New Opportunities for Sentiment Analysis and Information Processing

Aakanksha Sharaff
National Institute of Technology, Raipur, India

G. R. Sinha
Myanmar Institute of Information Technology, Mandalay, Myanmar

Surbhi Bhatia
King Faisal University, Saudi Arabia

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701 East Chocolate Avenue, Hershey, PA 17033, USA
Tel: 717-533-8845 x100 • Fax: 717-533-8661
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Preface

Sentiment analysis, also known as opinion mining, is a machine learning and natural language processing technique. Information processing is the new area with intend to retrieve relevant information using different algorithms. Both lie at the crossroads of information retrieval, natural language processing and data mining. This book focusses on both theoretical and practical contributions to the related literature. The findings of the current study can readily be used by future work on determining the interrelationships between these three significant areas in the applications of multiple areas.

Mining sentiments from review comments or textual data is the main task of Sentiment Analysis. Several multinational organizations realize that sentiment mining plays an important role for decision making and market strategy. The revolutionary growth of digital marketing not only changes the market game but also results new opportunities for skilled professional and expertise. Nowadays the technologies are rapidly changing and the artificial intelligence (AI) and the machine learning are contributing as game changer technologies which are not only trending but also very popular among the data scientist and data analyst. Sentiment Analysis and Information Retrieval can be applied to almost every analytical field for predicting and analysis. The affective computation applications are very popular and widely used by the industries. Mining information by analyzing the sentiments has become one of the most interesting field of research. Sentiment Analysis is one of major research area in Data Science. There exists various technique of Sentiment Analysis like affective computing, machine learning, linear regression, decision trees, logistic regression, principal component analysis, Naïve Bayesian classifier, neural networks, deep learning, predictive modelling, text analysis, survival analysis, and many more, all of which allow using the data in such a way so that better and intelligent decisions are made. As we all know data is exponentially increasing day by day and for the analysis of this large data become a competition among data scientist and data analysis industries. This book will provide a unique effort in the various interdisciplinary field of information retrieval and sentiment analysis.

Sentiment analysis, stance detection, and intent detection have a variety of significant application areas. These areas include recommender systems, personalized advertising, market analysis, information retrieval, and predictions for elections, among others etc. With the exploration of opinions and reviews with the trend of being online, social media analytics have opened new opportunities for researchers to conduct studies in these avenues. This book will play a significant role by opening new areas towards exploring recent advances by deploying novel methodologies in sentiment analysis and information processing services and applications. It is ideally designed for researchers and industrialists. This book consists of fourteen chapters in total, focusing on several domains using computational techniques to explore sentiment analysis for phishing SMS detection, identifying novel and efficient solutions for online fake reviews in the research process, ways to retrieve relevant and correct information using hidden

web, presenting analysis of online customer Reviews on Face Masks, performing web analytics study on critical reviews related to government and policy makers, data analytics related to mining and opinion summarization, novelties and innovations in question answering systems and recommendation systems. It also deals with posting some questions about this research done in several domains including healthcare.

THE CHALLENGES

The current books available do not focus extensive scope of Sentiment analysis in social media mining, Sentiment Visualization, Emotion Detection, Real time sentiment analysis etc. Especially handing and managing the Data in Several Applications. Case Studies and Research Directions will be Unique Contributions in the Proposed Book.

The introduction and overview of sentiment analysis, emotion detection, opinion mining and related terminologies is what is expected in the chapters. Feature extraction, data visualization and numerous tools will be discussed and introduced so that the same can be used in further data management and handling methods and applications of sentiment analysis. The highlights on the importance of the data handling and managements related issues in sentiment analysis while implementing and solving real time problems is needed. The discussion related to the necessary mathematical modelling, hypothesis concepts and statistical data analysis in textual mining. Suitable mathematical models that are used in analysis of textual data analysis related problems should be discussed. Natural language processing based opinion mining and sentiment analysis needed to be discussed. The discussion on various text pre-processing techniques namely removing stop words, stemming, lemmatization, tokenization, text representation techniques etc. Feature selection using n-grams, regular expression, evolutionary approaches etc. is the needed solution. The description on various machine learning techniques used in sentiment analysis related issues and problems especially for dimensionality reduction challenges and clustering techniques should be presented. The various deep learning techniques currently used in related area of sentiment analysis such as Long Short-Term Memory, Generative Adversarial Network, Restricted Boltzmann Machine, Deep Belief Network etc. related to various aspects of opinion mining should be presented. The highlights on various clustering methods used in related area of sentiment analysis e.g. analyzing customer satisfaction responses, priority urgency detection, customer review diagnosis etc. using AI should be also the matter of discussion. How fuzzy convolutional neural network will be explored for textual data analysis in related area of sentiment analysis can be the target too. In the current scenario, communication media email, SMS, e-newspaper, plays a vital role in professional and personal commitments. The impact and challenges of sentiment analysis in communication network should be the matter of discussion. Since, Social media has widespread usage and effect in almost all of us and the usage is so huge that data handling and management become essential for such applications and thus the chapter to discuss analysis tools and services for social media and business applications is needed. The highlights provides few important applications of how and why sentiment analysis are used in social networking media in their analysis and content based retrieval. The few important examples of how and why sentiment analysis are used in healthcare systems in their analysis and content based retrieval. The applications discussing biomedical as well as other medical imaging modalities and their computer-aided-diagnosis (CAD) especially utilizing emotion detection concepts must be there. How security and encryption methods for big data applications and how the sentiment analysis concepts are useful in simplifying the big data challenges are the need of the society. Also the few important applications of

how and why sentiment analysis are used in e-commerce in their analysis and content based retrieval are the emergent topics in this domain. The set of performance measures and evaluation tools for assessing how the data handling or reduction methods work efficiently should be explored. The summarization of textual data and visualization of large scale text data Word Cloud, Tag Cloud sentiment values (positive, negative or neutral). Moreover, neural network concepts for sentiment analysis applications should be there as the trend of data analytics is taking up space. Case studies where text analytics is applied and benefited and applications of text mining in various domains such as software engineering, web analytics, document content etc. The important case studies on data handling and management problems on sentiment analysis applications from various application domains such as cognitive, computer vision, AI. The Future applications and open challenges in handling large volume unstructured and structured text data in sentiment analysis. The sentiment analysis study has become very important and emerging area of study as well as research and thus should highlight what would be future research directions and scope in the area of sentiment analysis applications.

Searching for a Solution

Sentiment Analysis has become an essential part of all modern advancements in several applications areas such as Automation, Economy, IT/ITES, Big Data, Affective Computation etc. The data handling and management, not done properly poses big challenge in various implementations and thus this book highlights major case studies, real time applications, implementation strategies, challenges, and future research directions. It requires an in-depth understanding of sentiment analysis and data manipulation. The in-depth understanding of supervised and unsupervised learning models such as linear regression, logistic regression, clustering, dimensionality reduction, etc. mathematical modeling of the problem, explaining the different components of the data manipulation related to research in information retrieval and sentiment analysis, presenting regression models and classification techniques for data analysis, concepts of time series modeling and gain practical mastery over principles, algorithms, and applications of machine learning/deep learning, learning to analyze data and become proficient in analyzing the data is necessary.

The objective of the book completes study of extracting sentiments from textual data. Performing sentiment visualization-based dimensionality reduction for multiple features. Used state-of-art machine learning and deep learning-based multi-domain sentiment extraction, discussed several optimization techniques used for sentiment identification and explained varied applications of sentiment analysis and emotion detection. It also deals with several chapters focusing on the existing usage of social media in the field of healthcare and how modern-day technology innovations are finding new ways to pace up the cycle of inception to delivery in various fields. It discusses the potential aspects that can be extended in each field. The innovative usage of applications of sentiment analysis and information processing with the technological impacts in different domains are explained. Detailed definitions, analogies are explained with an intent to focus on domains and applications related to sentiment analysis. The book will be useful to industrial sector, health care, engineers and researcher in addition to academics. Knowledge of fundamentals of data science, emerging applications and case studies will be emphasized. Learning outcomes to be highlighted along with future research directions of data science study and research.

ORGANIZATION OF THE BOOK

The book is organized into 14 chapters. A brief description of each of the chapters follows:

Chapter 1 discussed and compared various classification models that are used for phishing SMS detection through sentiment analysis. The chapter used Kaggle dataset for classifying the documents into spam and ham using deep learning methods and compared the proposed work using visualization tools. CNN reported the best results of SMS classification with the highest accuracy of 99.47% as a classification model. The results were also evaluated using different machine learning techniques as a baseline algorithm like naïve bayes, decision trees, SVM, and ANN.

Chapter 2 explained the problems and existing solutions for text analytic issues. The chapter well outlined the in-depth problems the researchers are facing to collect a large amount of quality data for DNN's training. This paper presented the outcomes of both proposed models with an imbalanced and small dataset. The chapter also explained the optimal solutions for businesses, as they cannot rely only on traditional models as they can work with structured data only which is not acceptable for the current scenario. The conversion process of unstructured text data to classified structured text data is detailed and are well listed to be informed, useful, and meaningful to carry out organizational operations.

Chapter 3 discussed the different types of information retrieval models that are used in retrieving hidden information from the web. Also, the strategies used to assess the recovery execution. In the Information Retrieval frameworks are also presented. The varied types of crawlers that are used to extract hidden information has been presented in detail. All this is important as the key part of the hidden web remains inaccessible to the users. This chapter deals with posting some questions about this research. Detailed definitions, analogies are explained and discusses related work and puts forward all the advantages and limitations of the existing work proposed by researchers. The proposed work identifies the need for a system that will process the surface and hidden web data and returns integrated results to the users pertaining to information extracting and processing the hidden information from the dark web and articulate methods of thinking through various concerns.

Chapter 4 reviews the existing usage of social media in the field of healthcare and how modern-day technology innovations are finding new ways to pace up the cycle of inception to delivery in various fields. It discusses the potential aspects that can be extended in each field. The paper listed that with innovative usage of this immensely powerful technological concept in one of the most important domains for humans. The potential areas where social media can be pivotal at achieving better and faster results are discussed and presented in detail with the comprehensive related work in the related domain.

Chapter 5 presents an analysis of issues and concerns in Online Customer Reviews on Face Masks. The main objectives of this chapter are suggested by the online reviews, putting the focus on the importance of the reviews in the user purchase decision, which are the most important elements of a review and what users take into account when writing a review. Also, in the study provided, the interest is to reveal if there are differences between the online shops (e.g. Amazon and Walmart), in terms of reviews and the attitude towards the stores. This chapter discusses the framework and the process of selecting and analyzing a number of reviews, using a software solution (an online application) created specifically for text analysis and extracting users' sentiments.

Chapter 6 investigates investigate the CSFs for the adoption of m-Government services in Tanzania by employing a web analytics approach. The chapter examines user behavior and the whys and wherefores that led to different levels of adoption among m-Government services belonging to the same family. The findings prove that web analytics methodology is suitable for exploring the system and the user's

behavior of m-Government sites. The study enlightens developers and designers about the critical nature of adhering to international accessibility and usability standards for websites. The authors ground their work by contextualizing as qualitative and quantitative research.

Chapter 7 presents an extractive document summarization system that is based upon graph and item-set mining methodology. The strategy utilizing item set mining graph-based summarization for summing up biomedical literature is explained in detail. The challenges and the solutions for recognizing important subjects in the biomedical document text has been addressed. The proposed summarizer can distinguish the item-sets which would be able to measure as the majority significant ones. The outcome of experiments is demonstrated using the hybrid method that can upgrade the summary created for biomedical literature.

Chapter 8 discusses the shortcomings in the current approaches in the current question answering systems (CQA) which are lexical gap between text pairs, dependency on external sources and manual features which leads to lack of generalization ability. This chapter focus on the previous limitations and removes the dependency of manual features and external resources with the help of deep learning methods as compared to other methods which based on machine learning and also on grammatical analysis. It proposes two models based on deep learning which uses similarity calculation method to evaluate semantically matching of question and its comments and then classify the comments as good, potential and bad on the dataset having CQA-QL corpus. The results shows improvement in the performance of community question answering system and can effectively classify the answers/comments in the three classes.

Chapter 9 discusses generic concepts on how online learning has entirely modified how efficient teaching and revolutionized learning is imparted to the learners in contrast to traditional learning reviews. It concentrates majorly on the latest trends evolving in the e-learning domain globally. The integral part of the chapter depicts a greater view of trends in the e-learning recommendation system which will pave a positive path for society's growth. The key purpose of this chapter revolves over non-formal education which majorly involves e-learning for the development of professional and organizational growth focusing on the application and implementation of artificial intelligence, machine learning methodologies for the future benefits of human race.

Chapter 10 presents the notion that Fake reviews are the most dangerous element that can affect the purchase decision, having the power to create a false image of a product or service by spreading false information through reviews, whether positive or negative. This chapter proposes a methodological solution before analyzing reviews through specialized software (e.g., SmartMunk, Revuze, Aspectiva, SentiGeek, etc.), a filter for identifying fake reviews by introducing them into a fake review application called Fakespot.

Chapter 11 gives descriptive information about the tweet dataset which has sentiment, stance, and intent annotations, all at once. The dataset which is further annotated within the context of the current book chapter is made publicly available for research purposes at github. The experiments are performed on the three stance detection experiments by training a separate SVM for each dataset. All the possible contribution of sentiment and intent information to stance detection in Turkish tweets has been explained with experiments in this chapter.

Chapter 12 concludes and presents principles necessary on fake news detection on social media platforms using machine learning techniques and deep learning techniques. The proposed novel techniques introduce the combination of BERT and LSTM, which boost the performance of the fake news detection method. By developing this false information detecting system, the problems behind the imitated text

will be controlled and rumors will be blocked. This research proposes a novel FNDN-LSTM model of fake information and real information from the social media news datasets. Thus, this chapter proposes a model that can classify efficiently, conserve memory usage and consume less time for training. Thus, the study assists appropriate guidelines on the fake news detection model (FNDN-LSTM) on social media.

Chapter 13 presented a survey on various embedding techniques that can be employed for constructing better models for sentiment analysis like basic word embedding techniques, sentiment embedding techniques, and emoticon space embedding techniques and also traces the evolution of word embedding techniques in a chronological order.

Chapter 14 consists of the sentiment analysis of the textual data on the US economic news with time series to build sentiment prediction models. The chapter proposes a method to create domain-specific lexicon and used the economic based lexicon to experiment the system. The design and implementation related to a sentiment judgment model based on real data of the US economic news has been shown. The results claims that the logistic binomial regression model gives the best result or accuracy among the different regression models experimented in the chapter.

Aakanksha Sharaff
National Institute of Technology, Raipur, India

G. R. Sinha
Myanmar Institute of Information Technology, Mandalay, Myanmar

Surbhi Bhatia
King Faisal University, Saudi Arabia

Chapter 5
Testing the SmartMunk's Story.ly App for the Analysis of Online Customer Reviews on Face Masks

Arabela Briciu
https://orcid.org/0000-0002-7506-8099
Transilvania University of Brasov, Romania

Cristian-Laurențiu Roman
Transilvania University of Brasov, Romania

Victor-Alexandru Briciu
https://orcid.org/0000-0003-1202-5830
Transilvania University of Brasov, Romania

ABSTRACT

This chapter aims to present the process of selecting and analyzing a number of reviews using a software solution (an online application) created specifically for text analysis and extracting user sentiment. This software measures the level of user satisfaction, analyzing product reviews and taking into account the qualitative part of the content generated by users. Analyzing online customer reviews with the help of specialized software can help both companies and other users. The software can also help us reach a conclusion regarding the analysis of reviews and customer feedback on products or services. This study can also be useful for customers or buyers who want to know the opinion of others about a product, having the opportunity to differentiate between positive and negative reviews.

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INTRODUCTION

Analyzing online customer reviews with the help of specialized software can help both companies and other users. The software can also help us reach a conclusion regarding the analysis of reviews and customer feedback on products or services.

The biggest benefits of this study are aimed at organizations, which can adapt their products, services or promotion according to the wishes of their customers, as well as the level of customer satisfaction, because they can find out their customers' opinions of what they offer with the help of online customer reviews analysis. A software solution for the analysis of online customer reviews can provide reports very quickly after extracting information from reviews, forums or interviews. This study can also be useful for customers who want to know the opinion of others on a product, having the opportunity to differentiate between positive and negative reviews. Given that customer behaviors and reactions to product design and marketing are essential for manufacturers (Wang, Lu & Tan, 2018), such a program can help the research about how product qualities can affect consumer satisfaction (Wang et al., 2018).

The main objectives of this chapter are suggested by the online reviews, putting the focus on the importance of the reviews in the user purchase decision, which are the most important elements of a review and what users take into account when writing a review. Also, in the study provided, the interest is to reveal if there are differences between the online shops (e.g. Amazon and Walmart), in terms of reviews and the attitude towards the stores.

This paper will present the process of selecting and analyzing a number of reviews, using a software solution (an online application) created specifically for text analysis and extracting users' sentiments. This software measures the level of user satisfaction, analyzing product reviews and taking into account the qualitative part of the content generated by users. The broader concept of "User Generated Content" has the ability to identify as many customer needs as possible, unlike the use of direct interviews, being a faster research solution, with lower costs (Timoshenko & Hauser, 2018). Therefore, this type of content has spread a lot due to this great advantage, whether we are talking about online reviews, social media or blogs (Timoshenko & Hauser, 2018), and they must be carefully analyzed because they can play an important role in the purchase decision.

Under these specific conditions, companies are taking into account more and more user reviews, and a growing number of them choose customer satisfaction as the main performance indicator (Mihelis, Grigoroudis, Siskos, Politis & Malandrakis, 2001).

Story.ly is the name of the software/ application we will use in this paper and this is a solution from the German company SmartMunk, which aggregates qualitative ideas and reduces the complexity of rich data sets by automatically extracting meaning from text - in almost any language (Boje, 2018). SmartMunk GmbH was created in 2012 by Andera Gadeib and Volker Gadeib, starting from the idea of offering online software to improve customer relations, and the startup business specialized in the development of smart software as a Service solution for co-creation and text analysis (SmartMunk, 2020). The tools they provide want to show companies, first and foremost, what is in the customers' minds: "We call this 'Voice-of-the-Customer Intelligence'" (SmartMunk, 2020).

SmartMunk's story.ly program supports marketing, sales and new product development in companies (SmartMunk, 2020), promising a very enjoyable experience due to the fact that any amount of text will be semantically condensed and displayed in concise visual analysis and allows the users to easily read the "story" at a glance (smartmunk.com). In addition to the software being easy to use and the intuitive

nature of the interface, the program is compatible with any platform and is available in any language around the world.

Therefore, this chapter aims to track the behavior of buyers towards companies in the online environment, given the communication between the two elements, promotion techniques and reviews, trying to reach a conclusion regarding their importance and influence on the purchase decision.

BACKGROUND. THE RELATIONSHIP BETWEEN ORGANIZATION AND CONSUMERS

Corporate communication is a concept that refers to all the actions of a company through which it communicates, both internally and externally, with employees, partners or customers. Cornelissen (2008) confirms that the future of any company "depends critically on how it is viewed by key stakeholders such as shareholders and investors, customers and consumers, employees and members of the community in which the company resides" (p.18). Thus, companies need to establish a strong connection with all of them to ensure their continuity, because partners, investors, customers and employees are the ones who keep a company alive.

In addition to the communication with customers or employees, we must also take into account the fact that "at its most comprehensive (total corporate communications) it also takes into account the communications effects of management, employee and product behaviour and of word-of mouth and media/competitor commentary (Balmer & Greyser, 2003 cited in Balmer & Greyser, 2006, p. 735). Word-of-mouth plays a very important role, because it is one of the most used ways to disseminate information, without direct involvement from companies, and the public continues to communicate their opinion, be it positive or negative.

The most used form of communication is probably the online one, online corporate communication referring to "online communication by an organization using a computer and a specific Internet resource to employ online actions to attain specific goals. Primary benefits of online communication are the immediacy and flexibility that characterize the online environment" (Plessis, Angelopulo & Plessis, 2012, p. 241). The online environment allows corporations to be highly visible, and this flexibility and ease of use that the authors talked about has made people switch to the Internet, where they can track almost anything related to any company.

A company's reputation can refer to the way it is seen and perceived by the public, whether this public is among the company's customers or not. In the article by Weiss, Anderson and MacInnis (1999) a more explicit definition appears, and we are told that the reputation of companies is "defined as 'an impression of public esteem or high regard judged by others'" (p. 75). The definition refers to the fact that any company must be visible first, so that a very large number of people can have contact with that company, then credibility intervenes, because "individual persons may have perceptions of an organization's reputation for specific things (e.g., its reputation for fairness, quality, and good hiring practices)" (Weiss et al., 1999, p. 75). The authors believe that reputation is built on these two elements: visibility and credibility.

In the article by Carmeli and Tishler (2005), there are many definitions and opinions of other authors on this concept. One of them states that "reputation and an organization's identity arguing that they include everything the organization does regarding four major areas of its activity: first, products/services — what it makes or sells; secondly, environments — where (in which physical place) it makes

or sells its products/services; thirdly, information — how it describes and publicizes its activities; and fourthly, behavior — how the members of the organization behave to each other and to non-members" (Olins, 1990 cited in Carmeli & Tishler, 2005, p. 15). The four elements listed by the authors certainly have an important role in building the image of a company, because they are all related to customers' expectations and demands. Another definition in the book "suggests that corporate reputation consists of four interrelated characteristics: credibility, reliability, responsibility and trustworthiness" (Fombrun, 1996 cited in Carmeli & Tishler, 2005, p. 15).

We can also define organizational reputation as "stakeholders' perceptions about an organization's ability to create value relative to competitors" (Rindova, Williamson, Petkova & Sever, 2005, p. 3), stakeholders are parties that have an interest in the company or partners of that company, and their involvement "is a critical aspect for organizations in an environment that is sensitive to power relations, thus they need to value the interactions with diverse stakeholders" (Ji, Li, North & Liu, 2016, p. 3). In principle, they have an important role for companies because "assigning a favorable or unfavorable reputation to an organization has become even more important with the emergence of social media" (Ji et al., 2016, p. 1), so they can help the company succeed as well as they can cause failures, building its image and having the power to influence audiences.

An element that is directly related to the reputation may be the quality of services or products that the customer expects; otherwise the reputation suffers from information transmitted from one person to another, regarding the poor performance of the company. Therefore, it is confirmed that "organizations that customers perceive as having high quality are likely to be mentioned or patronized more frequently leading more customers to choose them in the future" (Rindova et al., 2005, p. 12). At the same time, there is this concept that we discussed earlier, namely word-of-mouth, which can force companies to provide quality services, because even a single customer's negative opinion can spread to many people, especially because "for many consumers, WOM is more influential than information from media, such as newspaper, magazine, and radio advertisements" (Yang & Hong, 2009, p. 383).

It is said that word-of-mouth is much more effective than all of these media channels, it even "strongly influences an individual's product judgment—more so than printed information about extensive, diagnostic attributes of the product—and that a single, favorable WOM communication can make an individual form a favorable attitude toward a company or a product" (Yang & Hong, 2009, p. 383). This concept can change opinions or attitudes, but it can also shape the public's image of a company.

Following the reputation and provided quality, there is also the price demanded by each company, and "favorable reputation can induce buyers to pay a price premium" (Rindova et al., 2005, p. 13), while there is also the idea that any premium product or service costs more, but also offers you more than cheaper ones. Along with them, we can also mention the satisfaction of customers who are happy with these services, but also a close connection between the company and the customer, because "perceived quality is likely to have a positive effect on the prices that customers are willing to pay because it increases their confidence in the quality of an organization's goods" (Rindova et al., 2005, p. 13).

Marketing communication is a concept that refers to all the ways in which a company communicates with the public, including advertisements, announcements or e-mails. Odunlami and Ofoegbu (2011) come with broader definitions, defining the concept "as the promotional tools that favourably communicate information about the organization and its products to target market" (Odunlami & Ofoegbu, 2011, p. 408) or, in another one of their definitions, they state that "marketing communication can also be defined as those promotional tools used in communicating favorably with the targeted market" (Odunlami &

Ofoegbu, 2011, p. 408). Therefore, the role of marketing communication is to keep the public informed about the latest offers, products or services.

From a content point of view, the message can vary in marketing communication, presenting details about the brand, in case of prints for example, or only promoting the brand name or a product, without much detail. Also, the message can focus on "tangible aspects (e.g. physical product attributes) or intangible aspects (e.g. user or usage imagery, brand personality, the company behind the brand, etc.)" (Keller, 2010, p. 828), and all of these can be transmitted in an "infinite number of different ways (e.g. through informational or emotional means; employing fear, music, sex, appeals, special effects, etc.)" (Keller, 2010, p. 828), all of which have a strong impact on the public.

The public's purchase behavior was also studied, and it "may be viewed from three perspectives — the decision making, the experiential and the behavioural influence" (Mowen, 1988 cited in Mihart, 2012, p. 123), the elements that influence the purchase decision being the most important, whether it is about making a decision after watching an advertisement, based on past experiences or advice from a close person, or if the quality-price ratio plays an important role for the buyer. In addition, three levels of the purchase decision were identified, referring to "extensive problem solving, limited problem solving and routinized response behaviour" (Howard, 1977 cited in Mihart, 2012, p. 123).

Pauwels, Erguncu and Yildirim (2013) also propose a model in relation to the functioning of marketing communication and customer purchase behavior. Certainly, marketing efficiency "differs in the extent to which consumers (1) become aware of marketing communication, (2) are open to change their minds and hearts and (3) change their buying patterns accordingly" (Pauwels, Erguncu & Yildirim, 2013, p. 2). Also, these elements also depend on the environment the customer comes from, the country or his attitude towards certain companies.

Odunlami and Ofoegbu (2011) compiled a list of several tools that should not be missing in order to obtain effective marketing communication. Among them, there is the creation of notoriety, because "promotional efforts may be aimed at increasing brand awareness, product features awareness, image awareness etc." (Odunlami & Ofoegbu, 2011, p. 410), and the notoriety brought to a new product or to an existing one can attract the attention of many customers, plus word-of-mouth can help this process. Driving demand is just as important, and a solution in this regard is that "promotion also stimulate primary demand – demand for a product category rather than for a specific brand of product through pioneer promotion" (Odunlami & Ofoegbu, 2011, p. 410), and other elements are encouraging customers to try the product for a certain period of time, beating the competition in terms of promotions, or customer loyalty, the latter having many advantages, especially for the fact that it "can help an organization control its costs because the costs of retaining customers are usually considerably lower than those of acquiring new ones" (Odunlami & Ofoegbu, 2011, p. 410), in this way, the company can spend less in terms of promotion.

One of the most important aspects for any company is to know the needs of its customers or even potential customers, to know exactly what it should offer. Customer relationship management (CRM) can handle these aspects. We can define this concept as "an information industry term for methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way" (Xu, Yen, Lin & Chou, 2002, p. 442). In other words, CRM is a system that collects customer data through the Internet, helping the company to get to know them better. The main goal of this software is that it increases "companies' abilities to understand the customers' current needs, what they have done in the past, and what they plan to do in the future to meet their own objectives" (Xu et al.,

2002, p. 442). Knowing the past actions of potential customers has an important role because purchase decisions are similar, and customers can be approached in various ways for awareness or persuasion.

King and Burgess (2008) defined CRM as "an integration of technologies and business processes that are adopted to satisfy the needs of a customer during any given interaction" (Bose, 2002 cited in King & Burges, 2007). Their definition is not very different from the one we talked about in the beginning, the only difference being that one of them focuses on the needs of companies in relation to customers, and the second one focuses on customer needs and customer satisfaction.

This system appeared, first of all, due to the "globalisation of markets, technological development, the larger number of competitors, and increased customer demands" (Chalmeta, 2005, p. 1015), thus, companies had to renew their methods of communication with the customers, but also their methods of studying the market. Secondly, since the year 2000, technology has evolved a lot, and it has determined people to evolve as well. Likewise, companies "have achieved a high level of maturity in the use of computer applications to improve the efficiency of the firms everyday activities" (Chalmeta, 2005, p. 1015). This is how online stores or official company websites (Briciu, Briciu & Pilipinschi, 2017), through which they promote their products, as well as other websites or social networks were born, the public being more and more present in the online environment, regardless of their age.

Nowadays, the concept can also be found under the name of Social CRM or CRM 2.0, as a more recent version, although not much more evolved than the classic one. Social CRM is stated to be "a philosophy and a business strategy, supported by a technology platform, business rules, processes and social characteristics, designed to engage the customer in a collaborative conversation in order to provide mutually beneficial value in a trusted and transparent business environment. It is the company's programmatic response to the customer's control of the conversation" (Giannakis-Bompolis & Boutsouki, 2014, p. 69). The basic idea remains the same, the company and the client are in contact so that everyone can fulfill their interest.

Data mining is the extraction of knowledge from data and is part of the Customer relationship management sphere, and the idea behind this system is "that data from the past contains information that will be useful in the future" (Berry & Linoff, 2004, p. 6). As we stated earlier, the data collected from the customers' past helps the company to fit them into certain categories, then they will adapt their message or type of promotion depending on the buyers' history, but also according to their needs.

Another advantage of CRM is that "systems, current customer, deal, product and competitor information are all stored in the CRM central database for salesforce retrieval" (Xu et al., 2002, p. 443), which means that all actions regarding the product and its sale are automated, the data collection being done very quickly. Certainly, many elements are needed for the system to reach this information, such as "IVR (interactive voice response), e-mail, Web site messages, fax, image, etc." (Xu et al. 2002, p. 444).

Regarding customer engagement, or in other words, customer involvement, there are several definitions. One of them tells us that this term represents "the customers' behavioral manifestation toward a brand or firm, beyond purchase, resulting from motivational drivers" (Gannakis-Bompolis & Boutsouki, 2014, p. 69), being more like a behavior that is not solely based on a product or a transaction, but on a closer relationship between the company and the customer. Also, customer engagement is motivated by "an eagerness for participation in business processes and highlight the fact that engagement behaviors may be manifested by a wide range of different agents, like current and/or prospective customers, suppliers, the public, legislators, even by employees of the company and can have either positive or negative outcome for the enterprise" (Gannakis-Bompolis & Boutsouki, 2014, p. 69). Therefore, the outcome

may or may not bring results to the company, depending on the actions of the employees, but also on customer involvement.

All these concepts discussed in this section of the chapter have a strong connection, depending on each other. Corporate communication and customer relationship management are the basis for a company's communication, whether it is about stakeholders, employees, customers or other publics; this helps companies to keep the stakeholders close or to get out of extreme situations. Word-of-mouth and organizational reputation have also a strong connection to the described subject because the company's actions can affect the latter, as individuals find, use and spread the information very fast.

PROMOTION AND ONLINE STORES

Today, more and more companies have diversified their promotion strategies and methods, the evolution of technology bringing more possibilities than in the past. Consumers can find information about a company or a product much more easily, but this also means that "there are more variables affecting consumers' purchasing decisions due to the amount of information on products that are made available to consumers" (Chong, Li, Ngai, Ch'ng & Lee, 2016, p. 360), and the fact that all buyers can publish their opinion on a product in the online environment through reviews or social networks can affect the image of a brand or can bring a positive contribution. Second, with this freedom on the Internet, companies have more obligations, for their own safety and the safety of their customers, they "are becoming increasingly pressured to secure sales on their products within a shorter time period" (Chong et al., 2016, p. 360).

In the case of promotion techniques, we must mention the elements of the marketing mix, because they "influence consumers' equity perceptions toward brands" (Pappu & Quester, 2008 cited in Buil, de Chernatony & Martinez, 2011, p. 116). These elements are very important because they bring a positive contribution both in terms of the company's image and sales. It is said that a positive and strong brand image is built through elements such as "high advertising spend, high price, high distribution intensity and distribution through retailers with good store image" (Buil et al., 2011, p. 16), the explanation being that the public will trust a company with financial power, that invests in its services and collaborates with serious partners. The most common and used marketing tools are advertising and sales promotion.

Sales promotion is "an action-focused marketing event whose purpose is to have a direct impact on the behavior of the firm's customer" (Blattberg & Briesch, 2012, p. 2) and should not be confused with price reduction, which can be categorized as a promotion method. Among the characteristics of sales promotion, we can enumerate that it is "always combined with some type of communication (e.g., a retailer ad) that the price is reduced and that the time period is limited (price is reduced only up to some point in time)" (Blattberg & Briesch, 2012, p. 2), which can lead to increased sales due to the fact that customers buy more and faster when there is a promotion that takes place over a limited period of time. Also, many theories demonstrate that audiences "respond more strongly to sales promotions than to a price decrease and shows the benefits to managers of understanding why sales promotions are used" (Blattberg & Briesch, 2012, p. 3). Sales promotion can be divided into two categories, namely "monetary promotions (e.g., shelf-price discounts, coupons, rebates and price packs)" (Kwok & Uncles, 2002, p. 2), where customers are rewarded financially, and "non-monetary promotions (e.g., sweepstakes, free gifts and loyalty programs)" (Kwok & Uncles, 2002, p. 2) that reward the customer from a sentimental point of view, aiming to strengthen the company-customer relationship.

Other important promotion methods, but in which companies are not directly involved, are online reviews, that can appear on "several platforms such as blogs, product reviews, wikis and Twitter" (Tirunillai & Tellis, 2012 cited in Chong et al., 2016, p. 362), including on sites that specialize in sales, regardless of the type of products they sell. We can define online reviews as "media content created by users to share information and/or opinions with other users" (Chong et al., 2016, p. 362). The number of reviews for a single product also has an important role, as it has been shown that "online review volume has a quantitatively measurable impact on product sales" (Chong et al., 2016, p. 363). A product with a large number of reviews will always attract attention, and if most of them are positive, the customer will begin to become convinced that it is the right product. Of course, the relevance of each review must be considered, because a "large proportion of reviews tend to have either extremely high numeric ratings or extremely low ones" (Chong et al., 2016, p. 365).

Trade promotions have the role of "generating a price decrease by retailers to consumers or gaining distribution for a new product" (Blattberg & Briesch, 2012, p. 7). The concept is based on the relationship between producers and traders, the former offering certain advantages to traders in order to stimulate them, then the discounts reach customers as well, through producers. The main objectives of commercial promotions are to "gain or maintain distribution, obtain temporary price discount, display product, include product in retailer's advertisements, increase sales, reduce inventory" (Blattberg & Briesch, 2012, p. 8).

Another strategy for attracting customers is to deliver the products for free, because "delivery service offerings have a positive relationship with customers' trust and loyalty" (Chong et al. 2016, p. 362), the purchase decision can even depend solely on this aspect, customers usually comparing the services offered by each company.

Most of the time, sales promotion is "associated with large increases in consumer sales" (Blattberg & Briesch, 2012, p. 17), and the most important thing is to offer quality services or products, not just lower prices than the competition, because the public will also pay attention to these issues. In other words, reviews and price reductions seem to have the biggest impact on buyers, when it comes to online shopping.

With the advent of Web 2.0 (Briciu & Briciu, 2021), all sites have developed a lot and many sites that promote brands and all the products and services they offer have appeared, and people have also adapted to this technology and began to expresses their opinions in the online environment, either through reviews or through social networks, thus using word-of-mouth so that others know as many details about the product before buying it. Very quickly after that, "retailers such as Amazon, traditional consumer magazines (e.g. Car and Driver's caranddriver.com and PC Magazine's pcmag.com and independent consumer community intermediaries (e.g. epinions and consumerreview.com)" (Chen, Fay & Wang, 2011, p. 85) have implemented online reviews and forum pages for consumers to discuss with each other or with the manufacturer.

These reviews can help, to some extent, but online shopping cannot effectively match in-store shopping or the virtual cannot overcome product experience to some extent (Briciu & Briciu, 2020a) because "consumer-purchases are mainly based on the cyberspace appearance such as pictures, images, quality information, and video clips of the product, not on the actual experience (Park & Kim, 2003, p. 16) and, often enough, the reality is different from expectations. Park and Kim (2003) say that online shopping resembles "shopping through a paper catalog because both involve mail delivery of the purchases and in both cases customers cannot touch or smell the items" (Spiller and Lohse, 1997 cited in Park & Kim, 2003, p.16).

McKechnie (1992) talks about buyers' behavior and the stages they have to go through before making a decision. They have to go through "problem recognition; information search; evaluation of alternatives;

purchase decision; and post-purchase behaviour" (McKechnie, 1992, p. 6) before buying a product, plus reviews are the only ones that can help them and there is always uncertainty.

Desires and preferences differ from person to person, as do "interests and attitudes vary with age, and the youngest consumers have the most positive attitude toward innovation" (Bigne, Ruiz & Sanz, 2005, p. 196), and teenagers and young people are more likely to shop online than adults and the elderly because they are familiar with this environment. A study shows that age is not the only factor that can influence buying methods, but also the culture the buyers come from. Under these conditions, "consumers from individualist cultures develop a more innovative profile and are more predisposed to shop via Internet than consumers from cultures which favour collectivism" (Jarvenpaa, Tractinsky, Saarinen & Vitale, 1999 cited in Bigne et al., 2005, p. 196), thus, consumers in North America or Western Europe may see the idea of online shopping differently than consumers in Asia and Eastern Europe.

Another element that is part of consumer behavior is the review, and what motivates consumers, first of all, to post, is "to gain social approval or self-approval by demonstrating their superb purchase decision and through altruistic behavior of sharing their expertise with others" (Chen et al., 2011, p. 86). So, there is a psychological reason behind it, that of confirming that they made a good choice, but also helping others, giving them information about their own experience.

Regarding Word of Mouth, in many cases, it is necessary "that individuals optimally ignore private signals and instead rely entirely on information from the aggregate behavior of others" (Chen et al., 2011), following, in the dialogue with others, the aspects that the potential buyer is interested in, only then will a broader picture of the product be offered and a decision will be formed. The main idea is that it is not always good to follow our senses and sentiments towards a product, but that it is better to be objective, weighing the quality-price ratio and our real need to buy it.

Regarding the purchase decision, it is said that "since in many product categories, women make the purchase decision" (Bigne et al., 2005, p. 197), being also about many home care appliances or other product categories in which women are theoretically more specialized in than men. Very interesting is the fact that "several authors state that women are the main users of direct shopping media" (Bigne et al., 2005, p. 197). Studies show that women buy online more than men, "who usually have mainly utilitarian purchase motivations, valuing personal contact and social relations to a lesser degree" (Bigne et al., 2005, p. 197).

To reduce the risks of future transactions, consumers tend to be active in their relationships with other users, in order to be informed at all times and to make the right choices. In time, "after a few successful transactions, a consumer starts to feel safe with the service provider or supplier" (Park & Kim, 2003, p. 18), then follows the trust gained in a certain company, which "is able to fulfill their needs and wants and eventually, they become committed to the company" (Park & Kim, 2003, p. 18).

Online stores are websites that specialize in selling products, whether we are talking about sites that specialize in certain fields, or sites that offer products from different fields (Briciu, Briciu & Găitan, 2020). Given that these sites offer customers a wide variety of products, we need to understand the public's tendency to shop online, plus that they receive the products at home without having to travel.

To define online stores, we can say that they sell goods and services for which the buyer places an order on the Internet, extranet, electronic data exchange network, e-mail or another online system (Kacen, Hess & Chiang, 2013, p. 2), and the biggest advantage of online shopping is that it takes much less time to place an order via the Internet, unlike traditional stores. Also, since online shopping has become part of our daily lives, many consumers are still afraid of negative experiences (Utz, Kerkhof & van den Bos, 2012, p. 49), and the trust that customers gain is very important for companies and their long-term busi-

ness. The customers' trust in the company can be influenced by the quality of the products or services it offers, but also by online reviews or Word of Mouth.

E-commerce refers to online commerce, but also to the process by which the product is transferred from the manufacturer to the customer. First of all, customers can only see the product on the site, where they can also read information about it, and here is the big disadvantage of online shopping: the products cannot be seen live, touched or tested before being bought. Most of the time, the product cannot be delivered at all, cannot be delivered on time or a product of a lower quality reaches the destination instead (Utz et al., 2012, p. 49), therefore, there are many risks for buyers and they are forced to choose the right product, as well as a reliable online store (Utz et al., 2012, p. 50).

Trust is what underlies any business, and it represents the expectation that other companies will not take advantage of attracting customers based on a dependency (Gefen, Karahanna & Straub, 2003, p. 308). In our case, the trust of customers in companies that own online stores is very important; during transactions, errors may occur or certain companies may violate regulations, even reaching unfair prices, violations of private information, transmission of inaccurate information, unauthorized transaction tracking and unauthorized use of credit card information, to name a few (Gefen, 2000 cited in Gefen et al., 2003, p. 308), thus, the customer experience is a negative one and the connection with the company in question will be permanently broken.

These days, when everything is digitized, the companies must adapt to the times to achieve success. Web 2.0 brought big changes in the world and the companies are almost non-existent without a website or an online store, because it is easier to enter a site than to move to a physical store and maintain it. That is why it is important to invest in e-commerce and sales promotion to reach costumers more easily and to make a company be known faster.

THE STUDY

Analyzing user reviews with the help of specialized software can help both companies and other users. The results of the paper will present the impact of reviews on customers' purchase decisions, as well as the importance of good communication in organizations, both with employees and customers, to achieve the established goals. The software will also help us reach a conclusion regarding the analysis of reviews and customer feedback on products or services.

This research will present the actual selection and analysis of a number of reviews, with the help of a software that was specifically created for text analysis and the extraction of users' sentiments, namely the online solution called story.ly, developed by the SmartMunk company. Several review analysis software applications are available, such as Revuze, Aspectiva, SmartMunk story.ly, SentiGeek etc., presented comparatively in Table 1 below:

The differences between these software programs are not very big, as they all analyze customer satisfaction, in one way or another. The only significant differences are the architecture of the programs or the way in which they present the reports.

The research was conducted between May 28, 2020 and June 18, 2020, and the hypothesis we started from was: "Reviews can substantially influence the purchase decision because studies show that most users read reviews first before buying." In addition, the fact that reviews generally have ratings or responses demonstrates that users communicate and take each other's views into account. In order to investigate how reviews influence consumers' purchase decisions, we used the document analysis method (in our

Table 1. Characteristics of review analysis software

Review analysis software			
Revuze	**Aspectiva**	**SmartMunk story.ly**	**SentiGeek**
• focuses on products and their quality, with the help of differentiators • follows the attitude and language of people in relation to a certain topic/subject • looks for words like "good", "happy" or "terrible" to identify the sentiments of the audience	• follows the perception of the audience, but also the products' specifications • it looks for as many users who have actually tried a certain product as possible, their opinion being very important because the review has arguments behind it • the generated graph shows the user satisfaction, considering usability, appearance, etc.	• analyzes customer satisfaction based on the quality of the services or product offered by the company • the elements that can cause joy or disappointment among customers are taken into account • also uses material from forums	• takes into account the customer's feedback, as well as his opinion on the brand and product • extracts keywords or even phrases to define the users' sentiments and opinions, expressed in the reports, while also generating their profile

Source: (authors' own research)

case, the documents are the reports obtained from the software, which we analyzed), the purpose being to answer several research questions: What aspects do buyers emphasize in their reviews? What are the elements of a review that can influence the purchase decision? Is the evaluation of a product different depending on the country where you live?

For the analysis and testing of this online app, we chose a relatively promoted and popular product, namely protective face masks. Given the new COVID-19 (SARS-CoV-2) virus that appeared in early 2020 and spread worldwide (Briciu & Briciu, 2020b), these masks, along with protective gloves and disinfectant solutions have become the most sought-after products on the market. Taking into account other methodological decisions regarding the size of the analyzed corpus (Wang, Zhu & Li, 2013; Otto & Wagner, 2004; Raghupathi, Yannou, Farel & Poirson, 2015), we selected 30 reviews that will be analyzed using story.ly app, 15 of these were selected from Walmart and 15 from Amazon. At this stage of the study, the selection of the reviews was based on several criteria, in terms of the number of reviews, grammatically correct reviews which could be analyzed by the software. After that, every review was introduced in the software and passed through each phase for a detailed analysis. Data interpretation from software was also very important to achieve a realistic result.

In order to achieve the research objectives, the authors opted for the use of a descriptive-explanatory research, because "descriptive and explanatory researches are only extreme types of sociological research. There are intermediate forms and both descriptive and explanatory research" (Chelcea, 2004, p. 183). The broader research objectives were to identify the public's attitude towards protective masks (the degree of protection is directly proportional to the price of the masks); establishing the degree of positive and negative reviews; the degree of efficiency of the masks based on the analysis of user reviews; identifying the public's attitude towards Amazon and Walmart.

From Amazon online store, we chose the product "Face Mask (10/1, 5/1, 1/1) Cotton Mask with Elastic Strap Washable Face Mask" (see Figure 1) from *Sevello Clothing*, priced at £6.99 (Think Ink, 2020). The mask is produced in the UK by the previously mentioned company. If we refer to some specifications, it is made of 100% cotton, specifying that the material is premium, being delicate, and the mask is comfortable to wear, in addition it promises good protection against dust, polluted air and viruses. In terms of customers' opinion, the product has 24 reviews, the rating being 3.4 points (stars) out of 5 (at the time of the analysis).

The selected product from Walmart online store is "Washable Cotton Face Mask Reusable Made in the USA", with the price of $15 (reduced to $9.98) (Blended, 2020). The mask is produced in the United States of America, being made of 97% cotton and 3% spandex, with the advantage that it can be washed and used several times, in addition, it promises protection against pollution and harmful particles, but it is specified that without other protective measures, such as gloves or disinfectant, it will not offer full protection against the virus. The product collected 28 reviews (at the time of the analysis), which means 3.6 points (stars) out of 5.

Additionally, to describe the main functions of this online solution, once we enter the story.ly site, we have the opportunity to start a new project by clicking on "Start a new story.ly project", and then we must choose the name of our project, the language in which we want to develop the project and the project number. Next, we need to import the text we want the software to analyze, and in this regard, there are two possibilities: "Copy and paste text" or "Import Excel or CSV file", the first option referring to actually copying text from an internet source, and the second option refers to importing text using Excel, the software being able to analyze multiple texts at the same time.

After completing these initial steps, the program will analyze our text and display six windows, each containing information about the text. The first window is called "Dashboard" (see Appendix, Figure 1) and specifies the percentage of existing words in the text already found in other categories, so it is a framing of the text in a specific topic or subject, making links to other texts; in addition, the number of entered texts is displayed here, as well as the number of words and the number of unique words. The second window is called "Ontology Skyline" (exemplified in Appendix, Figure 2) and displays nine criteria that are taken into account in the text analysis, each keyword being framed in a criterion. The criteria are: brand, product, advertising, emotions, persona, actions, location, functionality and time, each of them being visual or graphical correspondents of the analyzed text. "Ontology Treemap" (reference in Appendix, Figure 3) is the next window, and only the prevailing criteria are presented here, plus the words that are more important. "Network Map" (please refer to Appendix, Figure 4) shows us the relationship between all the keywords of the text, "Content Cloud" (detailed in Appendix, Figure 5) shows the different words used throughout the text, and "Text Cleaning" (presented in Appendix, Figure 6) gives us the ability to categorize the words in the text, using different font sizes and colors.

All of these options help us to reach a conclusion about customer satisfaction, the program having a database that it connects to in order to analyze texts much more easily.

To exemplify the analysis procedure involved in using the story.ly application, we will present one case from Amazon and one from Walmart.

The first review we analyzed was posted on Amazon on June 7, 2020, by "Amazon Costumer", from the UK, who gave the product a rating of 2 stars out of 5, and next to the review is the "Verified Purchase" confirmation, which reinforces the idea that the review is not fake, and the title of the review is "Too thick to wear in hot weather and not made of pure cotton" (Think Ink, 2020). The user wrote the following: "I was disappointed by the product because it was described as made of cotton, which why I ordered it, however it isn't made of cotton, at least not pure cotton. This means that it is thicker than expected. On a very warm day I can't wear it. I can only wear it when the weather is cool. The other issue is that there is no way of telling which way round you are, putting it on as it is symmetrical and identical back to front. This is important because if you take it off to reuse later, you need to know which way round you took it off to avoid putting it on wrong side down (I don't want to put the side that was previously in contact with the air and presumably therefore foreign germs, over my mouth and nose). It is a decently made, well-fitting and durable product otherwise" (Think Ink, 2020). Our text was included in the sub-

ject "Amazon review" (see Figure 1), with 62 words and 51 unique words, of which 90% were included in the identified subject. As 26 words appear in this sense, the actions occupy a percentage of 45.6% of the review structure, with repetitions also being used in order to emphasize certain actions. The user repeatedly uses the words "made", "worn" and "put" to express his dissatisfaction with the fact that the mask is not made of cotton, as specified by the manufacturer, and therefore he cannot wear it when it is warm outside, and, in addition, the two sides of the mask are similar and it is difficult to wear it properly. The data on the functionality of the product occupies 28.1% of the review, and here we can refer to the fact that the user considers the product to be durable, but otherwise, he only finds disadvantages (the two similar sides, the mask does not fit because it is too big, not made from the specified material). In terms of emotions, they occupy 14% of the review, with the words "disappointed", "wrong" or "decent" being used. Then we have the product (5.3%) through the word "cotton", the location (3.5%), but also the time (3.5%) through "day" and "later". We can say that the user is not satisfied with the product, as he finds many flaws with the mask, in addition to very few advantages, so the reason why he offered only 2 stars is understandable. He focuses on actions and functionality, and less on location or time, and not at all on brand, advertising or people.

For the Walmart site, the topic in which the software will search for information will be called "Walmart review/reviews", the American site being very well known, as a result of which there were many analyzes of the reviews there, the reviews coming only from the USA. An example in this research may be the one that was posted on May 19, 2020, by "48nholdin", who wrote: "Great Mask. I find this more comfortable than the paper or molded masks. Also, it was received within a week" (Blended, 2020). The product received 5 stars from this user, and the title of the review is "A great mask", which proves, from the beginning, that we are dealing with a good opinion about the product and a positive review.

The text focuses equally on the most important categories (product, actions, emotional factor and time), each occupying 22.2%, namely the product itself, the rather fast delivery and the pleasant feelings caused by the good quality of the product, shown by the use of words like "great" and "comfortable". In regards to the material from which it is made, a comparison is made with masks of lower quality, but also with masks that are made of harder materials (FFP3 type, with valve), that can leave traces on the skin because of this. Advertising also occupies 11.1% of the text (see Figure 7). Being very satisfied with the product and the received services, the user offered a positive review, along with a maximum rating.

FINDINGS

The websites of the two companies are quite similar, and their level is forcing the two brands to offer customers the best services. Both pages highlight images with the products, along with their price, as well as details about the product. At the bottom of the page, we can find the reviews, which can be sorted in any order we want, plus they are accompanied by ratings, as well as the potential "Verified Purchase" confirmation.

To answer the first question of the research (What aspects do buyers focus on in their reviews?), We can say that both amazon.co.uk and walmart.com users place great emphasis on the functionality and features of the product, the actions related to its purchase and use, the emotions it triggered, as well as the time elapsed until its arrival. To answer the question: What are the elements of a review that can influence the purchase decision?, we can say that an important element is that anyone can choose to rate a review or not, the review being visible to everyone, so certain reviews can be affected, this aspect

being as important as the general rating or the one offered by each user. Also, the fact that "Verified Purchase" is written next to the review is another important element, and the idea that the supplier has verified the user regarding the purchase removes any doubt regarding the veracity of the information. In our research, we found a review in which the following statement is made: "The mask cannot protect you from the virus", which received dislikes due to the fact that it did not bring any relevant argument in this regard. That is why this option is useful, and some reviews can be sent back in terms of relevance.

The two sites are similar, and in terms of the question: How is the evaluation of a product different depending on the country where you live? We can say that the perception of the users who bought the products is similar, and the demographic factors did not affect this aspect in any way, the users from the two continents mainly focusing on the functionality of the product, the emotions, the actions and the delivery. It seems that the face masks on the two sites are quite effective, most of the reviews being positive and many of the buyers stating that they would buy that mask again.

The first two objectives of the research are closely related, the attitude of the consumers being visible in the positive or negative reviews. In the case of www.amazon.co.uk, we identified 10 positive and 5 negative reviews, and from www.walmart.com, we analyzed 11 positive reviews and 4 negative ones. We can say that most buyers have a positive attitude towards the two products, given that the percentages for both sites are positive, namely 60% of the reviews on Amazon are positive, and for Walmart the percentage is 73%.

Regarding the degree of efficiency of the products, which is another objective of the research, we can look at the rating, the product on Amazon collected a score of 3.3 out of 5, while the product on Walmart has 3.6 out of 5, which is a negligible difference, the two products being close from this point of view, a large part of the analyzed reviews being positive, most consumers finding the products to be efficient and very useful. In this same direction, we will discuss the strengths and weaknesses found by the buyers of the two protective masks.

If we refer to the positive reviews we have analyzed, we can say that most buyers on the two sites found the masks to be comfortable, easy to wear due to the high-quality material, and the design also plays an important role, because, for some people, this type of product does not only mean a piece of material that protects you, but an article of clothing. In this same regard, we can talk about the importance of delivering the product safely and in the shortest possible time, this factor being very important.

On the other hand, negative reviews presented a small number of common problems, but many of them contradict with the testimonials of those who left positive reviews. Thus, the negative reviews mainly refer to the poor quality of the materials, due to which one cannot breathe at all while wearing the mask. The most common problem that is found among negative reviews refers to the inappropriate dimensions of the mask, which make it very frustrating for the buyers, who are not able to use the product they ordered because of this. Also, another big problem can be that people do not feel safe wearing these masks, even claiming that the mask cannot protect you from the virus.

If we refer to the last declared objective of the research, it is noteworthy that, in all off the 30 reviews, we only identified one reference to the brand (and one to advertising), which indicates that the usefulness of the product and its quality are in the foreground, regardless of the brand name or its efforts to attract customers. Therefore, we cannot get a clear idea about the consumers' attitude towards the two suppliers, but only towards the products.

CONCLUSION

Following this research, it must be stated that one of the most important element in the review ecosystem is the rating system, because a review with a high level of appreciation can generate confidence to the users. In addition, dubious reviews will not be taken into account, because will not be appreciated by others. Another important thing is the appearance of "Verified purchase" option because the user and/or the purchase were verified and the review is justified. The research also revealed that the customers refer usually to the quality of the product, not to the brand directly.

Organizational communication proves to be essential (Briciu, Mircea & Briciu, 2020) because it ensures a close connection between the company and all the factors on which it depends. Whether we are referring to employees or the other side, people who are somehow interested in its success, such as investors, suppliers, creditors and ultimately customers, communication ensures the development and continuity of any business, this process often taking place through the Internet, where the connection is made quickly and efficiently, with the visibility of brands increasing more and more in the online environment. Customer relationship management is equally important, and, in this regard, a system is used that helps to better understand customers, which gathers information on past acquisitions for better anticipation of future actions, plus that, in this way, companies get to know the needs of their customers and can thus adapt their services.

As technology has evolved a lot in recent years, strategies and methods of promotion have also diversified, but companies are forced to respect customers even more, and the wrong steps can be much more visible, given this development and freedom of the Internet. Among the important methods of promotion, we can mention sales promotion, which is the reduction of the price for a defined period of time, generally accompanied by a type of communication, even an advertisement. We can also mention commercial promotions, an agreement between producers and traders that offers customers benefits in terms of prices, or even offers free services, such as product delivery. These few techniques have a very important role because they can bring the public much closer and establish a long-lasting relationship, by offering them some advantages and high-quality services.

In the case of Word of Mouth or Electronic Word of Mouth, companies do not have a direct involvement, as it is more about the information that circulates from one person to another, in our case it is about a service or product. These concepts are of great importance because there will always be a flow of positive and negative information, depending on the satisfaction of each customer. Therefore, it is very important that the offered services be at a high level, and the criticism as little as possible, in order to prevent the company's image from being affected, along with its sales and profit.

Reviews play a very important role as well, as they are also a form of promotion, as in the case of Word of Mouth, with many companies encouraging users to leave a review of their products. Here, too, there is a risk when there are several negative reviews, which can substantially affect sales. Therefore, it is very important, as we previously stated, to offer customers the best services, but it is also important to detect, by any means possible, any false or unfounded reviews, where no relevant arguments are offered.

Following this research, we also found out that customers can be pleased and satisfied if what we offer meets the following conditions: the manufacturing materials or offered services must be of high-quality and in accordance with the product's price, the delivery should be as fast as possible in order to keep the waiting time as short as possible, customer support is also important, if they want additional information, and the images and information presented on the site have to fully correspond to reality.

The present research reinforces the idea that reviews play a crucial role in the purchase decision, exposing that, in their reviews, the users of the two websites also refer to the opinions of other customers, and another important element is that reviews get likes or dislikes, a sign that other users have read that review and also tested the product themselves, agreeing with someone else's words. Another scenario may refer to prevention, for some users, in case of a negative review, as they give up on a certain product. Therefore, reviews have become a crucial aspect of the purchase decision, with the studies presented in this chapter proving this, and the present research reinforcing these ideas.

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KEY TERMS AND DEFINITIONS

Corporate: Messages sent by company with a clear purpose to important audiences: employees, mass-media, stakeholders.

Online Store: Online site that sells products or services, customers having the opportunity to receive everything at home, or it can be tested offline before.

Purchasing Decision: The decision taken by a client to buy something, after he read the reviews, studied the product and, in the end, decide to buy it.

Qualitative: A research method that considering the reviews from the point of view of relevance, clarity and transparency of the user text, numbers are not taken into account, for example the stars achieved by the product or number of reviews.

Quantitative measure: Measuring the number of reviews, stars, likes and dislikes, positive and negative experiences for positioning a product or a service.

Software: Basic application which set in motion the program through we can analyze reviews, having a powerful database.

Story.ly: High performance program which has the capacity to extract the sentiment from text and can show us important elements for the customers.

Web 2.0: The Internet after the year 2000, much more developed and available to anyone due to technological and economic advancement.

Word-of-Mouth: Information transmitted from one person to another, it has the power to spread some details that can reach to thousands of people and even influencing them.

APPENDIX

Figure 1. Dashboard example in story.ly
Source: SmartMunk, 2020

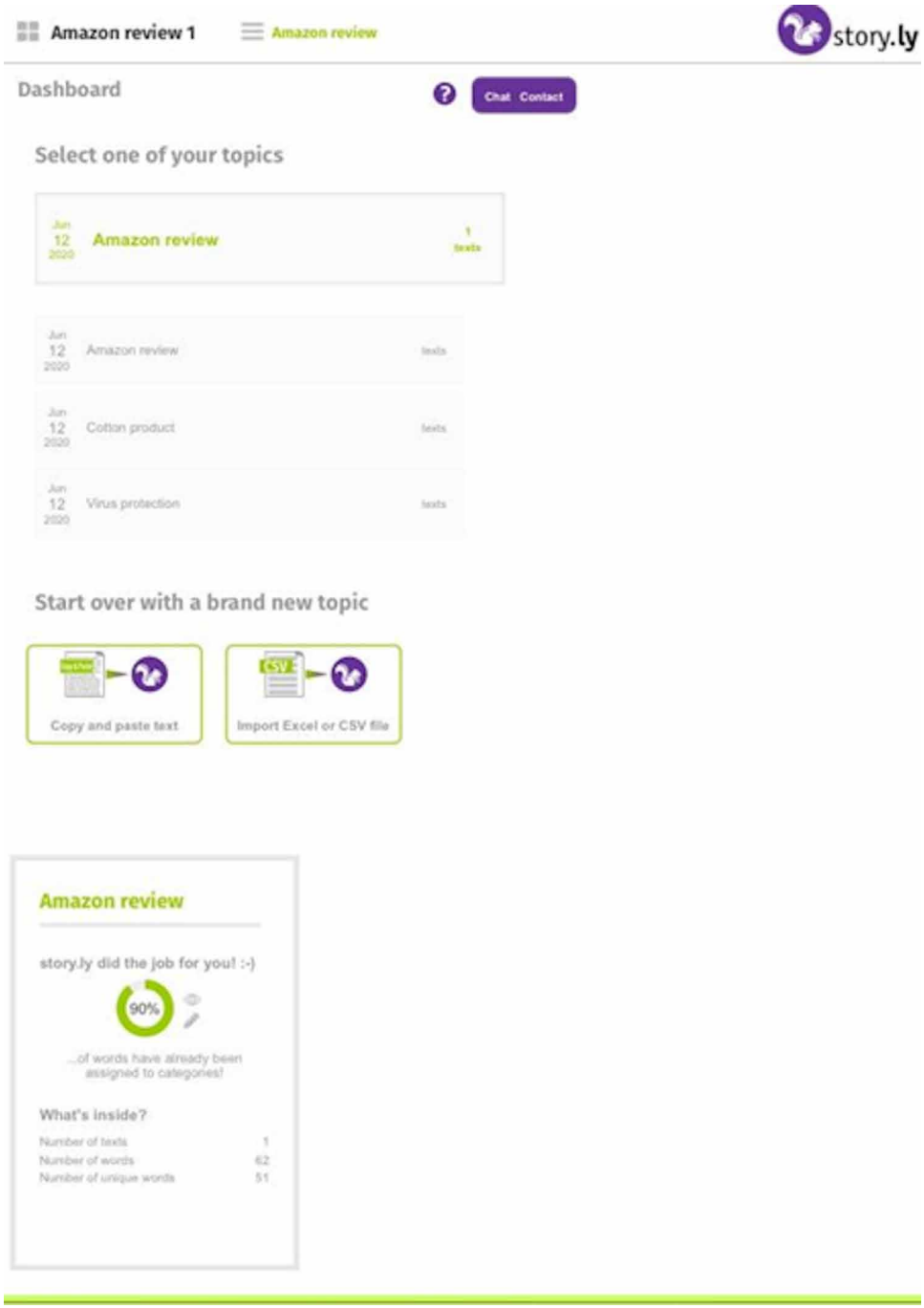


Figure 2. Ontology Skyline example in story.ly
Source: SmartMunk, 2020

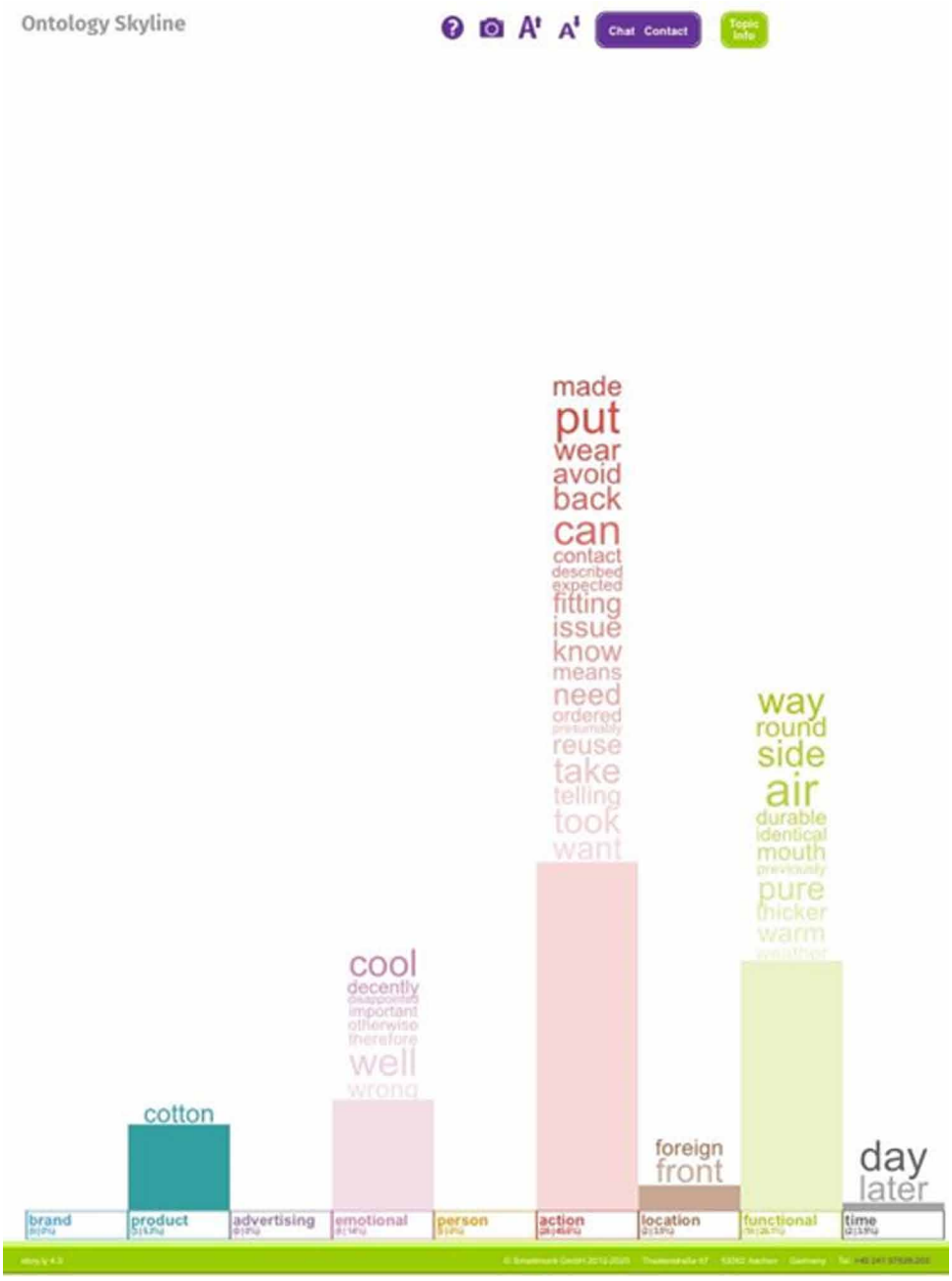


Figure 3. Ontology Treemap example in story.ly
Source: SmartMunk, 2020

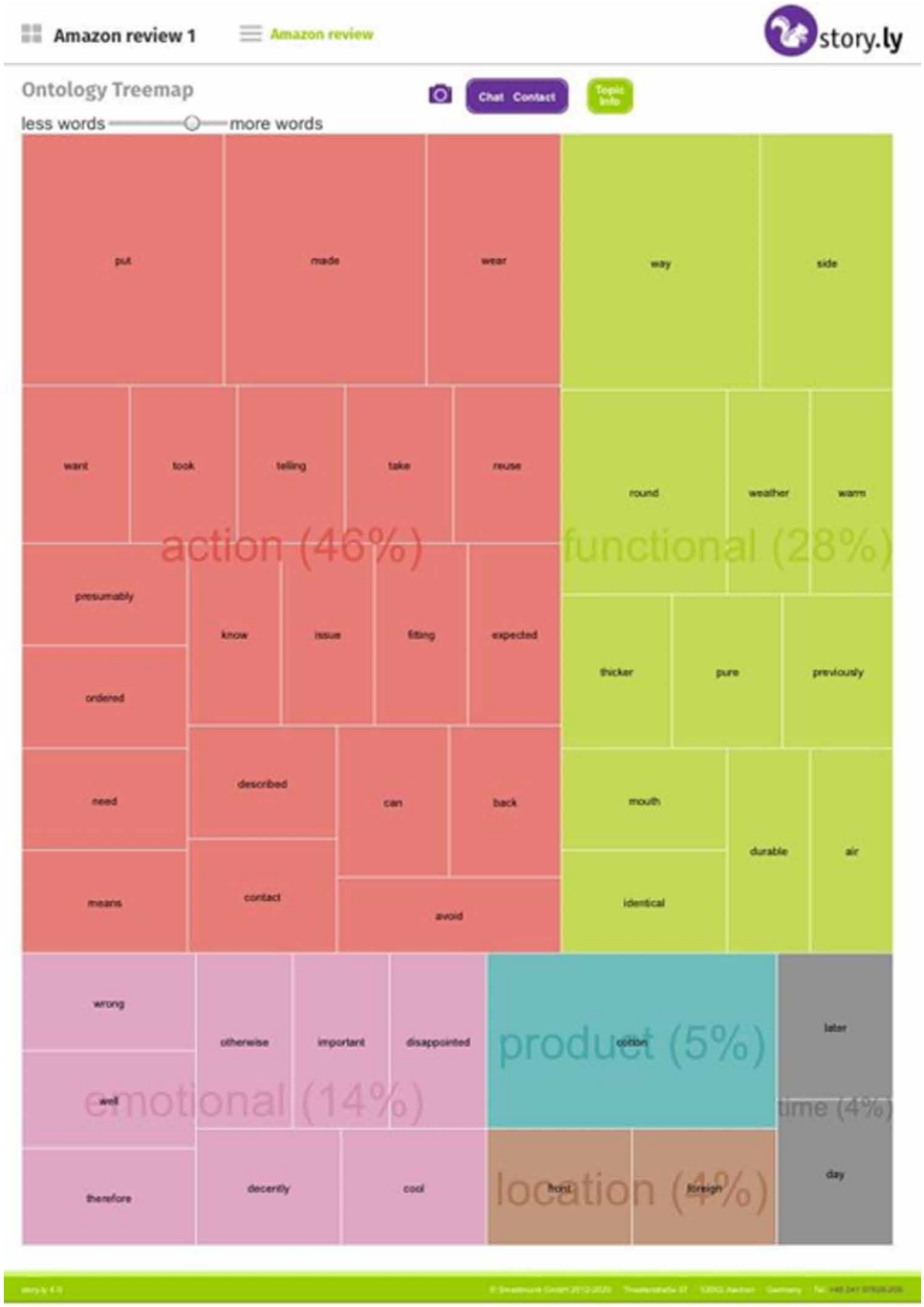


Figure 4. Network Map example in story.ly
Source: SmartMunk, 2020

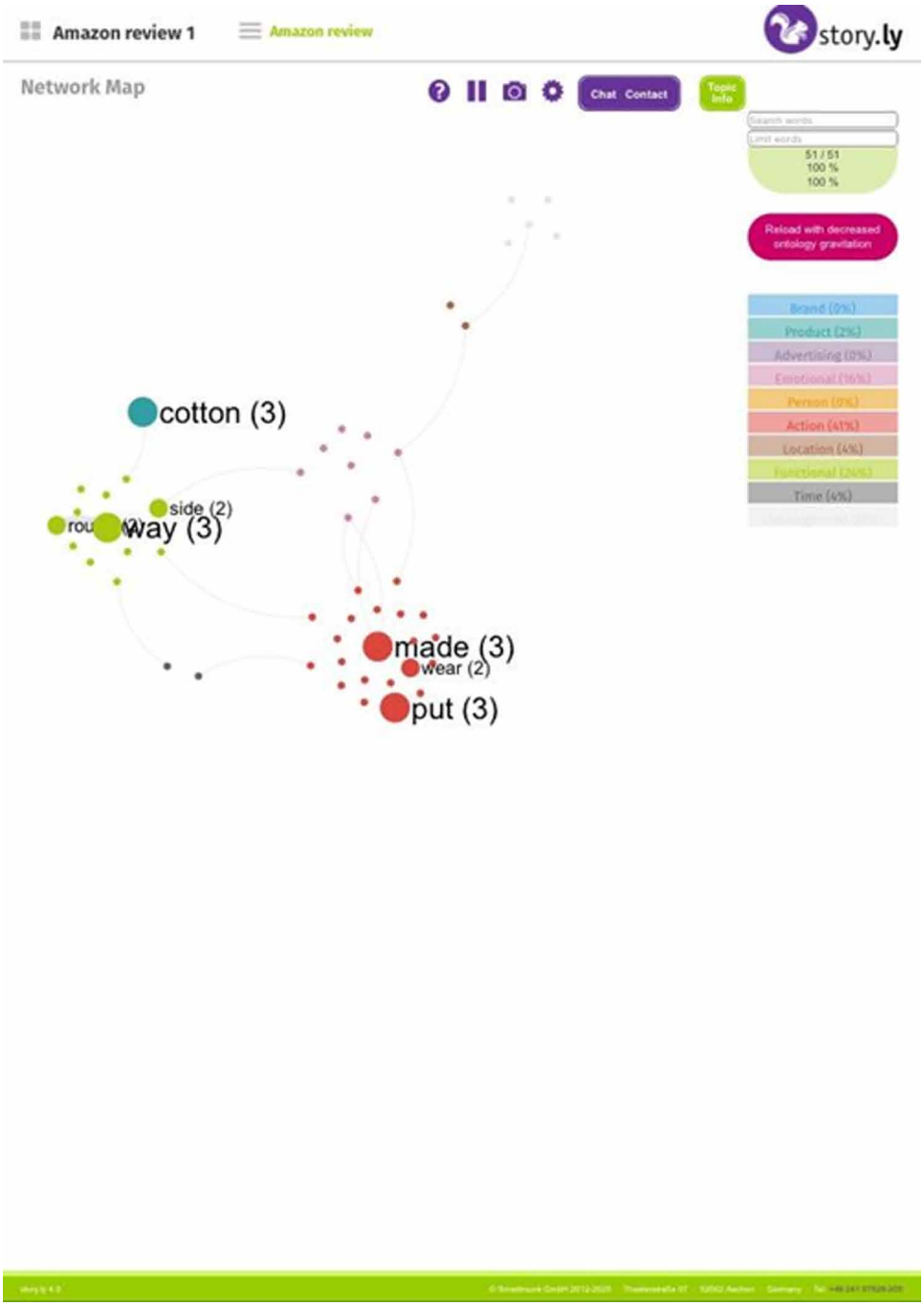


Figure 5. Content Cloud example in story.ly
Source: SmartMunk, 2020

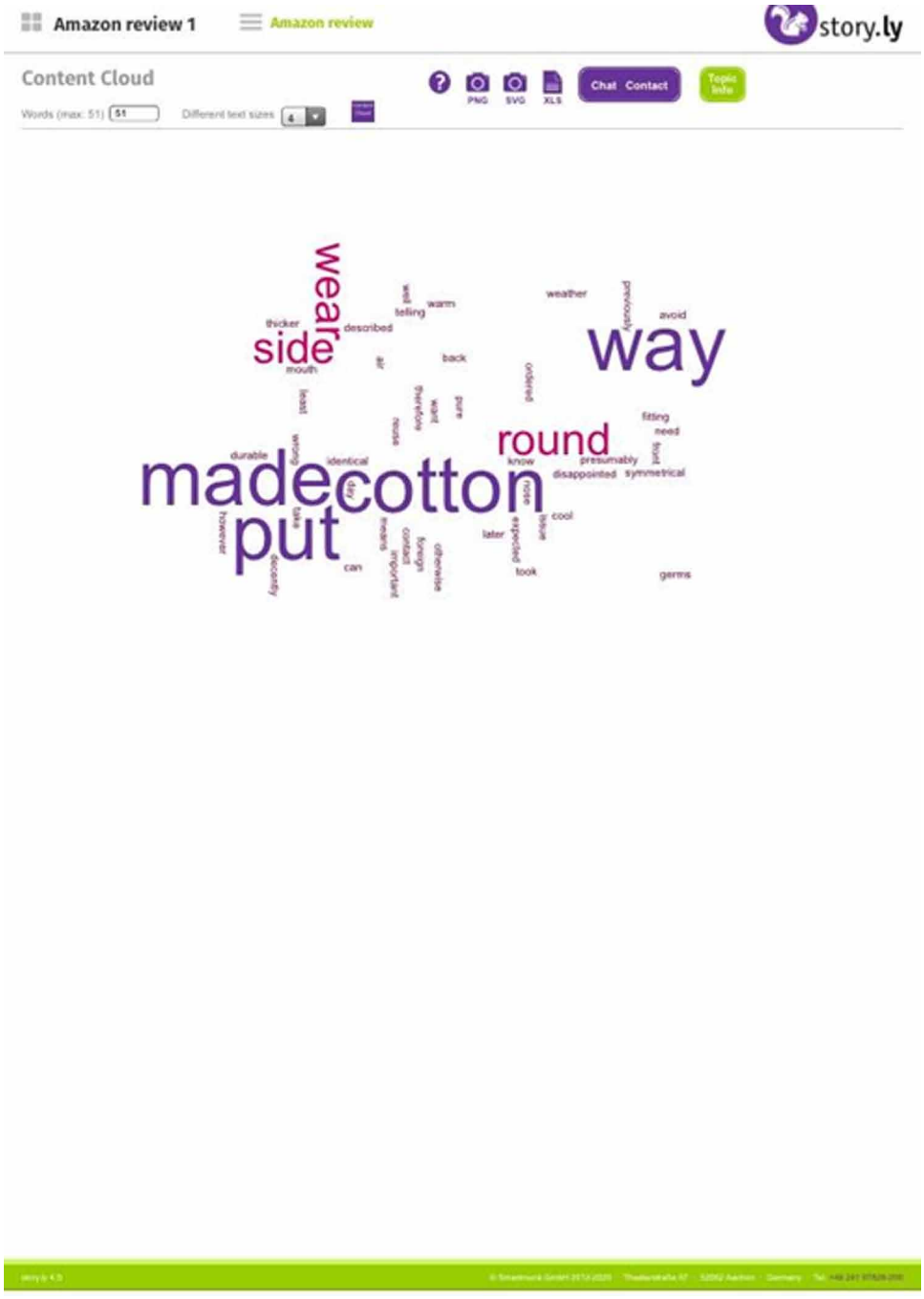
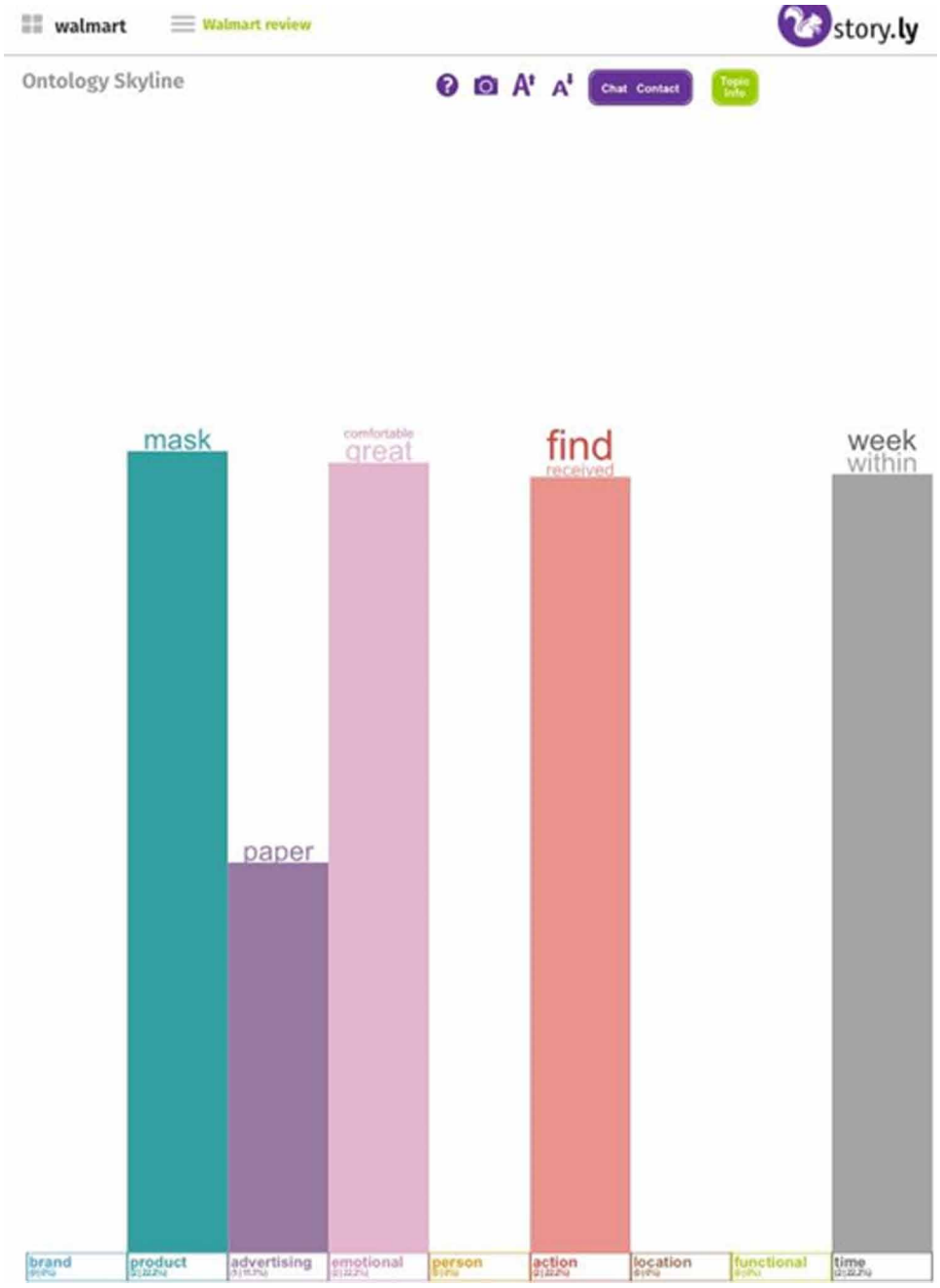


Figure 6. Textcleaning example in story.ly
Source: SmartMunk, 2020

Figure 7. Ontology Skyline for Review #1 Walmart
Source: SmartMunk, 2020



About the Contributors

Aakanksha Sharaff is working as an Assistant Professor in Department of Computer Science & Engineering at National Institute of Technology Raipur Chhattisgarh India. She has completed her schooling, graduation and postgraduation with Honours. She has teaching experience of more than 9 years. She has published more than 51 research papers in reputed International Journals and Conferences. She has been granted with five international patents. She has edited a book on "Data Science and its Application" with CRC, Taylor and Francis. She contributes to various conferences as Session Chairs, Invited/Keynote Speakers in various national and international workshops and conferences. She is active technical reviewer of leading International journals of IEEE, ACM, Springer, IGI and Elsevier etc. Dr. Sharaff has supervised 50+ undergraduate and 5+ postgraduate projects. Currently she is guiding five Ph.D. scholars. Her research areas focus mainly on Data Science, Text Analytics, Sentiment Analysis, Information Retrieval, Soft Computing, Artificial Intelligence, Machine and Deep Learning.

G. R. Sinha is Adjunct Professor at International Institute of Information Technology (IIIT) Bangalore and currently deputed as Professor at Myanmar Institute of Information Technology (MIIT) Mandalay Myanmar. He obtained his B.E. (Electronics Engineering) and M.Tech. (Computer Technology) with Gold Medal from National Institute of Technology Raipur. He received his Ph.D. in Electronics & Telecommunication Engineering from Chhattisgarh Swami Vivekanand Technical University Bhilai. He has published 227 research papers in various international and national journals and conferences. He has authored 06 Books including Biometrics published by Wiley India, a subsidiary of John Wiley and Medical Image Processing published by Prentice Hall of India. He has also published 05 Edited books as Editor, such as Cognitive Science-Two Volumes (Elsevier), Optimization Theory (IOP) and Biometrics (Springer). He is active reviewer and editorial member of more than 12 Reputed International Journals such IEEE Transactions on Image Processing, Elsevier Computer Methods and Programs in Biomedicine, Springer Journal of Neural Computing and Applications, etc.

Surbhi Bhatia, PMP®, completed her doctorate from Banasthali Vidyapith, India and is currently working in the College of Computer Sciences and Information Technology, King Faisal University, Saudi Arabia. With over 8 years of academic experience, she has authored 41 papers in conferences, edited books and reputed SCI journals with impact factor and has 9 patents, published and granted from USA, Australia, and India in her list. She has authored 2 books and edited 7 books from Springer, Elsevier, and Wiley. She has been awarded 2 funded research project grants from the Deanship of Scientific Research at King Faisal University and from the Ministry of Education, Saudi Arabia. Her research interests include machine learning, sentiment analysis, and information retrieval.

* * *

Arabela Briciu is Associate Professor at the Department of Social Sciences and Communication, Faculty of Sociology and Communication, Transilvania University of Braşov, Romania. She has a PhD in Communication and her research and teaching interests are oriented towards political communication, electoral debates, public sphere and political image, brand management, corporative identity and Social Media.

Victor-Alexandru Briciu Associate Professor at the Department of Social Sciences and Communication, Faculty of Sociology and Communication, Transilvania University of Braşov, Romania. He received his PhD in 2015 in Mass Communication Studies Field of Research, from University of Bucharest, Faculty of Journalism and Communication. His research and teaching interests are oriented towards communication, public relations campaigns and strategies, branding, online branding strategies and his scientific activity produced in the last years was disseminated through several books and book chapters, more than 10 academic journal articles, more than 25 international and national conferences. He's been involved in projects and grants investigating online place branding strategies and communication through Social Media.

Siddharth Chaurasia is a dual master's in computer science. He received his MTech degree from BITS Pilani, India, in System Software, and MCA degree from BHU, Varanasi, India. Presently, he is pursuing his Doctoral degree in the Department of Computer Science at the University of Lucknow, India. He has been in the field of Information Technology for more than 16 years and is currently working as a Data Scientist. His research interests include artificial intelligence and data mining. He is particularly interested in the field of machine learning and its application to the field of finance.

Supriya Gupta received her Bachelor's degree in Information Technology from CSVTU Technical University, chhatisgarh, India in 2012 and M.Tech. in Computer Science and Engineering from RTMNU Nagpur, India in 2014. She is currently pursuing PhD degree in Computer Science and Engineering at National Institute of Technology Raipur, Raipur, India. Her research interests include Data Analytics ,Data Mining, Biomedical data Analysis.

Fredrick Ishengoma holds a Bachelor of Science in Information and Communication Technology Management (ICTM) from Mzumbe University, Tanzania and Masters of Engineering in Computer and Information Engineering from Daegu University, South Korea. Fredrick Ishengoma currently serves as a lecturer at the College of Informatics and Virtual Education, The University of Dodoma, Tanzania. has participated in a number of ICT4D projects and published more than 15 research papers in international journals and conferences. His research interests include technology adoption, social dimensions of ICT, e/m-Government Information and blockchain technology and ICT4D. He is a member of IEEE and ACM computer societies.

D. Kishan is working as Associate Professor in Department of Civil Engineering, MANIT, Bhopal Area of research in Geo and Geoenvironmental Engineering.

Dilek Küçük, PhD, is an associate professor and chief researcher at the Energy Institute of TÜBİTAK Marmara Research Center (MRC). She is also the leader of Power Systems Information Technologies Group at the institute. Her group is the recipient of best research group award of TÜBİTAK MRC for the year 2017. She has obtained her B.S., M.S. and Ph.D. degrees all from Middle East Technical University in Ankara (Turkey), in 2003, 2005, and 2011, respectively. Between May 2013 and May 2014, she has studied as a post-doctoral researcher at European Commission's Joint Research Centre in Italy. Her research interests include energy informatics, data mining, social media analysis, natural language processing, and database applications in engineering domains. She is the author or co-author of 16 papers published at SCI-indexed journals, in addition to more than 35 papers presented at international conferences.

Puneet Misra is an Assistant Professor of Computer Science in the Department of Computer Science at the University of Lucknow, Lucknow, U.P., India. He received bachelor's degree (1995) in Physics and Maths and a dual Master's degree in Electronics and Computer Applications, and a Ph.D. degree (2003) from the University of Lucknow. He is currently engaged in research areas that includes Soft computing, Artificial Intelligent Systems, human-computer interaction and issues related to cybercrime and its prevention policies, etc.

Naresh Kumar Nagwani (PhD, Senior Member IEEE) is Associate Professor at National Institute of Technology Raipur (NIT Raipur). He has more than 50 research papers into his credit. He is also having industrial experience of more than 3 years with Persistent Systems Limited, where he was the part of software development team and developed data analytics software such as SPSS and Transaction Processing System. He is also Sun certified Java programmer and Sun certified web component developer. He is active reviewer of more than 10 reputed International Journals in his research areas, such as IEEE Transactions, Elsevier Journals, Springer Journals etc. He has teaching and research experience of 13 years. He has delivered more than 10 Keynote/Invited Talks and Chaired many Technical Sessions in National and International Workshops and Conferences. Dr Nagwani has Supervised Four (04) PhD Scholars, 8 M. Tech. Scholars and has been Supervising 08 more PhD Scholars. His research interest includes Text Mining, Software Repositories Mining and Big Data Analytics.

Sreeja P. S. is an Assistant Professor (SG) in the Department of Computer Applications, HITS, Padur. She completed her MCA from Bharathidasan University, M.Phil. (Computer Applications), and Ph.D. from College of Engineering, Anna University, Chennai. She has got the first rank in M.Phil. and received a UGC-BSR fellowship for her research. She received Honorary Rosalind Membership from London Journal Press for her significant research work. She has many International journal and conference publications to her credit and derived 60+ citations. Her research interests include Artificial Intelligence, Text Mining, and Natural Language Processing, Cognitive Poetics.

Allenki Ramya is currently working as a software engineer in UnitedHealthGroup. She got graduated in Computer Science from National Institute of Technology, Raipur.

Cristian-Laurențiu Roman is a communication and public relations practitioner and an online customer's reviews enthusiast. He also has a B.A. degree in Communication and Public Relations (from 2020), the Faculty of Sociology and Communication, Transilvania University of Brasov.

Saritha S. K. is working as Assistant Professor in the Department of Computer Science and Engineering Area of research Information Retrieval, Machine Learning, Natural Language Processing, Quantum Machine Learning.

Rakhi Seth is a Temporary Faculty in the Department of Computer Science & Engineering (CSE) at the National Institute of Technology Raipur (NITR) India. She has been actively involved in research activities leading to Data Science research and related areas. She worked as Assistant Professor previously in different universities and colleges. She holds a Degree of Master of Technology from Chhattisgarh Swami Vivekananda Technical University (CSVTU), and a Bachelor of Engineering Degree from CSVTU as well. She has received a gold medal in the Post-Graduation program Master of Technology (2015). She has completed a Bachelor of Engineering (2012) as a second branch topper. Her research areas focus mainly on Data Science, Sentiment Analysis, Recommender Systems, Machine and Deep Learning.

Lalitha T. B. is a research scholar in the Department of Computer Applications, HITS, Padur. She has completed her MCA from SRM University with distinction. She has worked in WIPRO technologies for 5 years before pursuing full time Ph.D. She has multiple conference publications to her credit. She received best scholar award from international research awards on new science innovations organized by SFS. Her research interests include machine learning, artificial intelligence, smart learning, natural language processing.

Steni Mol T. S. is pursuing PhD in the Computer Science Department of the Hindustan Institute of Technology and Science, India. This research involves the challenge and solutions of Text Mining, Natural Language Processing and Artificial Intelligence. She holds a Bachelor Degree in computer science (2011) at Nesamony Memorial Christian College, Manonmaniam Sundaranar University, India and a Master of Degree in Computer Application (2014) at School of Communication & Management Studies Cochin, Mahatma Gandhi University, India.

Arun Yadav is a research scholar in Department of Computer Science, University of Lucknow. His research area involves use of Machine Learning in the health care space.

Saneh Yadav is an Assistant Professor, Computer Science and Engineering, K. R. Mangalam University, Gurugram, Haryana, India.