



Enabling customers engagement and collaboration for small and medium-sized enterprises in ubiquitous multi-channel ecosystems



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ABSTRACT

Over the last few years, we have encountered an exponential growth in online communication opportunities. Organizations have more and more ways to connect and engage with their current or future customers. The existence of more opportunities in connecting to people can be both an enabler and a burden. Being present at a multitude of different channels requires the effective management of a very large number of adapted contents, formats, and interaction patterns fulfilling the communication and cooperation needs of distributed target groups. In this respect, we integrate existing fragmented communication and monitoring approaches into a full-fledged communication model as a basis for an adequate engagement approach. We describe applications of our approach in both the eTourism and manufacturing domain. In this paper, we introduce an approach that will enable communication, collaboration and value exchange of users through a multitude of online interaction possibilities based on the use of semantic technology. Finally, we also compare our approach with existing solutions with respect to the identified challenges in this subject.

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1. Introduction

Recent technology trends and, especially, the emergence of social media have changed the face of online marketing over the last few years. The importance of social media to communicate with an organization's key stakeholders increases. In order to be able to use social media, organizations need to build up dedicated skills and resources. Thus, companies start to be present in multiple platforms and are slowly learning what the benefits and risks of their online presence can be. Nevertheless, the trend moves clearly toward the usage of new media possibilities, as in some branches customers start expecting a company to be represented in various online media. This demand for an online presence brought a manifold of free as well as commercial social media suites on the market, such as HootSuite (hootsuite.com) or SproutSocial (sproutsocial.com), among others.

Many of these tools also offer support for multi-channel communication via one click. The channels considered are Web 1.0 channels (email, blog) and Social Web 2.0 channels, e.g., Facebook,

Twitter, Google+, Slideshare, etc. Such tools do not use, or in the best case, use simple mechanisms to adapt the content to fit the channel output. Additionally, most of the tools are able to process the content, allowing the user to create statistics and publish posts as well as retrieve feedback. However, currently none of the tools really support the user in showing where to publish, when to do so, what content should be disseminated and how the individual channels should be used. Furthermore, current tools do not abstract and distinguish the communication or channel model from the conceptual descriptions of the information.

In this article we analyze both communication and collaboration in the current multi-channel ecosystem. Different types of dissemination, monitoring and listening activities are identified, showing their potentialities for small and medium-sized enterprises. Actually, the effective management of communication and engagement with clients and users becomes a real challenge, especially for that kind of enterprises. In order to overcome the issues that we identified, we propose in this article the application of our Semantic Communication Architecture Innsbruck (SCAI), a conceptual architecture that define the main components that a communication and collaboration management system has to contain.

Based on SCAI, we also present in this paper an implementation applied to the eTourism and manufacturing domains. Thus, we instantiate our conceptual architecture and evaluate its capacities

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to overcome our identified challenges, resulting in a scalable, cost-effective solution that can be personalized to a particular domain, enabling an efficient and effective communication that also facilitates engagement and feedback.

The rest of the paper is structured as follows. In Section 2, a motivating example serves the purpose of illustrating the problems and challenges ahead that small and medium-sized organizations face when attempting to manage an ubiquitous multi-channel ecosystem. Section 3 describes the process of communication and collaboration in this ecosystem. Then Section 4 discuss the conceptual architecture proposed for a generic semantic online communication engine as well as a concrete instantiation of that architecture, while Section 5 showcases two use cases and how to evaluate feedback obtained from our proposal. In Section 6, we discuss the related work on multi-channel communication and the advantages of our approach. Finally, Section 7 enumerates our conclusions and future work.

2. Motivating example and challenges ahead

The ever growing number of communication channels generates new challenges and obviously, consumers require new skills and more efficient access means to scale and filter the exponentially increased offer. In this scenario, assume the task of a small hotelier. How can it be ensured that the hotel is found by potential customers, i.e., how can he/she find them? The hotelier should have a website with high visibility on various search engines and must be present in a large number of online booking channels. We should find the hotel on the town's website, and the hotel should have a *Facebook Page*, perhaps with a booking engine included. Bookings made through mobile platforms are increasingly popular, and the hotelier would want to be found there too. Why not add a video about the hotel on *YouTube*, a chat channel for instant communication, fast email and fax response capabilities, the old-fashioned telephone, and occasional tweets and emails that are clearly distinguishable from spam? Preferably the communication should be multi-directional, i.e., the hotelier should realize when one of his posts gets commented on (up to a full-fledged impact analysis), or even more importantly, the hotelier should know when someone talks about the hotel, and how much the customer liked it. As much as this is needed, this obviously does not scale. We identify several challenges that can also be found in a more generic scenario involving any small and medium-sized enterprises:

- **Scalability:** The overwhelming and increasing amount of available channels to disseminate and engage customers makes inviable the self-management of the communication and collaboration strategies of companies.
- **Costs:** In order to properly handle the multi-channel ecosystem, companies could hire a large number of Social Media experts and assign them to manage their various communication channels. However, this solution is too costly for small or medium sized enterprises.
- **Domain personalization:** Although the externalization of marketing tasks to specialized agencies could save some costs for small to medium sized companies, these agencies still have to manually deal with adaptation, alignment and definition of the content for several channels. The intricacies of each domain have to be addressed, consequently there is a need for generic and automatic solutions that can be personalized to any domain.
- **Bilateral communication:** Feedback and engagement of customers have to be taken into account, in order to effectively manage the reputation of the company and its customer relationships, which are increasingly complex in this multi-channel ecosystem.

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. In this paper we present a solution that tackles these challenges, taking a holistic approach that allows enterprises to effectively engage customers through a multitude of channels.

3. Toward online communication and collaboration in the multi-channel ecosystem

The importance of receiving, synthesizing and communicating information has increased dramatically in our current digital age. In this respect, we consider three main aspects of the communication paradigm; dissemination, listening and collaboration.

3.1. Dissemination

Dissemination, from a traditional point of view, refers to the process of broadcasting a message to the public without direct feedback from the audience (the term comes from the Latin word “disseminates” which means “sowing seeds” or “scatter wildly in every direction”). This “outdated” definition is based on communication which involves a single sender and a receiver. BusinessDictionary.com defines a communication channel as “a medium through which a message is transmitted to its intended audience, such as print media or broadcast (electronic) media” [8]. We consider a broad definition of a channel specialized for online communication: in the online-space, a channel is a means of exchanging information. A channel can, in general, be interpreted as a “place” where one can find or leave information, whether it is addressed through a service or unanimously referred by a URI (Uniform Resource Identifier). URIs are compact sequences of characters used to identify and abstract or physical resource [5].

Obtaining scalable dissemination is a difficult challenge. Therefore, in order to better understand it, we want to clarify why this process is so important for an enterprise. There are three main purposes for dissemination [12]:

- **Dissemination for awareness:** The audiences are made aware of the product, innovation, idea etc., which is useful for those target audiences that do not require a detailed knowledge of the work. It helps the “word of mouth” type of dissemination and helps the disseminating company build an identity and profile within the community.
- **Dissemination for understanding:** It aims at a specific number of groups/audiences that need to be targeted directly. The target audience benefits from what the company has to offer and has a deeper understanding of the work.
- **Dissemination for action:** refers to “a change of practice resulting from the adoption of products, materials or approaches offered by your project” [17]. The authors mention that, in this case, the audiences targeted are the individuals who are in a position to “influence” the opinions of their peers, and “bring about change” within their organizations. Thus, these individuals must be equipped with the right skills, knowledge and understanding of the enterprise's work in order “to achieve real change” [17].

We classify the online channels based on the type of service they provide: static broadcasting, dynamic broadcasting, sharing, collaboration, social networks, internet forums and other forms of online group communication platforms, and semantic-based dissemination.

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