Social media communication in water utilities

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Abstract

Purpose: In recent years, social media have expanded their influence on corporate communication and have boosted companies' potentialities to increase brand awareness, build brand reputation and develop relationships with customers. However, while vast literature has been conducted on the role of social media in corporate communication for consumer goods or services, very limited research is available on the role of social media in public services' communication activities. This paper addresses this gap by exploring the content of social media communication adopted by one of the biggest Italian water utility, i.e. Acquedotto Pugliese. By analyzing the Facebook page of Acquedotto Pugliese, this study intends to identify the main themes communicated by the water utility on the social network.

Methodology: A thematic analysis on the content of the Facebook page of the water utility has been conducted with the support of NVIVO software.

Findings: The findings provide an overview of the social activity of Acquedotto Pugliese and the customer engagement generated. In addition the study identifies the major themes communicated by the water utilities of Facebook.

Practical implications: The study provides useful implications for water utilities willing to pursue a social media communication approach.

Originality/value: To the best of our knowledge, this is one of the first studies to address social media communication in the water utility industry.

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1. Introduction

Traditionally, communication with customers in natural monopoly contexts (Posner, 1969) has been limited to the bill or to operational information (e.g. service limitations or service interruptions). Following the liberalization processes in the provision of public services and the increased attention toward consumer rights (Baccarani et al., 1993) both literature and practice have emphasized the importance of a customer-oriented approach also in situations where only competition for the market is possible, such as in water services (Demsetz, 1968; Rienzner and Testa, 2003). In such contests, water utilities do not have direct competitors and customers cannot choose their water provider. Nevertheless, an effective communication with customers is of uttermost importance for utilities to improve their corporate image and reputation and increase their social legitimization (Baccarani and Golinelli, 2011; Dean et al., 2016).

In recent years, the development of Web 2.0 has revolutionized the communication paradigm moving from unidirectional to multidirectional communication (Kaplan and Hainlein, 2010). Specifically, social media have increased companies' possibilities to develop relationships with customers (Floreduu et al., 2014). However, while many studies have addressed the role of social media for companies operating in competitive markets, few studies have been conducted on the role of social media in public services' communication strategies (Martin, 2016). In particular, there is a gap in literature about the use of social media by water utilities. A recent study conducted among water utilities in the United States (Water Research Foundation, 2017) reveals that only a minority of utilities actively use social media. In addition, they tend to post company-focused rather than customer-focused information.

However, little is known about the themes used by water utilities on social media. Further, to the best of our knowledge, no study has been conducted in the Italian context. This paper addresses this gap by exploring the content of social media communication adopted by one of the biggest Italian water utilities, i.e. Acquedotto Pugliese, on the most popular social network, i.e. Facebook. Specifically, this study intends to explore the social media activity and identify the main themes communicated by the water utilities on its Facebook page.

The paper is organized as follows: first, a literature review about the role of social media in corporate communication with a specific focus on public utilities provides the theoretical framework for the study. After presenting the case study of Acquedotto Pugliese, the methodology is described and the main findings are presented, followed by the discussion and conclusions. Finally, the limitations of the study and future research directions are addressed.

2. Literature review

2.1. Changes in corporate communication: the role of social media

In recent years, companies have begun reconsidering their marketing strategies as the result of the widespread use of the internet as a communication tool. In fact, the explosion of the Web 2.0 has greatly increased communication opportunities for companies (Mangold et al., 2009), while at the same time providing customers with more information sources and occasions to interact with companies as well as with other customers (Tiago et al., 2014; Berthon et al., 2008). Whereas in the past mass media such as newspaper, radio, and TV represented the main channel for business-to-consumer communication (Katz et al., 1973), today organizations must consider the potentialities of online communication if they want to build a long-term relationship with customers (Tiago et al., 2014).

Within this scenario, social media play a particularly important role in facilitating interactions between customers and firms. Kaplan et al., (2010 pg. 59) refer to social media as a "revolutionary new trend" in which individuals and communities have the opportunity to use various platforms to connect, share opinions and collaborate (Singh, 2005; Walmsley, 2010; Erdogmus et al., 2012). Some scholars define social media as an "ecosystem" or a "hybrid element", that is, a set of digital and traditional media's tool (Hanna et al., 2011, p. 265; Mangold et al., 2009, p. 359). A possible classification distinguishes between several types of social media such as collaborative project (e.g., Wikipedia); blogs; content communities (e.g., You Tube); Social networking sites (e.g., Facebook); Virtual game worlds (e.g., World of Warcraft) and Virtual social worlds (e.g., Second Life).

From a business perspective, social media help companies to build and improve their image in the virtual social world (Silva et al., 2008; Kaplan et al., 2010; Kietzmann et al., 2011). In addition, literature emphasizes the role of social media in building corporate reputation. Jones et al. (2010) maintain that an effective online reputation is the result of a good community conversation, participation and collaboration. As underlined by Floreddu et al., (2014) by choosing to publish on social media certain types of content, companies directly influence the creation of a long-term reputation. At the same time, by sharing their own messages about the company on social media, customers can positively or negatively affect its reputation. In fact, today's customers continually search for information about goods or services to support their decisions (Lempert, 2006). Particularly, they rely on social media and user-generated content as a trustworthy source of information (Foux, 2006) and are willing to adopt an active role in the communication process, thus sharing their knowledge and experiences with the company and with other customers (Hanna et al., 2011). With this regard, recent statistics show that an increasing number of individuals across all age groups use social media (Eurostat, 2016). Among social media, Facebook is by far the most popular social network (Pew Research Center, 2016) counting 1.94 billion monthly active users during the first quarter of 2017 (www.statista.com). Accordingly, an increasing number of firms belonging to several industries are using social media as part of their communication strategies. Particularly, Facebook is the most frequently used social media platform in business-to-consumer communication (Stelzner, 2016).

2.2 Social media communication for public utilities

Despite the increased use of social media among individuals and firms, available data show that the use of social media platforms among public utilities is still low compared with other industries (statista.com). However, the number of utilities actively using social media to communicate with customers is gradually increasing. For example, Martin (2016) conducted a longitudinal study among a sample of German and Austrian energy utilities in 2014 and 2015. The study revealed an increase in the use of social media among energy utilities, especially with regard to Facebook. Specifically, while in 2014 a minority of utilities (44% of a sample of 88 companies) had a Facebook account, in 2015 about two thirds of utilities (58% of a sample of 149 companies) were on Facebook. Martin (2016) identified interactivity and frequency as "adequate indicators" to measure the dialog between the utilities and their customers on Facebook. Interactivity levels as perceived by energy utilities included "interactive"(i.e., with a strong interaction with single users), "active" (i.e., providing information on the page without external impetus), "reactive" (i.e., with regard to significant events) and "passive". The findings showed that in 2015 the majority of utilities described their communication on Facebook as "interactive" or "active", while only 11% adopted a "reactive" or "passive approach" to communication. With regard to the frequency of posting, the number of energy utilities posting several times a week grew from 49% in 2014 to 60% in 2015. However, overall the utilities under investigation recognized that the use of Facebook

implies additional efforts in terms of time and costs (Martin, 2016). As concerns the content utilities post on Facebook, the Institute of Electrical and Electronic Engineers (IEEE) reports that several utilities post to share information about energy efficiency or to give tips for energy consumption.

With regard to water utilities in particular, a recent study by the Water Research Foundation (2017) shows that only a minority of water utilities in the United States are actively using social media to communicate with their customers and with stakeholders in general. Further, the social media presence seems to correlate with utilities' dimension: about 65% of the top-20 utilities have social media profiles, against 30% of small utilities. To the best of our knowledge, only very few academic studies have been published about the use of social media among water utilities. Tutusaus et al. (2016) conducted a study about the use of Information and Communication Technologies (ICTs) among water utilities and argued that the monopolistic nature of water utilities, and therefore the lack of competition, on the one hand might stimulate utilities to spend resources on innovation and ICTs adoption. On the other, it might push utilities to focus on improving the physical infrastructure before investing in ICTs for improving business operations. However, Tutusaus et al. (2016) concluded that it is important to consider the specific environment in which the utility operates in order to understand the adoption of ICT. This consideration could be extended to the use of online communication, as well. In addition, Heino et al., (2016) conducted a qualitative study in Finland to explore communication between water utilities and their customers, with a specific focus on the potentialities of social media. Overall, 74 customers and 6 municipal water utilities were interviewed, revealing interesting insights into customers' informational needs and utilities' perceptions on the role of communication. In general, customers perceived water utilities as a "distant player", while utilities seemed to rely on traditional communication media. Heino et al. (2016) suggest that water utilities should engage more with customers and innovate their communication channels. In this sense, social media could represent an interesting platform to improve the interaction between utilities and customers.

To conclude, still little is known about the role of social media in water utilities' communication strategy and further research is needed to understand how water utilities use social media to communicate with their customers.

3. The case study: Acquedotto Pugliese

Since very limited research exist about the use of social media among water utilities, this exploratory study focused on the Facebook page of a single water utility, i.e. Acquedotto Pugliese. The "Aquedotto Pugliese Authority", established in 1919, was transformed in 1999 in "Aquedotto Pugliese Spa". This utility is headquartered in Bari, in the Southern part of Italy, and specifically in the Puglia Region. It is publicly owned and it guarantees the collection, purification and distribution of water in Puglia and some municipalities in the neighboring regions, for a total of about four million residents. As concerns the online presence, the utility has a website, where it is possible to find information about the utility, its partners, school initiatives, as well as water bills. In addition, Acquedotto Pugliese offers customers a real-time automatic response system called "AQPrisponde". The website also shows a link to "Voice of the Water", originated a quarterly magazine published by Acquedotto Pugliese and now a website on its own. The homepage also displays the links to the utility's social media profiles on Facebook, Youtube, Twitter and Linkedin.

4. Methodology

The methodology adopted for this study is thematic content analysis, which is a qualitative approach used to explore, analyze and identify patterns or themes within data (Braun and Clarke, 2006). The analysis was supported by the use of NVivo 11 Plus, a qualitative analysis software from QSR International.

In the first step, the content of the Facebook page of Acquedotto Pugliese was downloaded with the support of Ncapture (the content ranged from September 2014 to June 2017). Second, preliminary exploratory analysis was conducted on the number, type and chronological distribution of posts, number and types of links, number of likes and shares. Third, after cleaning the data from "stop words" (such as articles or pronouns), an exploratory data frequency analysis was conducted on the posts, links, and link descriptions of the page. The top 30-used words were identified and analyzed through iterating coding: words relating to similar concept (e.g. water treatment, wastewater collection, wastewater plants) were coded into several nodes (e.g. wastewater), which were subsequently organized into higher order themes (e.g. improvement initiatives). This process was facilitated by the use of tree maps, which showed the context in which each word appeared.

It should be noted that in this exploratory research the analyses were limited to the content of the posts published by Acquedotto Pugliese and did not include the analysis of conversations with customers.

5. Findings

5.1 Facebook page activity: an overview

The official Facebook page of Aquedotto Pugliese was created in September 2014 and it currently counts 10.760 connections (in June 2017). Between September 2014 and May 2017, the Facebook page recorded 857 posts including 403 posts by Acquedotto Pugliese, 423 user comments and 31 responses by Acquedotto Pugliese to users' comments. As shown in Fig. 1 and 2, most of the posts include links to external sources, followed by photos, videos, events and status updates.

Fig. 1 Type of posts by the Aquedotto Pugliese in 2014-2017
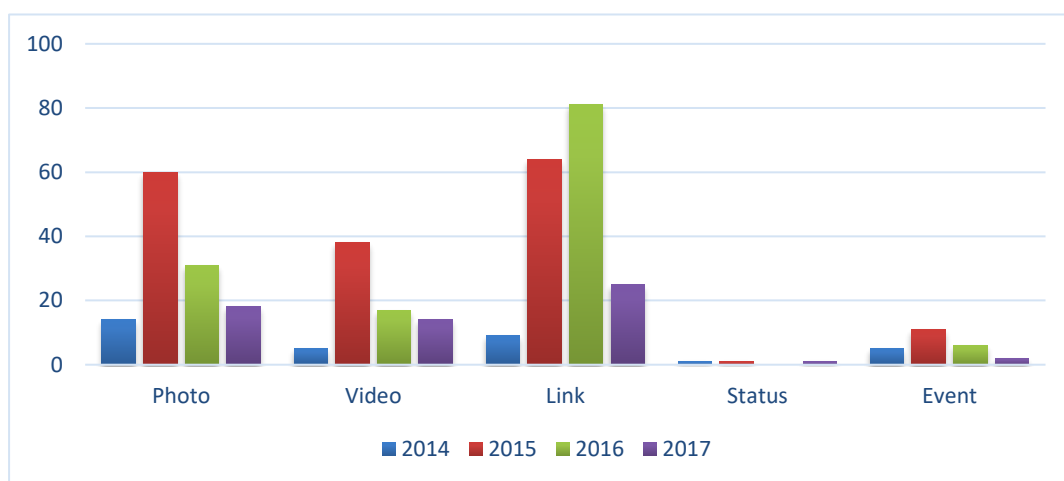
Source: our elaboration

*Table. 1 Number of "Likes", "Posts", "Photos", Videos", Links", "Status" and "Events" by the Aquedotto Pugliese*

	Like	Post	Photo	Video	Link	Status	Event
2014	310	34	14	5	9	1	5
2015	2890	174	60	38	64	1	11
2016	2790	135	31	17	81	0	6
2017	1348	60	18	14	25	1	2

Source: our elaboration

As shown in Table 1, in late 2014, when the Facebook account had been recently created, Acquedotto Pugliese posted mainly photos describe the historical fountain, monumental waterfall of Santa Maria di Leuca or links to inform customers about undergoing works or events. From 2015 onwards, Acquedotto Pugliese gradually began to change the type of posts by increasing the number of links to external websites, files, photos, videos or events (Fig. 1). Links are usually accompanied by a brief description.

As concerns the distribution of links in the period considered, an increase can be noted between 2015, when links represented about 37% of total posts, and 2016, when they raised to 60% of the total posts. However, while between January and May 2016 Aquedotto Pugliese posted on average 12 links per month, in the same period in 2017 the average number of links lowered to 5 per month. At the same time, it can be observed that the use of photos, videos and communication about events has gradually reduced between 2015 and 2016. Overall, in the summer period (June – August) less posts are published and they refer mainly to water interruptions or to specific public events.

Fig. 2. Distribution of the number of "Likes" in 2014-2017
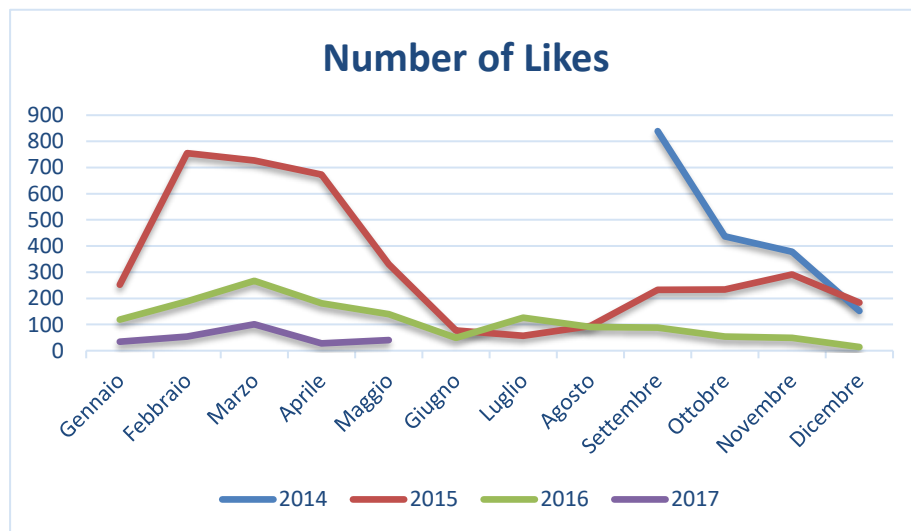
Source: our elaboration

Fig. 3. Distribution of the number of "posts" in 2014-2017
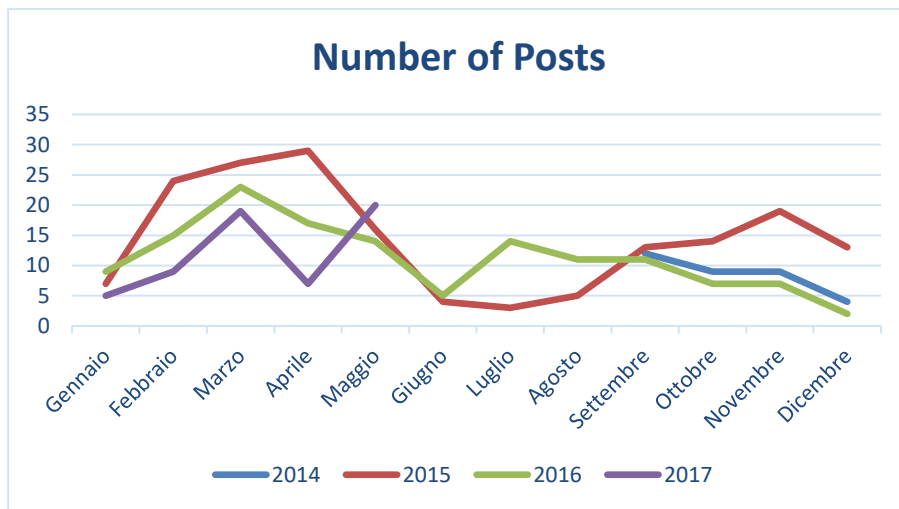
As concerns user engagement, between September 2014 and May 2017 the Facebook page counts 7338 likes and 4111 shares. The two posts that attracted the greatest number of likes (136 and 97 respectively) go back to April 2016 and refers to two videos about a TV program focusing on the springs of Acquedotto Pugliese. In the third place, there is a photo about a light installment at the monumental waterfall of Santa Maria di Leuca (with 95 likes), posted in April 2016. Overall, the number of likes reflects the temporal distribution of the number of posts (Fig. 2 and Fig. 3).

5.2 Thematic analysis

Starting from a word frequency analysis of the posts available on the Facebook page of Acquedotto Pugliese, an iterative process led to the identification of four main topics or themes: improvements and innovation, water salubrity, public engagement and sustainability.

Improvements and innovation

The first theme that emerged relates to improvements and innovation. With this regard, rather than using Facebook to give operational communication (e.g. information about service interruptions), Acquedotto Pugliese posts status updates or links about works (75 occurrences) aimed at improving the water network. In particular, several posts refer to the enhancement of the wastewater treatment plant or the sewerage (93 occurrences), or to the endeavor in raising the overall efficiency of the network.

The utility also emphasizes its commitment to innovating customer service with the support of technology. For example, in March 2015 a post informed customers about a new odor system control ("Odortel") developed by Acquedotto Pugliese in collaboration with a spin-off of the Univeristy of Bari. This system, which requires citizens' active collaboration, is located in a critical area, i.e. near a water treatment plant. In addition, in September 2016 Acquedotto Pugliese posted a link to a smart metering project in collaboration with other utilities.

Several posts have also been dedicated to the initiative "FontaninApp", an application which geolocalizes public drinking fountains in the Puglia Region, thus helping both citizens and tourists to easily find free drinking water with their mobile devices. For example, in May 2017 Acquedotto Pugliese posted:

"FontaninAPP provides information about how to reach public fountains in the shortest time and taste the healthy water distributed by Acquedotto Pugliese. The App also provides useful information about how to best enjoy public water and about chemical-physical and organoleptic characteristics"

Water salubrity

As expected, "water" is one the most frequently used words by Acquedotto Pugliese (with about 160 occurrences) and plays a central role in the utility's social media communication. Specifically, the second theme that emerged concerns the effort of Acquedotto Pugliese in promoting the use of tap water as drinking water among households. For this purpose, in several posts, Acquedotto Pugliese emphasizes the healthiness and quality of tap water and the number of controls water is subject to before arriving at customers' houses. The expression "good water" is used explicitly in five occurrences. On a specific occasion, on 19th April 2017, Acquedotto Pugliese published a post to reassure customers after some national televisions and newspapers had reported potentials risks of contamination of tap water:

"Some friends have asked about the consequences of the supposed pollution of the Petrusillo (dam) on the water distributed by Acquedotto Pugliese. Distributed water is of excellent quality. ... It is controlled and it is subject to a thorough, complex process of purification treatment which ensures the lack of any harmful substance to humans"

The post includes also a video of a local TV report in which Acquedotto Pugliese explains the control realized in the area of Petrusillo.

Public engagement

The third theme that emerged relates to public engagement initiatives. These include cultural activities, such as exhibitions, participation to public workshops and seminars, collaborations with schools. For example, in October 2016 Acquedotto Pugliese informed the community about the opening of an exhibition about the project deriving from a school contest: "Tap water: draw your label". This contest was directed to Arts students and aimed at promoting the use of tap water as drinking water. Detailed information about the subject of the exhibition as well as about opening times is provided.

In addition, public engagement emerges in some posts concerning events organized in the collaboration between Acquedotto Pugliese and other stakeholders such as the local municipality. For example, some posts include photos and appreciation about a music even, the Locomotive Jazz festival, which took place at the water tank in Corigliano in 2016.

Further, several posts, photos and links refer to the "ciclovia" project, aimed at the creation of a cycle way along two historic water pipes built in the first decades of the 20th century. This initiative is dedicated to the community as well as to potential tourists and it is aimed at the enhancement and promotion of both natural and man-made resources of the local territory.

Sustainability

Finally, the last theme identified relates to sustainability. Through several posts, Acquedotto Pugliese informs Facebook users about its effort in improving the sustainability of the whole water cycle. In particular, the utility explains some initiatives dedicated to the use and re-use of water or informs about the participation to seminars about this topic. The expression "not a single drop will be wasted" is repeated in different posts. However, this theme seems to be marginal in terms of number and frequency of posts with respect to the other themes.

6. Discussion and conclusion

This study intended to explore social media communication in water utilities by analyzing the case of Acquedotto Pugliese and the content of its Facebook page. The findings reveal that Acquedotto Pugliese adopts an active approach to communication on social media, posting new content several times per week. However, the number of responses to single users is still low (31 responses to 423 user comments). Customer engagement in terms of number of likes and shares seems to relate to the utilities' activity. In this sense, during the summer period, when the social communication activities of the utility decrease, customer engagement decreases, as well.

From the content analysis, four main communication themes emerged, i.e., improvements and innovation, water salubrity, public engagement and sustainability. To the best of our knowledge, no other academic study has attempted to classify the content of water utilities' social media communication. Therefore, these results cannot be compared with other findings yet. However, the themes identified in the analysis of Acquedotto Pugliese's Facebook page recall some "hot topics" related to water utilities in academic journals. For example, some recent studies investigated the role of water quality and water quality perceptions in terms of satisfaction and willingness to pay (e.g. Polyzou et al., 2011; Han et al., 2015). Some others highlighted the importance of wastewater treatment and efficiency from a managerial and environmental perspective (del Saz-Salazar et al., 2016). In addition, Tutusaus et al. (2016) emphasized the potentialities of ICT usage in water utilities. Finally, sustainability is certainly a major current topic in academic literature (e.g. Haider et al., 2016; Romano et al. 2017) as well as a major concern for water utilities. Overall, the results of this research seem to confirm what emerged in the Water Research Foundation's (2017) study about water utilities in the United States, i.e. communication tend to be more company-focused than customer-focused. Specifically, even though Acquedotto Pugliese selects important topics for its posts, the communication remains mainly informative in nature, thus under-exploiting the potentialities of social media for interaction with stakeholders. From a managerial perspective, conversations with customers should be strengthened and implemented on a regular basis. The content of posts could be also enriched in order to increase customer engagement, for example through customer education initiatives aimed at raising awareness about a sustainable consumption of water. Overall, for the peculiar context in which water utilities operate (i.e. natural monopoly), it can be argued that the role of online communication has been underestimated and still offers great potentialities to be explored.

7. Limitations and further research

This paper is based on a single case study and therefore the findings cannot be generalized for other water utilities. Further research should extend the analysis to other Italian water utilities as well as to other social media (e.g. Twitter or Instagram) to identify best practices and mistakes to avoid. In addition, only the posts generated by the utility were considered. Future studies should address more in-depth customer engagement and analyze the conversations between users and the utility.

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