

Chapter 58

Network Text Analysis and Sentiment Analysis: An Integration to Analyse Word-of- Mouth in the Digital Marketplace

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ABSTRACT

Through Social Media, like social networking sites, wikis, web forums or blogs, people can debate and influence each other. Due to this reason, the analysis of online conversations has been recognized to be relevant to organizations. In the chapter we introduce two strategic tools to monitor and analyze online conversations, Sentiment Text Analysis (STA) and Network Text Analysis (NTA). Finally, we propose one empirical example in which these tools are integrated to analyze Word-of-Mouth regarding products and services in the Digital Marketplace.

INTRODUCTION

The Social Web environment is an important and free public space in which, virtually, everyone may express his or her impressions, opinions and beliefs against a product, an event or a cause. More and more people, of every age, use the social web before they make any kind of decision, could it be to buy something, change something in their lives or make a difficult choice. Through Social Web tools, i.e. social networking sites, wikis, web forums or blogs, people can debate and influence each other's opinion. This kind of User Generated Content is very important for every organization because people interact

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with each other and generate, on their own, a topic of discussion. This is the major advantage, compared to the other traditional forms of assessment that an organization can set. Most of the User Generated Contents on the web are public, which means that they are free to view. These contents and commentaries, therefore, represent a valuable and accessible resource to assess people's ideological positions. But, at the same time, people play an important role in influencing each other about a specific brand, product, service or something else (a film, an actor and so on) that has attracted the online debate. From this point of view, we can refer to the public and free online debate that arose around the choice of the actor for the second episode of Spider-Man, which seems to have influenced a lot the production of the film.

There is no doubt about the direct effect of the word-of-mouth on the digital marketplace and for this reason it is clear how these phenomena have to be taken into account for an efficient market strategy. Monitoring and intervening on brands and products' social perception is nowadays very important for all organizations. How organizational marketing campaign affects the consumption of the products, how the brand is perceived by the users and non-users, are there any differences in the sentiment against the product based on the characteristics of the users are some of the questions that need to be answered.

Many tools can be used to analyze these data, but one of the most valuable is the Sentiment Text Analysis (STA). Once the most relevant or important words are identified or specified, this technique allows, not only, to understand the polarity of the feelings undergoing a comment (positive, neutral, negative), but also to identify the single emotion involved. Moreover, the STA is based on a conventional Text Analysis (TA) and, therefore, there are also other several text analyses that can be performed at once. Some of these analyses are, for instance, counting the contingency of two single words (how much they appear close and linked in the text), some others perform the grammatical analysis of a word (nouns, adjectives or verbs), or simply their number in the text and their relevance amongst all comments.

To get a better understanding of these types of data, a complementary methodology that can be integrated with the STA is the Social Network Analysis (SNA) applied to text, i.e. the Network Text Analysis (NTA). Traditionally the SNA is a set of methods for analyzing the structure of whole social entities as well as a variety of theories explaining the patterns observed in these structures (Wasserman & Faust, 1994). Within this chapter, the SNA is mixed with STA to analyze the network and connections of the most used words about a specific topic, brand, service or organization. Each word will be a node in the network and each node may have several properties, such as type, (noun, adjective, verbs), speaker, location (where the word has been spoken) or sentiment (positive, neutral or negative) of the various words.

The aim of this chapter is to give a theoretical framework about Sentiment Analysis and Network Text Analysis and some concrete examples of their use to better understand the word-of-mouth effect in the digital marketplace.

BACKGROUND

Content Analysis and Sentiment Analysis

The term Big Data is often invoked to describe the overwhelming volume of information produced by and about human activity, made possible by the growing ubiquity of mobile devices, tracking tools, always-on sensors, and cheap computing storage. "In a digitized world, consumers going about their day – communicating, browsing, buying, sharing, searching – create their own enormous trails of data" (Manyika et al., 2011).

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