

Benefits of Enterprise Social Networking Systems for High Energy Physics community

B Silva de Sousa¹, A Wagner¹, E Ormancey¹, P Grzywaczewski¹

¹CERN, CH-1211, Geneva, Switzerland

E-mail: bruno.sousa@cern.ch, andreas.wagner@cern.ch,
emmanuel.ormancey@cern.ch, pawel.grzywaczewski@cern.ch

Abstract. The emergence of social media platforms in the consumer space unlocked new ways of interaction between individuals on the Web. People develop now their social networks and relations based on common interests and activities with the choice to opt-in or opt-out on content of their interest. This kind of platforms have also an important place to fill inside large organizations and enterprises where communication and collaborators interaction are keys for development. Enterprise Social Networking Systems (ESN) add value to an organization by encouraging information sharing, capturing knowledge, enabling action and empowering people. CERN is currently rolling out an ESN which aims to unify and provide a single point of access to the multitude of information sources in the organization. It also implements social features that can be added on top of existing communication channels. While the deployment of this kind of platforms is not without risks we firmly believe that they are of the best interest for our community, opening the opportunity to evaluate a global social network for High Energy Physics (HEP).

1. Introduction

Nowadays we are overwhelmed by a huge volume of information coming from different communication channels. Each individual applies its own methodology to process information. Usually, after delivery, it requires a quick analysis and prioritization based on the source and value of the content, on a later stage digestion of the information, actions when needed, and finally archival or deletion. This process consumes us a large amount of time and energy knowing that, very often we are bombarded with information that is not relevant for our daily activities. This fact supports huge costs on productivity in our organizations.

According to McKinsey [1] the average interaction workers spend 28% of their time managing e-mail and 20% looking for internal information or tracking colleagues that can help with specific tasks. E-mail has become the *de facto* communication method in organizations because of its simplicity and ease to reach others. Because of that, it is overused and so we receive too many messages. Only a small portion of e-mails really need our attention. Also due to its simplicity, asking colleagues for a question became the *modus-operandi* for many people. This usually happens because it is the fastest way to get things done. However, it incurs into costs as we are many times answering to the same questions and we are victims of interruptions. The average employee is interrupted 56 times a day and 80% of them are considered trivial [2]. Typically interruptions are caused by push communication channels, different



types are e-mail, phone calls, smartphone applications or visits from colleagues. Most significant interruptions can range from two minutes up to 40, leading to work fragmentation and multitasking depreciating productivity [3].

Meanwhile, in the consumer space, the emergence of search engines and social-networking platforms like Google, Facebook, YouTube or Twitter introduced new tools that simplify the way we find, follow and interact with information and people. It gave birth to the *Generation F* [4]. A generation that follows media activity based on their own interests or relations, which is open to share and at the same time expects to find answers to questions very quickly.

Soon, the corporate world realised the added value of social technologies and how they could improve productivity. Again, McKinsey affirms that improved communication and collaboration through social technologies could raise the productivity of interaction workers by 20 to 25 percent [1]. These facts paved the way for the development of Enterprise Social Networking systems (ESN).

In this paper, we review limitations of mainly used communication channels, benefits of ESN and how they can improve the current limitations, our implementation of social enterprise at CERN, learned lessons and our vision for the future.

2. Why Enterprise Social

As outlined previously, e-mail became a central and multi-functional tool in our daily activity that is primarily used for communication, but because of its flexibility, it also serves as to-do list, personal information management tool, archive, mechanism to foster coordination and collaboration among colleagues and source for assigning and delegating tasks [5]. In summary, its usage goes well beyond what it was originally built for, making us checking e-mail about 36 times an hour [6].

Another experimental study have shown that people deprived of e-mail multitasked less, had longer focus and even lower levels of stress [5]. It also suggest some implications at the organization level to alleviate the burden of e-mail on employees. E-mail should certainly not be abolished but informational e-mails should be deferred to pull-oriented channels like ESN or RSS feeds.

E-mail is also not adapted for all kind of communications, for example the case of the *reply-all* syndrome. It can cause all kind of reactions on members of a distribution list, but at the same time how many times opportunities for constructive dialog or opinion expression were missed just because e-mail is not suited?

Knowledge residing inside mailboxes is locked. The amount of knowledge that is inaccessible to others and eventually deleted (when the mailbox owner leaves the organization) is unmeasurable. ESN's by their nature as open communication platforms where everyone has an equal voice, can clearly unlock until now hidden opportunities for collaboration and capture existing knowledge.

RSS feed is a pull communication channel i.e. the information is published and then gathered by information consumers. However it does not offer social interaction features – for e.g. comments, sharing or networking. This is in part what the social media platform Twitter introduced to the masses and likely the reason why it is taking over RSS [7].

2.1. Enterprise Social Networking

The premise of ESN is to create value by connecting members of an organization. It introduces tools that can improve communication and help employees to access knowledge and resources to work effectively and solve problems faster [8].

According with research from the Altimeter Group [9] connecting people through ESN can drive value in four different ways:

- Encourage sharing
- Capture knowledge
- Enable action
- Empower people

By implementing microblogging features, ESN encourages people to share their thoughts, activities and expertise. Opposed to traditional blogging, microblog content is shorter. People share one-topic and

terse messages that can include individual images, videos or documents. This obliges people to be direct and concise and at the same time promotes sharing as it doesn't require major efforts. Content consumption uses the follow/follower model that lets people to opt-in/opt-out on activity feeds from other colleagues and at the same time build relationships [10]. Consumption is made easy, customized and quick and thus energies are spent in dialog. This same dialog can happen with anyone from the organization and so it flattens hierarchies reducing distance to leaders and thus improving visibility.

Knowledge capture has always been a complex and daunting task. Knowledge can be categorized into two categories: explicit and tacit. While explicit knowledge can be easily documented, tacit knowledge is much harder. It represents know-how and intuitive knowledge which is rooted to context, experience, practice and values. This is the kind of knowledge that can lead innovation and breakthroughs in organizations [11]. Collaborators profiles together with people interaction via discussion forums and microblogging, coupled with search functionalities can help to capture knowledge.

It allows solving problems faster and better as knowledge becomes available and searchable. Instead of seeking colleagues one can go directly to ESN and search for an answer. If no results are found, questions can be posted very quickly on a lightweight and informal way without causing interruptions. In a sense ESN can become an "internal Google" to find relevant answers. Newcomers are the perfect example of whom can deeply benefit from ESN and use it to get on-board at a faster pace.

ESN empower people, everyone has an equal voice, it encourages people to speak up giving them an opportunity to make meaningful contributions with their skills and ideas, and again leveraging innovation. It increases engagement by humanizing the way how people work [9], opposing to the classic and formal way to communicate provided by e-mail.

ESN became mainstream with many research and management consulting companies evaluating opportunities and predicting the evolution and adoption of ESN. Back to 2013, Deloitte predicted that by the end of that year over 90% of Fortune 500 companies would have partially or fully implemented ESN, an increase of 70% over 2011 [12]. With time and the increased adoption, ESN started taking an important role inside organizations, with Gartner stating that, by 2016 50% of large organizations will have ESN and 30% of these will be considered as essential as e-mail is today [13]. This clearly indicates that the private sector realized the potential benefits and at the same time the current workforce generation, technology savvy, is getting more and more adapted to ESN, setting them as a natural and essential tool at the workplace.

3. Social at CERN

On March 2014 the pilot service bringing social networking capabilities for CERN people started [14]. Available at the address <https://cern.ch/social>, the objective is to achieve the potential benefits of ESN, by proposing rich profiles along with microblogging features to communicate and share with CERN people. It introduces a lightweight communication channel, which aims to become a central tool for people to follow and interact with information and at the same time enrich existing communication channels with social features.

Profiles (Fig. 1) are pre-filled with basic contact information like phone number, e-mail address and office location. Moreover people can add their photo and information about themselves. Information like areas of knowledge, past projects, relevant experiences or interests will help on the discovery of expertise. This is extremely useful in our environment knowing the broad range of skills, creating opportunities for new projects and collaborations.

Social profiles include the activities made on the platform, like messages shared with everyone, followed people, participation on communities or liked content. This makes profiles rich and constantly updated with the latest information depending on the person's activity. At the same time, activities automatically shared can be configured on the profile settings in order to adapt to the sensitivity of the user.

Microblogging is at the hearth of Social – known as the Newsfeed (Fig. 2). Using the textbox available on the top of the homepage, one can very easily broadcast a message to everyone or a limited group of people. Hashtags can be used to add context and meaning to a post e.g. **#chep2015**, making it easier to find content or even get insights of current trends on what people is talking about. To catch the attention from someone the character **@** appended by the person's name, can be used for mentions. Social interaction happens by adding comments to posts for conversation or giving “likes” for public validation and relevance.

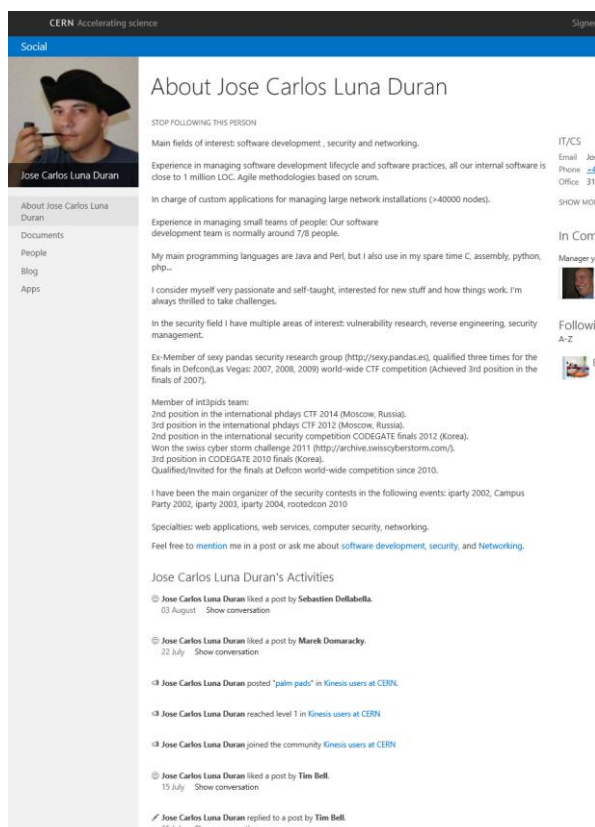


Figure 1. CERN Social profile

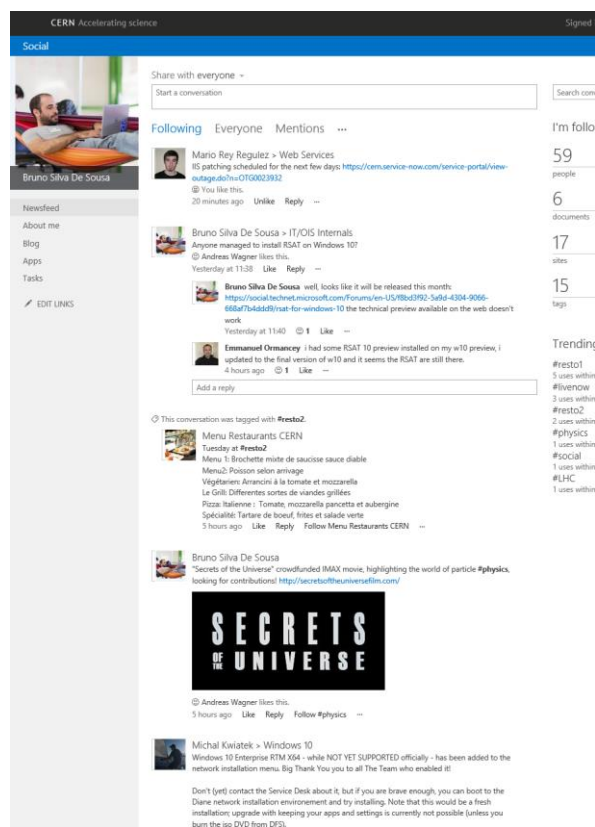


Figure 2. CERN Social Newsfeed

As a platform open to everyone at CERN, the variety of the content can be broad and thus not relevant to all. Because of that, it is possible to follow content either by person or by hashtag, making the consumption easy and customizable.

The features described above can also be used by CERN Service Accounts [15] making it possible for CERN services or events to participate on Social to communicate with everyone. For example the IT Lightning Talks [16] use Social to publicize presentations and at the same time promote discussion on the presented topics.

Social also provide the grounds to build communities where people sharing similar interests can discuss around a topic, on a questions and answers oriented format, similar to discussion forums. Social Community takes form on a dedicated website that can be created by CERN people using WebServices [17]. Those are easily customizable in terms of look and feel giving the chance to owners to implement the identity they want. Permissions access is very flexible, communities can be restricted to determined individuals, CERN E-groups [18] or even people outside CERN whom can sign-in with public service accounts like Facebook, Google or Microsoft account. There is a large set of features to make the administration of the communities effortless and adapted to the needs, like categories to organize discussions, badges, reputation settings for participants and options for moderation. A very popular example of a Social Community is the CERN Market [19] (Fig. 4).

Social Communities are directly connected with Social Newsfeed. Hashtags and mentions can be used on community posts, and thus if a followed hashtag is used it will be visible in the Newsfeed, even when the user is not aware that the community exists. This makes the Social Newsfeed as the single place to follow Social activity as all the relevant content will be presented there. At the same time e-mail based alerts are available on communities, as it can be useful for the owners or most active members. E-mail alerts can be triggered immediately when activity occurs or summaries can be scheduled either daily or weekly at specific times. Social Communities can be explored from a dedicated site, exposing them by popularity (Fig. 3).



Figure 3. CERN Market community at <http://cern.ch/cern-market>

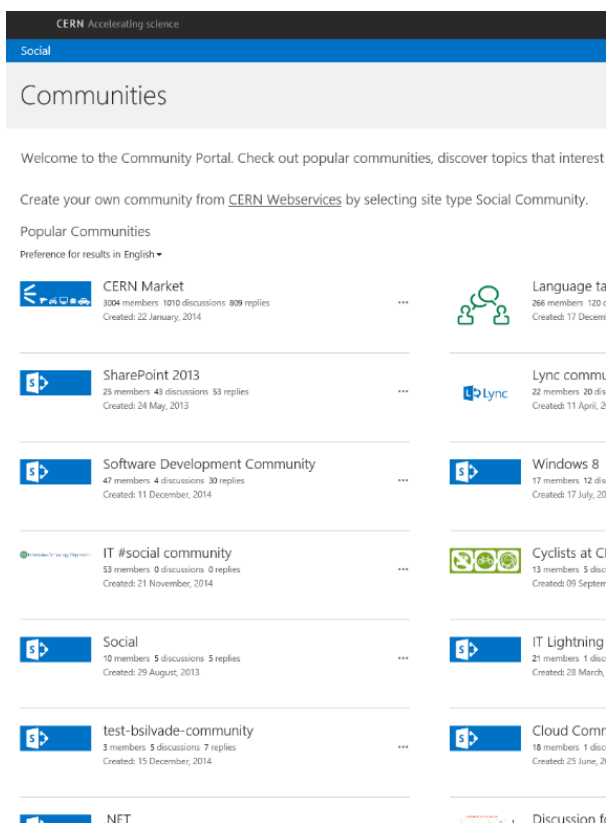


Figure 4. Discover most active communities at <http://cern.ch/communities>

The integration of Social with the existing Web environment is very important, to both extend its usage to other contexts and to bring social networking features to existing components. Social is very tightly integrated with the Collaboration Workspaces [17] by implementing microblogging in the context of team collaborations for specific projects or services. This approach have shown very good results in the context of the CERN WebServices team by increasing the communication flow between team members, that at the same time are responsible for different platforms based on different technologies. This allowed to build better team spirit and create synergies between functional elements of the service.

By means of a REST API [20] a set of Drupal modules [21] is available to introduce social features and content to existing CERN websites. It is possible to embed information about a specific profile (Fig. 5), show all conversations with a known hashtag (Fig. 6) or list the picture and contact details of all members of a known department or group at CERN (Fig.7).

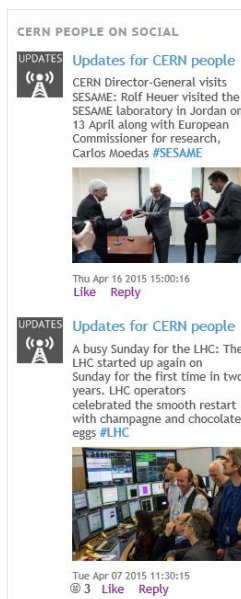


Figure 5. Module displaying posts from a specific profile

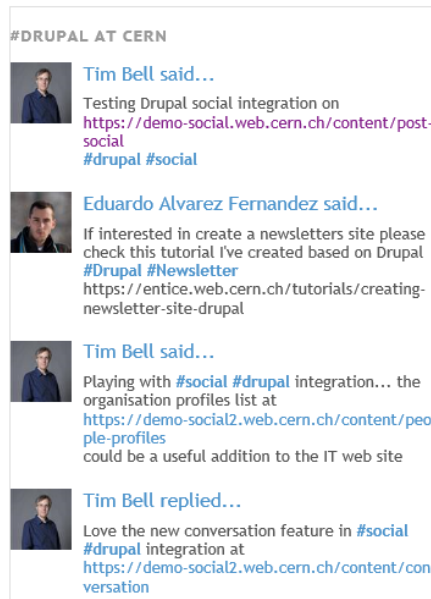


Figure 6. Module displaying posts with specific hashtag

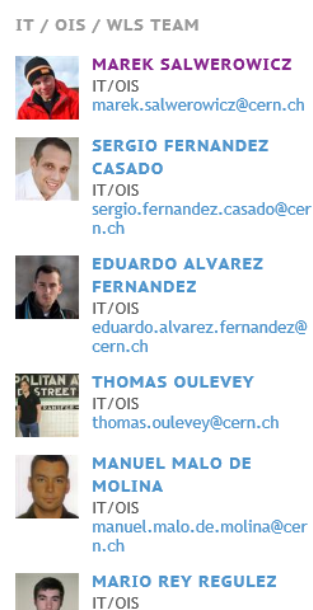


Figure 7. Module displaying all members from a specific group

4. Deploying an ESN

Gartner says that through 2015, 80% of social business efforts will not achieve intended benefits due to inadequate leadership and overemphasis on technology [13]. Indeed the deployment of ESN is 80% cultural change and 20% about technology. It is opposed to classic deployments where the technology is made available, training is proposed and then people is expected to use it. Part of the cultural change is to make people understand the real added value of social technologies and it is here where time and communication play an extremely important role. It should not be seen as a one department initiative, but as part of a broader change at the organization level.

Many obstacles can be expected during the roll out of ESN. It is predictable to see adoption drop-off from users after a grace period of time. It is important to keep momentum and because of that take one step at the time and carefully follow a plan.

Part of the plans and future of Social at CERN involve feeding the Newsfeed with content by adding more sources with relevant information. Simple examples like posting daily CERN restaurant's menu or migrating existing classifieds site CERN Market to Social Community had very positive effects and added new features to existing services. Bidirectional integration is available for other CERN Web programs, to allow users to share context based information directly to Social. It is important that programmatic interfaces are easy to use and allow both to consume and feed with data.

New features are also under development like the Social Feed that consists on a topic based microblog feed. This will allow, for example, lightweight departmental and private discussion and can be opened to external people. One example is available at <https://cern.ch/chep2015> [22]. We also expect that, in part, the heavy usage of mailing lists will be replaced by Social Feeds when the purpose is mostly non-critical information exchange. Last but not least, the development of comprehensive usage analytics to measure the engagement of CERN people or success of communication campaigns is also part of the plans.

5. Conclusions

The benefits of ESN are undeniable. At the same time the way to accomplish the goal is long and full of obstacles as the cultural shift is very significant. However there is no doubt that the potential benefits clearly worth the efforts. Management support, commitment and a social computing strategy with a long-term vision are mandatory. We aim to provide a stimulating environment where people and newcomers can learn from each other. Provide a mean of communication and way to access to knowledge adapted this new era, in order to attract, engage and finally keep talents. This will help to foster innovation which is, naturally, part of our essence.

Different pieces are now getting into place. We will progressively promote Social and we expect to increase its usage, as we can demonstrate the already achieved benefits and slowly move existing communication channels to Social.

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