onlim Tell-it!

we host. you post.

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Executive Summary

onlim[1] supports companies in increasing their online visibility on a multitude of social media platforms. Our product, **onlim Tell-it!**[2] delivers a scalable solution for multi-channel communication, including one click publishing on multiple social media channels, gathering of feedback, measuring the impact and engagement. Scalability is achieved by employing a combination of semantic/Linked Data technologies, including semantic annotations using well-known vocabularies such as **schema.org**, semantic matching, rules and semantic analysis. All these technologies are being used in **onlim Tell-it!** to support automation of online communication tasks.

1. Introduction

The Web has long established itself as one of the main marketing platforms. Currently, it is unthinkable for a company not to have at least a corporate website, as part of its web presence, and the possibilities for advertisements and posts are multifold. With the growing importance of social networks as part of Web 2.0, the opportunities for reaching target group users, publishing information and engaging in bi-directional customer communication have expanded even more. These include social platforms, specialized news webpages, blogs, discussion forums and messaging services, just to name a few. Being present on all these communication channels becomes a challenging, time- and effort-consuming task. As the number of channels are increasing, scalability becomes an issue. **onlim** supports companies, especially small and medium size, in managing their online presence on all this multitude of channels, following the global trend in marketing and social media. The organizational structures of small and medium size companies are not prepared for these type of challenges and demands of these activities. They do not have the right know how. Therefore the only way to address it is outsourcing or ignoring. Take the tourism domain for example. In former times the receptionist of a hotel had just to manage the phone and fax. Now they are confronted with an exponential growing number of online communication channels and social media for marketing (see Figure 1).

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[1] http://onlim.com/
[2] http://tell-it.onlim.com/
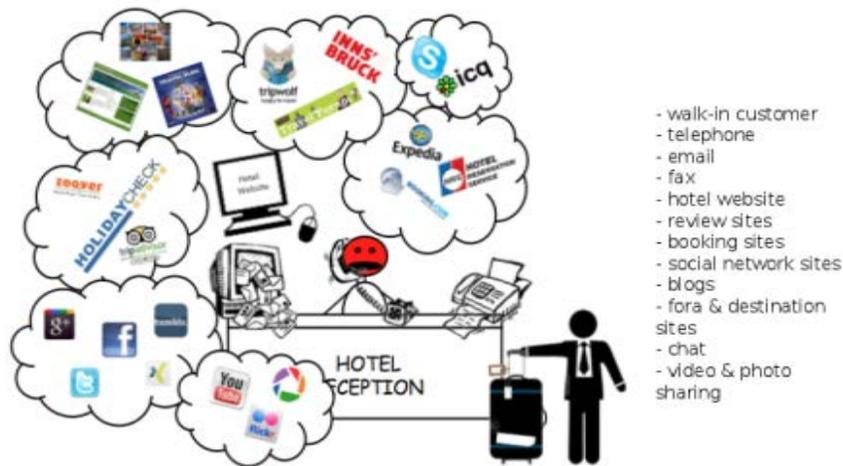
Figure 1: Overload of an hotelier in using social media and booking channels

Besides having to deal with the explosion of the number of marketing channels, a hotel is also facing another related problem, namely what content to post on social media channels, from where and how to get it. Lucky Web sites, Blogs, Portals, RSS feeds, social media channels and other types of content sources belonging to higher touristic bodies, touristic associations, newspapers, and independent bloggers contain very relevant content for the audience of hotels.

Solving both problems, i.e. the exploding number of communication channels and the content bottleneck problem, would enable hotels and companies in general to be present with a minimal effort on a multitude of communication leading to a better online visibility, and finally to improved their economic activities.

2. Solution

onlim Tell-it! produces semi-automatically social media posts from various content sources. We support various content sources types including Web sites, Blogs, Portals, RSS feeds, and social media channels in order to feed the pool of content a company can use for its online presences. In the planning phase we offer tools for a managing the redaction plan, collaborate with other team members and adapt different postings. Finally the posts are distributed to the appropriate channels. *onlim Tell-it!* monitors the feedback as "Likes" or "Retweets" and provides a detailed analysis of the clicks and success of the campaign.

Choose your content   Plan postings   Monitor feedback

3. Technical Innovation

onlim Tell-it! high level concept is visualized in Figure 3. Semantics is at the core of our approach. It enables the capturing of the meaning and functionality of the channels as well as of the customer's domain information.
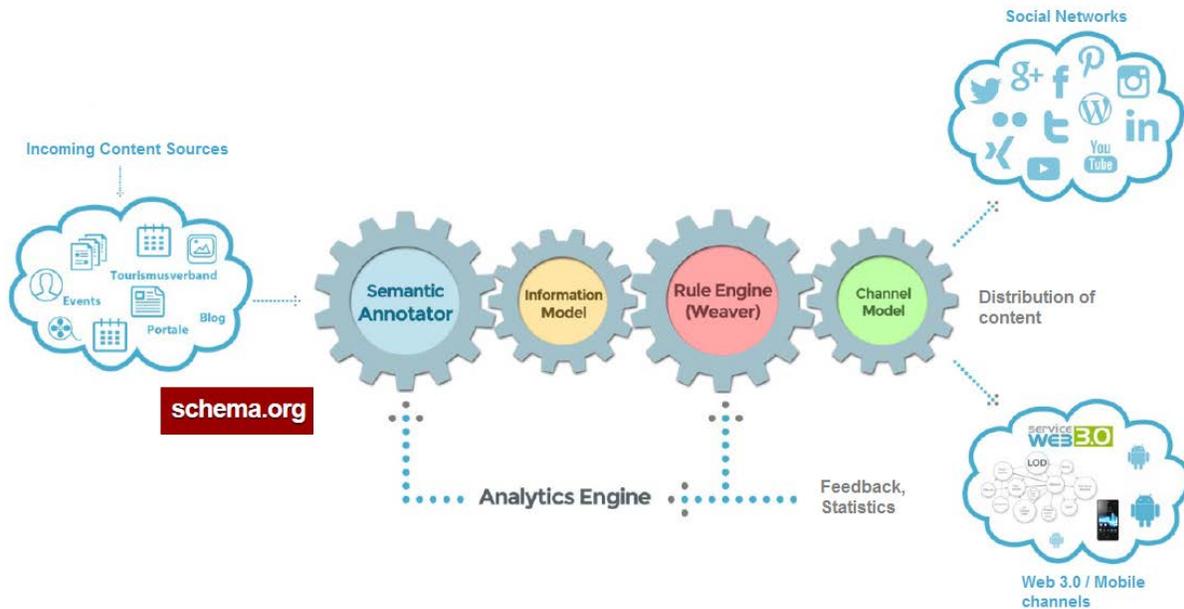

Figure 3: onlim Tell-it! overall, high level concept

In particular, we based our tool development on the following main approaches for handing complexity and reducing the amount manual work:

1) **Semantic representation of content**

   We use semantic technologies to capture specific information about the content in the form of domain information models. We based our information models on *schema.org.* In this way content can be understood not only by human agents, but by machines as well. *onlimt Tell-it!* makes use of schema.org annotations in order to understand the content and scale the distribution on multiple communication channels.

2) **Integration of multiple external sources**

   We support selection and integration of various external content sources including Web sites, Blogs, Portals, RSS feeds, etc. These content sources, are expected to be semantically annotated e.g. using *schema.org* annotations.

3) **Semantic channels**

   The paradigm shift with respect to semantic technologies towards the Web of Data vision and its implementation Linked Open Data (LOD) provides new opportunities to integrate more data centric communication channels. Central to LOD are vocabularies and languages. Our solution handles content which is annotated according to LOD vocabularies (e.g. schema.org) in various markup formats (e.g. RDFa, Microformats, or Microdata). We interpret LOD vocabularies as channels. If we

map an information item in such a vocabulary, it can be understood by other agents that are common to this vocabulary.

4) *Semantic matching of content and channels*
Content and channels are brought together via a weaving process. Through the use of semantics, channels and content are matched automatically, content being mapped to the relevant communication channel. We have implemented a **rule-based approach**. Rules are used to implement the logic on how the content and channels are interweaved. An example of such rule could be "**When** a new Event is available **then** publish it on Facebook and Twitter".

5) *Automated content adaptation*

Once the relevant communication channels are determined, the customer input needs to be transformed in order to fit in individual channels. We handle the polymorphic nature of channels adapting the content to the channels semi-automatically by translating concept instance into formatted input parts. Typical transformations include the shortening of text to fit into tweets, attachment and resizing of pictures, and the transformation and adaptation of videos where needed.

6) *Semantic analysis*
Semantic analysis of text enables our solution to "understand" the natural language statements in a communication act. Semantic Text Analysis is commonly implemented by using Natural Language Processing (NLP) techniques. Among the various NLP techniques, opinion mining and sentiment analysis are especially important for online communication. Our solution uses viralheat[3] for opinion and sentiment analysis.

4. Usage of open standards

We base our **onlim Tell-it!** solution on **schema.org[4]**, an **open, de-facto standard** supported by big search engines such as Google, Yahoo!, Bing, and Yandex. schema.org is the major initiative that webmasters can use to markup their pages in ways recognized by major search providers. schema.org is a very large vocabulary counting hundreds of terms from multiple domains. In our solution the content to published, content coming from various external content sources, is annotated with schema.org.

5. Technological matureness

The semantic technologies and techniques introduced in Section 3, technologies and techniques we based our **onlim Tell-it!** solution on, have reached a good level of maturity. The TRL (Technological Readiness Level)[5] of **onlim Tell-it!** solution, according to European Commission definition is TLR9. Our solution has been proven in operational environment. More than 20 pilots in the tourism domains including 3 to 5 stars hotels and touristic associations (TVBs) in Tyrol, Austria are using **onlim Tell-it!** on daily basis to manage their social media activities.

6. Applicability in multiple domains

We started with the tourism domain, a global industry with a need for social media marketing to increase conversions of their online bookings. Nevertheless, our solution can be easily applied in other domains. There are various domains that could benefit by the adaptation of our multi-channel communication solution such as the automotive, high-tech technologies, manufacturing, real estate,

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[3] https://www.viralheat.com/
[4] https://schema.org/
[5] https://en.wikipedia.org/wiki/Technology_readiness_level

etc. Actually our solution is applicable to any company looking to increase its online visibility, independent of the domain of activity. In order to tune our solution for a given company and domain, one would need: (1) to use an information model applicable for that domain and (2) define the set of rules for interweaving the content and channels in a way desired by the company.

7. Comprehensibility

Anyone interested in trying our solution can do it online after registering at: https://tell-it.onlim.com/users/sign_up. Figure 4 gives a glimpse of the *onlim Tell-it!* user interface. It is intuitive and easy to use. After linking his social media accounts by clicking on "Your Accounts" (currently we support Facebook, Twitter, LinkedIn, Xing, YouTube, and Flickr), the user can start using *onlim Tell-it!* straight away. He can create a new post by clicking on "New Post". In the calendar view, accessible via "Calendar", he has an overview of all his posts (published and planned). "Daft" and "Suggested" post are available in the panel available on the right hand side of the screen. Suggested post are posts which are generated from external content sources (available by clicking on "Incoming Channels") based on the semantic annotations of the external content sources and rules defined in *onlim Tell-it!* (see Section 3). The impact and feedback on the social media activities can be checked in the statistics section.
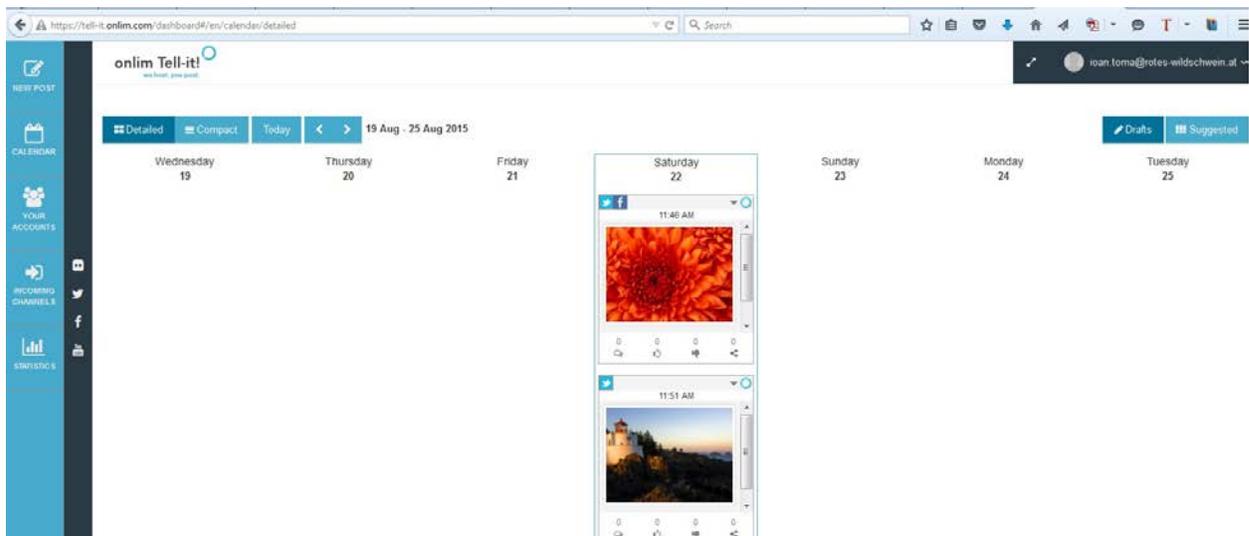

Figure 4: onlim Tell-it! user interface