

Social Media Collaboration in Software Project Management

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Abstract—Social media has become part and parcel of the world of today. These days, it's still the most talked about thing. It cannot be overlooked because it plays a key role in our business functions such as marketing and advertising. Social Media is all about collaboration on files, ideas and projects that help users and stakeholders to successfully complete the project. It influences how people communicate, develop relationship, build trust, increase transparency and provide cultural context. The fundamental aim of this research is to investigate the capacity for project management in social media. This paper explains how social media is used for project management knowledge areas and process groups. Also this research aims to identify SM tools that can be suitable for project management processes. Two studies Delphi Study of three rounds and structured case study interview are used to investigate the impact on the performance of the project team and process robustness. These studies support social media use by accessing the contribution to relationship building, trusts, coordination and cohesion.

Index Terms—Social Media, PMBOK knowledge areas, Delphi Study, Structured Case Study, Team effectiveness

I. INTRODUCTION

Project consist of number of phases with each generic and specific activities. In PMBOK project management is defined as “application of knowledge, skills, tools and techniques to project activities”. Social Media basically is a communication network which has taken over the world in every aspect. Now it is involved in disseminating information, project management along with the communication. It has made the communication between user, developer, stakeholders and customer stress-free. It keeps the team updated about project progress, exceptions, meeting schedules and so on and so forth. Structured case study and Delphi study have been used analyze the role of Social Media in the field of project management in today's world. Delphi study deals with the planning, managing and controlling communications regarding project management. And structured case study is the evolutionary form of unstructured case study. It is a methodological study that helps to collect information needed to determine the trend or problem. So here it is being used to check the trends of Social Media in project management.

II. LITERATURE REVIEW

This paper [1] states the influence of social media usage in project management. The data in respective paper was collected via surveys, hypothesis, questionnaires and literature

reviews. It shows that social media networks help to interact with stakeholders, disseminate data, and enhance the value by reducing the search and coordination costs of connecting parties. But on the same time it limits the independence of the people working together and can create negative effect on project performance. The study shows that Facebook is the highly ranked network for interaction in case of project management. For results and analysis SPSS program was used. 93Social Media is playing extraordinary part in Software Project Management. Social Media has global impact on communication. Formal and informal communication will be carried out to use social media tools. This paper [2] aims out the statistical and hypothetical analysis of social media preferences that how these opinions will help the software project management team. Also this paper describes the current digital and social media tools used for software project management. [3] Social media has reduced the dehumanized effect and facilitated community building and brought people closer. This paper has compared four types of social media networks, namely, Blog, Facebook, Google+ and enterprise comparative tool and their effect on software project management. Software projects are developed globally and all the projects probably include common management activities that are; Initiation, Planning, Organizing, Staffing, Controlling and Terminating. These projects are now handled by virtual teams. These teams involve at least one person from the outer time or cultural zone who interacts via social media. Facebook helps these teams and PMI to connect and for valuable advices of expert project managers. Blogs help these teams to update the project performance and in the better understanding of the viewpoints. Google+ has made the documentation sharing, communication, and planning of the project easier. Online collaborative tools like Jing, Dropbox have provided work suites, project managers and collaborative productivity. The paper concludes that social media plays a positive role in success of a project. The regression testing has shown that virtual teams and social media both have a positive effect on software development projects. Social media in this era, is working gem for the field of project management. The growth of social media platform is increasing day by day. This paper [4] basically define growing software industry trends to support project management using social tools and media. Social

media interaction is potentially a valuable resource for building trust among project team members. Social network within and outside increases the collaboration by reducing the search and coordination cost. Social Media usage is an imperative skill for enhancing efficiency and productivity. Other than sharing the personal life details of people social media, enhances the collaboration and communication in commercial and educational settings. Social Networks have some desirable features such as status update, positive reinforcement, linking IM support, document support and video support that impact the workplace activities. Among these features status update is highly used. The paper [5] has concluded that social media networks are a better source of learning and disseminating information within the workplaces and the educational sectors than the wiki sites. They provide project stakeholders a quick access to specific information. The paper [6] determines the important social media tools for project management process groups along with the project management knowledge areas. Paper basically aims at describing the Delphi approach which is used to explore why and how SM is utilized in project management. The result of this study facilitates a qualitative analysis of social media features and their effect on knowledge areas. Paper [7] describes as it is the age of communication and the modern source of communication is the social media. People may even have one to one interactions by the video calling technology, yet trust issues are the priority concerns. The masses can not only communicate interpersonally but group communication is also facilitated. Besides social media opens a route for mass communication. Trust here is regarded as the privacy concerns and not being vulnerable to another party's actions. There are different kinds of privacy concerns different people have, and it is very much important to locate them for better social media communication. When the trust concerns will be fixed, the communication will automatically be enhanced and will be influential too. This paper [8] discuss the using of social media communication instead of traditional media such as interactive, push and pull communication between project manager and team members. Communications software and collaboration tools can help in stakeholder communications and promote stakeholder interest in project. The paper explores the suggestions for improving social media interaction and explains how these social media platforms can help with project management. [9] Social media is a tool that has a vital role in Business Process Management and it not only plays its part but the beneficial part. Business Process Management can be defined as the art of managing business processes, and before starting any business process a documentation is done and it is made sure that the documentation is compatible with the stakeholder. Social media is apportioned into many categories according to BPM, and these categories are very fruitful in order to collaborative project management. These include virtual social worlds, forums, ratings, podcasts and collaborative projects. This concludes that social media applications are enriching for BPM. Social media plays an important part in risk management

knowledge area. This paper [10] shows that social media communication information provides crisis-related contexts with situational awareness. Work also aims at two-way communication between leaders of organizations for community and emergency response. This concludes that social media behavior is tied to the hazards.

III. ANALYSIS

This research will provide a mapping of categories of social media that are most and least used by PMBOK knowledge areas and process groups for project management activities. This paper also identifies how SM affects the performance of the project team.

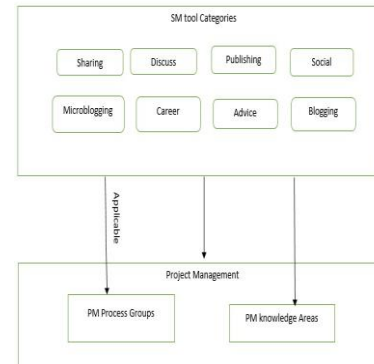


Fig. 1. SM tool categories and Project Management

This research is using a qualitative multi-method approach. To investigate the robustness of processes, the use of two different data collection techniques and corresponding analytical procedures is used. These two proposed studies are discussed below.

A. Delphi Study

This study was selected as it provided a mechanism for collecting inputs from participants anonymously without realizing that each responded to the same questionnaires. It is the most suitable method to collect data on any topic that requires input from experts in project management. Three survey rounds have been performed. A third round is testing the first two outliers. Most of the questions are meant to provide objective data. After second round similarities were determined and outliers were identified to allow the researchers to proceed with third round of Delphi enquiry-outlier's verification, which included interviews to gain further insights into the use or non-use of SM tools in project management. The benefits of a Delphi analysis are that this is an easy-to-use methodology, does not require advanced mathematical skills because feedback is received anonymously, privacy is maintained, thus enabling the elimination of barriers to interaction such as disagreement with the views of other participants, changing one's opinion based on group reaction or expressing an unpopular view. Delphi Study is sub divided into three rounds. The first part of research focused on the degree of use of SM tools for project

activities. Second survey focused on discussing the results of the first survey with the respondents and hitting a select collection of categories that expressed significance. Participants were asked to either agree or disagree with the initial survey's collective findings. If any disagreement existed, respondents were invited to explain why. Upon completion of both rounds 1 and 2 the researcher found several outliers that needed further study. This outlier confirmation established the Delphi Study's third round. Skype meetings were held and the questions and opinions of the participants were discussed.

B. Structured Case Study

After the Delphi Study clarified the fundamentals of SM use on project activities, the research further investigated the impact of SM on the performance of the project team and the availability of processes that support SM use through the Structured Case Study method. The Structured Case Study method was used to determine organizations work efficiency and readiness to use SM tools in project management activities. The findings led to the determination of the participating organizations maturity level. Interviews with respondents were performed and their observations were interpreted as the basis for the examined phenomenon. The study also explored the individual views of how SM influences team performance. The study is divided into two rounds: Research Instrument Three has been developed to understand the phenomena involving research into the availability of SM policies and procedures in organizations and Research Instrument Four that analyzed factors that should be taken into account when evaluating or determining the capacity of processes that support SM use in projects

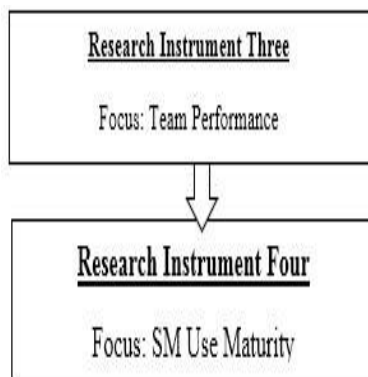


Fig. 2. Data Collection Activity

IV. SOCIAL MEDIA FINDINGS RELATED TO PROJECT MANAGEMENT KNOWLEDGE AREAS WITH HELP OF PROPOSED STUDIES

Two proposed studies used in this research is basically used in some effective knowledge areas.

A. Project Communication Management

Three process tasks are distributed across the scheduling, implementation, and tracking and managing process groups

within project communication management. These three activities are: planning communication management, managing communications and controlling communication. The findings suggest that the Social Networks, Discussion and Sharing SM categories are used most frequently in this area of knowledge. All stakeholders need to be considered and their information requirements identified in the development of communication management plans. Significant effort and time are needed for these activities. The plan's output would determine the level of productivity achieved in meeting the information needs of stakeholders. It helps to make work commitments flexible. Project interaction management will certainly be improved with such quality and benefits from SM devices. For example, project team members are likely to rely on social network tools like WhatsApp and Instant Messenger to facilitate communication with their stakeholders. Dropbox can be used for convenient storage of large documents.

B. Project Stakeholder Management

Within project management stakeholders, four process activities are spread across the initiation, planning, execution and monitoring and control process groups. Responses indicate that posting, social networking and publishing SM categories are most commonly used in this area of knowledge. The category sharing is mostly used for initiation and scheduling operations, while the control stakeholder engagement operation falls within the Publishing classification. Slide share, Instagram and YouTube, for example, can be used to upload interactive media that intended stakeholders can view.

C. Project Human Resource Management

Four process activities are spread across the planning and execution of process groups within the knowledge area of project human resources management. The findings suggest that the SM categories Social Networks, Sharing, Discuss and Career are most often used in this knowledge area. This area of expertise is the only field where the Career class is widely used, and recruiting practices can be easily mapped. This is an effective measure for opening up jobs across social networks to advertise. LinkedIn is the best example of this finding.

D. Project Time Management

Seven process activities are spread across planning and monitoring and process control groups for the knowledge area of project time management, with most process activities occurring in planning. Responses say that SM types of Communication, Debate, Publishing and Event Organizer are most commonly used in this field of knowledge.

E. Project Procurement Management

Four process tasks are distributed across the scheduling, implementation, tracking, control and closing process groups for the awareness field of project procurement management.

Process activities in this field of knowledge have low use of SM tools compared to other areas of knowledge. Example of this finding is MS Office Suite of products that has a feature whereby documents can be encrypted with passwords.

F. Project Risk Management

SM tools in the Discuss category are mainly used in the planning process group. This could be due to the many meetings and review sessions to be conducted in order to constantly define and evaluate risks. The sharing SM category is relevant for planning and monitoring and controlling process groups while the planning process group uses advice in the process activity of plan risk responses. Risk management is a critical area of project awareness where all risks inherent in the project need to be identified, measured and evaluated with appropriate responses. If the project team fails to identify the project's vulnerability and risks, it may later have a serious impact on the project. Tools like TripAdvisor, Yelp! And Customer Lobby may be referred to in deciding the best response plan to tackle given risks.

V. SOCIAL MEDIA FINDINGS RELATED TO PROJECT MANAGEMENT PROCESS GROUP WITH HELP OF PROPOSED STUDIES

Based on all of the above findings related to knowledge areas the research concluded the most frequently used SM category for PMBOK process group.

| Process Group | Top three SM tools category | | |
|----------------------------|-----------------------------|---------|-----------------------------|
| Initiating | Sharing | Discuss | — |
| Planning | Discuss | Sharing | Publishing, Event Organiser |
| Executing | Social Networks | Sharing | Discuss |
| Monitoring and Controlling | Sharing | Discuss | Publishing |
| Closing | Publishing | Sharing | Discuss |

VI. CONCLUSION

The Delphi method's and structured case study goal is to reduce a group's range of responses and get closer to the consensus of project experts. Many tools are introduced into the digital market on a daily basis in the rapidly changing SM world, and it is impossible to list all of them. The aim of this research is to identify the most commonly used SM categories not to name the exact tools.

ACKNOWLEDGMENT

This paper is written as a semester project by Sania Imran and Faiqa Mehboob under the supervision of Mehreen Sirshar

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