana una caldera Viessmann!”; Electric mobility themes are also quite valuable in terms of a higher interaction: “sabíais que la eficiencia energética del vehículo eléctrico es casi el doble que el de combustible interna? ¡Descubre todos sus beneficios aquí” and “Las bicicletas eléctricas han llegado para quedarse! Son muchos sus beneficios ya que utilizarlas de manera continuada puede ayudar a nuestra salud, a cuidar el medioambiente y sobretodo mejora la movilidad de la ciudad.”;

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on Endesa’s Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on “Meaning Cloud” which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of the sentiment analysis there were about 17,429 comments to be analyzed, however, and after discovering that 49% (8552) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 8,877 comments considered.

Table 46 – Endesa Comments - Sentiment Analysis

<b>Interaction's Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	594	6,7%	63,3%
P	4	5023	56,6%	
NEU	3	579	6,5%	6,6%
N	2	2281	25,7%	30,2%
N+	1	400	4,5%	
Total		8877	100%	100%

Source: Own Elaboration

Out of the 8,877 comments considered and after erasing the level “None” of consideration it is possible to highlight that Endesa has more than half of the comments associated to a positive polarity (about 63%), which is quite impressive, since in the beginning of this analysis it was found that this was one of the worst companies in terms of “angry statuses given”. This may also mean that people who give this type of statuses, probably do not comment the post, for example. Still, there is a considerable number of comments who have negativity associated to them when answering the posts shared by the company (about 30%).

When it comes to the test of the degree of confidence linked to the polarity of the user's comments, this analysis is done through the attribution of a value from 0 to 100 to each one of the 8,877 comments available for Endesa. Table 47 below, shows that the confidence associated to the polarity results is quite considerable, with a level of confidence of about 97,79, having one of the lowest standard deviation values of about 1.07, meaning that the polarity levels show a low dispersion. This may mean that even though there are some of comments extremely angry, there may be content published by the company that is generating an incredibly high number of positive reactions.

Table 47 – Confidence Analysis of Endesa Interactions polarity

<b>Confidence Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
97,83	1,07	1,15

Source: Own Elaboration

After identifying the level of polarity and confidence, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 48). In Endesa's Facebook page, almost all the customers post comments that are straight to the point and direct and do not post or share any ironic comments (only about 1,5%). Moreover, and in terms of the subjectivity level, it is possible to assess that more than half of the comments are objective (60%), which indicates that the comments made mean actually what the follower wants to say and do not have double meaning or standards. Finally, and corroborating these positive values comes the level of agreement of about 84%, which means that followers are accepting of the content disclosed and that the company is following a good path in terms of the content posted (in general).

Table 48 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

<b>Sentiment Analysis (Irony, Agreement and Objectivity)</b>								
<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>
Ironic	136	1,5%	Objective	5535	60,1%	Agreement	7412	83,5%
Non-Ironic	8741	98,5%	Subjective	3542	39,9%	Disagreement	1465	16,5%
Total	8,877	100%	Total	8,877	100%	Total	8,877	100%

Source: Own Elaboration

After the primary analysis, follows the definition of the main topics addressed by the followers present at Endesa's Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the frequency and level of polarity were also defined. When considering the 8,877 comments present on the company's Facebook page, the topic analysis came up with 14,833 sentiment topics from those comments, which resulted in 182 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 182 topics into the 19 clusters primarily defined in the methodology section (table 9).

While analyzing table 49 and taking out of consideration the cluster "other" which included all the topics that were wrongly associated or didn't have a specific topic assigned to it (21,5%), it is possible to perceive that, once again, the cluster with highest frequency is "Person" (24,9%). This cluster comprises all the mentions

to a Person's first, last or full name or even husband or wife, son or daughter, for example. In a significant number of comments there are people mentioning other people through a "@" or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company's Facebook page; agreeing or disagreeing with another person; and so on (e.g. "Noelia Molina Lopez suerte"). The fact that this cluster is the one with highest frequency shows that, for better or worse, it's Facebook posts generate a highest number of interactions among the followers of the company and may contribute to an increase in the number of followers. Furthermore, and specifically for this company, it was also found that in this cluster there a lot of mentions to the keyword "cliente" which sometimes be associated to positive content such as contests "Participo, soy un fiel cliente", but also a lot of angry reactions especially regarding the customer service: "Es una vergüenza que una empresa como Endesa trabajen a joder al cliente y si quiere se lo explico al señor de Endesa ya que por tlf son unos inutiles yo llevo un 2017 que no dan ni una".

The second cluster with highest frequency, even though in a much lesser number than the first one, is "Cultural Products" with 9,4% of the mentions. In this case there are three specific keywords that stand out from the others in terms of number of mentions: "Calendario", "Libro" and "Fatura". For the first two, there were quite a high number of mentions due to two contests called "Calendario de Adviento" and "Consigue un eReader para recargar las pilas con un buen libro!" in which the company was giving, on a regular basis, several prizes such as electric bikes, e-Readers and other smart home appliances. On the other hand, the keyword "Fatura" which was wrongly associated to what is called a "Cultural Product" is specifically associated to several complaints regarding the incorrect billing and lack of response from the company: "Endesa clientes. Vergonzoso. Yo también llevo reclamando factura y ni caso. No te contestan. El SAC penoso Endesa clients".

The third highest frequency cluster is "Location". Once more, and since this work is focused specifically on Utility companies, it actually makes a lot of sense that locations such as "casa", "piso", "sala", "oficina" are common keywords present in any Utility company's social network page, since its work and products and services impact the homes and business of any person and everyone highly depends

on it. Moreover, and in Endesa's case, a specific keyword that was also mentioned quite a lot in the "Location" cluster, even though it should have been associated to "Other Products" is "Caldera". There are about almost 300 comments mentioning this appliance. Half is regarding a contest in which the winners can win a new and improved "caldera" and others are simply complaining about their own not working correctly.

Table 49 – Clusters Frequency of Endesa's Facebook Comments

Clusters Defined	SUM	%
Person	3695	24,9%
Artistic & Sports Organizations	22	0,1%
Companies	680	4,6%
Public Organizations (Government; Education; Health; Military;)	154	1,0%
Location	1283	8,6%
Nature	319	2,2%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	1390	9,4%
Fashion Product (clothes; accessories; cosmetic; hair and others)	1	0%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	887	6,0%
Services	213	1,4%
Contacts	147	1,0%
Hashtags	25	0,2%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	771	5,2%
Vocation & Titles	712	4,8%
Event (social event; meteorological; natural disasters; breakdowns)	333	2,2%
Processes	27	0,2%
Time (period; date; hour; year; century)	292	2,0%
Units (time, weight, currency, temperature, space or others)	688	4,6%
Other	3,194	21,5%
Total	14,833	100%

Source: Own Elaboration



Table 50 – Clusters Polarity for Endesa’s Facebook Comments

Polarity Levels	Scale	Sum	Percentage	P-N%
P+	5	853	5,8%	47,7%
P	4	6228	42,0%	
NEU	3	1271	8,6%	8,6%
N	2	1443	35,3%	43,7%
N+	1	1251	8,4%	
Total		14,833	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 50, the positive sentiment associated to the topics does not reach 50% and the same happens for the negative sentiment associated towards the company. Still, the positive sentiment is a bit higher than the negative (about 4% more). However, when the viewer looks at the extreme positive and negative, the percentage is higher for the extreme negative sentiment which is not a good outcome for Endesa. Moreover, it is safe to say that Endesa has its clients torn between actually reacting in a more positive and agreeable attitude towards the company and being incredible angry with it. Having this information in mind, it is important to understand which clusters may signify a most positive reaction from the customer and which work in the complete opposite way.

Observing table 51, it is possible to see that the lowest average cluster existent, excluding the cluster “Fashion Product” since it is not comparable due to its lack of mentions, is “Process”, with about 2,48 average. This happens since this cluster comprises all the processes that include fixing a problem in a customer’s home (damages in appliances or pipes, for example), the website not working or simply the act of discussing a wrongly billed value. These types of processes are leading customers to an extremely frustrating behavior with the company and that is visible throughout the comments posted “Llevo reclamando fallos en una factura de marzo varios meses y cada vez que refacturais lo haceis mal, quando recibire mi factura correcta?”.

The second lowest average cluster existent for Endesa is, once again, “Entities”, with about 2,54 average score. This cluster comprises all the mentions to

“reclamaciones”, “error”, “abuso”, “contrato” and “corte”. All of these keywords are related since there are a lot of comments regarding people being wrongly billed and, as a result, seeing their energy being cut off without any warning: “Todavía espero yo la llamada de Endesa respecto a la incidencia tenida el 12 de octubre en casa con varios cortes de luz. Te dan los teléfonos y llamas y te contestan los sudamericanos y tolean a los clientes que llevas toda la vida pagando y cuando les toca a ellos indemnizar por culpa de ellos se lo pasan por el forro de los coj...es. Así funcionan estos delincuentes y ladrones”.

Finally, and even though this cluster is not the third worst in terms of average polarity, it is important to still mention it since it works hand-in-hand with the previous clusters. The cluster in question is “Services”, which has about 2,79 average polarity and it still is quite low. However, the most extraordinary mention is the fact that the standard deviation (0,92) and variance (0,85) are so low that it is possible to directly assess that almost all customers agree with the low score given to “Services”. Almost all the comments from the customers agree that Endesa has a poor customer service and this is visible: “En el servicio de atención al cliente hacen como que no me escuchas cuando yo los oigo perfectamente”; “Endesa, tiene un servicio telefónico, atención al cliente, nefasto, es imposible q te solucionen ningún problema, se equivocan ellos en los contadores, y llevamos 6 meses intentando arreglarlo, y es una misión imposible”; “DAIS ASCO Y VERGUENZA, PORQUE NO GASTAS ESA ENERGIA Y RECURSOS EN RESOLVER Y AYUDAR A VUESTROS CLIENTES Y USUARIOS QUE SON LOS QUE PAGAN VUESTRO SUELDO. DEJAROS YA DE PAMPLINAS Y TONTERIAS.. MEJOR SERVICIO Y MÃS BARATO”.

It is quite clear that something needs to change in the customer service provided by this company, and this may well begin in their social network as well. Just making sure that people are heard and that they actually can fix some minor problems or forward them to someone within the company who can.

Regarding the more positive clusters in terms of average polarity, it is quite clear that “Cultural Products” is the cluster with most positive reactions and comments towards it, with about 3,64 average and has quite a low standard deviation (0,98) and variance (0,96), which indicates that almost all customers feel the same positivity towards this cluster. This is due to what was already explained regarding

some contests that involved the mention to “Calendario de Adviento” and “Consigue un eReader para recargar las pilas con un buen libro!” which developed a high number of reactions from the customers and, most importantly, positive and happier ones: “El libro que más me ha impactado fue Cien años de soledad, de Garcia Márquez. Fue el libro que me hizo descubrir la literatura con mayúsculas. Lo sigo releendo y vuelve a emocionarme de nuevo cada vez”.

The second and final highest average cluster amongst all clusters is “Hashtag”, with about 3,27 average and a low standard deviation of 0,98. This cluster developed a more positive reaction from the customers due to a specific contest in which customers had to use the hashtag “#YoNoPasoCalor”, in order to win a new ventilator and air conditioning. The number of reactions and comments including that hashtag were quite high: “#YoNoPasoCalor, pasar me levanto tempranito, salgo a caminar y me voy a la playa, a las 11:30 en casita, comer ensaladas, beber mucha agua, y no salir hasta las 6 de la tarde, otra vez a la playa y a meterse en el agua!!!! Participo, comparto e invito a Maria Jesus Guede Cid”.

Table 51 – Clusters Average Polarity for Endesa's Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	2,97	1,23	1,51
Artistic & Sports Organizations	3,24	1,09	1,19
Companies	2,95	1,13	1,27
Public Organizations (Government; Education; Health; Military;)	2,68	1,08	1,16
Location	3,04	1,14	1,29
Nature	2,89	1,28	1,63
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	3,64	0,98	0,96
Fashion Product (clothes; accessories; cosmetic; hair and others)	1 (only one mention available)	n.a. (only one mention available)	n.a. (only one mention available)
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,03	1,09	1,14
Services	2,79	0,92	0,85
Contacts	2,70	1,02	1,05
Hashtags	3,27	0,98	1,18
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	2,51	1,01	1,02
Vocation & Titles	2,97	1,06	1,13
Event (social event; meteorological; natural disasters; breakdowns)	3,06	1,15	1,32
Processes	2,48	1,09	1,18
Time (period; date; hour; year; century)	3,09	1,17	1,37
Units (time, weight, currency, temperature, space or others)	2,74	1,28	1,64
Other	3,02	1,27	1,21
Total	3,01	1,16	1,34

Source: Own Elaboration

## 4.8 Iberdrola ES

Table 52 – Iberdrola Comments for 2017

#Comments Analyzed	Period
1,892	2017

Source: Own Elaboration

Iberdrola ES has about 62 625 followers and 62 149 likes (data from October 2018). Iberdrola ES only started using its Facebook Page actively in 2015, in which it posted 237 statuses. Since 2015, the company has been focusing on increasing its statuses throughout the years, having posted 559 statuses in 2016 and 658 in 2017. However, and when analyzing the number of comments made throughout the years, the tendency is the complete opposite. In 2015, the number of comments were 11368, in 2016 it decreased to 6347 comments and in 2017 it decreased even more to 1951 and this goes also for the number of likes given by the company's followers. Once again, the month of December has been the one, together with March, with the highest number of posts and number of comments associated.

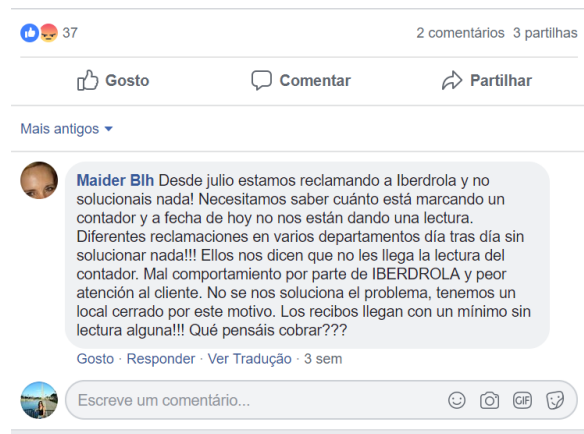
Table 53 – Iberdrola's Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	62	59	67	63	66	66	66	17	37	24	64	67
Sum_Comments	289	101	204	100	123	184	232	161	34	45	74	404
Avg_Comment_Status	5	2	3	2	2	3	4	9	1	2	1	6
Sum_Likes	426	413	467	453	658	2135	1682	194	522	1417	289	976
Avg_Likes_Status	6,9	7,0	7,0	7,2	10,0	32,3	25,5	11,4	14,1	59,0	4,5	14,6
Sum_Sad	0	0	1	0	0	28	24	1	1	0	1	11
Avg_Sad_Status	0,0	0,0	0,0	0,0	0,0	0,4	0,4	0,1	0,0	0,0	0,0	0,2
Sum_Angry	31,0	11,0	8,0	8,0	6,0	28,0	32,0	6,0	9,0	2,0	6,0	44,0
Avg_Angry_Status	0,5	0,2	0,1	0,1	0,1	0,4	0,5	0,4	0,2	0,1	0,1	0,7
Sum_AngrySad	31,0	11,0	9,0	8,0	6,0	56,0	56,0	7,0	10,0	2,0	7,0	55,0
Avg_AngrySad_Status	0,5	0,2	0,1	0,1	0,1	0,8	0,8	0,4	0,3	0,1	0,1	0,8

Source: Own Elaboration

Iberdrola usually takes a day to respond to its customers queries, according to the information on the page. However, it seems that this is only applicable for the queries or comments made by private messaging, since most of the comments analyzed in the several statuses posted do not have any response from Iberdrola. This may be a reason to why the number of comments from customers have been decreasing throughout the years.

Figure 18 – Iberdrola’s lack of response to customers comments



Source: Own Elaboration

When analyzing the themes that bring out the highest number of interactions (this being related with comments, number of likes and number of shares), it is possible to highlight: Special holidays such as Christmas and New Year’s and contests: “Hoy es Nochevieja! Esperamos que esta noche, además de ricos manjares, te llenes del amor de tus amigos y familiares. ¡Que la disfrutes!”; contests and prizes: “Atención! Ultimo día para participar en nuestro sorteo de 10 #CestasIberdrola de Navidad. A las 23:59 cerramos el registro y mañana hacemos el sorteo”; Energy efficiency solutions, tips and prizes: “Este ano nos adelantamos una semana al Black Friday con nuestro #SmartFriday! ¿Por qué Smart? Porque te ofrecemos este termostato inteligente con un descuentazo, para que te quedes en casa calentito comprando online.”; Societal matters: “Record de participantes en la carrera #ValladolidContraElCancer. ¡Ha sido un exitazo! Muchísimas gracias a esas 45.000 personas que lo habíais hecho posible. Y si no has podido asistir, pero estas comprometido con la causa, puedes colaborar en #JuntosContraElCancer.”

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on Iberdrola’s Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on “Meaning Cloud” which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of the sentiment analysis there were about 1,892 comments to be analyzed (the lowest

number of interactions of all the companies analyzed), however, and after discovering that 32% (599) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 1,293 comments considered.

Table 54 – Iberdrola Comments - Sentiment Analysis

<b>Interaction's Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	67	5,2%	56,8%
P	4	667	51,6%	
NEU	3	148	11,4%	11,4%
N	2	363	28,1%	31,8%
N+	1	48	3,7%	
Total		1293	100%	100%

Source: Own Elaboration

Out of the 1293 comments considered and after erasing the level “None” of consideration it is possible to assess that more than half of the interactions existent in Iberdrola’s Facebook Page are positive (about 56,8%). The number of negative sentiments associated towards the company is quite lower, about 32% and the extreme negative associations only account for 4%. In terms of neutrality, it is possible to verify that this is quite a high number when compared to other companies, being the second most neutral company in terms of reactions from its customers (about 11,4%).

This outcome is somewhat surprising since the company barely makes the effort to respond to its customers comments and, from a customer point of view, and especially having in mind other examples from previous companies, the fact that customers feel as if they are not being heard or considered normally triggers an angrier attitude from them.

When it comes to the test of the degree of confidence linked to the polarity of the user’s comments, this analysis is done through the attribution of a value from 0 to 100 to each one of the 1,293 comments available for SSE. Table 55, bellow, shows that the confidence associated to the polarity results is considerable, but not as high

as most companies analyzed (except for Scottish Power which has the worst level of confidence) with a level of confidence of about 95,8, having a standard deviation of 1.04, meaning that the polarity levels show a low dispersion.

Table 55 – Confidence Analysis of Iberdrola’s Interactions polarity

Confidence Mean	Standard Deviation	Variance
95,8	1,04	1,08

Source: Own Elaboration

After identifying the level of polarity and confidence, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 56). In Iberdrola’s Facebook page, almost all the customers post comments that are straight to the point and direct and do not post or share any ironic comments (only about 3,4%). Moreover, and in terms of the subjectivity level, it is possible to assess that more than half of the comments are objective (66%), which indicates that the comments made do not have double meaning or standards. Finally, and corroborating these positive values comes the level of agreement of about 70%, which means that followers are accepting of the content disclosed, even though not as high as most of the best companies analyzed.

Table 56 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

Sentiment Analysis (Irony, Agreement and Objectivity)								
Metric	Sum	%	Metric	Sum	%	Metric	Sum	%
Ironic	44	3,4%	Objective	852	65,9%	Agreement	910	70,4%
Non-Ironic	1249	96,6%	Subjective	441	34,1%	Disagreement	383	29,6%
Total	1,293	100%	Total	1,293	100%	Total	1,293	100%

Source: Own Elaboration

After the primary analysis, follows the definition of the main topics addressed by the followers present at Iberdrola’s Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the frequency and level of polarity were also defined. When



considering the 1,293 comments present on the company's Facebook page, the topic analysis came up with 2,109 sentiment topics from those comments, which resulted in 120 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 126 topics into the 19 clusters primarily defined in the methodology section (table 9).

While analyzing table 57 and taking out of consideration the cluster "other" which included all the topics that were wrongly associated or didn't have a specific topic assigned to it (22,3%), it is possible to perceive that, once again, the cluster with highest frequency is "Person" (20,5%). This cluster comprises all the mentions to a Person's first, last or full name or even husband or wife, son or daughter, for example. In a significant number of comments there are people mentioning other people through a "@" or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company's Facebook page; agreeing or disagreeing with another person; and so on (e.g. "Carolina Diaz Ramiro nada de nada"). The fact that this cluster is the one with highest frequency shows that, for better or worse, it's Facebook posts generate a highest number of interactions among the followers of the company and may contribute to an increase in the number of followers. Furthermore, and just as it happened for Endesa, it was also found that in this cluster there a lot of mentions to the keyword "cliente" which sometimes be associated to positive content such as contests "Me gusta q penseis en todos los clientes y tengais un detalle con nosotros suerte a todos", but also angry reactions especially regarding some of the plans provided by the company: "Mejor que hicierais alguna oferta a los clientes no tanta bobada".

The second cluster with highest frequency, is "Location". Once more, and since this work is focused specifically on Utility companies, it actually makes a lot of sense that locations such as "casa", "piso", "sala", "interior" and "pueblo" are common keywords present in any Utility company's social network page, since its work and products and services impact the homes and business of any person and everyone highly depends on it: "Es necesario que sea para una 2 vivienda? O puede contratarse para la vivienda principal?". Moreover, and in Iberdrola's case, a specific keyword that was also mentioned quite a lot was "Oficina" and not in the case of specific customers who own businesses, but actually speaking about Iberdrola's

stores that are available and service provided there: “Me prefiero informar en mi oficina”; “Hola queria saver las claves y mi usuariode la cuenta de ibredrola ya que en la oficina se equivocaron al poner mi correo y no puedo entrar para ver mis facturas”.

The third highest frequency cluster is “Vocation & Titles” and this is mostly due to mentions regarding “Comerciante”, “Distribuidor”, “Asesor”. There is lot of confusion regarding the difference between the role of the “Comerciante” or “Comercializador” and “Distribuidor” and the lack of resolution from both parties. There are comments from customers which do not understand a specific problem that they have and they complaint about the “Comercializador” mentioning that this is a specific problem from the “Distribuidora”: “Os reitero que a mí no se me informan y por eso hice la reclamacion, de la que espero respuesta aparte de vuestros comentarios que no aportan nada. Me gustaría saber que cálculos hizo la distribuidora en funcion de de derechos anteriores. Ya que me facturasteis vosotros, imagino que os los abren facilitado. De momento me dijisteis que os pondrías en contacto conmigo para aclarar este asunto y anqué estoy esperando”.

Finally, the fourth and final most mentioned cluster in Iberdrola’s Facebook page is “Other Products”. This is especially due to a specific contest in which the customer had to make a mention to “Cesta” in order to win a basket full of prizes given by Iberdrola, which triggered a lot of reactions and mentions to it: “Feliz Navidad y mejor con la Cesta”. Associated to this there were also some comments regarding the lack of confidence in actually wining those prizes: “Dos productos electrónicos valorados en aproximadamente 2000€ e las regalan?????? Que no me lo creo”.

Table 57 – Clusters Frequency of Iberdrola's Facebook Comments

Clusters Defined	SUM	%
Person	432	20,5%
Artistic & Sports Organizations	4	0,2%
Companies	107	5,1%
Public Organizations (Government; Education; Health; Military;)	32	1,5%
Location	253	12,0%
Nature	21	1,0%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	78	3,7%
Fashion Product (clothes; accessories; cosmetic; hair and others)	6	0,3%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	131	6,2%
Services	41	1,9%
Contacts	50	2,4%
Hashtags	8	0,4%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	120	5,7%
Vocation & Titles	139	6,6%
Event (social event; meteorological; natural disasters; breakdowns)	46	2,2%
Processes	7	0,3%
Time (period; date; hour; year; century)	47	2,2%
Units (time, weight, currency, temperature, space or others)	116	5,5%
Other	417	22,3%
Total	2,109	100%

Source: Own Elaboration

Table 58 – Clusters Polarity for Iberdrola's Facebook Comments

Polarity Levels	Scale	Sum	Percentage	P-N%
P+	5	113	4,0%	50,4%
P	4	977	46,3%	
NEU	3	204	9,7%	9,7%
N	2	730	34,6%	40,0%
N+	1	113	5,4%	
Total		2,109	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 58, the positive sentiment associated to the topics is the most prominent, with about 50% of the associations. Still, the negative associations account for 40% of mentions, and the extreme negative mentions overcome the extreme positive (5,4% vs 4%), which is not a good outcome for Iberdrola. When customers get angry, they really get extremely angry and frustrated towards the company and this is visible on the comments with highest negative polarity. This may be due to the lack of response given by the company or, when it actually gives a response, not being effective enough to resolve the actual problem and distress for the client.

Having this information in mind, it is important to understand which clusters may signify a most positive reaction from the customer and which work in the complete opposite way.

Observing table 59, it is possible to see that the lowest average cluster existent is “Entities”, with a polarity average of 2,68. Once again, and similarly to what happened for the other companies analyzed, this cluster comprises all the mentions to problems in terms of “error” in the billing or contracts, “reclamaciones”: “Me encantaría saber qué pueden ustedes hacer al respecto después de poner la reclamación y ni siquiera contestar, y diciendome por telefono hace unos dias que iban a cerrar la factura y miro hoy y es mentira, siguen ustedes sumando hasta que les salga de los cojones, perdon por el lenguaje pero es que me tienen ya muy harta”, “fraude” and “engano” due to certain types of information that the customer believes it was omitted from him/her: “Lo que ustedes tienen que hacer es dar la información

veraz y no omitir cierta información como por ejemplo, que cobran 9 euros más impuestos por realizar cualquier gestión, cambio de titular del contrato o las condiciones del mismo, potencia contratada, etc”.

The second most negative cluster is “Services”, which also doesn’t come as surprise since most of the customers feel that they are not being listened and no one is actually giving them at least a response or a resolution to their problems. The volume of mentions to the bad quality of the customer service provided are high, and customers feel incredibly frustrated with it: “A ESO LLAMÁIS ASEGURAR LA CALIDAD DE VUESTROS SERVICIOS?”; “Ocho horas sin electricidad llevamos en un pueblo a 15 km de Salamanca. Vaya mierda de servicio”.

There are also other mentions to the other types of services provided by the company, such as the bad performance provided by the Field Services technicians: “Soy cliente pero el servicio técnico de mantenimiento es pésimo se me estropeo la caldera el martes pasado y aun sin reparación y es un triste ventilador....en cuanto pueda gas, luz y mantenimiento para la competencia q esos don más serios y en 3 horas sea domingo festivo o cualquier día te arreglan la caldera, no contratéis que pasan de todo sus técnicos tienen q descansar...menudo puentecito a 5 bajo 0 u sin agua caliente más de una semana”.

In terms of the most positive clusters, it is possible to highlight the cluster “Hashtag”, with about 3,63 average polarity. This is specially due to the contest “Tienes ganas de que llegue la Navidad? Nosotros, muchas. Además, lo que tenemos que decirte te va a encantar: VUELVEN LAS CESTAS IBERDROLA! Nos gustan las tradiciones con encanto y, en vista del éxito que tuvo el sorteo el año pasado, repetimos. Sorteamos 10 #CestasIberdrola. Si eres cliente de Iberdrola Clientes PARTICIPA! <http://bit.ly/PromoNavidadIberdrola>”. This contest triggered a lot of reactions from the customers, whose comments included the hashtag “#CestaIberdrola”: “Hecho!!! Ahora suerte!!#CestasIberdrola”. Furthermore, and still associated with this cluster, there were also two other events created by Iberdrola that contributed to a high number of interactions and inclusion of hashtags in the comments. A contest regarding energy efficiency: “Porque la eficiencia energética también consiste en tener una caldera renovada con el servicio Gas Confort. Y si participas en nuestra promoción puedes ganar un pack de bombillas inteligentes para que empieces el 2017 apostando por la eficiencia energética. Hay 6 packs en juego!

#EficienciaGasConfort”, with resulted in several comments such as “#EficienciaGasConfort un mejor aprovechamiento de la luz natural”; and a running/march event to gather contributions for Cancer research: Recuerda que el domingo tienes una cita en Murcia para colaborar con la investigación del cancer. Nosotros ya estamos sacando brillo a nuestras zapatillas de deporte. Te vienes? También puedes colaborar participando en #JuntosContraElCancer. –Quieres más info? #aectenmarcha #MurciaContraElCancer”.

The second most positive cluster is “Contact”, with about 3,56 polarity average in which customers acknowledge and thank the company for actually receiving a response and a resolution to their problems: “Yo solicité ayuda y sin ningún problema me la han dado estoy muy agradecida a Iberdrola Gracias por ayudarme en un momento crítico”; “Después de casi un mes! ¡Por fin tengo luz en casa!! Gracias a las personas de atención al cliente, que en la gran mayoría de los casos no tienen culpa de estos errores y problemas, pero son los que dan la cara!! Muchas Gracias”. Moreover, there are other customers giving their information in order to be contacted by the company, for example: “Lo necesitamos antes de Viernes si es posible. Muchas gracias y si necesitas algo no dude ([REDACTED]@hotmail.com y 0033(0)[REDACTED]). Buen día y un cordial saludo, Nathalie Amieva”.

Table 59 – Clusters Average Polarity for Iberdrola's Facebook Comments

<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	3,06	1,13	1,28
Artistic & Sports Organizations	3,25	0,96	0,92
Companies	3,12	1,09	1,18
Public Organizations (Government; Education; Health; Military;)	3,09	1,09	1,18
Location	3,23	0,99	0,97
Nature	2,76	1,26	1,59
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	3,17	1,05	1,10
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,00	1,55	2,40
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,24	1,02	1,05
Services	2,73	1,10	1,20
Contacts	3,56	1,02	1,05
Hashtags	3,63	1,06	1,13
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	2,68	1,00	1,01
Vocation & Titles	3,32	0,97	0,94
Event (social event; meteorological; natural disasters; breakdowns)	3,07	1,08	1,17
Processes	3,43	0,98	0,95
Time (period; date; hour; year; century)	3,13	1,17	1,37
Units (time, weight, currency, temperature, space or others)	3,03	1,16	1,34
Other	3,01	1,10	1,21
Total	3,09	1,09	1,18

Source: Own Elaboration

## 4.9 Gas Natural Fenosa ES

Table 60 – Gas Natural Fenosa’s Comments for 2017

#Comments Analyzed	Period
4,726	2017

Source: Own Elaboration

Gas Natural Fenosa ES<sup>2</sup>, now called Naturgy since July 2018, has about 27 791 followers and 52 058 likes (data from October 2018). Gas Natural Fenosa started using its Facebook Page in 2014. The number of posts were 182 and number of comments 1181, which, in comparison to later years were quite fewer. This action makes a lot of sense when trying to launch a new social media page without knowing how customers will react to it and it has been followed by all companies analyzed, whether in UK or Spain.

The following years and until 2017, the number of statuses posted by the company grew almost to double, having then decreased to 379 in 2017. Regarding the number of comments, it is possible to see that there was a gradual increase since the creation of the Facebook page. However, and although this increase seems quite normal, the fact of the matter is that in 2016 (8899) the number of comments were almost the triple in relation to the years of 2014 (1181) and 2015 (2984) and double when compared to 2017 (4755). This was specially related with quite a few contests and prizes launched in this year, related with energy efficiency and general culture.

Table 61 – Gas Natural Fenosa’s Facebook Posts for 2017 and respective interactions

Year of 2017	January	February	March	April	May	June	July	August	September	October	November	December
Count	42	20	35	44	50	46	43	43	45	39	43	44
Sum_Comments	829	1093	525	252	299	628	394	80	153	159	192	151
Avg_Comment_Status	20	27	11	8	8	16	16	4	7	7	7	6
Sum_Likes	732	929	2392	1731	1738	1619	841	1106	2377	2618	731	834
Avg_Likes_Status	30,5	46,5	68,3	39,3	34,8	35,2	19,6	25,7	52,8	67,1	17,0	19,0
Sum_Sad	5	7	4	8	8	11	3	1	15	2	15	1
Avg_Sad_Status	0,2	0,4	0,1	0,2	0,2	0,2	0,1	0,0	0,3	0,1	0,3	0,0
Sum_Angry	1,0	1,0	75,0	92,0	69,0	44,0	16,0	15,0	55,0	55,0	15,0	58,0
Avg_Angry_Status	0,0	0,1	2,1	2,1	1,4	1,0	0,4	0,3	1,2	1,4	0,3	1,3
Sum_AngrySad	6,0	8,0	79,0	100,0	77,0	55,0	19,0	16,0	70,0	57,0	30,0	59,0
Avg_AngrySad_Status	0,1	0,4	2,3	2,3	1,5	1,2	0,4	0,4	1,6	1,5	0,7	1,3

Source: Own Elaboration

<sup>2</sup> For this analysis, it was decided that the mention to this would continue to be Gas Natural Fenosa since the meaning cloud analysis was done before the image and name change.



In terms of customer queries, and in opposition to what Gas Natural Fenosa's main competitors are practicing, the company actually takes the time to answer almost all customer queries, whether in public comments or private messaging. It normally takes an hour to do so.

Regarding the themes that contributed to a highest number of interactions from the customers, it is possible to highlight the following: energy curiosities and tips (information given in a lighter/more fun way that teaches customers about energy related topics): “#SabíasQue en lugares donde la temperatura puede llegar a  $-40^{\circ}\text{C}$ , dentro del iglú suben hasta los  $0^{\circ}\text{C}$ , solo con una lámpara y el calor corporal. Esto se logra debido a que el iglú hace de barrera al frío del viento y la nieve actúa como aislante manteniendo el calor corporal. Iglualito que en tu casa.”; Prizes and contests: “tenemos una oferta que no podrás rechazar: entra aquí, entérate y podrás ganar un crucero para dos personas. Date prisa, la oferta solo es válida hasta el 31 de agosto. En Gas Natural Fenosa te lo ponemos la mar de fácil”; most of the posts with higher interactions, even though having different themes, such as curiosities, energy efficiency related topics, new tariffs and so on, have one thing in common: an initiative that started in 2016 called “#atrapapigmento” which is based on the appearance of a little pig in several images included in the company's posts in which customers have to call out the pig in order to win prizes. This way, and even though this is a price related initiative, customers will also pay attention to the actual information given in the post and interact with it and both the company and the customer wins.

Figure 19 – Example of “Sabías que?” Gas Natural Fenosa's Campaign



Source: Gas Natural Fenosa's ES Clientes Facebook Page

After the thorough analysis of all the status updates, the next step of this netnography was to develop a sentiment analysis of all the comments made on Gas Natural Fenosas’s Facebook Page in the year of 2017. As previously explained, this analysis was made through the excel ad-on “Meaning Cloud” which provided an understanding of the feelings associated to each of the comments made.

This sentiment analysis identifies the polarity of each interaction, turning each comment into positive, negative or neutral comments. Moreover, and in the beginning of the sentiment analysis there were about 4,726 comments to be analyzed. However, and after discovering that 51% (2405) of those comments had received a “None” level (meaning that the system was not able to take any considerations of that interaction), there was a need to erase those comments out of the analysis which led to a remaining of 2,321 comments considered.

Table 62 – Gas Natural Fenosa Comments - Sentiment Analysis

<b>Interaction’s Polarity Levels</b>				
<b>Polarity Levels</b>	<b>Scale</b>	<b>Sum</b>	<b>Percentage</b>	<b>P-N%</b>
P+	5	67	8,8%	67,8%
P	4	1370	59,0%	
NEU	3	218	9,4%	9,4%
N	2	494	21,3%	22,8%
N+	1	35	1,5%	
Total		2321	100%	100%

Source: Own Elaboration

Out of the 2321 comments considered and after erasing the level “None” of consideration, it is possible to assess that more than half of the interactions existent in Gas Natural Fenosa’s Facebook Page are positive (about 67,8%). In comparison, the number of negative sentiment associated towards the company is quite low and it only accounts for about 23%, and the extreme negative associations only account for 1,5%. This is actually extremely positive, especially since the number of extreme positive polarity is one of the highest within all companies (9%).

When it comes to the test of the degree of confidence linked to the polarity of the user's comments. This analysis is done through the attribution of a value from 0 to 100 to each one of the 2,321 comments available for Gas Natural Fenosa's. Table 63, below, shows that the confidence associated to the polarity results is quite high. Moreover, its standard deviation and variance are the lowest of all the companies, showing that the levels of dispersion are quite low and that customers in a general all have the same considerations regarding the company.

*Table 63 – Confidence Analysis of Gas Natural Fenosa's Interactions polarity*

<b>Confidence Mean</b>	<b>Standard Deviation</b>	<b>Variance</b>
97,3	0,97	0,94

Source: Own Elaboration

After identifying the level of polarity and confidence, it was possible to obtain the irony, subjectivity and agreement levels of each comment (table 64). In Gas Natural Fenosa's Facebook page, almost all the customers post comments that are straight to the point and direct and barely post or share any ironic comments (only about 3,2%). Moreover, and in terms of the subjectivity level, it is possible to assess that more than half of the comments are objective (66%), which indicates that the comments made do not have double meaning or standards. However, there is still a significant number of comments that were considered subjective and this should be analyzed more thoroughly further in the investigation order to understand if, in fact, there are double meaning attached to it. Finally, and corroborating these positive values comes the level of agreement of about 80%. The best within the three Spanish companies analyzed and second best within all companies, which means that followers are accepting of the content disclosed, even though not as high as most of the best companies analyzed.

Table 64 – Sentiment Analysis regarding Irony, Agreement and Objectivity Levels

<b>Sentiment Analysis (Irony, Agreement and Objectivity)</b>								
<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>	<b>Metric</b>	<b>Sum</b>	<b>%</b>
Ironic	74	3,2%	Objective	1237	53,3%	Agreement	1887	81,3%
Non-Ironic	2247	96,8%	Subjective	1084	46,7%	Disagreement	434	18,7%
Total	2,321	100%	Total	2,321	100%	Total	2,321	100%

Source: Own Elaboration

After the primary analysis, follows the definition of the main topics addressed by the followers present at Gas Natural Fenosa's Facebook Page and the frequency that they are mentioned. For this Topic Analysis, and as it was already done in the previous Global Sentiment Analysis, the frequency and level of polarity were also defined. When considering the 2,321 comments present on the company's Facebook page, the topic analysis came up with 3,546 sentiment topics from those comments, which resulted in 141 different categories of topics. After a thorough analysis of all the topics generated, it was possible to reach and aggregate those 141 topics into the 19 clusters primarily defined in the methodology section (table 9).

While analyzing table 65 and taking out of consideration the cluster "other", which included all the topics that were wrongly associated or didn't have a specific topic assigned to it (22,1%), it is possible to perceive that, once more, the cluster with highest frequency is "Person" (20,5%). This cluster comprises all the mentions to a Person's first, last or full name or even husband or wife, son or daughter, for example. In a significant number of comments there are people mentioning other people through a "@" or simply using their names for many different reasons, such as: letting them know a specific information given by the company; replying to another person that talked about a specific matter in the company's Facebook page; agreeing or disagreeing with another person; and so on (e.g. "Muchas gracias ya me llego el vinilo y mi nieto esta encantado"; "Luis Amor descubre la canción del año en que naciste"). The fact that this cluster is the one with highest frequency shows that, for better or worse, it's Facebook posts generate a highest number of interactions among the followers of the company and may contribute to an increase in the number of followers.

The second cluster with highest frequency, is “Hashtag”. This happens especially due to one of the most successful contests that this company has had since 2016, the “atrapa a pigmento” already spoken before in the themes that generate the highest interaction from the customer. This contest always brings a lot of attention from followers and a lot of hype, and people are actually really keen in participating: “#AtrapaaPigmento en el piquito del tejado, cerca de la veleta, a ver si te pilló esta vez :D”. Moreover, it is possible to see that the company makes the real effort to interact in a positive way with the customer and even when it posts special holiday content (without prizes associated) they have quite a lot of responses and interactions from the customers. An example is the Valentine’s day post in which the company asks followers to spot the differences between one image and the other and which do they prefer (figure 20 below): “Entre las dos me quedo con el plan A, prefiero planes tranquilos por la noche; pero en realidad ¡hay muchas más opciones! A pesar de gustarme más la vida casera que la social, también me encanta viajar, hacer senderismo y la cultura; así que entre mantita, viajes, rutas, museos y teatros, aunque no haya restaurantes, bailes y fiestas, ¡también puede haber sorpresas cada día!”. Finally, and still within this cluster, there was another contest that also triggered a lot of reactions from the customers, “the blue Monday”, in which the followers had to write three words that had meaning to them. The winners would win a dinner sponsored by “La Vida es Bella”: “#BlueMonday una historia divertida es aquella que se ríe de si misma, o sea desabróchate la camisa y destorníllate de risa”.

Figure 20 - Valentine's Day Posts



Source: Gas Natural Fenosa's Facebook Page

The third cluster with highest frequency is “Time”, with about 7% of the mentions. In this specific cluster, most of the comments concern duration of time that the customer had to resolve a specific problem with a company (e.g, “Hemos comprobado en nuestra zona que ya no pasan a recoger las lecturas de los contadores (ni lo han hecho en julio, ni ahora en septiembre), sin mediar aviso ni información alguna, así que si no se está al tanto y no la facilita el usuario, ponen la lectura que les da la gana (supongo que la que más les interese según varíen los precios) así da gusto, recortan empleos y facturan a su gusto... en fin de pena”), but can also address themes such as scheduling a specific hour for a technician to go to their home, time of billing or billing arriving later than it should, the periodicity in which the client receives the billing, time of delivery of the prizes given in the contests and, finally, a special mention to the keyword “Lunes” associated to the contest “Blue Monday”: “Hoy es lunes empezamos la semana con alegría”.

The fourth and final highest frequency cluster is “Other Products”. The existence of this cluster, actually makes a lot of sense especially since this investigation is focused on Utility Companies, specifically Energy Companies, from

which every people depend on and without its products/services they are not able to do most of the day-to-day tasks around the house and have access to what it is considered “first necessities”, such as heating, cooking, hot water, lighting, and so on. In fact, it was found that one of the keywords must mentioned in this cluster was “caldera”, from which customer highly depend on especially in the winter time. In this case most of the comments refer to wanting to know more information about maintenance services for their “caldera” (e.g. “Hola , necesito saber dónde tengo que llamar para que me hagan un mantenimiento de la caldera que ayer en la noche dio fallo, ver si mi cobertura de contratacion lo cubre, un saludo”) and also commenting on a special prize that some customers won, a vinyl for their “caldera”: “Ya lo tengo pegadito en mi caldera y queda genial jajajajaja....mil graciassss”.

Table 65 – Clusters Frequency of Gas Natural Fenosa's Facebook Comments

Clusters Defined	SUM	%
Person	556	15,7%
Artistic & Sports Organizations	8	0,2%
Companies	125	3,5%
Public Organizations (Government; Education; Health; Military;)	41	1,2%
Location	363	10,2%
Nature	112	3,2%
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	83	2,3%
Fashion Product (clothes; accessories; cosmetic; hair and others)	12	0,3%
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	256	7,2%
Services	47	1,3%
Contacts	40	1,1%
Hashtags	335	9,4%
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	165	4,7%
Vocation & Titles	166	4,7%
Event (social event; meteorological; natural disasters; breakdowns)	67	1,9%
Processes	14	0,4%
Time (period; date; hour; year; century)	260	7,3%
Units (time, weight, currency, temperature, space or others)	111	3,1%
Other	785	22,1%
Total	3,546	100%

Source: Own Elaboration



Table 66 – Clusters Polarity for Gas Natural Fenosa Facebook Comments

Polarity Levels	Scale	Sum	Percentage	P-N%
P+	5	160	4,5%	55,6%
P	4	1811	51,1%	
NEU	3	305	8,6%	8,6%
N	2	1151	32,5%	35,8%
N+	1	119	3,4%	
Total		3,546	100%	100%

Source: Own Elaboration

The topic sentiment analysis performed with the help of the tool Meaning Cloud also enables the user to evaluate the polarity of the clusters previously defined. As it is possible to verify on table 66, the positive sentiment associated to the topics is the most prominent, with about 55% of the all the associations. Even though the negative associations account for about 36% of the mentions, extreme negative mentions do not overcome the extreme positive (3,4% vs 4,5%), which is a really positive outcome for Gas Natural Fenosa.

Having this information in mind, it is important to understand which clusters may indicate a most positive reaction from the customer and which may not be as effective and go in the opposite way.

Observing table 67, it is possible to see that the highest average score is “Artistic and Sports Organizations” with a 4,5 average and an incredibly low standard deviation of 0,46, which mean that customers all have a common opinion between them. This was especially due to another contest regarding the songs that were most popular in each year and in which people had to participate and say in which year they were born in order to know the most famous song. A lot of bands were spoken about such as Spice Girls, Backstreet Boys, Coldplay, Bob Marley, and so on: “Me encantaba Bob Marley, incluso intente ponerme raftas pero no pudo ser porque era pedir demasiado, pero escuchar sus canciones cuando ibamos a la playa lo conseguí, creo que en el fondo anqué le gustaba”. Moreover, and throughout the several posts existent for this contest, and even though in one of them people would actually win prizes through the spotting of the “pigmento” (which triggered even more reactions), this didn’t stop people from actually participating in the other posts just to know which music represented their birth year.

The second highest average score cluster is “Hashtag”, with about 3,60 score. This cluster appears to be one of the best rated clusters especially thanks to the contests that regularly appear throughout the year called “Atrapa a Pigmento”. In order to win the prizes available, followers have to spot the “pigmento” and use the hashtag in their comments. The receptivity is incredible, and even though the prizes are not big, they mean a lot to the followers and they have fun while playing the game: “Turboman, Un padre en apuros #atrapaapigmento hoy veo a pigmento detras de las palomitas”; “Jaja q gracioso el pillin #Atrapapigmento”. Moreover, and even though these are regular posts, the company also tries to always post an image with the “pigmento” in special occasions and holidays such as “Navidad”, “Dia del Padre”, “Carnaval”, which are also days in which people are more prone and happier to participate and play.

In terms of the worst average score clusters, and even though they do not have an extremely high number of topics and comments, it is still possible to highlight the following: “Companies” (2,67), “Contact” (2,70) and “Services” (2,87). The second cluster, “Contact” comprises all the comments regarding two specific matters: customers wanting to contact the company and resolve the problem and not being able to (through e-mail or phone): “Vuelvo a reiterar mi disconformidad con vosotros; seguisé enviando correos electrónicos reiterando vuestro error y obligandonos a pagar una factura que no nos corresponde. Estamos intentado aportar una solución factible a todo este, pero no quereis oir al cliente en ningun caso. Hace casi dos días que me dijisteis que abráis todo lo que estuviera en vuestra mano pero aún estamos esperando esa ayuda, no hubo llamada telefónica alguna”.

The first and third lowest clusters, “Companies” and “Services” are highly associated to one another. Most of the comments refer to the company’s lack of efficient customer service and frustration towards it, using keywords such “Gas Natural Fenosa”, “Gas Natural”, “Compania”, “Comercializadora”, “Servicio” all in a negative way. Once again, these are two clusters that appear in almost every company as two of the worst clusters in terms of comments associated to them: “Si gas natural fenosa quieres contratar, asegúrate de que no te tarifiquen de más, porque a la hora de reclamar te dicen que la tarifa es la que tienen que aplicar, así que antes de contratar los foros debes mirar y comparar y no te debes fiar de la seguridad y transparencia que dicen dar”; “Servicio muy muy muy pésimo,....Llevamos

esperando desde el día 13 de noviembre poder disponer del servicio des gas en casa, aún estamos esperándolo. Hace cuestión de hacer visita en la oficina del consumidor, ya que ni con dos reclamaciones por teléfono ha servido!!”.

Table 67 – Clusters Average Polarity for Gas Natural Fenosa’s Facebook Comments

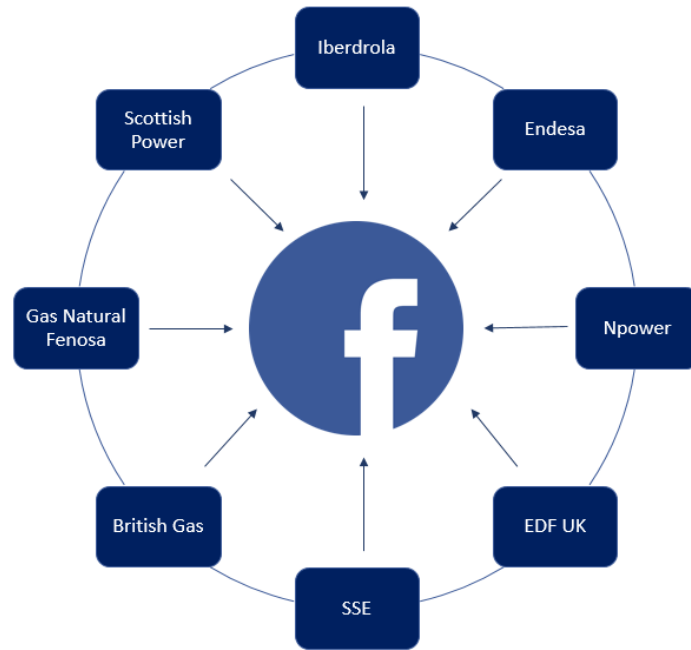
<b>Topic Sentiment Analysis – Clusters Polarity</b>			
<b>Clusters Defined</b>	<b>Average Polarity</b>	<b>Standard Deviation (SD)</b>	<b>Polarity Variance (Var)</b>
Person	3,33	1,00	1,01
Artistic & Sports Organizations	4,25	0,46	0,21
Companies	2,67	1,01	1,03
Public Organizations (Government; Education; Health; Military;)	3,22	1,11	1,23
Location	3,15	1,08	1,16
Nature	3,19	1,05	1,11
Cultural Products (newspapers; magazines; television; theatres; cinemas; music)	3,25	1,05	1,19
Fashion Product (clothes; accessories; cosmetic; hair and others)	3,33	0,98	0,97
Other products (e.g. food and beverages; electronic appliances; machines & vehicles; oil and gas; or other type of products)	3,16	1,04	1,09
Services	2,87	1,17	1,37
Contacts	2,70	1,02	1,05
Hashtags	3,60	0,92	0,84
Entities (language; doctrine; rules; religion; nationality; law; ethnicity; meanings or others)	3,07	0,99	0,99
Vocation & Titles	3,09	1,08	1,16
Event (social event; meteorological; natural disasters; breakdowns)	3,21	1,19	1,41
Processes	2,93	1,07	1,15
Time (period; date; hour; year; century)	3,49	0,94	0,88
Units (time, weight, currency, temperature, space or others)	3,25	1,03	1,06
Other	3,09	1,07	1,15
Total	3,21	1,05	1,11

Source: Own Elaboration

## Chapter 5 - Aggregated Results

The present investigation and the outcomes provided by the Netnography analysis led to the possibility of comparison between all companies selected in order to reach more in-depth conclusions that could help identify best practices and worst-case scenarios.

Figure 21 - Netnography analysis – Comparison Fields



Source: Own Elaboration

Therefore, and with the intention to extract valuable information from the data previously analyzed, the interactions demonstrated on figure 21 were examined. As formerly explained, this process is extremely important in order to help the viewers understand, in a deeper level, the impact the online communication applied by these companies have on their followers and future stakeholders. The central focus of this examination is the actual comparison between all the companies, in order to identify trends and positive behaviors as well as negative scenarios that should be considered and addressed in a more efficient and positive way.

Table 68 – Comparison of all the companies analyzed having in consideration their Facebook profile and respective comments

Facebook									
Analysis		British Gas	EDF UK	SSE	Scottish Power	Npower	Iberdrola	Endesa	Gas Natural Fenosa
General Analysis	Number of followers	96 194	28 856	78 622	22 741	51 522	62 625	27 791	51 613
	Number of interactions (total)	44 124	2 903	9 820	7 687	4 920	1 892	17 429	4 726
	Number of interactions (after erasing the level 0 - none)	29 928	1 962	4 824	2 437	2 758	1 293	8 877	2 321
	Period analyzed	2017	2017	2017	2017	2017	2017	2017	2017
Global Sentiment Analysis	Non-ironic	28998 (96,9%)	1918 (97,8%)	4690 (97,2%)	2357 (96,7%)	2687 (97,4%)	1249 (96,6%)	8741 (98,5%)	2247 (96,8%)
	Agreement	23714 (79,2%)	1416 (72,1%)	4079 (84,6%)	1388 (57,0%)	1959 (71,0%)	910 (70,4%)	7412 (83,5%)	1887 (81,3%)
	Disagreement	6214 (20,8%)	546 (27,8%)	745 (15,4%)	1049 (43,0%)	799 (29,0%)	1465 (29,6%)	1465 (16,5%)	434 (18,7%)
	Objective	8940 (29,9%)	911 (46,4%)	1755 (36,4%)	1020 (41,9%)	1170 (42,4%)	852 (65,9%)	5535 (60,1%)	1237 (53,3%)
	Polarity Average	3,80	3,18	3,65	2,80	3,16	3,26	3,35	3,52
	Polarity Scale 1	703 (2,3%)	75 (3,8%)	199 (4,1%)	146 (6,0%)	163 (5,9%)	48 (3,7%)	400 (4,5%)	35 (1,5%)
	Polarity Scale 2	4510 (15,1%)	643 (32,8%)	969 (20,1%)	1118 (45,9%)	915 (33,2%)	363 (28,1%)	2281 (25,7%)	494 (21,3%)
	Polarity Scale 3	2153 (7,2%)	220 (11,2%)	278 (5,8%)	341 (14%)	289 (10,5%)	148 (11,4%)	579 (6,5%)	218 (9,4%)
	Polarity Scale 4	15120 (50,5%)	902 (46,0%)	2272 (47,1%)	741 (30,4%)	1087 (39,4%)	667 (51,6%)	5023 (56,6%)	1370 (59,0%)
	Polarity Scale 5	7442 (24,9%)	122 (6,2%)	1106 (22,9%)	146 (3,7%)	304 (11,0%)	67 (5,2%)	594 (6,7%)	67 (8,8%)
Average Confidence	97,14	95,93	97,83	94,37	96,16	95,8	97,83	97,30	
Topic Sentiment Analysis	Topics Identified	65856	3678	4824	7014	5621	2109	14833	3546
	Polarity Average among clusters	3,68	3,08	3,55	2,59	2,88	3,09	3,01	3,21
	Polarity Standard Deviation among clusters	1,11	1,15	1,15	1,08	1,21	1,09	1,16	1,05
	Polarity Variance among clusters	1,24	1,32	1,32	1,16	1,47	1,18	1,34	1,11
	Polarity scale 1	2242 (3,4%)	239 (6,5%)	442 (5,8%)	717 (10,2%)	685 (12,2%)	113 (5,4%)	1251 (8,4%)	119 (3,4%)
	Polarity scale 2	12758 (19,4%)	1323 (36,0%)	1443 (19,1%)	3725 (53,1%)	2049 (36,5%)	730 (34,6%)	1443 (35,3%)	1151 (32,5%)
	Polarity scale 3	2871 (4,4%)	290 (7,9%)	469 (6,2%)	532 (7,6%)	525 (9,3%)	204 (9,7%)	1271 (8,6%)	305 (8,6%)
	Polarity scale 4	33376 (50,7%)	1567 (42,6%)	3993 (51,9%)	1811 (25,8%)	1965 (35,0%)	977 (46,3%)	6228 (42,0%)	1811 (51,1%)
	Polarity scale 5	14609 (22,2%)	159 (7,0%)	1286 (17,0%)	229 (3,3%)	397 (7,1%)	113 (4,0%)	853 (5,8%)	160 (4,5%)
	Top 3 Highest Frequency clusters	Person; Other Products; Location	Person;Unit; Location	Person; Location; Cultural Products	Companies; Person; Entities	Person; Companies; Entities	Person; Location; Vocation & Titles	Person; Cultural Products; Location	Person;Hashtag;T ime
Top 3 Highest polarity clusters (average)	Time; Hashtags; Location	Public Organizations; Unit; Nature	Hashtag; Cultural Products; Services	Public Organizations; Time; Units	Hashtag; Services; Units	Hashtag; Contact; Processes	Cultural Products; Artistic & Sports; Hashtag	Artistic & Sports Organizations; Hashtag; Time	
Top 3 Lowest polarity clusters (average)	Services; Entities;Vocation & Titles	Event; Entities; Services	Unit; Contacts; Companies	Entities; Services; Companies	Companies; Entities; Time	Entities; Services; Nature	Process; Entities; Public Organizations	Contact; Companies; Services	

Source: Own Elaboration

The first important mention to be made is that all the companies analyzed comprised the exact same time period of research, the year of 2017, from January to December. This was incredibly relevant since there was a need to understand the differences in terms of interactions and posts made throughout the same exact year for all the companies.

From the information displayed in table 68 it is also possible to highlight the number of interactions per company. It doesn't come as a surprise that British Gas is the company with highest number of followers as well as interactions, especially considering that this is still the number one company in the UK with about 20% of the electricity market share as well as with approximately 15 million customers. However, not all the companies follow the same logic when thinking about the number of customers they have and respective market share. For example, Scottish Power and npower are two companies that are actually quite alike in terms of number of clients and market share associated. However, npower has triple the number of followers but no as much interactions as Scottish Power (4920 vs 7687). This is not necessarily a bad thing or a cause to be alarmed, especially having in mind that the average polarity for Scottish Power is quite worse than npower's (2,80 vs 3,16).

SSE and EDF UK are the second and third largest Utility companies in the UK with a market share of 13% and 11%, respectively. However, SSE has triple the followers as well as interactions associated, which may indicate that this company makes quite a huge effort in terms of the number of posts they make (396 vs 200) and they are especially concerned about the themes chosen to be posted and how to generate more positive interactions.

When it comes to the Spanish companies it is quite impressive to see that Gas Natural Fenosa, specifically, has quite a considerable number of followers and interactions, especially when having in consideration that this is the company with lowest market share amongst the Spanish companies analyzed. It seems that this companies are actually making an extra effort in providing content that generate a more positive attitude and reactions towards it (since the polarity average is the highest among the three companies analyzed).

In table 67 and before moving onwards to the Global Sentiment Analysis, it is noticeable that almost all community members, for each company, interact in a non-ironic way (these vary between 96% and 98%) which makes these specific analysis and respective results very similar for all the companies. In respect to the agreement level, almost all the companies have a level of agreement of 70% and above, except from one - Scottish Power, which, once again, comes first in terms of negative display of its community's interactions towards its content and itself (about 57%). This does

not come as surprise, since this is the company with lowest polarity average, which reflects highly on what followers feel towards it.

On the other hand, SSE is the company with highest score in terms of its community actually agreeing with its content (84,6%), followed by the Spanish companies Endesa and Gas Natural Fenosa.

Finally, and in terms of objectivity, it is possible to see that all the Spanish companies have a higher level of objectivity in their interactions (an average of 60% vs 40% for the UK based companies). This may be due to the obvious differences between both cultures in which the companies are based in, making it seem that all in all Spanish customers are much more direct and objective than the UK customers when reacting to the company's content.

Moving onwards to the Sentiment analysis, it was concluded that, out of the 8 companies considered, 4 have their communities reacting in a more neutral way towards them, rather than negative or positive (EDF UK, npower, Iberdrola, Endesa).

However, and once again, the only negative exception is Scottish Power, with about 2,80 polarity average, making it the worst company in terms of sentiments shared by their followers towards it. In fact, more than 50% of the reactions have negative sentiments towards the company. This may also be related to the lack of resolution given to customers problems and the necessity felt by them to use the company's Facebook page as their last resort to complain about the problems that they have and reach a resolution.

Nonetheless, a special mention must be made to the companies British Gas, SSE and Gas Natural Fenosa. These three companies share the best average polarity results within all the companies: 3,80, 3,65 and 3,52, respectively. These companies are actually making a difference within all the companies and creating a more positive relationship with its followers. Corroborating this mention comes the positive level of polarity associated towards them: 75,4% for British Gas, 70% for SSE and 67,8% for Gas Natural Fenosa, which means that most of the reactions that come from their followers is positive. This is incredibly relevant and noteworthy since these are Utility companies, companies that are only normally considered and thought about when something goes wrong or is not working correctly, since most customers expect to have energy in their home. In fact, these three companies are actually being able to produce positive and interesting content in order to establish and maintain a

positive relationship and reaction from their customers/followers, besides the problems or errors that they may encounter with the company. Their communities are interested in participating in their social media platform and share what they feel, sometimes without anything in return. This shows that the communication fostered by these companies is really strong and it is, in fact, contributing to the development and maintenance of a better relationship with its communities and, in return, they are able to raise brand awareness and uphold a good reputation.

In terms of the Topic analysis, all the comments and reactions attached to each company result in a higher number of topics associated to them. The company in which this number was more prominent was, without a doubt, British Gas (65 856 topics identified), followed by Endesa (14 833). On the contrary, the company with lowest number of topics associated to it was Iberdrola, for the Spanish market, and EDF UK for the UK market. Just as it happened for the global sentiment analysis, the topics were also targeted for a topic sentiment analysis. Here, half of the companies share a neutral sentiment in regard to the topics identified (4 out of 8 companies: EDF UK with 3,08 average; Iberdrola, 3,09 average; Endesa, 3,01 average; and Gas Natural Fenosa with 3,21 average polarity). This time, Gas Natural Fenosa had a sentiment below what was expected, however, and when considering the rest of the neutral companies, this company is still the one with highest average.

When it comes to the companies that share the most negative sentiment associated with the topics identified, once again, Scottish Power comes in first place (2,59). This does not come as a surprise, since this company has already showed, in previous analysis, that most of the content shared resulted in a lowest score in terms of sentiment score associated to the customers and followers comments. However, there is a surprise in regard to npower, which was only able to gather an average polarity of 2,88.

Finally, and in terms of the companies that stood out the most in terms of the positive sentiment identified in the topics, it is possible to underline British Gas (with 3,68 average polarity) and SSE (3,55 average polarity). Nonetheless, and when looking at the Spanish companies, and even though this company is closer to the neutral sentiment side, it is possible to highlight Gas Natural Fenosa as the best amongst its fellow competitors.



When analyzing the most mentioned topics included on the respective clusters, it is possible to highlight the cluster “Person” as the common cluster that appears for each and every company analyzed. This means that for better or worse all of these companies publish content that induces in a positive or negative way customers to share the content with other or to mention others in their comments within the companies Facebook page. The second cluster that appears in most of the companies in terms of mentions is Location (5 out of 8 of the companies). This happens since the mention to a location is a central focus for any energy Utility company, since it obviously has a massive impact in a positive or negative way in the homes, buildings, offices, malls in which any human being is present, because everyone depends on it. Still there are other three clusters that appear more than once within the companies, these are: “Companies” (that appear in 2 out of 8 companies); “Cultural Products” (that also appear in 2 out of 8 companies) and, finally, “Entities” (that, once again, appear in 2 out of 8 companies).

Now, when looking at the most positive clusters this “equality” is not as apparent as for the most talked clusters. Here, it is possible to understand that the variation is much higher within all the companies. However, there is one cluster that stands out from all the rest: “Hashtag”. This cluster is present as one of the most popular clusters in terms of positive sentiment towards it in 6 out of 8 companies. This means that, when using this type of method to foster higher interactions from the community, it is almost certain that it is going to create more positive than negative reactions, especially because this is always associated to contests. In fact, all this companies invest highly on contests and themes in which the customer has to actually share the hashtag of that specific contest in order to win or share a sentiment towards that specific theme.

Nonetheless, there are other two clusters which are present in more than one company and that also generate a more positive reaction: Time (present in 3 out of 8 companies) and Units (also present in 3 out of 8 companies). The first one may be highly related with the seasonality of the content shared by the company (Christmas, Valentine’s Day, Father and Mother day, and so on) and the second one is mostly related with smart metering and power. However, it is also important to state that even though these last two clusters are two of the most positive for three companies,

the values associated to them are more inclined to neutrality than for positive sentiment associated.

Still, in the positive sentiment associated, there is one cluster for a specific company that should be extremely highlighted for being the only company with such a positive sentiment associated to it (about 3,96 average polarity). SSE, considered the best company in terms of customer service in the UK in 2016, has seen the cluster “Services” has one of the best clusters in terms of positivity associated to it, which comes to corroborate the mention that this is in fact the best company in terms of satisfaction towards its service provision. This is the only company within all of the 8 with an actual positive sentiment associated to this cluster.

Npower has also a higher average polarity concerning the “Services” cluster (3,33), but this is more inclined to the neutrality side and the number of comments associated to it being quite lower.

On the other hand, and in regard to the most negative clusters associated to most of the companies analyzed, it is possible to see that there is one that is present in 6 out of 8 companies being the most common out of all the clusters: “Services”. It does not come as surprise that this cluster is the one with most negative sentiment associated to it, since we are speaking of incredibly large companies that need to supply energy (gas and electricity, plus other services) to an extremely large number of customers (millions). Moreover, and since these companies are providing first necessity services to any common customer, the impact of actually not being able to provide it or the fact that something went wrong, result in an incredible impact, not to one person only, but to hundreds or millions of people. The other most mentioned cluster within all the companies is “Entities” (present in 6 out of 8 companies). This cluster is highly related with complaints that comprise: power outages, bad and inefficient customer service, wrong billing dates and values, lack of a working heating system due to a technical problem or inexistence of gas and electricity (which also directly contributes to comments regarding “sickness”, “flu”, “cold”), technicians not appearing when supposed to and lack of response given by the companies Facebook management team (especially when having in mind that a lot of customers feel as if they are resorting to their last option for problem resolution, after passing through several call center assistants, for example). Finally, the last clusters with the highest negative association towards it, is “Companies” (existent for 4 out

of 8 companies). This cluster goes hand-in-hand with the previous two mentioned, since most of the companies when complaining about a specific problem, always mention or identify the name of the company, or the keyword “company” or “organization” to explain the matter.

## Chapter 6 - Conclusion

Several authors have already demonstrated the importance of being present on social media, not only when it comes to fashion, retail or technological brands, but any brand that aims to provide and foster a healthy relationship with its customers as well as to keep them informed of all the relevant information that concerns them and the brand itself and to also reply to any concern or doubt the customer may have. As previously mentioned, a study done by Oracle in 2013, demonstrated that more than 57 million customers worldwide used social media to engage with their Utility companies and that number would dramatically increase even more in the future. Consequently, it's imperative that companies such as EDP, Galp and others, in Portugal and Worldwide, start focusing more on actually creating a relationship with its clients and engage them in everything they do through these online channels that are available to almost anyone for free. Social media is one of the most powerful tools, not only to inform, but also to clarify information that would be somehow needed to be shared through other channels (obliging the customer to actually contact the Company and not the other way around).

Having these important facts in mind, it was imperious to investigate further and understand what other companies with similar characteristics are doing in order to address this and if is in fact valuable to utilize this social media tools.

In this investigation, sentiments polarity through text mining techniques of more than 90 thousand comments from 8 different energy companies were applied (using the online tool "Meaning Cloud"). The aim of this study and what makes it different from others that followed the same path, was the fact that it was applied to a specific type of company/sector that is not considered to be highly acknowledged in terms of efficient communication strategies in their social network tools. This is especially due to the fact that they are normally considered as companies that are providing basic necessities and with which customers do not desire to actually create a strong relationship or interact with it whatsoever (unless something goes wrong).

When considering the Portuguese Utility companies actions, the limited social media presence can be even more concerning for this companies brand awareness and reputation, as most of them seem prefer not to be highly active on social media (or even present) and actually engage in a powerful manner with its customers.

As a norm, incumbent companies prefer to use Instagram and YouTube as their main social media tools. However, these tools are mainly used to share photos or videos about specific partnerships done by the companies in terms of social events (especially, Sports and Music events) or institutional matters. EDP, for example, really wanted to step out of just the name of EDP as a company, and launched an Instagram page called “edp.music.sports” in order to clearly separate the fact that EDP one of the most important sponsors of music and sport events from as an energy provider as a whole. It is also interesting to see that even the logo is different from the company’s official logo, in order to make a complete separation and, probably, not urge clients to associate this to what the company really is in its nature. This clearly made a difference since the majority of the comments are mostly positive (even though the number of interactions are quite low).

Figure 22 – EDP’s Instagram Page



Source: EDP

However, and in light of the main findings in this thesis, EDP would be better off in creating an Official Instagram Page. This would allow EDP to take full advantage of a large variety of content that could be beneficial to improve the relationship with its customers: content associated with events, smart home energy, electric mobility, green energy, are examples of contents that could generate more positive hype, and at the same time, create healthier and engaging relationships.

So, having all of this in mind, and in order to find best practices to be applied on present and future social media pages of companies such as EDP, eight market leader companies (with a strong social media presence) in the UK and Spanish energy markets were chosen.

Having in consideration the methodological process defined, a netnography analysis was performed and, during the year of 2017 (the time period established for this analysis), the sentiments expressed by the followers of those eight Utility companies diverged from mainly neutral for four out of the eight companies chosen (EDF UK,

npower, Iberdrola and Endesa), to positive for three of the eight companies which will be considered as the best practices for this investigation (British Gas, SSE, and Gas Natural Fenosa) and one extremely negative (Scottish Power), which will also be considered as a case to bear in mind in terms of attitudes a Utility company cannot have while designing an efficient and positive social media strategy. Afterwards, a Topic Sentiment analysis was performed in order to understand the most dominant topics among consumers' interactions with the brand (in terms of more positive and most negative associations).

## **6.1 Theoretical Contributions**

The aim of this dissertation was to understand the impact of the presence of an Utility company on social media and how the relationship with the customers and followers is being fostered, maintaining, at the same time, a positive brand awareness as well as respectable reputation. Moreover, it was important to take out best practices and actions that can and should be applied to other companies.

In order to do so, this investigation focused firstly on the examination of different studies and research regarding the use of social media for companies in general and for Utility companies specifically, as well as the use and interest of customers to actually participate and follow a specific Utility brand and engage with it. Moreover, it was also relevant to perceive what are the types of social media crises that may arise and how to correctly treat each one. Finally, several types of social media complaints were investigated in order to correctly identify when one of those situations may appear and how to address them in the more efficient way possible without creating precedents and, at the same time, mitigating what could become a crisis situation.

With the intention of understanding the dynamics existent in this specific market and using the eight companies chosen as practical examples, the following research questions were defined: (1) how can Utility companies efficiently use social media platforms to manage and improve their reputation? 2) what are the best responses and actions to be undertaken by Utility companies in reaction to the unlikely event of a reputation crises? 3) what are the best practices in social media management that allow Utility companies to prevent reputation crises, by minimizing the likelihood of a downfall in their brand's trust and reliability?

Regarding the first research question “how can Utility companies efficiently use social media platforms to manage and improve their reputation?” it was seen that there are specific themes and content posted by the companies that clearly bring out a better side of them in terms of perception from their followers/clients. Themes such as seasonal and holiday content, energy efficiency tips, smart meter information, important disclaimers regarding power outages and contests reflect highly on the customer in terms of fostering a more positive relationship with the company. Moreover, and as it was previously identified, 7 out of the 8 companies had a neutral or more positive reaction from their followers towards the content shared by their companies, which is in fact a really positive outcome. The normal thought that an Utility company has regarding the possibility of being present on social media is that they will only receive negative feedback and criticism, since people only care about them when something is missing. However, this seems not to be case, and communities actually engage with the company in a positive manner. It is obvious that these companies will always have criticism and complains in the middle of others that are more neutral or even positive, but it all comes down to how the company addresses and works around them.

As it was previously identified during the research investigation, and according to UK’s Citizen Advice Study, 77% of the customers stated that valuing customer’s time is the most important feature for a company to follow imperatively – being the fast response one of the most effective ways for brands to ensure that they can maintain and improve positive reputation. Therefore, the thought of not providing a response to a customer should not even be a premise. Having this in mind, it was also possible to see that, in general, most of the companies try their best to respond to customers within a day and this is actually a trend that should be followed. Moreover, and with the intention of corroborating this thought, the authors Aichner and Jacob (2015) stated the importance of not ignoring their followers as this may evolve to a larger problem and global discussions about the weaknesses of the company itself, its products and services and everything it does. This can be easily avoided with the correct team to address these problems and comments, in order to maintain the reputation intact. Several other actions will be presented in more detail in the section “Managerial Implications”.

When it comes to the second research question 2) what are the best responses and actions to be undertaken by Utility companies in reaction to the unlikely event

of a reputation crises? From the analysis made and examples available, it was not possible to clearly assess if there was a specific critical situation in which a crisis could have arisen. However, it was possible to perceive that some of the themes and content posted, generated a higher number of angry comments, but not enough to create an actual feud between the customers and the company. The only exception was in the case of the Scottish Power which had the largest percentage of negative comments and an average polarity of about 2.8. This is also due to the fact that customers felt as if they were not being heard and they did not get a response from the company regarding the problems mentioned. Moreover, and in this specific year, there was a storm/hurricane called Ophelia which left a lot of customer without power in their homes. This generated a lot of negative comments and complaints from the customers especially since the company only made one post regarding the matter “Our SP Energy Networks engineers have been working tirelessly today to reconnect power following Storm Ophelia. We'll have everyone back on as soon as possible”. What probably could have helped the company in terms of the negative and angry responses from the customers was to actually provide more updates during the days in which the problem existed in order for the community to be aware of what the company was doing and when should they expect the power to be restored.

Furthermore, and while going through all the clusters that generated the highest number of negative comments associated to it, the cluster “services” was the one on top of the list of almost every company analyzed. This means that customers are using the content published (even though not directly related to it) to criticize the company instead of actually being engaged in the content shared. This is obviously a red flag for all the companies and there should an even higher focus on treating these types of comments that mention “bad service”, “complaint”, “worst customer service”, “waiting for days for the customer service to contact me”. These are the types of comments or keywords that should be firstly taken care of. It is obvious that an utility company will always have a lot of negative comments regarding the service, since they are serving a really large portion of the population and, sometimes, due to matters that even the company is not able to foresee (storms, hurricanes, and so on) may generate situations that need to be taken into consideration and treated as fast as possible, since these are the kinds of comments that may arise to a possible crises. When specifically speaking of bad service or lack of help from the company when resolving a specific matter, it is important for the Company to



highly invest in training their social media assistants and actually link them, on a regular basis, to specific teams and business units to more effectively to resolve the issues that are considered “high priority”.

Moreover, and since these companies receive a large amount of comments on a regular basis, an important tool to invest in is, for sure, a text analytics or social analytics tool. This will help the specialists who are managing the page to look for the highest number of negative keywords, see who is talking about the company and understand the tendencies around the comments made and actually forecast all the actions needed to correct these problems. Moreover, and sometimes, if the problem arose for thousands of people, the company may even decide to make a post regarding that specific comment and stating that the company has been paying attention to this specific problem and propose specific solutions for the customers. Furthermore, they can even ask customers to formerly speak with them through private messaging in order for them to take care of their specific problem.

Finally, and when a crisis situation arises, it is important to quickly understand if the crises was actually 1) directly associated with a problem caused by the company (or if it was a situation in which the company was also actually a victim) which was consciously done - here the company must apologize formally and assume all responsibility for their actions to all customers and stakeholders in a public statement and actually propose actions that they are doing in order to prevent the same from happening and even, if applicable, compensate the victims involved; 2) external events such as natural disasters, rumors, or scandal within co-workers (misconducts) – in this case the responsibility of the company is much more diminished since it was not able to prevent this problems from happening and their reputation should not be threatened by this; 3) if something wrong happened in terms of any failure on behalf of the company – this should be treated with caution and as quicker as they can in order to not create problems to the reputation, even though they pose as threat (Coombs, 2004).

Finally, and regarding the third research question 3) what are the best practices in social media management that allow utility companies to prevent reputation crises, by minimizing the likelihood of a downfall in their brand’s trust and reliability? This question is highly associated with the previous two already mentioned. The conclusions taken out of the eight companies analyzed composed a great advantage when thinking about best practices to focus on, in order to have the most efficient social media strategy

possible (especially when focusing on British Gas, SSE and Gas Natural Fenosa). Besides what was already mentioned in the two previous questions, the author also focused on the most common positive clusters that actually allured the customer to engage with the brands in the most positive way possible. This happens especially when the company spoken about events (such as music, sports, art), contests (always using “hashtags” in order to create more awareness and the possibility of sharing the content with more friends and family) and tips to reduce the energy bills in the customers’ homes. Moreover, and even though it is still associated to a niche market, the themes regarding smart home, green energy and electrical vehicles (including bikes) have been positively growing in the minds of the consumers. When thinking about Millennials, which are going to be the next generation of customers for all these companies, the concern for green energy and ways to reduce costs with the help of smarter appliances is something that is being considered as the near future for this new generations.

## **6.2 Managerial implications**

The research made available by this thesis disclose relevant practical implications that could and can be applied to any Energy Utility company. As it was previously stated by several authors and specialists in the world of online marketing, the presence on social media is a must for any company who actually wants to go deeper in their relationship with customers. As Lewis (2016), a Digital Content Specialist for Black and Veatch, mentioned in an article regarding the importance of social media for companies, “social media is an added customer service tool. Don’t think that if you don’t have a presence on social media people won’t share their views – they will establish a reputation for you even if you aren’t on there to share the facts. It’s a whole new level of customer service – very fast, very immediate.”

This is extremely true, especially when looking at EDP’s case. As mentioned previously, EDP was in fact present on Facebook about seven years ago. However, due to a specific post made by a customer regarding the construction of dams, an explosion of comments arose around this, especially after EDP had taken the decision of erasing that specific comment for “not respecting the company’s rules of conduct”. This resulted in a series of comments made by other followers who were extremely dissatisfied with the actions delivered by EDP and feeling that the company was

creating somehow a conduct that was against freedom of speech instead of actually trying to resolve the situation in a civil, correct and educated manner. After a few days, and having been accused of several misconducts, EDP decided to close its Facebook until this day.

It's true that recently EDP has been making the effort to try again and re-entered the social media world through Instagram (besides their YouTube page). However, and as previously stated, they tried their best not to be addressed and considered as the Company that sells energy and services related but actually one of the most important sponsors of events in Portugal. This obviously works in terms of positivity around what they do as a sponsor, but it still feels as if they are forgetting the other part of their essence as a company that services 85% of the Portuguese Market.

There are many reasons to why EDP should make a new comeback to Facebook and make a new communication statement by using this type of online tool.

Firstly, and extremely important to mention, EDP was already present on Facebook and, therefore, has already a lot of examples of red flags and action don'ts that can be followed and can also take out some examples of content that generated more positive reactions. Secondly, using this tool effectively may help to improve EDP's reputation and brand awareness and, at the same time, it can also contribute to innovate EDP's image and improve communication with its customers. Thirdly, EDP may also be able to optimize costs in customer services. How? Through a good adherence to social media for customer service purposes, which could even help EDP reduce coordination costs among relevant business areas. Lastly, using this social media tool could also contribute to an alternative influx of information (and to some extent be an extra value added listening tool besides standard customer services surveys) that could help with the monitoring of operations (understanding and monitoring the quality of the service provided), but also with the decision making at a more macro strategy level (e.g. challenge: to disentangle the issues across business areas and channels and to coordinate adequate responses and solutions for the customers).

Nevertheless, and when choosing to be present on Facebook, there are still some risks that need to be thought out and considered by any company when navigating through a social media strategy and which can trigger social media crises

and harm EDP's image with its stakeholders: 1) damage to brand reputation – if a brand is not able to address the customers comments in a constructive and civil manner, it can evolve into a much bigger crisis (just as it happened to EDP); 2) overuse and inconsistent brand content – if a brand is bombarding the customer with too much information and information that is simply not relevant, it can work against itself. This may contribute to the loss of customers and infuriation of others; 3) account hacking – any powerful brand may be subject to this type of actions in the online world. Therefore, it is important to have risk assessments and online security teams following the brand's online tools regularly in order to reduce the possibility of a hack (according to Millennium Agency, 2018).

It is with all these facts in mind, that we propose a communication strategy that may help EDP's marketers and communication specialists to create a Facebook page in order to hear and engage with their customers and future customers, but also to share important information that may also be relevant for their customers. It is obvious that a company with the power that EDP has in the market will always have to bear in mind the existence of negative and hurtful comments, but the key factor here is how the company treats the comments in order to actually mitigate the possibility of a catastrophe that could be easily avoided with a specialized team and an effective social media strategy.

British Gas, for example, have double the number of customers and they still chose to have a Facebook account in order to speak with their customers and hear what they have to say. They have a team of specialized personnel to respond to customers queries, aiming to resolve the problems. None is left hanging without a response.

Therefore, and with the results found for the other eight companies analyzed, we propose some guidelines that should be followed in order to create the most positive environment possible in EDP's Facebook Page:

- 1) Social Media as a 24/7 Contact Center** - A social media platform should not only be considered as a place to make cool and engaging posts, but is should also be considered as a 24/7 contact center (according to Gioga and Tinda, 2016). Therefore, this type of channel should be considered as important as any other channel, if not one of the most important, since everyone will be

able to see the comments customers make and what EDP actually replies. This channel should be an integrated part of the business strategy and not something done on the sidelines when the company has time to deal with it. If the company follows this path, it is important to bear in mind the necessity of having an omnichannel strategy – which is having a set of channels working in terms of customer service that have the exact information to give the customer and that can work together in order to give the best customer experience possible to every customer. A type of complaint that a lot of customers have is the fact that they contact different channels such as a Store or a Contact Center and in each they receive different information. This can never happen, it makes the company look bad and that it's not training its staff correctly, leaving the customer doubting the information given.

## **2) Different teams for different purposes:**

**2.1 - Creation and training of a specialized team specifically for customer service**, if possible, a considerable number of people who already worked in some of the EDP's channels (such as the contact center or stores) in order to have a team that is highly focused and have an extreme know-how in how the operation works and that can easily speak with the right interlocutors, if needed so. This team will be valuable not only in terms of actually treating problems almost in real time and independently (hopefully most of the times), but that can actually pass on constant problems that they have seen in a higher number of comments and can be easily treated internally at a more macro level by a specific business unit. This team should be considered as a transversal and independent team which gets approached by the customers, takes stock of their complaints, tries to resolve the problem alone or relays with the relevant customers services team and business units (if they are not able to resolve the problem solely) and relays back to the customer with a proposed solution. If possible, this specialized team should be composed by permanent workers and not temporary ones, as companies normally have on a Contact Center, for example, since the know-how and training would have to be done again and again, which would possibly result in a worst treatment of the comments posted by the clients and a decrease on customer

satisfaction. Finally, and besides the operational knowledge that this team imperatively has to have, they will also need to be highly prepared, trained and nurtured with communicative skills (and soft skills) in order to provide the most appropriate responses not only in terms of problem resolution but also in order to be more creative and “out-of-the-box” when speaking with the customer.

**2.2 – Existence of a communications and marketing team (2 to 3 people)** to manage posts, comments, and feeds and every content that is related with the information published (for example a specific event, a new contest, a new type of service or product) and not so much with customer service and operations part of the content.

**3) Always respond in a timely basis and in a polite way** – unfortunately, a social media specialist will not be able to actually resolve all the problems in just 15 minutes. However, not all customers want to even consider this fact since some of them are already extremely frustrated with the lack of resolution provided by the company. Therefore, the initial statements provided by the customer representative are extremely valuable. Here, it is important to somehow manage customers’ expectations, investigate and triage how much time the specific problem may take and let the customer know. This will make him feel more comfortable and heard. So, the more accurate attitude to have is actually responding in a polite matter and state that you are aware of the problem and you are working as fast as you can in order to solve the problem with a timely expected resolution. This should be done at least in the same day the customer has made the comment (this is normally what is practiced by the other companies analyzed – going from only one hour of wait to a full day). In terms of actually resolving the problem, and since this will not only depend on the specialist, it may take a few days, but the customer should always be aware of what is being done. Therefore, sending a private message to him/her would also be important. This will obviously involve a considerable effort and organization in daily operations and that is why the triage is so important when trying to resolve a specific problem. From some of the examples that the author was able to gather, British Gas, SSE and Gas Natural Fenosa always try to have a response to almost every customer (this

being a negative or positive comment). On the other hand, some of the companies had customers stating, “forget it, they don’t care about what you say and they will not respond” to when some other fellow follower asks a question to the company. This simply cannot happen. If the company actually has the consideration of replying to the customer, this will contribute to less and less situations of possible crises. Lastly, never forget to say thank you and please, being polite is incredibly important and besides addressing customers who are unhappy, the specialists must always reply to the followers that are happy and just saying good things about the company and thanking them for their feedback. This will even help the company to foster brand ambassadors. The customer representative should also be aware of the asymmetry of the problems published by the followers and, therefore, needs to be flexible and adaptable enough to answer in different ways. In the solution mode, they need to provide effective communication, be transparent and minimize information frictions. When the customer is communicating their disapproval or frustrations, they need to let the customer know that they are doing their best in dealing with the problem and to show at least some progress. Finally, there will also be situations in which the representative will need to apologize. These apologies need to be taken with caution, as they would put EDP on the defensive.

- 4) **Do not respond, only for the sake of responding.** It is important not to leave the customer without an answer, but it is also important to let them know that the company is working on the problem shared and discussing internally with specialized teams in the company’s operations departments to resolve the issue and provide a credible and effective resolution. A lot of companies, lack to provide an actual resolution to the problem experienced by the customer, even though they reply to him/her stating that they are aware and want to help him/her. What is normally programmed as an actionable response, may not work for every customer, therefore, personalization is incredibly important while managing a social media page and negative comments. If the assistant continues to “stall” the customer, he/she begins to feel even more frustrated, especially when the problem is being passed on through several assistants

which ask him constantly for the same information. This last part is extremely relevant when thinking of friction with the customer. **It is crucial for customer representatives not to ask for the same information over and over again to the customer, therefore, EDP has to effectively manage how the information is relayed from customer representative to customer representative.**

- 5) **Never, ever, think about erasing a comment** or a post made by the customer. This is the golden rule to a successful Facebook Page. Even if the company received one of the rudest comments of all time and the customer doesn't even mention a specific problem and is only looking to steer controversy, it is always important that the company passes through this problem gracefully and asks the customer if there is something he/she needs resolved and that you are here to help as you can to see an happy customer. Moreover, and if applicable, if the customer is extremely angry with something done by the company, something more serious, the company can even apologize for its behavior and offer something in return to make the customer more satisfied with them. If this is the case, the company may publish this publicly and then discuss what they can do to help the customer through private messaging.
  
- 6) In terms of **themes to be used** and applied in the companies social media strategy, there are some that normally generate a more positive reaction from the customers and are important allies in order to create a more positive relationship with the customer: smart home energy products and services; energy management and efficiency tips; green energy solutions and discounts in this type of appliances such as solar energy or electric cars and how can they help the customer reduce costs; educational and fun posts about energy and curiosities that the customers did not know about; common household safety tips; scams that are being made in the name of EDP but are actually false; communication of power outages and time of resolution (here, it would be even more helpful if the company could inform the clients almost in real time about a specific matter and the resolutions being done); sport and music campaigns and events; societal matters (supporting others and themes that



matter in the society); contests in which the customer can win a chance to be present, for example, in one of EDP's sponsored music and sport events or even a specific product sold by EDP such as boilers, air conditionings, and so on. This would obviously have costs associated, but, at the same time, would generate a higher number of reactions, mentions and comments from the customers speaking about the new product or ticket they won from EDP, which, a lot of times would result in them even saying good things about the company and the products and services it provides (for free and without the need to advertise). Moreover, and another thing found in several of the previously analyzed companies was the fact that sometimes the customer was not aware of specific things the company offers. For example, how smart meters work, if they are working, and how can they confirm. This is the type of information that is going to be easily found in a higher number of comments and that the company can use in its advantage to make a specific post explaining everything the customer needs to know about a specific matter.

Besides this, making posts celebrating specific times/holidays of the year, are also a great way to generate a more positive reaction from the customer – Christmas, Easter, Valentine's Day, Mothers and Fathers days and so on, are a great way for customers to feel valued and actually share some positive comments with the company. If, together with some of these posts, the company makes some kind of games and "hashtags" references, such as Gas Natural Fenosa has done, the reactions will be extremely positive and the company will not need to offer anything fancy. In the case of Gas Natural Fenosa they only offered a vinyl for the fridge and other small appliances and people were extremely happy about it.

Finally, and since we are proposing a social media strategy for EDP, for example, we will obviously have to think about the several type of target groups EDP serves (with its 85% market share). Here, they will have all kinds of people, therefore, it is important to create a communication strategy with which all customers are able to connect with. It is obvious that not all customers will go for "green energy", because some are more worried on how to actually pay the bills and this is why EDP should focus on a more broad and varied strategy that could actually provide relevant information for the

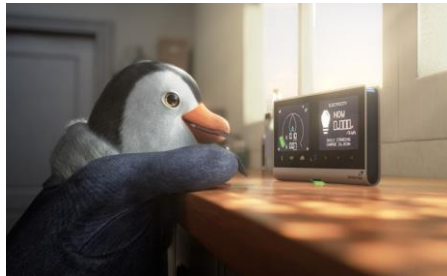
different niches of the market and the market as a whole. In order to do this, EDP can vary its communication from day to day, having a specific day to speak about green energy and electric mobility, another one on social tariffs, another one with contests and discounts, and so on. Provide content that can reach all people that's the key factor.

- 7) **The number of posts should be made regularly**, but not enough to bombard the customer continuously. Therefore, the best practice should be to have a post per day or every two to three days. More importantly, the company should bear in mind that if it does not have anything good to say, it is better not to say anything. Just keep in mind that it should be active and share relevant and interesting things for customers to see and engage with. From what we were able to assess in the other company's analysis, normally the posts are made on a daily basis, especially in the Winter time (and December, specifically). However, this will mainly depend on the content the company has in each moment and what it actually wants to pass on to its followers.
- 8) If possible, **develop a text analytics system**, to help the social media specialists to find common keywords and more negative mentions that may be more spoken than others. This will help to mitigate constant talked about problems and focus on more complicated and specific ones. For this, a transversal team of experts in text analytics and big data analysis would be needed to help identify structural problems with the daily operations. This team would then relay with the appropriate business areas in order to develop medium-term and long-term strategies to solve these issues or, at least, minimize them.
- 9) **Ask the customer for opinions and make him feel engaged** – for example, if the company is trying to develop or create a new product or service, why not actually ask the customer about their own opinions and what they feel could benefit them in the future. Moreover, and in order for the customer to feel as if their opinions were actually heard, it would be important to share the outcomes of the information gathered. EDP could show brainstorming's

done by their business teams (a room with a group of people with several posts-it's with keywords and ideas provided by the customer and their opinions about each idea provided), if they were able to actually reach to a decision in terms of a new product or service, thank the specific customers that provided that information publicly and offer them that product for them to experiment or to pilot.

**10) Images and videos are a must** – this specific point almost explains itself. As it is commonly said “a picture values more than a thousand words” and this is actually true. Followers may be more prone to pay attention to an engaging picture or 1 minute video, be interested and actually share them instantly. This is simple to understand, easily shared and can work on multiple channels (according to Smart Grid Collaborative, 2013). Here, the company can use the images and videos as statements of what they want to achieve. For example, British Gas, uses their brand's mascot Wilbur quite a lot in their images to illustrate products, services and events provided by British Gas (image bellow as an example of a publication about the use of smart meters).

Figure 23 – Wilbur and the Smart Meter (British Gas)



Source: Own elaboration

**11) Show the inside of the company** and the people that work every day to ensure that everything is working as efficiently as possible for the customer – the company can even **share stories on a weekly basis** of different people working in the company and ask them to share their point of views, what they do every day and how they ensure that the client is in the center of everything they do. This will help the followers and communities to feel closer to the company and will provide a feeling of transparency.

**12)** When seeing **red flags related with services** and specific keywords mentioning “bad customer service”, “complaint”, “worst company ever”, always try to understand the specificity of problem mentioned and if it’s just for the sake of hurting the company. In order to do this, the customer representative could start by replying to the customers comment with the following sentence (which may avoid a formal complaint made by the customer): “Dear customer, thank you for your input/feedback/comment. Would you please be so kind as to sending us a personal message (or to fill in the complaints ticket) highlighting what is the exact issues you are facing, so that we can start looking into it in more detail? Kind regards, the name of the customer representative.” This last part of mentioning the customer representatives name should be made with a lot of caution, therefore, the representative should only refer to his/hers first name, but it is important for the customer to know and put a “face” to the person he/she is speaking to. Once the analysis is done and the customer has replied to the query, the customer representative will be able to see if they actually have a problem that they can take care of or if the customer is simply stirring up controversy. More importantly, all the customers facing a problem should be treated equally and with transparency. Therefore, and since a company like EDP or British Gas receives a lot of “complaints” it is important to somehow prioritize and identify all the issues behind each customers problems and treat them according to a timely priority (first come, first served). Even if another customer has been ruder or more frustrated in how he/she shared the problem, it is important that the perception of the client is the same and that he/she believes that the company tries to resolve all the problems and queries and not only the ones that seem worse. By being transparent and follow an equality principle to all their customers, the company would get some short-term complaints for sure, but would at the same time, build a good reputation in terms of social media customers service management, in which all the customers could feel that the solution to their problems start with the company’s social media page.

**13) If an extremely serious situation arises**, for example, a death or injury of someone due to the lack of maintenance of a post, for example, or a fire. All the scheduled posts should be suspended, especially if they are happy and bubbly, since this will infuriate followers. Next, the path to follow is to actually address the matter publicly, because if not, someone or something will address it for you. The best thing to do, is talking about the matter and stating that everything is being done as fast as possible (the technical teams are working 24/7 or around the clock) and that the company is trying their best to avoid any further damage (it is also important to keep making new updates on a regular basis). This will probably infuriate followers, but at least the company is being honest and speaking the truth. When the matter is addressed and corrected, the company should make a new post explaining the situation in detail and, if applicable, apologize for the situation. After the situations as passed, it is important to address the outcome like loss of followers, number of shares regarding the matter, specific complaints and global sentiment towards the brand (Whatman, 2016) and how to still address the matter and show followers what the company is doing in order to make sure that something like this will never happen again. If needed, the company can also address privately certain followers who were directly impacted by the crises.

### **6.3 Limitations**

Nevertheless, the present study comprises several limitations that should be considered and interpreted with attentiveness. Firstly, the text mining tool used “Meaning Cloud” as other similar free tools that provide these types of analysis, still lack a considerable accuracy in the analysis, especially when speaking of comments that are clearly using an ironic tone, but the computer is not able to grasp it as clearly as a human being can. As previously stated by Mostafa (2013) almost all online text-based communications ignore rules such as spelling and grammar. Furthermore, most of the web texts have been classified as noisy since they still carry considerable problems in terms of lexical and syntactic levels. Therefore, and even though the information extracted greatly contributed to a deeper understanding of the interactions, sentiments

and feeling towards the brands chosen, it is also important to be cautious and consider a determined level of failure in the attribution of sentiments to each interaction. For example, a follower stating “British Gas thanks for the offer, can’t waste 8 weeks of my life waiting for you to resolve a complaint, and what resolution you gonna give? Nowt”. This is one of the examples that was considered as a positive comment, mostly because of the “thanks for the offer”, however, the customer is actually unsatisfied and complaining about the lack of resolution. Still, it is known, and Meaning Cloud confirms it as well, that the accuracy is not 100% since we are speaking about a computer that is not able to actually understand all of the meaning and tones of the comments processed. This is something that will surely improve in time, and it would be very interesting to test it again in a year or two in order to make a comparison. Furthermore, and in order to be sure that the final results are as accurate as they could be, it would be also interesting to test other text-mining tools besides Meaning Cloud with the exact same data and sample to actually find similarities and differences in the results provided. This would be helpful in two fronts: 1) to confirm that the sentiments associated are in fact correct (or at least a decent amount of 80 to 90%); 2) to address which online tool is the best and most accurate in terms of analysis the existent sentiments.

Moreover, it would also be interesting to actually study different sectors of the Portuguese market that although not considered Utilities are somehow similar to energy companies in terms of what they offer and number of customers it serves, such as Telco companies, Insurance and Banking. In fact, companies such as EDP are already providing services like insurances and are trying to step out of its main service provision and grow to sell different kinds of services besides only energy. This is, for sure, something that would be considerably relevant to study as well in order to understand the differences or similarities between all of them and actually take out best practises that could be easily applied in the energy world as well. Other countries considered in the analysis would also be extremely helpful in order to understand if there are more prominent differences between societies and people in general or if in some countries people are more prone to complain and actually come forward in these types of social media tools rather than others who choose to have a more passive behaviour.

Finally, and something that lacked in this analysis and that would be extremely relevant to analyse in terms of differences between communication strategies and customers interactions is actually having a Portuguese Utility Company present on

Facebook for the investigator to be able to compare it to what other markets are doing and how could this company improve and use some of the contents that are prone to receive more positive feedback. Unfortunately, in Portugal, the companies that share the greatest market share are not keen in using these types of social media tools due to past experiences and some never even tried to use it.

#### **6.4 Future research**

Future research may consider studying not only a specific year in the life of a company's social media network, but actually its growth and development throughout the years. This would be extremely helpful in order to understand if 1) the company actually evolved in terms of a positive cultivation of its relationship with its customers; 2) if customers have grown to share more positive and happier reactions; 3) if there is really a difference in terms of the content shared throughout the years and the number of interactions that come with it.

Moreover, a more in-depth study of all the text-mining solutions existent worldwide, what they can offer in terms of analysis and the accuracy associated to each. A way to do this is to actually compare several of the most highly rated ones. For this to happen, it would also be important to actually involve a human into this approach as a way to really explore she/he's own opinion of the polarity of each sentence and understand if there is a biased association or not and, therefore, compare it to what the system is offering. With this help, people could actually turn the accuracy of these programs even higher and more reliable.

Thirdly, it would be important to explore and integrate all the solutions and best practises proposed in a Portuguese energy company social network. Create one from scratch and use the methods that other well-known companies are doing and understand the impact that it brings in terms of creating a relationship with the customer. Moreover, it would also be helpful to really explore in depth how EDP, for example, explored and applied its social media strategy when it still had Facebook page and understand what were the matters that should be addressed in another way and how to practise and generate a more positive attitude from its followers, making them feel that the company actually cares about them and wants them to feel that they are heard and they doing something change what makes them angrier.

Finally, and having all of this analysis in mind, it would be interesting to understand if listening to the customer through these platforms and actually trying to resolve their problems have contributed to a positive change in the company's KPIs such as reduction of customer turn-over, reduction in the number of calls made to the contact center, increase in services acquisition and even reduction in churn.



## Chapter 7 - References

- Adomaviciute, K. 2014. Relationship Between Utilitarian and Hedonic Consumer Behavior and Socially Responsible Consumption. *Economics and Management*, 18(4): 332-341.
- Aichner, T., & Jacob, F. 2015. Measuring the degree of corporate social media use. *International Journal of Market Research*, 57(2): 257-275.
- Bennet, S. 2014. 88% of Companies are Using Social Media for Marketing. <http://www.adweek.com/socialtimes/social-media-companies/502447> [Accessed 11 October 2016].
- Berthon, P., Pitt, L., Kietzmann, J., and McCarthy, I. P. 2015, CGIP: managing consumer-generated Intellectual property, *California Management Review*, 57(4): 43-62.
- Blackman, A. 2013. Utilities Tap Power of Social Media. <http://www.wsj.com/articles/SB10001424127887324823804579012721588956480> [Accessed 25 October 2016].
- Black & Veatch. 2018. Social Media for Utilities is Becoming Indispensable. <https://www.bv.com/insights/expert-perspectives/social-media-Utilities-becoming-indispensable> [Accessed 10 March 2018].
- Bolotaeva, V., & Cata, T. 2011. Marketing Opportunities with Social Networks. *Journal of Internet Social Networking and Virtual Communities*, 1-8.
- Boiy, E., & Moens, M. (2009). A machine learning approach to sentiment analysis in multilingual web texts. *Information Retrieval*, 12: 526–558.

Calheiros, A., Moro, S., & Rita, P. 2017. Sentiment Classification of Consumer-Generated Online Reviews Using Topic Modelling. *Journal of Hospitality Marketing & Management*, 26(7): 675-693.

Cambria, E., Schuller, B., Xia, Y., & Havasi, C. 2013. New avenues in opinion mining and sentiment analysis. *IEEE Intelligent Systems*, 28, 15–21.

Casaló, L. V., Flavián, C., Guinalú, M., & Ekinci, Y. 2015. Avoiding the dark side of positive online consumer reviews: Enhancing reviews' usefulness for high risk-averse travelers. *Journal of Business Research*, 68 (9), 1829–1835.

Chebat, J. 2005. Silent Voices: Why Some Dissatisfied Consumers Fail to Complain. *Journal of Service Research*, 7(4): 328-342.

C. Kane, G. 2015. Enterprise Social Media: Current Capabilities and Future Possibilities. *MIS Quarterly Executive*, 14(1): 1-16.

Coombs, W. 2004. Impact of Past Crises on Current Crisis Communication: Insights from Situational Crisis Communication Theory. *Journal of Business Communication*, 41(3): 265-289.

Drennan, A. 2011. Consumer Study: 88% less likely to buy from companies who ignore complaints in social media. <http://www.conversocial.com/blog/consumer-study-88-less-likely-to-buy-from-companies-who-ignore-complaints-in-social-media> [Accessed 15 October 2016].

Dhar, R., & Wertenbroch, K. 2000. Consumer Choice Between Hedonic and Utilitarian Goods. *Journal of Marketing Research*, 37(1): 60-71.

Dinheiro Vivo. 2013. Pépa. Desejo de ter uma mala Chanel acabou com campanha da Samsung. [online] Available at: <https://www.dinheirovivo.pt/buzz/pepa-desejo-de-ter-uma-mala-chanel-acabou-com-campanha-da-samsung/> [Accessed 4 April 2018].

Elefant, C. 2011. The "Power" of Social Media: legal issues & best practices for Utilities engaging social media'. *Energy Law Journal*, 32(1): 1-54.

Eirinaki, M., Pital, S., & Singh, J. 2012. Feature-based opinion mining and ranking. *Journal of Computer and System Sciences*, 78: 1175–1184.

Fan, W., Wallace, L., Rich, S., & Zhang, Z. 2006. Tapping the power of text mining, *Communications of the ACM*, 49 (9): 77-82.

Fornell, C., & Wernerfelt, B. 1987. Defensive Marketing Strategy by Customer Complaint Management: A Theoretical Analysis. *Journal of Marketing Research*, 24(4): 337.

Gioga, M., & Tinda, A. 2018. Social Insights Can Power Up the Energy and Utilities Industry. <https://www.ibm.com/blogs/insights-on-business/energy-and-Utilities/social-insights-energy-Utilities/> [Accessed 20 August 2018].

Gilliland, N., & Gilliland, N. 2018. How utilities brands use social media for reputation management. <https://econsultancy.com/blog/68814-how-Utilities-brands-use-social-media-for-reputation-management> [Accessed 20 March 2018].

Guesalaga, R. 2016. The use of social media in sales: Individual and organizational antecedents, and the role of customer engagement in social media. *Industrial Marketing Management*, 54: 71-79.

Grégoire, Y., Tripp, T., & Legoux, R. 2009. When Customer Love Turns into Lasting Hate: The Effects of Relationship Strength and Time on Customer Revenge and Avoidance. *Journal of Marketing*, 73(6): 18-32.

Grégoire, Y., Salle, A., & Tripp, T. 2015. Managing social media crises with your customers: The good, the bad, and the ugly. *Business Horizons*, 58(2): 173-182.

Hanna, R., Rohm, A., & Crittenden, V. 2011. We're all connected: The power of the social media ecosystem. *Business Horizons*, 54(3): 265-273.

Heinonen, K., & Medberg, G. 2018. Netnography as a tool for understanding customers: implications for service research and practice. *Journal of Services Marketing*, 32(6): 657-679.

Hirschman, E., & Holbrook, M. 1982. Hedonic Consumption: Emerging Concepts, Methods and Propositions. *Journal of Marketing*, 46(3): 92.

Jornal Expresso. 2018. Campanha da Samsung gera indignação nas redes sociais. <https://expresso.sapo.pt/sociedade/campanha-da-samsung-gera-indignacao-nas-redes-sociais=f778608#gs.=N1H2yw> [Accessed 1 September 2016].

Kähr, A., Nyffenegger, B., Krohmer, H., & Hoyer, W. 2016. When Hostile Consumers Wreak Havoc on Your Brand: The Phenomenon of Consumer Brand Sabotage. *Journal of Marketing*, 80(3): 25-41.

Kaplan, A., & Haenlein, M. 2011. The early bird catches the news: Nine things you should know about micro-blogging. *Business Horizons*, 54(2): 105-113.

Khan, U., Dhar, R., & Werternbroch, K. 2004. *Behavioral Decision Theoretic Perspective on Hedonic and Utilitarian Choice*. Working paper 66, Institut Européen d'Administration des Affaires, Fontainebleau, FR.

Kozinets, Robert V. 2002. The Field Behind the Screen: Using Netnography For Marketing Research in Online Communities, *Journal of Marketing Research*, 39: 61-72.

Kozinets, Robert V., Pierre-Yann Dolbec, and Amanda Earley. 2014. *Netnographic Analysis: Understanding Culture through Social Media Data*, in Uwe Flick (Eds.), Sage Handbook of Qualitative Data Analysis: 262-275. London: Sage.

Lithium 2013. Consumers Will Punish Brands that Fail to Respond on Twitter Quickly.<https://www.lithium.com/company/news-room/press-releases/2013/consumers-will-punish-brands-that-fail-to-respond-on-twitter-quickly> [Accessed 11 April 2018].

Marketeer. 2018. Qual é a rede social mais utilizada em Portugal? [<http://marketeer.pt/2017/10/10/qual-e-a-rede-social-mais-utilizada-em-portugal/>] [Accessed 10 July 2018].

McLeod, S. 2012. Experimental Methods in Psychology. <http://www.simplypsychology.org/experimental-method.html> [Accessed 20 October 2016].

McLeod, S. 2012. Experimental Design. <http://www.simplypsychology.org/experimental-designs.html> [Accessed 20 October 2016].

Millenium Agency. 2014. 4 Risks for Your Business to Consider When Using Social Media.<https://www.mill.agency/content/4-risks-business-consider-using-social-media/> [Accessed 9 December 2018].

Mostafa, M. 2013. More than words: Social networks' text mining for consumer brand sentiments. *Elsevier*, 40 (10): 4241-4251.

Ofgem. 2018. Electricity supply market shares by company: Domestic (GB). <https://www.ofgem.gov.uk/data-portal/electricity-supply-market-shares-company-domestic-gb> [Accessed 1 March 2018].

Oracle. 2013. Harnessing the Value of Social Media. <http://www.oracle.com/us/industries/Utilities/harnessing-social-media-wp1959234.pdf> [Accessed 1 October 2016].

Page, D. 2018. El gran negocio de la luz y el gas: así se reparten las eléctricas 37 millones de clientes. <https://www.elindependiente.com/economia/2017/07/30/el-gran-negocio-de-la-luz-y-el-gas-asi-se-reparten-las-electricas-37-millones-de-clientes/> [Accessed 20 November 2018].

Parent, M., Plangger, K., & Bal, A. 2011. The new WTP: Willingness to participate. *Business Horizons*, 54(3): 219-229.

Public Service Electric and Gas Company. 2013. PSE&G Praised for Innovative Use of Social Media NJ Utility Wins “Innovation in Customer Service” Award from CS Week for Use of Twitter during Superstorm Sandy. <https://www.pseg.com/info/media/newsreleases/2013/2013-05-23.jsp> [Accessed 23 September 2016].

Rauschnabel, P., Kammerlander, N., & Ivens, B. 2016. Collaborative Brand Attacks in Social Media: Exploring the Antecedents, Characteristics, and Consequences of a New Form of Brand Crises. *Journal of Marketing Theory and Practice*, 24(4): 381-410.

Ribeiro, S. 2011. Comunicação empresarial nas redes sociais: Eliminação de comentário por parte da EDP no Facebook gera polémica. <https://www.publico.pt/tecnologia/noticia/eliminacao-de-comentario-por-parte-da-edp-no-facebook-gera-polemica-1516892> [Accessed 28 September 2016].

Rust, R.T. and Huang, M.H. 2014, The service revolution and the transformation of marketing science, *Marketing Science*, 33 (2), 206-221.

Simplified Web Scraping. 2018. How to Scrape Facebook Page Posts and Comments to Excel (with Python). <https://nocodewebscraping.com/facebook-scraper/> [Accessed 1 March 2018].

Singh, J. 1990. Voice, Exit, and Negative Word-of-Mouth Behaviors: An Investigation Across Three Service Categories. *Journal of the Academy of Marketing Science*, 18(1): 1-15.

Smith, K .2016. 96 Amazing Social Media Statistics and Facts for 2016. <https://www.brandwatch.com/2016/03/96-amazing-social-media-statistics-and-facts-for-2016/> [Accessed 2 October 2016].

SSE. 2018. SSE leads the industry for resolving complaints. <http://sse.com/newsandviews/allarticles/2016/09/sse-leads-the-industry-for-resolving-complaints/> [Accessed 1 August. 2018].

Statista. 2018. Social media platforms used by marketers worldwide 2018. <https://www.statista.com/statistics/259379/social-media-platforms-used-by-marketers-worldwide/> [Accessed 10 July. 2018].

Stelzner, M. 2016. 2016 Social Media Marketing Industry Report - How Marketers Are Using Social Media to Grow Their Businesses. <https://www.socialmediaexaminer.com/wpcontent/uploads/2016/05/SocialMediaMarketingIndustryReport2016.pdf> [Accessed 1 October 2016].

Tripp, T., & Grégoire, Y. 2011. When Unhappy Customers Strike Back on the Internet. <http://sloanreview.mit.edu/article/when-unhappy-customers-strike-back-on-the-internet/> [Accessed 18 October 2016].

UK Power. 2018. Who are the UK's main energy suppliers? <https://www.ukpower.co.uk/the-big-six-energy-companies> [Accessed 1 Mar. 2018].

Whatman, P. 2018. How to Build a Winning Social Media Crisis Management Plan. <https://mention.com/blog/social-media-crisis-management-plan/> [Accessed 1 October 2018].

Weston, R. 2008. 7 Social Networking Strategies. <http://www.entrepreneur.com/technology/bmighty/article191312.html> [Accessed 1 October 2018].

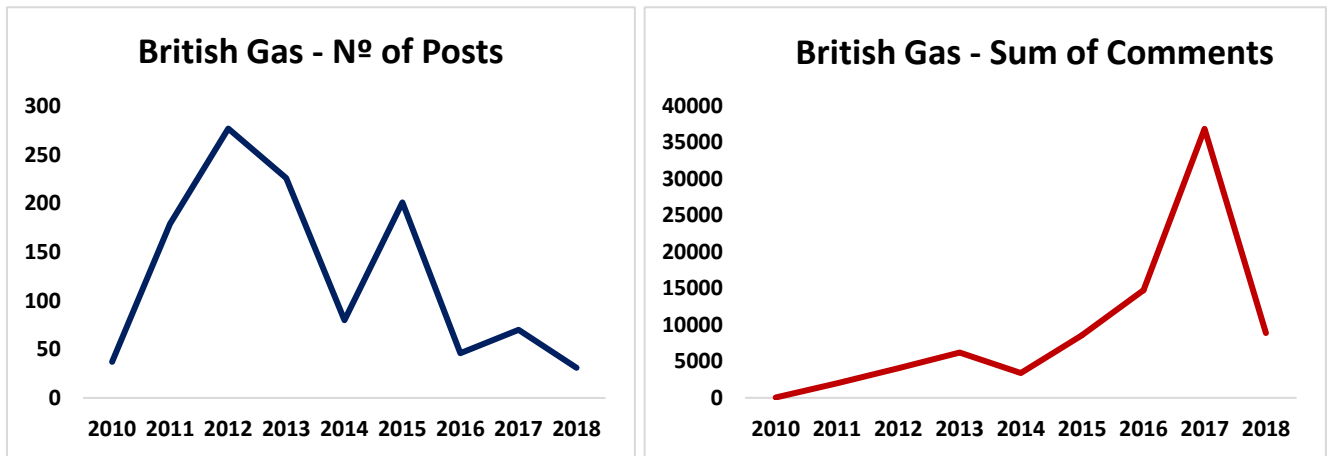
SSE. 2016. SSE leads the industry for resolving complaints. <https://sse.com/newsandviews/allarticles/2016/09/sse-leads-the-industry-for-resolving-complaints/> [Accessed 3 April 2018].

Wang, H., Quian, G., & Feng, X. 2013. Predicting consumer sentiments using online sequential extreme learning machine and intuitionistic fuzzy sets, *Neural Computing & Applications*, 22: 479–489.



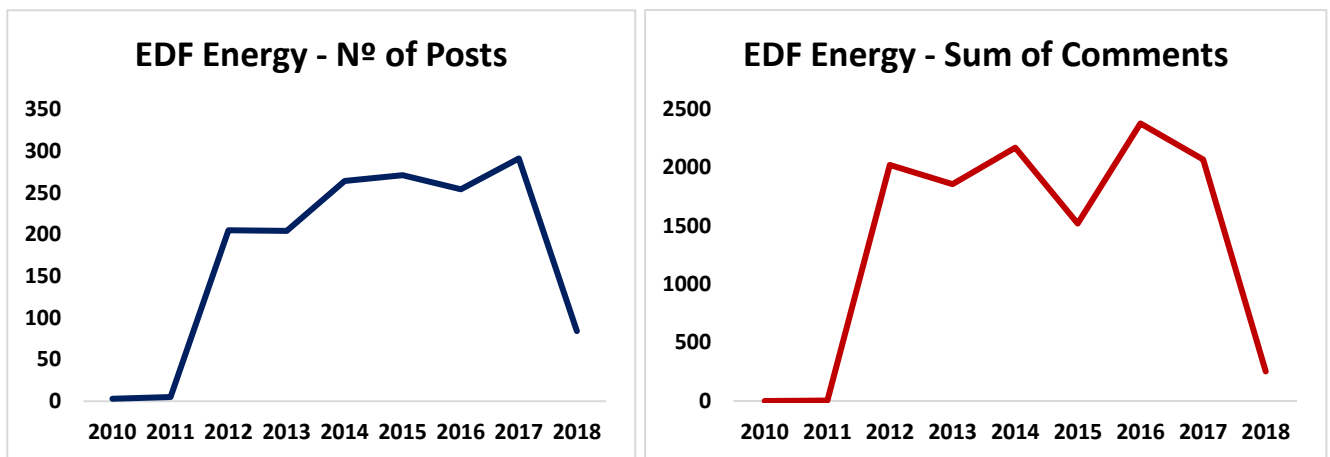
## Chapter 8 – Appendices

- Figure 24 - British Gas Interactions Throughout the Years:



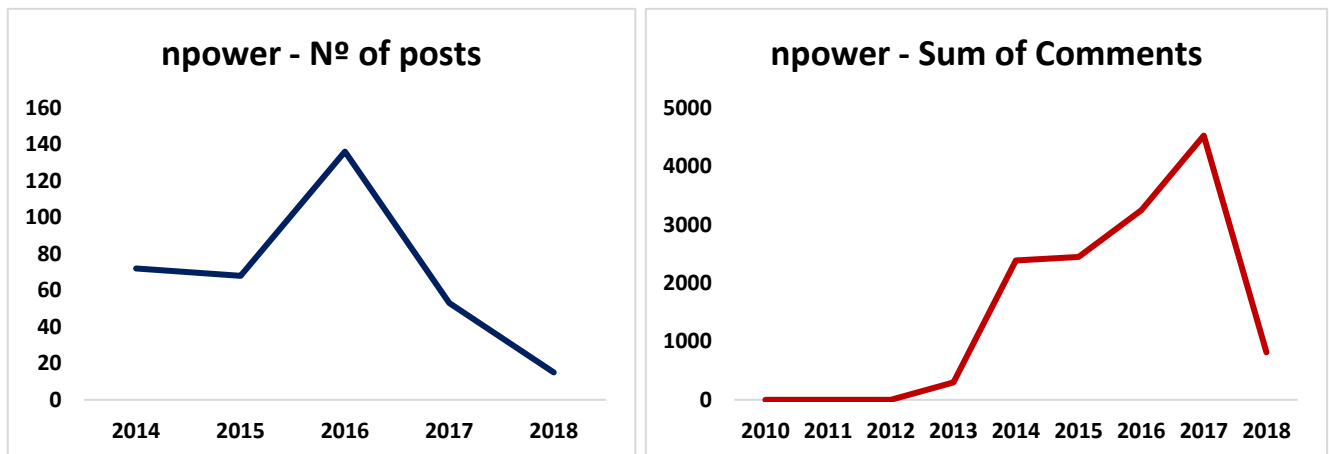
Source: Own elaboration

- Figure 25 - EDF UK Interactions Throughout the Years:



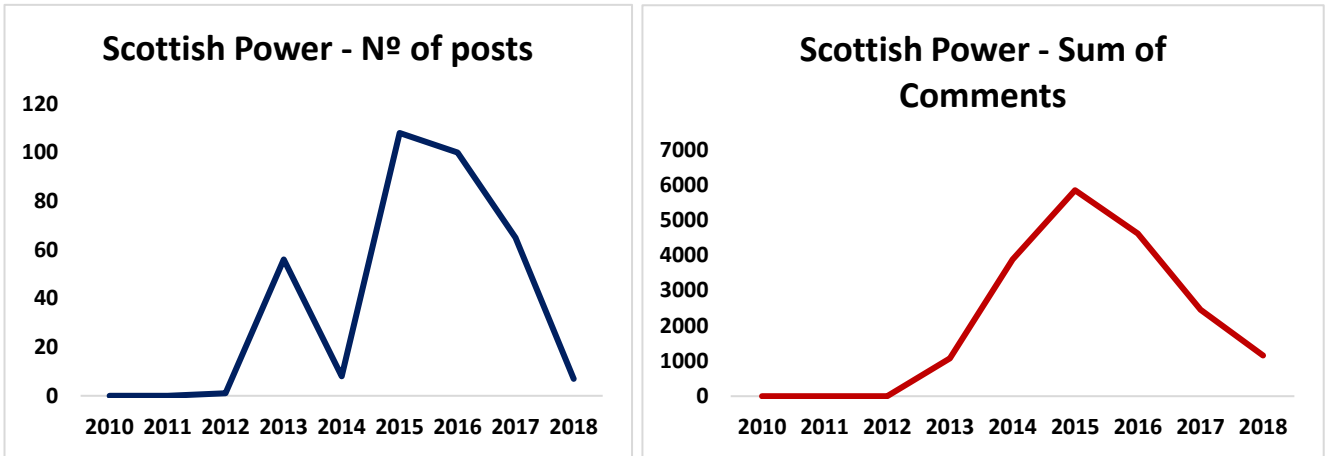
Source: Own elaboration

- Figure 26 npower Interactions Throughout the Years:



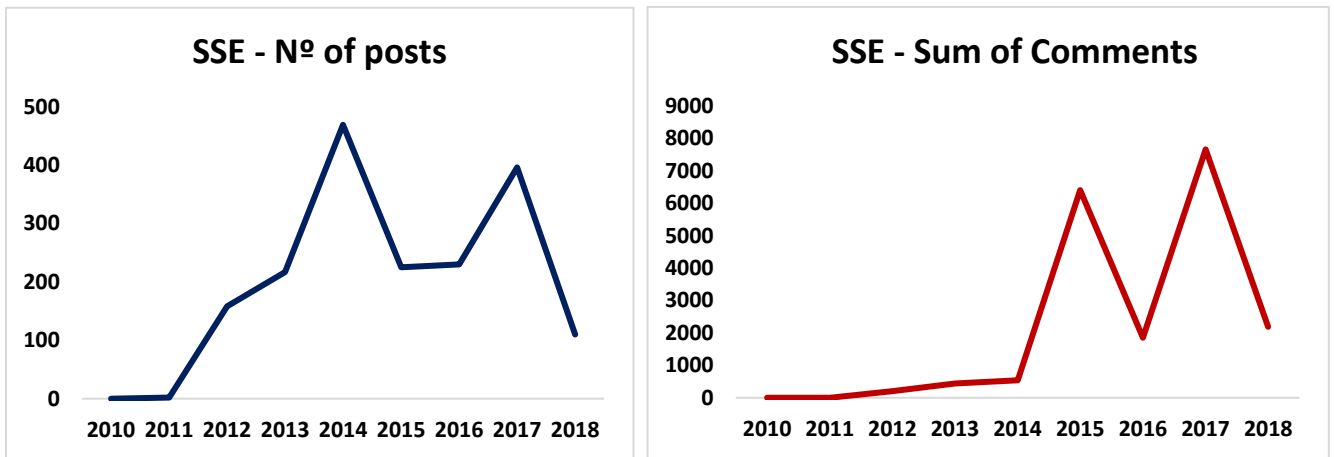
Source: Own elaboration

- Figure 27 - Scottish Power Interactions Throughout the Years:



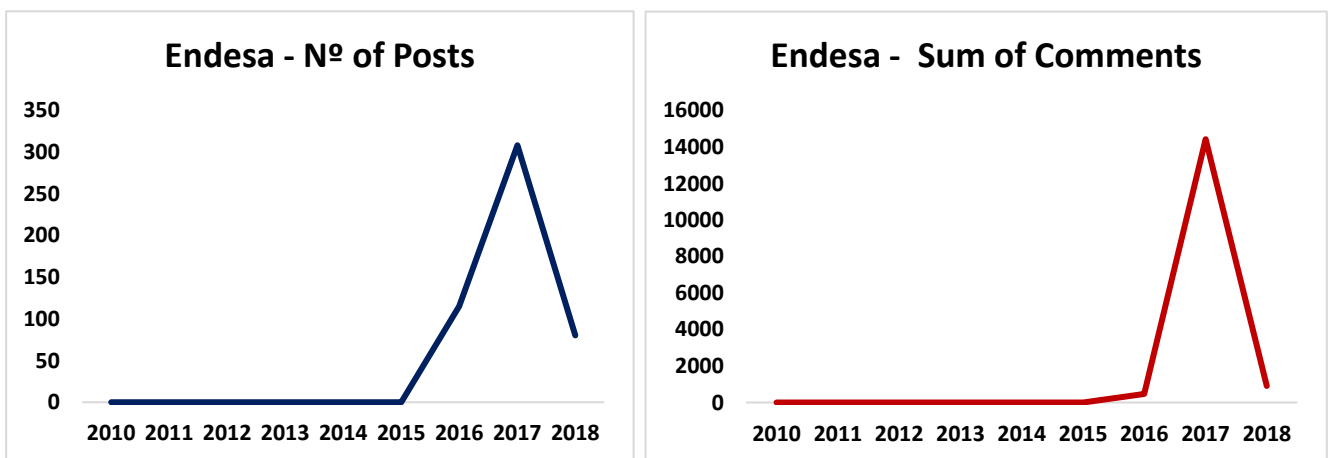
Source: Own elaboration

- Figure 28 - SSE UK Interactions Throughout the Years:



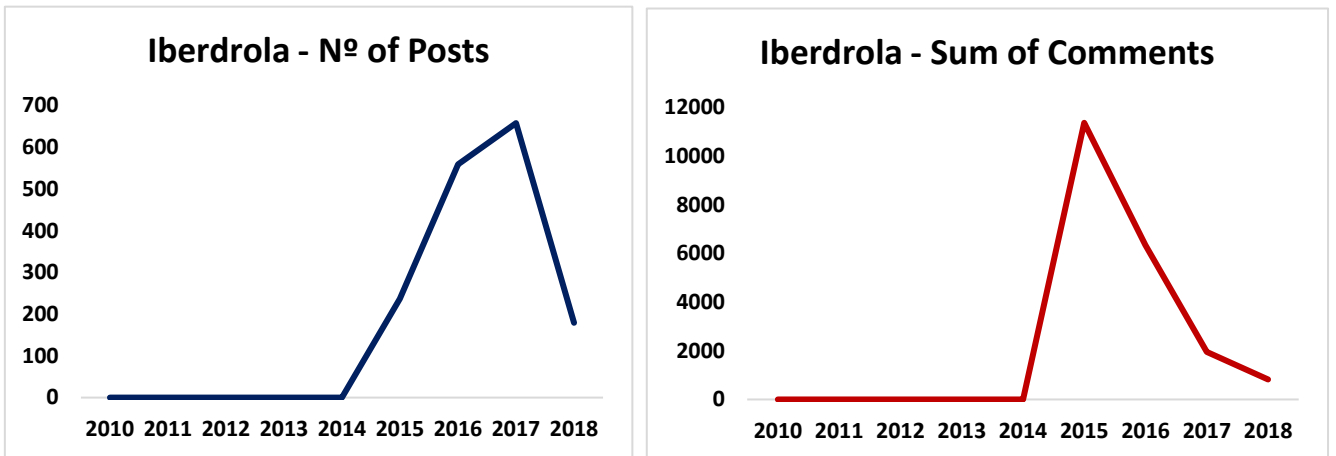
Source: Own elaboration

- Figure 29 - Endesa Interactions Throughout the Years:



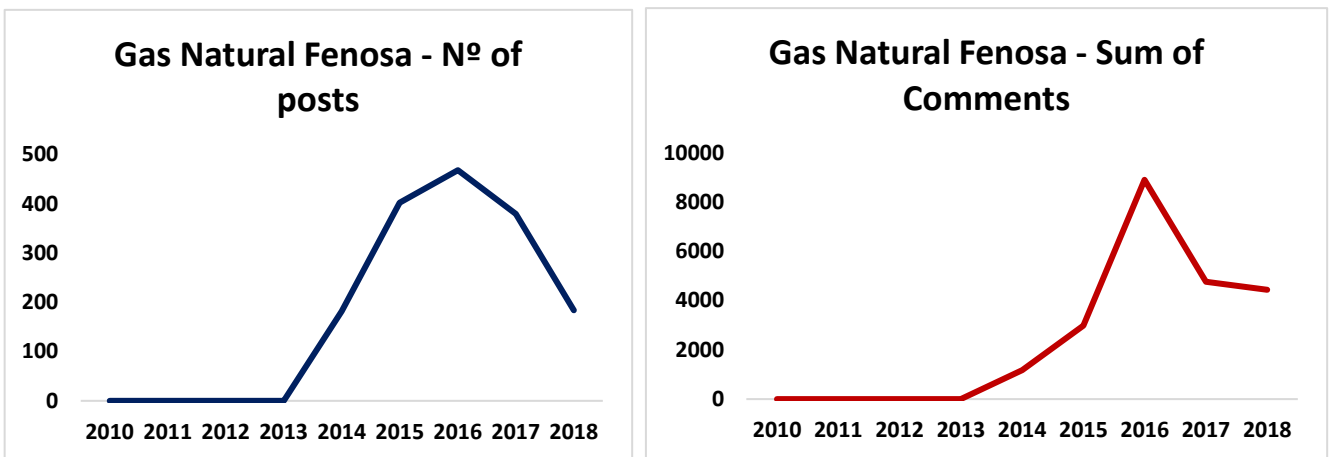
Source: Own elaboration

- Figure 30 - Iberdrola Interactions Throughout the Years:



Source: Own elaboration

- Figure 31 - Gas Natural Fenosa Interactions Throughout the Years:



Source: Own elaboration