

Towards Online Engagement via the Social Web

Ioannis Stavrakantonakis, Andreea-Elena Gagi, Ioan Toma and Dieter Fensel

Semantic Technology Institute (STI) - Innsbruck
University of Innsbruck
Innsbruck, Austria
{firstname.lastname}@sti2.at

Abstract—The blossom of Web 2.0 has created new opportunities for the enterprises. Web users are disseminating more information than ever before about their interests, their experiences with products and services, their thoughts and whatever interacts with them in a daily basis. The challenge for the enterprise is to exploit and transform this social media explosion into added value on the business plan. The enterprises in the new Web 3.0 era should have the utilities to disseminate messages in a multi-channel attitude and to listen to the discussions around their products and services. Furthermore, they should be able to take action and interact with these discussions in a productive way for the internal improvement of the organization but also for establishing strong bonds with the users. The web users for an enterprise could be existing customers or potential customers, average users or advocates. This paper intends to discuss the characteristics and the nature of the online engagement with the customers in the scope of business intelligence on the Web.

Keywords-Social Web; engagement; social media; Web 3.0

I. INTRODUCTION

Web 2.0 has radically changed our communication possibilities. More and more communication has been freed from the geographic barriers that formerly limited their speed and expansion. Active participation and interaction of users have created a new platform for people to communicate with each other [4]. This platform relies primarily on the actions and contributions of users to create “a rich, lively, useful, and enjoyable space which draws people back again and again” [7]. Considerable bargaining power has been shifted from the supplier to the consumer. Tourism organizations and enterprises, and particularly travel agencies and hotels, have been seriously challenged by this shift or “consumer revolution” [10], but at the same time enormous opportunities have been opened up. For tourism organizations the internet has become one of the most important marketing communication channels [19].

However, the boom of the internet, dubbed as “the growth of the multi-channel monster” by [15], has also raised questions about marketing, distribution channels, business management and efficient marketing research in the tourism sector [13]. Organizations of all sizes, commercial and not-for-profit, regularly face the challenge of communicating with their stakeholders using a multiplicity of channels, e.g. websites, videos, public relation activities, events, email, forums, online presentations, social media, mobile applications, and recently structured data. The social

media revolution has made this job more complicated since the communication channels grow exponentially, shifting from a mostly unilateral “push” mode (one speaker, many listeners) to an increasingly fully bilateral communication, where individual stakeholders (e.g. customers) expect one-to-one communication with the organization. Moreover, the contents of communication become more and more granular and increasingly dependent on the identity of the receiver and the context of the communication.

Organizations need an integrated solution that provides management and execution of communication goals in a mostly automated fashion, with costs equivalent to mass-media communication, along with the granularity of individual experts, and at the pace of real-time social media. We are aiming to mechanize important aspects of these tasks, allowing scalable, cost-sensitive, and effective communication for small-or-medium sized enterprises (SME) and comparable organizations for which information dissemination is essential but resources are significantly limited. Additionally, it may also help intermediaries such as marketing agencies to extend their business scope by increasing the cost-effectiveness ratio. The current paper presents the concept of online engagement, providing a description of the concept in general, as well as the methodologies of applying it using tools to listen and respond to customers’ needs and demands.

The structure of the paper is the following. Section II defines the online engagement in the market ecosystem between the enterprises and the customers. Section III presents the objectives of the customer engagement for the enterprise. Section IV presents the spiral of online communication where online engagement is a major aspect. Section V focuses on the use cases of online engagement. Section VI discusses the related work in this field, while Section VII provides conclusions and directions for future work.

II. ONLINE ENGAGEMENT FOR SOCIAL ENTERPRISES

Customer engagement is not a novel concept for the marketing community. On the contrary, it is the main objective of any enterprise that has a long-term roadmap in the market and aims in the further development of the organization. It is hard to find a specific definition for engagement as it is dynamically changing through the decades and it has been used to refer to anything from what the consumers feel when they see an ad, the degree of interest, to the way the consumers will respond to

advertising. In some cases, engagement has been considered to represent all of the above, plus many other qualities. One notable definition for engagement has been given in 2006 by the Advertising Research Foundation: “Engagement is turning on a prospect to a brand idea enhanced by the surrounding context”. Similarly, James Speros, the Chief Marketing Officer (CMO) at Ernst & Young defines engagement as “all about making it relevant to the consumer”. Engagement has been associated with a wide range of terms, including “involvement”, “experience”, “connection”, “wantedness”, “resonance”, “relationship”, and “stickiness”. The creation of a “one size fits all”, universal definition for engagement seems unlikely, particularly in the ever emerging environment of Web 3.0. However, the semantics behind the engagement remain the same: *the enterprise and the customer are engaged in a long-term relation, which is beneficial for both sides.*

The current paper aims to discuss the engagement procedure in the new era of business, in which enterprises should be active in the Social Web sphere, understand the opportunities for them in this field and adopt dissemination strategies in the social media and networks [5]. The active enterprises in social media are aware of the social Web 2.0 channels of dissemination and are willing to use them to reach their audience in a more efficient and scalable way. The exploitation of the social media for dissemination purposes is the first and very important step for an organization in the engagement spiral. Furthermore, the enterprise is not the only entity that is disseminating information in the Web; individuals are more talkative than ever before in the Web ecosystem. People are expressing their thoughts and views about anything including products, services and brands. The enterprise should be able to listen to these voices and input these data in the infrastructure of communication with the customers. New customers and new audiences are present in the Web sphere and potentially talking about enterprises’ products and services. The enterprise should not remain silent, but grab the opportunity and interact with these people in a relevant, meaningful and interesting way. The online engagement is leveraging the online communication between the enterprise and the audience in a relation, which will drive the design of the new products and services. The new business era is more client centric than it used to be in the last few years.

III. OBJECTIVES OF ENGAGEMENT

Customer engagement is formed on the premise of listening and responding to customer conversations. On the other hand, online customer engagement is inherently different than offline engagement as the nature of the customers’ interactions with a brand and other customers in the online space is defined by the medium used to converse (i.e. the online platform or service employed). Discussion that takes place on forums or using Facebook cannot be replicated by an offline medium. As such, the methods employed for offline engagement can no longer be applied online. However, two main questions must be posed. First why should an enterprise apply these methods in the online space? Second, what are the benefits of online customer

engagement? The current section aims to shed light on the main benefits an enterprise can achieve in brand management, quality management and transactions increment.

A. Yield Management

The concept of “yield” refers to the financial and economic gains that can result from tourism [16]. Yield (revenue) management is mostly about maximizing the short term gain of an enterprise by combining segment pricing with statistical analysis. Achieving short-term increase of income is a valid target for a business entity; however, it is difficult to realize in a multi-channel world as hotels are confronted with a multitude of option that often come with their own constraints (e.g. price constraints on the offers) and which, in some cases, generate costs without guaranteeing actual income.

Many solutions to yield management are based on complex statistical methods and complex domain assumptions on how variation of the price can influence the number of bookings of a service. However, a multi-directional multi-channel approach must also rely on Swarm intelligence. Observing in real time the reaction of customers and competitors will be the key to achieve online marketing. Adopting your offer and your price dynamically in response to the behavior of your (online visible) environment will become critical to economic success.

B. Brand Management

The successful brand is the one that is connected seamlessly in the minds of the customers with an activity, an idea or a fact. In this respect, we could consider the case of the energy drink Red Bull. Due to the efforts of brand management it has been connected with the need of an instant boost to the energy and the performance of the human body. Connecting the philosophy of the enterprise’s products on something that happens in the real world is the best way to keep the business alive. Thus, it is crucial to be active in the new field in which the reputation of your brand is being shaped and affected in any positive or negative way. Social media has given individuals the opportunity to voice their opinions in ways that have not been available in the past. Spotting out the influencers [8] and the advocates of a brand would help the enterprise to understand the problems and the difficulties that the key customers are facing or what they like most about the products and the services. The brand is not only about the quality of the product; the brand is a step further, which reflects the total customer experience with the products and services.

In consumer marketing, brands provide the primary points of differentiation between competitive offerings [20]. The American Marketing Association proposes a company oriented definition, which describes the brand as a name, term, sign, symbol, or design, or any other feature that identifies the goods or services of one seller or group of sellers and differentiates them from those of competitors. Brands are key organizational assets strategically positioned in the market by offering features desired by consumers that

are distinct from competition [20]. If we embrace the assumption that brands are pivotal resources for generating and sustaining competitive advantage [1][14], proper management of brands value becomes essential for the enterprise's long-term economic success. Using social media a company can encourage the development of loyal and engaged customers while launching a new product, as well as help retain existing customers and create brand advocacy through word-of-mouth.

C. Quality Management

Besides the support and facilitation of the different marketing processes, the engagement approach could be realized as a valuable source of input and feedback from the end users of the products and services regarding the delivered quality. In the new customer-centric era the customer decides what quality is. Furthermore, by taking seriously the complaints of the customers, the product development team has a unique opportunity to improve the final product and the characteristics of it. The quality management in the different types of organizations is materialized and interpreted in different ways, e.g. for a hotel is the quality of the daily hospitality services while for a hardware company could be the quality of the next version of the end-product.

D. Transactions Augmentation

At the top layer of the objectives, as a logical consequence, the ultimate goal is the revenue growth via engaged customers. The enterprise should have a sound plan to monetize the online communication results. Research results obtained by [6] show that fully engaged customers deliver a 23% premium over the average customer in terms of share wallet and profitability growth. For instance, the engaged customers of a hotel would choose the same hotel in a future visit to the same place as they know that the hotelier would treat them in the best way due to their connection. Furthermore, a hotel chain would benefit from engaged customers as they would choose the hotels of the chain for their stay in any place in the world. Consequently, there is a plethora of opportunities to transform these relations into future transactions.

IV. SPIRAL OF ONLINE COMMUNICATION

The proposed online engagement approach is considered to be in the scope of the top layer at the Semantic Web stack, which is the "User Interface & Applications" as presented in [3]. This layer includes applications that are exploiting the languages and the technologies that have been developed in the Semantic Web (Web3.0) era. The vision is to establish the fundamentals for the future online communication paradigm on top of the semantic technologies in order to benefit from their power.

We start to take the view on interaction and communication, i.e., allowing other agents to post to us and us to post to communication pieces of others. Therefore, the concept of customer engagement comes to play. The spiral

of online communication refers to the potential infinite loop between the producer of a message and the receiver of it through one or more communication channels. This communication pattern is not only bi-directional but also it can be triggered by any of the stakeholders. The traditional communication pattern in the past, between an enterprise and the audience of potential customers, used to be a one-to-many relation: as the enterprise was disseminating messages and the customers were passively receiving them. In certain cases, means to reply to a user comment were available; however, means that would have allowed the enterprise to begin a conversation in real time with the customer were not. As mentioned, this particular aspect has been changed by the Social Web. Thus, the enterprise should establish a listening method in parallel to the dissemination of the messages in order to receive input from the customers even before the spread of any message or advertisement.

A. The listening phase

Social Media [11] is a term used mostly for web-based techniques of human-to-human communication that stresses the social, topical, and contextual relations between communicating individuals, allowing real-time interaction with a large, yet specific audience of partners. Social media sites have gained huge popularity in recent years, attracting millions of users, on different platforms, who consume and create content.

In order to assess the massive amount of user generated content produced by social media, specialized monitoring tools have been created. The social media monitoring process is the continuous systematic observation and analysis of social media networks and social communities. In essence, social media monitoring is executed using the following steps: data gathering (achieved through web crawling and direct access to the streams of the social media networks via APIs), data filtering (eliminating "noise", like irrelevant posts, duplicates or spam), data analysis (natural language processing algorithms and sentiment analysis are applied to identify key topics, influencers, detractors, as well as conversations a company should join) and data presentation (presentation of results in a way that is meaningful for the company and leads to actionable insights). The added value of social media monitoring is that it offers access to real customers' opinions, complaints and questions, at real time, in a highly scalable way.

Currently there is an enormous number of available Social Media Monitoring (SMM) tools on the market, thus making an educated choice about which tool to use has become increasingly difficult. Moreover, creating an evaluation framework for such tools has been a challenge for many reviewers and market research enterprises. For instance, Forrester [9] assesses tools based on three criteria: current offering (services and features offered), strategy (how they address enterprise-level needs) and market presence. Both [12] and [18] have tried to create more detailed evaluation frameworks that focus on the basic features of a social media monitoring tool, as well as on the technology and user interface features. According to the [18]

the main features that a tool should provide are the following:

- *Listening Grid*: The listening grid focuses on three main aspects: (1) the channels that are monitored (e.g. blogs and micro-blogs, social networks, video and image websites, etc.); (2) which countries and languages the tools provide support for; and (3) the topics relevant to the enterprise.
- *Analysis*: Having established a listening grid, the next step is to analyse the data and produce actionable reports and insights for the user of the tool.
- *Engagement*: The engagement concept refers to the ability of the tool to support reaction and response to the social media posts.
- *Workflow Management*: Workflow refers to the process of assigning, tracking and responding to social media streams, usually in a team environment in order to prevent double responses and missed opportunities.
- *Near real-time processing*: It is crucial for enterprises to follow up potential customers or customers' complaints, questions and thoughts well in time.
- *API*: The social media monitoring tool should provide an API solution in order to make feasible the integration of the social media monitoring with other tools (e.g. customer relationship management tools).
- *Sentiment Analysis*: Customer sentiments (which may be positive, negative or neutral) are determined using elements of computational linguistics, text analytics, and machine learning elements, such as latent semantic analysis, support vector machines, Natural Language Processing.
- *Historical data*: Access to previously captured data is required in order to compare the current metrics and reports related to the monitored topic with any previous state of it.
- *Dashboard*: The dashboard offers users graphical representation of the raw data in the form of charts, listings, and historical graphing of queries and phrases.
- *Export results*: In order to comply with their customers' needs, social media monitoring tools developers should enable users to download the results of their tool's analysis in different formats such as excel workbook or CSV format.

The aforementioned features were stressed out to be the most important for the social media monitoring tools. At the same time, these factors comprise the prerequisites for the listening phase implementation in the scope of an engagement framework.

B. The engagement phase

The Social Web must not be used only as a means for dissemination, a place to read, but as a place to publish and respond to user generated content in the most effective way. Therefore, four main requirements must be taken into

consideration: (1) we must provide a smooth integration of write and read activities in both respects; (2) we must ensure that we implement the process character of communication that is based on a chain of combined read-write processes to achieve interaction; (3) we must support cooperation based on online communication that allows engagement, transactionality and economic cooperation following successful online interaction; and (4) we should know where, when, who, why and what will communicate in response to the feedback that is being collected from the social media ecosystem.

The **first important requirement** for a proper communication tool support is to provide a smooth integration of write and read activities in both respects. That is, it must offer a) publication means for others in our publication channels as well as b) easy means to publish at external publication places of others.

The **second major requirement** for a proper communication tool support is to implement the process character of communication that is based on a chain of combined read-write processes to implement interaction. This requirement has several sub-features. The tool should be able to *trace* the history and state of a communication. For example, in a CRM system workflow and information sharing facilities must be provided to allow several employees to properly implement the sequential steps of a communication. Furthermore, this kind of tools should be able to support *multi-channel communication*. A communication may start with a tweet, a Facebook post, a private direct message, and further email communication, etc. The communication is not sequential and happens in different ways and mediums. In essence it is a parallelized interaction of various agents taking the role of a publisher or listener. Supporting *multi-agent communication*, where larger numbers of agents orchestrate a multi-directional communication process in parallel is another aspect of this requirement. The original basic Sender-Message-Channel-Receiver (SMCR) model of communication proposed by [17] is unidirectional. A sender sends a message through a channel to a receiver. The direction of the communication and the different roles are fixed. However, the model is inadequate for representing current online communication which is exponentially more complex than the initial telephone communications described by Shannon and Weaver. Agents interact and communicate in parallel, permanently alternating their role in these acts of communication or in Web2.0 terms, users are prosumers, i.e., consumer and producer of information. Therefore, we have adopted the *transactional model* of communication and its underlying premise that individuals are simultaneously engaging in sending and receiving messages [2].

Communication is potentially an infinite process, however, only when driven by an underlying purpose that uses it as a means to an end. The **third major requirement** is support cooperation based on online communication

allowing engagement and support transactionality and economic cooperation following successful online interaction.

Moreover, it is very important to define and specify the different characteristics of the engagement approach regarding the needs of an enterprise. This perspective of the engagement process comprises the **fourth major requirement**. Each single enterprise and organization has a different business plan and the nature of the offered services and products is unique. It is crucial to know where, when, why, what and who will communicate in response to the feedback that is being collected from the social media ecosystem. These parameters define a five-dimensional space in which all the engagement threads of the enterprise and customers can be mapped to. The administrator of the tool should be able to decide which type of interaction and medium (*where*) would be the best in order to fulfill the 3rd major requirement (transactionality); which are the time limits to form the reply (*when*); if it is necessary to take care of the message and initialize a discussion (*why*); the adapted content that should be presented in the context of the reply (*what*); and the appropriate person that could treat efficiently the upcoming discussion (*who*).

On top of these requirements there is an opportunity to automatize different activities with semantics and produce a scalable solution that could facilitate the communication processes of SMEs. The vision of the authors is to empower the SMEs to stay competitive in a market that moves towards the personalization perspective in offered services and products and human-centric marketing. The one-to-one communication between the enterprise and the customer (B2C) is not easily materialized by a SME as it needs a remarkable amount of resources.

V. USE CASE OF ONLINE ENGAGEMENT FOR SMEs

There is a myriad of potential applications in different business sectors and fields for the online-engagement paradigm. The current paper presents a use case of the concept in the SME's ecosystem and especially in the lodging business domain.

The hotelier of a small or medium-sized hotel should be able to exploit the power of the social media instead of being afraid to get involved. The added value of social media for the hotelier lies on four major pillars: a) the multi-channel dissemination; b) the quality management of the hotel's services; c) the development of the business plan regarding the feedback from the customers and d) the increase of transactionality (i.e. bookings) via the dissemination of call-to-action messages.

The plethora of communication channels that are available in the Web sphere should be exploited by the hotelier in the most efficient, productive and automatic way towards the development of the awareness and visibility around the hotel and the business activities of it (e.g. special events, excursions, restaurant, sport tournaments organization etc.). The need of a tool that could be able to

orchestrate the dissemination process of the hotel is more than crucial for a small or medium sized hotel, which is not able to hire a team of experts to take care of the social marketing of the hotel. The hotelier should be able to disseminate any information related to the hotel in an abstract way, decoupled from the communication channels.

The quality management of a hotel is a major aim of the owner as it is one of the crucial prerequisites for the success and perpetuation of the business. The appropriate tool could enable the hotelier to listen to the feedback in the social media (not only in review sites like TripAdvisor) from the customers and internally exploit this information for the improvement of the provided services. This approach guarantees the quality of the existing services and the total experience of the customers regarding their visit. Moreover, listening in real time could help the hotel manage and fix any problems that happen during the customers' stay and ensure that the feedback posted by these customers on social media channels is positive. For example, considering a hotel customer that is expressing on twitter his dissatisfaction for the hotel that he is currently staying in his trip regarding the hygiene of the room, the response of the hotelier should be instant and both online and offline. Thus, the hotelier should force an immediate investigation and reaction of the room service to his room in order to manage and resolve the issue. The response time in this example should be in terms of a few hours, the responsible group of responding and being assigned the issue is the room service and the place of response is offline, at the room of the customer.

The ultimate goal of any business is the increase of the economic transactions and the rise of profit. The engagement concept promotes the establishment of long-term relationships between the hotel and the customers. The engaged customers cannot only be transformed into repetitive customers and visitors of the hotel, but they can also become advocates as they influence positively their social circles. Personalization is the key aspect in this kind of relationships. The hotelier should be able to mechanize in a human-centric way the dissemination of information and the response to the online discussions in order to increase the number of bookings and customers.

VI. RELATED WORK

The proposed paradigm of engagement includes different technologies and concepts that are needed in order to build the described approach. The aim of the current paper is to define the fundamentals and the requirements of a complete and effective online communication framework that could empower SMEs to engage their customers and any potential customer. In this essence, there is not any similar approach available according to our knowledge. However, the various components of the engagement framework are in the scope of existing fields, like social media monitoring and semi-automatic matchmaking.

The SMM tools are soundly covering the listening phase that was previously mentioned in the scope of the online

communication and the engagement concept. A large part of the available SMM tools are described in the different reports and papers that have been already mentioned, like [9], [12] and [18]. The social media monitoring technics and findings are perfectly reusable and extendable under the umbrella of the engagement approach and will be taken in consideration during the design of the framework. However, this kind of tools does not support the engagement concept in the essence that was described in this paper and envisioned by the authors. The main objective of the application is to enable the SMEs to handle the multi-channel interaction with the customers in a semi-automatic way by employing reusable communication workflows, which address various specific patterns of dissemination and reaction.

VII. CONCLUSION AND FUTURE WORK

The engagement concept should be treated by the enterprises as an opportunity to build strong ties with their customers and turn them into advocates that will add positive value to the brand reputation via the online word of mouth. By being authentic, transparent, and operating with integrity, the enterprise could successfully engage their market and build a community of advocates who would spread their message virally. The challenges for bringing the engagement to the full potential are definitely the scalability of the possible solutions and the effectiveness of the approaches. In this paper, we tried to put the bases for the next step in online communication and specify the requirements of an effective engagement framework.

The future steps beyond this preliminary exploration of the online communication space will be the actual design of the framework that could address the described ideas and concepts. The reference architecture of the framework will be based on the aforementioned requirements and professional objectives of the small and medium sized enterprises. The design of the engagement framework will exploit the semantic web technologies and will integrate the existing knowledge in communication methods with the communication patterns that can be used in the context of the Social Web.

REFERENCES

- [1] D. Aaker, "Managing assets and skills: the key to a sustainable competitive advantage.", 1989.
- [2] D. Barnlund, "A transactional model of communication.", *Foundations of communication theory*, 1970, pp. 83-102.
- [3] S. Bratt, "Semantic web, and other technologies to watch.", *World Wide Web Consortium*, January 2007.
- [4] P. Casoto, A. Dattolo, P. Omero, N. Pudota and C. Tasso, "Accessing, Analyzing, and Extracting Information from User Generated Contents.", *Handbook of Research on Web 2.0, 3.0, and X.0*, 2008, pp. 312-328.
- [5] D. Fensel, B. Leiter, S. Thaler, A. Thalhammer and I. Toma, "Effective and efficient on-line communication", 2012.
- [6] J. Fleming, C. Coffman and J. Harter, "Manage your human sigma." *Harvard Business Review*, vol. 83(7), 2005, p. 106.
- [7] J. Freyne, M. Jacovi, I. Guy and W. Geyer, "Increasing engagement through early recommender intervention.", *Proceedings of the third ACM conference on Recommender systems*, 2009, pp. 85-92.
- [8] A. Galeotti and S. Goyal, "Influencing the influencers: a theory of strategic diffusion.", *The RAND Journal of Economics*, vol. 40(3), 2009, pp. 509-532.
- [9] Z. Hofer-Shall, "The Forrester Wave™: Listening Platforms, Q3 2010.", *Forrester Research*, 2010.
- [10] L. Huang, C. Yung and E. Yang, "How do travel agencies obtain a competitive advantage?: Through a travel blog marketing channel.", *Journal of Vacation Marketing*, vol. 17(2), 2011, pp. 139-149.
- [11] A. Kaplan and M. Haenlein, "Users of the world, unite! The challenges and opportunities of Social Media.", *Business horizons*, vol. 53(1), 2010, pp. 59-68.
- [12] H. Kasper, M. Dausinger, H. Kett, T. Renner, J. Finzen, M. Kintz and A. Stephan, "Marktstudie Social Media Monitoring Tools.", *Fraunhofer IAO Studie*, 2010.
- [13] S. Liu, "A theoretic discussion of tourism e-commerce.", *Proceedings of the 7th international conference on Electronic commerce*, 2005, pp. 1-5.
- [14] M. Louro and P. Cunha, "Brand management paradigms.", *Journal of Marketing Management*, vol. 17, 2001, pp. 849-875.
- [15] S. Mulpuru, H. Harteveldt and D. Roberge, "Five Retail eCommerce Trends To Watch In 2011.", *Reproduction*, 2011, pp. 1-8.
- [16] J. Northcote and J. Macbeth, "Conceptualizing yield: sustainable tourism management.", *Annals of Tourism Research*, vol. 33, 2006, pp. 199-220.
- [17] C. Shannon, "The mathematical theory of communication. 1963.", *MD computing: computers in medical practice*, vol. 14(4), 1997, p. 306.
- [18] I. Stavrakantonakis, A.E. Gagiou, H. Kasper, I. Toma and A. Thalhammer, "An approach for evaluation of social media monitoring tools.", *Common Value Management*, 2012, p. 52.
- [19] G. Wang, C. Wilson, X. Zhao, Y. Zhu, M. Mohanlal, H. Zheng, B.Y. Zhao, "Serf and turf: Crowdturfing for fun and profit.", *Proceedings of the 21st international conference on World Wide Web*, 2012, pp. 679-688.
- [20] L. Wood, "Brands and brand equity: definition and management.", *Management decision*, vol. 38(9), 2000, pp. 662-669.