Social Media Applications for Project Management

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Abstract:
Project communication and collaboration is a crucial activity that makes or breaks a project. Excellent technical skills and intuition may be insufficient to drive performance if not accompanied by appropriate levels of interpersonal interaction within project groups. Evidently that Global participation platforms and social networks like Facebook, LinkedIn and others and a mass of local blogs and web communities are an important source for next generation of project managers. How these new technologies will impact organizations, however, is not entirely clear. Therefore, it represents an important field for information systems research. This paper presents a survey study of the intrusion of social media in project management. We investigate some basic questions such as the possibilities, dangers, and limits (e.g. legal or ethical) of using social media services in project management. Also we analyzed the existed approaches that can serve as a start point for the successful and efficient implementation of such services. Ours results indicate that social media analysis can serve as an improvement tool for project management to reduce the product development time and associated cost through the implementation of social network analysis

Keywords: Social media, social media network, project management, blog, wiki, information technology

I.   INTRODUCTION

Historically, the industry has focused extensively on optimizing the project management *(PM).* In this focus, organizations have emphasized the ability to develop the optimum plan, allocate resources efficiently, and utilize control functions to ensure that the project stays on schedule and within budget. This used to be effective however nowadays this engineering focus has reached the point of diminishing results. Specifically, the engineering approach to PM has neglected to recognize the importance of the participants to the success of the overall project.

Simultaneously, over time, social networks (*SN*) have evolved and this evolution has kept pace with the growing needs of businesses and their needs. Accordingly, social media applications (*SMA*) are increasingly widespread in modern societies. INTERNET use and mobile access to information, SN, entertainment and services are and will be subject to rapid growth and create an essential source for so called "social media analytics", which allow to monitor and analyze user generated contents for different purposes systematically. Given this prominence social media (*SM*) have reached in different fields, we identify a crucial importance to promote the application of SM services for effective PM in different domain as well as positive product development process (*PDP*).

Based on current possibilities and evolving practices of SM usage as a means of community participation, this paper develops ideas for a future use of SM in PDP as a tool for PM. The opportunities, which are meant to be identified, will be weighed up against potential risks and weaknesses of the incorporation SMA in PM.

II.   WHAT IS SOCIAL NETWORK ANALYSIS AND SOCIAL MEDIA

Writing in 1857, Karl Marx (1939: 176) puts it nicely: "Society does not consist of individuals, but expresses the sum of interrelations in which individuals stand with respect to one another". Social network analysis (*SNA*) has appeared in the social sciences for nearly a century (Borgatti et al. 2009). A network is a set of nodes interrelated by dyadic ties. The nodes, or actors, can consist of any kind of entity, from individuals to collectives (e.g., organizations, countries).

SNA is the mapping and measuring the relationships and flow among the information entities [10], the technique used to study the relationships among actors, such as people or organizations. SM can be defined as a digital media or technology allowing their users to share information and other contents individually or within a community, a tool that link individuals by providing a common platform for discussion in one centralized and easily accessible place. Such tools also create opportunities to move beyond information sharing and venting personal frustrations to real action by motivating, inspiring and organizing users [25]. It is difficult to clarify what is technologically distinctive about SM technologies. The broad term has been used to apply a variety of technologies, including wikis, blogs, micro-blogs, SN-ing sites, virtual worlds, video-sharing sites and many others [13]. Researchers updated a widely used definition of SN-ing sites to highlight four features shared by many SM technologies: *digital profile, relational ties, search and privacy, network transparency* [12]. To sum up let us point out that *SM in PM is:*

- a medium for interactive social interaction using communication technologies where INTERNET is a platform;
- a community based, interactive content, user generated content;
- a form of social software which fosters engagement and interaction [23];
- a community and collaboration based technology that is merely a facilitator tool.

III.   PROJECT MANAGEMENT 2.0 AND SOCIAL PROJECT MANAGEMENT

In response to PM challenges, project teams have turned to technology to attempt to streamline collaboration. The most visible recent development in technology-enabled project collaboration is the movement called "*Project Management 2.0*" (PM 2.0) which has been defined in a number of ways, but the basic definition of the PM 2.0 is the use of Web 2.0[*] technologies to enable project teams to better share information, increase collaboration and to empower teams to get things done.

However, it is difficult to define what makes a particular technology a PM 2.0 technology. The most common example used is the Project Wiki and blogs where all of the team members can update as necessary any project information (the tasks required, the status of tasks, project roles and responsibilities, etc.). INTERNET search engines and Wi-Fi[**] are general-purpose technologies as it is hard to define when their use is for PM.

The researchers of the Trilog Group Whitepaper [27] advocate that Social project management (SPM) goes far beyond PM 2.0 by recognizing that project teams are only part of the project community[***] and that a broader project community exists, both formal and informal, and that the engagement of that community is the key to building trust and knowledge. SPM makes it possible the engagement of the full SN of the project community, in order to achieve the project's goals. Rather than focusing merely on the needs of each project team individually, SPM strives to focus on the needs of an organization, by engaging the largest number of appropriate SN ties in accomplishing the goals of all the projects of an organization.

Characteristics of SPM

- Engaged - deeply connecting people, including customers, employees, and partners, to be involved in productive, efficient ways;
- Transparent - removing boundaries to information, experts and assets, helping people align every action to drive business results;
- Nimble - speeding up business with information and insight to anticipate and address evolving opportunities.

SPM builds on the gains made by PM 2.0 by enabling teams to bring their core PM process online. Then, by applying the SN-ing (i.e. Facebook) paradigm to the core business process, SPM Software makes the project process visible to everyone, both inside and outside the team. Without sacrificing traditional PM rigor, SPM gives the internal and external project community visibility into the events of the project, as they happen, allowing teams to achieve transparency as to project progress and status, and to enable smarter and more efficient collaboration. Further, using the "re-tweet" paradigm, project teams can publish issues, needs, and questions to the wider corporate (and external) SN, allowing for anyone who is interested to engage socially with the team to assist in accomplishing the project and organization's goals.

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[*] World Wide Web sites that use technology beyond the static pages. A Web 2.0 site allow users to interact and collaborate with each other in a SM dialogue as creators of user-generated content in a virtual community.

[**] Is a local area wireless technology that allows an electronic device to participate in computer networking using 2.4 GHz UHF and 5 GHz SHF ISM radio bands.

[***] Project Community – the entire social network related to a project, including the team, stakeholders, management, and other interested parties.

SM has not only become an integral part of people's personal lives but also embedded itself into various business processes (Fig. 1): it is playing a critical role in the digital marketing strategy of a business, is an instrumental in improving the customer engagement, is also used to astute project managers as a part of their management strategy.
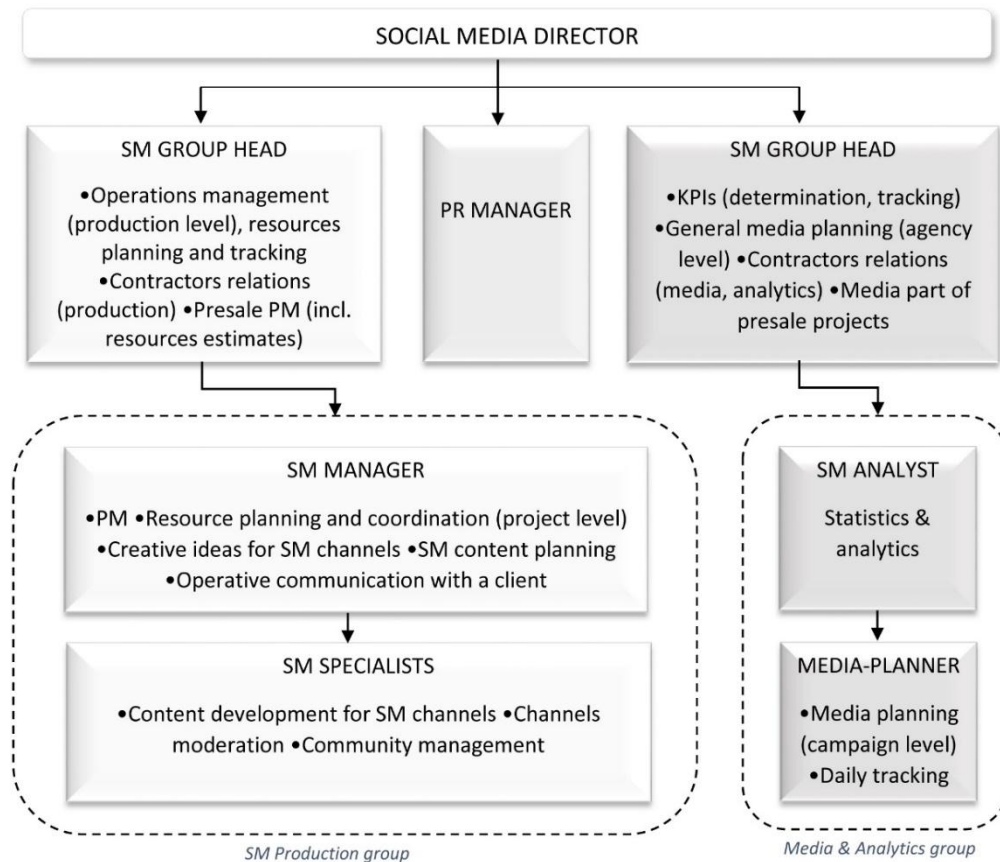

Fig. 1. A business model with integrated social media

These so-called SM-monitoring and analytics tools (e.g. commercial software tools[*]) are mainly developed for companies and organizations to gather information about their product placement and general business monitoring, the analysis and identification of new trends, as well as for their broader social marketing campaigns.

IV.   PROS AND CONS

Traditional PM practices create defined and hierarchical communications paths. SPM recognizes that while these traditional communication and collaboration channels may reduce information and communication overload, they are too slow, filter out important information, and do not allow the right information to get to the right person.

There is a huge amount of PM software for the enterprise. Even so the essence of great PM is ensuring sustained useful interactions between the team, away from the software [1]. SM ensures communication within the team and between the project stakeholders. The idea behind incorporating SM into a PM process is to improve collaboration and create a more conducive environment (Fig.2) wherein problems are solved faster.

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[*] Such as Opinion Tracker, Simplify360, Radian6, BrandsEye, Brandwatch Tool and many others (cf. Goldbach Interactive Social Media Monitoring Tool Report 2012:
www.goldbachinteractive.com/aktuell/fachartikel/socialmedia-monitoring-tool-report-2012)
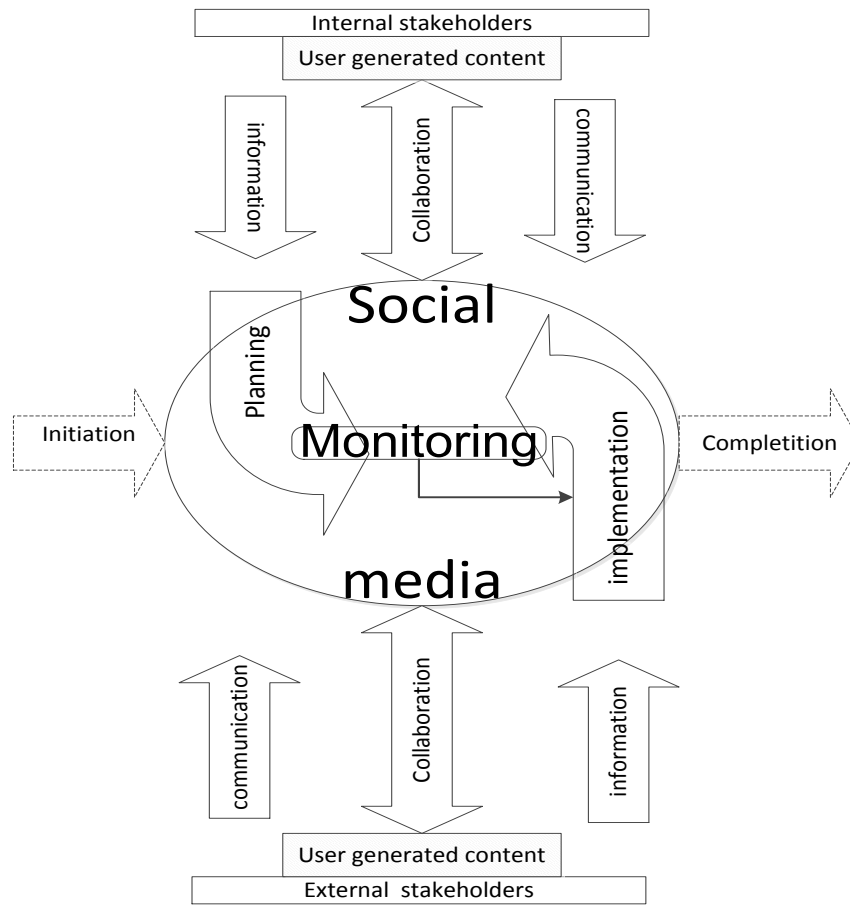
Fig. 2. Environment of social media for PM

Recently, project team members worked mostly in the same physical space, using PM applications on personal computers (exchange files on floppies, cd or flesh -devices) with weekly team meetings and senior management monthly information updates. Nowadays, project team workers do not depend on the physical space attendance and on the common working hours (eight-to-five). Senior managers have unlimited access to needed project information. Hence, the information exchange between the team members and stakeholders serves as the root source of continued competitive advantage [27].

Using social concepts to improve team communication is an exciting prospect, however, in the research by Rohan Ayyar pros and cons of implementing social into PM strategy are denoted [1]. Contrary to the declaration that merging SM with PM is a challenge, the author previses from using SMN since a SN's privacy features will hardly ensure data safety toward social integration in PM and as a result, it can become one of the bedrocks of a results-driven PM process. He concludes that SN should not be seen as an alternative to PM software, but a means of enhancing the channels of interaction that improve coordination between stakeholders of the project.

The use of Web 2.0 technologies to enhance project collaboration and coordination, assisted greatly in enabling teams, especially virtual teams, to collaborate and share information. However, these tools, such as wikis, blogs, online file sharing, while enabling participation and automation, do not assist the PM-er in the management of the core PM process, and in many ways make his work more difficult [26].

One reason why most organizations are hesitating to incorporate SM in their traditional communication strategy is that the mono-directional flow of information evolves into a multi-directional flow where the population can not only publicly respond to the news-issuing organization, but where individuals can communicate with each other without the organization being able to act as a regulating force [17]. SPM recognizes that the members of the project community need constant access to certain key information: project goal, set of tasks, the team members' skills and knowledge, required to complete a task, role assigned to each task, changes in the environment, that affect the team or the deliverable, specified source to get needed information and assistance. Having access to the information listed above is every project team's goal, however it is difficult to achieve in practice as the ability to access and search content through various applications raises questions about the necessity to protect content from others' access. Hence, privacy has become a crucial issue as the use and adoption of SM has grown [8].

Another issue of SM incorporation in PM lays in the existed between groups negative ties which have been presented by Everett and ABorgatti in *negative clique concept* [11]. Thus, we consider this concept crucial for PM that involve using negative cliques to guide interventions.

Additionally, user low technology literacy and lack of clear process are the common barriers of SM use in PM according to Joseph Guarino [9].

The researchers underline several key aspects of SMA usage:
- *Legal aspect* - it is data protection and privacy issues [11];
- *Ethical challenges* - is referring to awareness raising measures of all stakeholders of an SMA tool, notably of the end users [16];
- *Cultural aspects* – languages, written dialects, communication habits between men and women - which we consider as important management reality in nowadays Global economy.

McKinsey estimates that the economic impact of SM on business could exceed $1 trillion, most of which is gained from more efficient communication and collaboration within and across organizations [5].

Versus to Rohan Ayyar there is an assumption for the incorporating SMN into enterprise life that employees activity in SM within their personal time as well as at work based on SM leaders' actions:
- get vital snippets of information out to audiences fast (Twitter);
- naturally build groups with common interests and synergies (Facebook, Google+);
- spontaneously create space to exchange ideas and opinions (Meatballwiki);
- make information easy to assimilate (YouTube, Vimeo);
- attract interest and support for suggested projects (Kickstarter, Indiegogo).

Note on PM benefits from the use of SMN:
- project visibility and engagement with management and stakeholders;
- shared knowledge and ideas;
- improved organization and deployment of project teams, with more flexibility and productivity;
- faster, more effective collaboration yielding better decisions and higher quality output.

Obviously, the major reason why SM is now so important in successful project team is that it corresponds point by point to today's PM needs.

V. CONCLUSION

Social media is not a remedy for all problems that project management is confronted with. Therefore, they need to be seen as an addition to the traditional information and communication channels, not as a substitution. Given the fact that the INTERNET and mobile handheld devices are constantly pushing towards omnipresence, the incorporation of new media as an additional channel is only a matter of time, though their use will vary according to available resources, organization types, and other contextual factors (e.c. - cultural or legal background). We would also to note:

I. Source to high performance is the recognition by the team that the success of the team is of primary importance and that this success is based on the individuals openly exchanging knowledge for the benefit of the solution. The relationship between knowledge exchange and trust among the members of the team is crucial.

II. Different social networks have different working models[*]. Social strategy is specific to different organization according to the business objectives, challenges and corporate culture. Exclusively, the appropriate network with the right kind of model should be integrated within the existing communications architecture of the project management process to promote the professional interaction dynamics within project management team.

III. Social media and Web 2.0 applications have not only become an integral part of everyday life but also create new possibilities for the advancement of project management by the strategic collection and exploitation of information, communication and interaction between stakeholders of a project and team members. The use of Social media changes business models (e.g. outsourcing) as the technology options are abundant and cost effective. A Social project management is not just a project management that uses a Facebook page and a Twitter handle, it is - one that embraces and cultivates a spirit of collaboration and community throughout its organization both internally and externally.

IV. As outlined in this paper, the sanctity of a project can be undermined if the inflow, interpretation and outflow of project information is not properly controlled and managed. Thus, Social media policy

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[*] While Twitter is founded on a micro-messaging model, Facebook is driven by shares, where content is distributed by users, LinkedIn is configured for professionals with its features wherein the connections take place in a formal environment.

should be followed up by each organization beginning with the establishing a guidelines, much like an Acceptable Use Policy sets of use, which must be concise and clear that explain a clear focus and purpose, IP[**] (Copyright and Trademarks, etc.), dealing with confidential and proprietary info, security issues.

The social network model for project management outlines an innovative and transformative approach to enhancing project team performance. The historic approach of emphasizing a continuing refinement of tasks as a basis for achieving high performance teams is not a viable approach to achieving significant performance improvement in projects. Rather, it is time to recognize the key role of individuals within project networks, including the communication and trust that is the basis for achieving high performance results. The social network model addresses fundamental research questions in this domain through the integration of social science and engineering concepts.

SM is not a technology, it is a culture, created, supported and enabled by various technologies and applications that are constantly growing and changing in which people think, act, and communicate in a completely different way. The social networks model demonstrates that new technology combined with a greater understanding of project networks and interdependencies provides a foundation for achieving high performance outcomes.

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[**] IP (internet protocol) - standard which regulates computer connections on networks that make up the Internet (Computers)