

Examining the Role of Communication in Transforming Project Management World

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UNDERSTANDING THE ROLE OF COMMUNICATION IN TRANSFORMING THE PROJECT MANAGEMENT WORLD

ABSTRACT

Project management has experienced new conceptual developments over the past few decades. The developments and transformations have focused on two main project objectives: schedule and cost. To meet project objectives, the project manager relies on information to communicate with the project team and stakeholders. Efficient information and communication management systems can help project managers to track cost and schedule and to identify issues, risks and other challenges for project completion. This research examines the role of communication in project management and explores the key drivers of effective communication and suggests that developing a front-end planning information tool could not only help project managers to meet communication needs but also be useful in transforming the project management world.

Keywords: Communication, Project Objectives, Leadership, Culture, Stakeholder, Integrated Process System.

INTRODUCTION

Project management is an evolving process aimed at delivering successful projects. Since the 1940s systematic tools and techniques have been employed to better manage projects (Sylvain & Christoph, 2010), and from the 1970's advancements in technology and the use of computers projects started being managed through software like Oracle, PRINCE2 and CCPM (Seymour and Hussien, 2014). There are four periods through which the project management evolved: prior to 1958, 1958 – 1979, 1980 – 1994, and 1995 to present (Kwak, 2003). Each era saw the evolution of a new concept that brought transformation to project management. Prior to 1958 the Gantt chart was introduced to illustrate project schedules. Between 1958-1979, the program evaluation review technique (PERT) or critical path method (CPM) was practiced, which remains an essential tool used in project management for scheduling project activities in conjunction with PERT. During the third era, from 1980-1994, the project world saw the emergence of advanced

technologies and the application of software that were used to manage projects focusing on schedule, cost, quality and risk management. The fourth era, from 1995 to the present, technology continues to be the prominent force in driving projects. Critical Chain Project Management (CCPM) an alternative schedule tool to CPM was introduced by Eliyahu M. Goldratt in 1997. This shows that all the developments in management evolved around schedule and cost: Gantt chart, PERT, CPM, and CCPM. There are limited research exploring how planning information flow can help meet the communication needs of the project. There is an urgent need of research to establish that planning information flow will help deliver successful projects. A Project team can plan information using a front-end planning information tool. A front-end planning information tool would help the project team to plan information flow at the planning stage of the project. Planning information using the information planning tool could help address communication issues and mitigate communication risks. Managing communications effectively and efficiently would drastically improve project performance and chances of project success (Gina, 2013) as 40% project fail because of poor communication (Leybourne, Kanabar, & Warburton, 2010). This suggests that there is a dire need of research to establish that planning information using a front-end planning information tool is critical. This will allow managers to plan, execute, monitor and control information and effectively communicate with team members and stakeholders to complete each construction activity and to meet project objectives. The future may see a transformation in project management with the evolving significance of communication.

This paper explains the role of communication in project management and how information and communication influences projective objectives. It argues that project manager relies on information and communicates with the project team and the stakeholders to meet the project objectives. Without which tracking project cost and schedule and providing the stakeholders with project updates and work information reports would not be possible. This paper suggests that communication is a key to achieve project objectives. The next section introduces to the key drivers of communication. Addressing and managing these key drivers is critical to effective communication. If these drivers are not addressed they can cause barrier to communication which in turn impair project objectives. This research identifies a gap

and explains the importance of planning information flow to meet communication needs of project useful to meet the project objectives. It is then followed by conclusion.

ROLE OF COMMUNICATION IN PROJECT MANAGEMENT

Communication is an integral part of project management and plays an important role in project success (Muszynska, 2015). The importance of project management and communication processes cannot be understated in the success of any project (Müller & Turner, 2010). The project manager's communication is primarily between the project team and the stakeholders (Rajkumar, 2010). Research by the project management institute (PMI) finds that 55 percent of Project Managers agree that communication with the stakeholders is the most critical success factor in project management (PMI, 2013). Management, as a key stakeholder, focusses on cost, schedule and contractual risk due to their own interest as they have a stake in the outcome of the project. Due to their interest they set the project objectives and monitor progress of the project intermittently (Rajkumar, 2010). To achieve the project objectives, the project manager relies on the information and communicates with the project team and the stakeholders regarding timing, cost and quality as well as any identify issues, risks and challenges for project completion (Pitts, et al., 2012). The completion of all the project activities have exponentially increased the exchange of information and knowledge between the project team and the stakeholders. The project manager provides regular project updates, status and work information reports to the stakeholders. Without proper information and communication system cost, and schedule tracking would not be possible. The project would lack information to predict future project status and would lack strategy to manage the project objectives within its parameter. Figure 1 show how project objectives are informed through work information data, project status, project update and work information reports, and this information is dependent on an effective information and communication system.

Insert Figure 1 about here

It is observed that communication in project management is not efficiently followed and practiced by project managers (Monteiro de Carvalho 2013). Projects fail due to poor communication and project

manager's work involves 90% of communication (Leybourne et al, 2010). A Bull survey reveals that 40% of projects fail because of poor communication, and is ranked as the third most frequently cited reason for project failure. It demonstrates that communication is key to achieving project objectives. An effective information flow and communication system helps management in the following ways:

- 1) It enables management to integrate data from various processes and provide information for business performance across multiple projects.
- 2) A well-informed communication system provides access to Project Performance to manage risk and the required information to respond promptly to changing environments.
- 3) It provides Scoreboards/Dashboards as it transforms information into one centralized place in the form of graphs, charts and indicators.
- 4) It allows management to mitigate risks and strategically analyze what could happen in the future that impacts budgets and forecasts, and allows informed data-supported business decisions.

The role of communication in communicating effectively is key to project success (Gina, 2013). There are key drivers of communication that influences the information flow. Addressing the issues related to the key drivers of communication is a prerequisite to use the information flow model for effective communication. It is also critical to understand how cultural diversity influences these key drivers of communication. Cultural diversity contributes to communication complexity that cause project failure.

A review of the literature identified the following key drivers of communications: leadership skills (Luthra, 2015), cultural diversity (Hall, 1959), stakeholder management (Gina, 2013), integrated functional processes (Everse, 2012) and knowledge transfer (Gumus, 2007). Research suggests that if these key drivers of communication are not managed well, they can disrupt information flow and make communication ineffective.

KEY DRIVERS OF COMMUNICATION IN PROJECT MANAGEMENT

The first driver of communication is leadership skills. Since 90% of the project manager's work involves communication (Leybourne, Kanabar, & Warburton, 2010), and communication is driven by effective leadership or vice versa (Luthra, 2015), it is critical for the project manager to have leadership skills to be

able to communicate efficiently and complete the project successfully. Skilled leadership and effective communication are critical success factors in project performance (Turner and muller,2005 as cited in Anantatmula, 2015). Both are integrated (Luthra, 2015). It is important to understand the impact of leadership on communication as Leadership impacts communication.

It is noted that project managers should have leadership initiatives, interpersonal skills, cross cultural competence, coaching and motivational skills, resolving team conflict capability, and effective stakeholder communication skills to complete projects successfully. Deficiencies in leadership skills causes communication issues (Oline, 2015). Most project managers lack intercultural competence, cross-cultural communication skills and leadership skills to manage cultural diversity in project management (Obikunle, 2002). A Leader must possess interpersonal and relationship skills. Leadership is built on relationships (Kouzes, 2014). A survey of 250 project managers identified that the most critical success factor for project success is ‘relationships’, surpassing schedules and costs (Kuchta, 2013, p3). Relationships are built on trust which is an essential component for effective communication between project team members and project leaders. A trustworthy leader motivates teams to achieve project goals. Individuals want to follow a truthful and ethical leader. Project leaders manage a diverse set of people coming from varied cultural backgrounds which can cause misrepresentation and misinterpretation of ideas and misunderstandings, and therefore result in mistrust and conflict that ultimately impacts communication (Obikunle, 2002). In such a scenario, communication becomes challenging due to increasing complexities and cultural diversity. If this issue is not addressed, poor leadership style would impact communication that can lead to project failure. Leadership style influences communication process (Luthra, A. 2015). Strong leadership skills will overcome these shortfalls and improve communication to lead the team towards project success (Maznevski, 2007). Thus, leadership impact the effectiveness of communication (Oline 2015).

The second driver of communication is cultural diversity. According to Hall “Culture is communication and communication is culture” (Hall, 1959). Communicating effectively in a diverse and cross-cultural environment is imperative to achieve project objectives. People from different cultures have different ways of accomplishing tasks (Kiss, 2005). They differ in their values and beliefs. They pursue task differently as

they vary in perception, relationship building, assertiveness level and time-orientation (Kiss, 2005) It is therefore critical for project managers to manage cultural diversity in today's complex business environments to avoid a serious communication issue. Moreover, individual culture is influenced by national culture, race, religion and gender and how people behave and communicate in that cultural context (Kiss, 2005)

Cultural factors are inextricably linked with key drivers of communication. It influences Leadership, Stakeholder relationship, Knowledge sharing and Integrated processes. Cultural diversity possesses distinct leadership challenges for project managers (Eberlien, 2008). Cultural factors can impact knowledge transfer. Culture can influence one's understanding, judgment and action (Lee and Yang, 2000 as cited in Al Alawi et al, 2007). It plays a significant role in the way leader's transfer and shares knowledge to help the project meet its objective. People can cause a barrier as they can be hesitant to transfer and share knowledge due to cultural differences (Hauke, 2006). Culture also significantly influences the stakeholder relationship. In today's era of diversity, stakeholders are from different cultural backgrounds. Cultural biases, different usage of languages, attitudes, and gestures may impact stakeholder communications (Brisline, 2008 as cited in Gina, 2013). Culture also influences integrated processes and communication system as it could be impacted by behaviors of people, as people come from different cultural backgrounds (Everse, 2012). Therefore, it is critical to understand how cultural factors influences key communication drivers and communication process. As communication is an integral part of project management (Muszynska, 2015), addressing cultural issues would improve communication and success rate of project. The third driver of communication is stakeholder management. Stakeholder management has especially gained its importance in today's complex business context. Cultural diversities affect effectiveness of stakeholder communication. Communication is more challenging as the stake holders are in different locations, countries, and can be remote or virtual stakeholders. Significant communication takes place with stakeholders from different cultures as compared to homogenous stakeholder groups (Luckmann 2016, p.92). Communication is primarily between the project team and the stakeholders (Rajkumar, 2010) and majority of communication takes place between them at all stages of the project. Poor stakeholder

management can cause barrier to communication between the project team and the stakeholders. Ineffective communication can result into misunderstanding, conflict, unhealthy relationship and impact project success rate. Therefore, a strong stakeholder management can ensure effective communication and improve the chances for project success. It is critical to perform stakeholder analysis at the planning phase of the project. It helps to identify the information flow for each type of stakeholders at each stage of project as stakeholders interacts and influences each other in different ways (Jepsen & Eskerod, 2008) Not performing stakeholder analysis at the planning stage will impact the information flow and communication with stakeholders. Stakeholder analysis is crucial to manage stakeholder expectations (Jepsen et al, 2008) because cultural biases, different usage of languages, attitudes, and gestures may impact stakeholder communications (Brisline, 2008). The project manager must have communication, management and negotiation skills to manage stakeholder expectations and meet their needs, address issues, resolve conflict situations, and achieve project goals. Stakeholder analysis helps in identifying cultural factors that disrupts knowledge transfer and stakeholder communication (Luckmann, 2016 p90). Research suggests that there is a need for future research to infuse stakeholder analysis and enterprise resource planning (ERP) as this can significantly contribute to information systems application (Mishra, 2013, p9) and communication effectiveness. Planning communication well will get all stakeholders involved to meet project needs (Gina, 2013).

The fourth driver of communication is integrated business processes through software applications. Communication is best driven when the project team uses information within integrated business processes and systems to communicate between themselves and other stakeholders to complete project activities (Back & Moreau, 2001, p1). An automated business process system provides managers with accurate data and enable them to plan, report, manage a project efficiently and deliver value to clients. When a project delivers value, clients receive benefit and the performing organization receives business profit. On the other hand, a disconnected functional system results in business process inefficiencies that inhibit communication, productivity and profitability. To improve performance an organization must integrate business processes, resources, and communication to achieve desired goal (Boev et al., 2008)

The fifth driver of communication is knowledge transfer. Knowledge transfer and sharing is critical for effective communication and firm success as it can foster the firm's development (Syed-Ikhsan & Rowland, 2004). Communication is driven by knowledge transfer in an organization where there is skilled leadership, integrated processes, strong cross-cultural skills, diversity, and good reward systems (Gupta & Govindarajan, 2000). A good organization culture is formulated when lessons learned from mistakes are addressed and knowledge is shared among members as a process of continuous improvement (Park, 2004). Interpersonal trust is high because knowledge sharing is more effective in firms. Knowledge repositories are shared through integrated information systems containing data and processes. However, cultural differences can impede effective knowledge transfer in an organization in spite of the existence of an established communication system. Even with a sound communication system and strong internal conditions, people may be hesitant to share and transfer knowledge because of lack of trust, fear, high esteem, and discrimination. It is a challenging task for managers to motivate, encourage and promote a culture in the organization in order to share knowledge within the process system (Al Alawi, Al-Marzooqi, & Mohammed, 2007). In Summary, figure 2 shows the key drivers of communication.

Insert Figure 2 about here

It should be noted that the above key drivers of communication are interrelated. If any of them is not managed well, they can impact communication. This relationship becomes more complicated with increased business complexities. Coping with complexity has become a challenge to sustainable growth in a competitive business environment (Ozel, 2013). One of the main drivers of increasing business complexities is diversity (Maznevski, M. 2007) which impacts communication. An organization faces challenges of diversity from both internal and external factors (Maznevski, 2007). Complexities occur when there are changes and uncertainties in both the internal and external factors (Cavanagh, 2011). "Today's complexity is only expected to rise" (Palmisano, 2010). For organizations, one approach to respond to external pressure from the constantly changing environment is to develop its internal capability (Cavanagh, 2011). Firms should have strong knowledge of business processes, procedures, systems, policies, and plans,

and be able to forecast. In addition, firms should display strong culture, and leadership skills to build relationships with team members, stakeholders and clients in order to deliver results and achieve organizational goals (Cavanagh, 2011). Thus, capability development is a key to managing the challenge of rising complexities.

NEED FOR PLANNING INFORMATION TO MEET COMMUNICATION NEEDS

As noted before, communication is key to achieving project objectives. Project objectives can be achieved through effective communication. Communication can be effective if the information flow is planned at the planning stage of the project. A front-end planning information flow tool can make it convenient for the project team to plan the information at the planning phase of the project. It will enable them to plan and manage the information through all the phases of the project. The front-end planning information model could speed up communication and enable the project team to make well-informed decision. Enhancing communication capability could transform the project management world. Absence of front-end information planning tool would continue to overwhelm the project team in managing communication efficiently. Therefore, it entails that there is a dire need of research to establish that there is a need for planning information to meet communication needs of the project that could transform the project management world.

Previous research shows that the objectives of project management mainly focused on the schedule and cost. Not many research indicates that communication is core competence of project management which keeps the project team and the stakeholders well-informed about the project. An innovation in project information and communication system could drastically transform the way the projects are being currently managed.

Project managers communicate with key stakeholders and project team members for project updates to meet project schedule, cost and quality. Project managers depend on information and communication for project updates, work information reports and forecasts to report to stakeholders that intermittently monitors the progress of projects. Without effective information and communication systems, progress monitoring would not be effective. Planning information and communication can enhance the effectiveness of

communication to manage projects efficiently. Project Management Institute (PMI) suggests planning is important and project planning is directly related to project success (Tesfaye et al., 2016). PMI is a globally accredited organization (since 1969) that certifies a person as a project professional to manage projects. In 1987 PMI introduced the project management book of knowledge (PMBOK). PMBOK is a book that guides and provides a fundamental framework for project professionals to practice project management effectively. It covers 10 knowledge areas, 5 process groups and 49 processes (PMBOK 6, 2017). PMBOK affirms the imperative role of planning in project success and stresses that communication has not been emphasized as a significant knowledge area. PMBOK indicates that there are 49 processes in project management. Out of these 49 processes, communication has only 3 processes. Whereas planning is one of the five elements within project management process groups. PMBOK advises that planning includes 24 processes out of the total 49 processes, which is 48.97% of the total process involving planning. Further, out of these 24 processes in planning, communication includes only 1 process. The statistics show that planning has been significantly emphasized in project management while the important role of communication has been largely overlooked.

Figure 3 shows the processes of communication in the management plan. This diagram shows a broad spectrum of communication management in the project management context. It emphasizes managing communication through information systems but ignores the importance of stakeholder communication in the planning phase of projects. This diagram shows the importance of interpersonal skills and modes and methods of communication but fails to address issues that causes barrier to communication. Therefore, more comprehensive research is needed to explore how information can be planned and used as a front-end planning tool for project teams to manage communication effectively. Both planning and communication are critical in project management. A useful front-end information planning tool will not only help the project team and stakeholders to plan information flow and communicate effectively in order to meet project objectives, but also can transform the future project management practice.

Insert Figure 3 about here

CONCLUSION

Communication management is broadly discussed in the project management literature (Dow & Taylor, 2010), and is considered one of the most important critical success factors in project management (PMI, 2013). Project objectives primarily focus on cost, schedule and quality. To meet project objectives, project managers need effective communication management and information systems. While key stakeholders focusses on cost and schedule, project managers communicate with project teams and stakeholders for project status, updates, and work information reports to meet project objectives. If communication is not understood or practiced efficiently, projects run into risk and project objectives are not achieved. Therefore, communication is a key that integrates information to keep all the project members and stakeholders well-informed, manage risks, and pursue project objectives (Muszynska, 2015).

PMI places less emphasis on processes of communication and more on the planning phase of project management. It should be noted that both planning and communication are critical to meet project objectives. Although current concepts of project management have evolved to focus on schedule and cost components, information and communication model may transform the project management world. Therefore, this study aims to fill the gap and develop a front-end information planning tool which is useful to communicate and manage projects effectively. The intended information planning tool will address the key communication issues and allow managers to plan, execute, monitor and control information and effectively communicate with team members and stakeholders in order to complete each construction activity and to meet project objectives. Designing such an information planning tool need to consider key factors that influence communication processes such as leadership, culture, relationships, involvement of stakeholders, integrated systems, and knowledge transfer (Gina, 2013).

References

- Al-Alawi, A. Al-Marzooqi, N. A., & Mohammed, Y. (2007). Organizational culture and knowledge sharing: critical success factors. *Journal of knowledge management*, 11(2), pp. 22-42. Retrieved on June 17th, 2018 from:
<https://pdfs.semanticscholar.org/e9b9/4df7574d7b679dc18af5cc500811a8703c87.pdf>
- Anantatmula, V. (2010). Project Manager Leadership Role in Improving Project Performance. *Engineering Management Journal*, 22(1) Retrieved on June 18th, 2018 from
<http://web.nchu.edu.tw/pweb/users/arborfish/lesson/8761.pdf>
- Back, W.E. & Moreau, K.A. (2001). Information management strategies for project management. *Project management journal*, 32(1), 10-19. Retrieved on June 17th, 2018 from:
<https://www.pmi.org/learning/library/information-management-strategies-pm-5290>
- Boev, S. Surova, E. Nikolov, K. and Zhivkov, V. (2008). Incorporating Collaboration in Business Processes. How to merge business processes and collaboration activities in an efficient and agile way. *SimPro – Business Processes and Simulation Competence Centre (Faculty of Mathematics and Informatics at Sofia, University and Interconsult Bulgaria)*. Retrieved on June 18th, 2018 from:
<https://www.icb.bg/attachments/article/135/IncorporatingCollaborationInBusinessProcesses.pdf>
- Brislin, R. (2008). *Working with cultural differences*. Westport, CT: Praeger Publishers.
- Cavanagh, M. (2011). Second order project management. *Paper presented at PMI® Global Congress 2011—EMEA, Dublin, Leinster, Ireland. Newtown Square, PA: Project Management Institute*. Retrieved on June 18th, 2018 from:
<https://www.pmi.org/learning/library/second-order-complexity-drivers-techniques-6141>
- Eberlein, M. (2008). Culture as a critical success factor for successful global project management in multi-national IT service projects. *Journal of information technology management Vol. XIX, Number 3, 2008. ISN #1042-1319. A publication of Association of Management*. Retrieved on July 07th, 2018 from:
<https://pdfs.semanticscholar.org/380f/de7531c86ed50dae4671ef82a9dcd03cf63e.pdf>
- Englund, R. L. (2010). Negotiating for success: are you prepared? *Paper presented at PMI® Global Congress 2010—EMEA, Milan, Italy. Newtown Square, PA: Project Management Institute*. Retrieved on June 18th from:
<https://www.pmi.org/learning/library/negotiating-project-outcomes-develop-skills-6781>
- Everse, G. (2012). Four steps to building a strategic communications capability. *Harvard Business Review*. Retrieved on July 4th, 2018 from: <https://hbr.org/2012/2013/four-steps-to-building-a-strat>
- Gina, A. (2013). Managing communications effectively and efficiently. *Paper presented at PMI® Global Congress 2013 — North America, New Orleans, and LA. Newtown Square, PA: Project Management Institute*. Retrieved on June 17th, 2018 from:
<https://www.pmi.org/learning/library/managing-communications-effectively-efficiently-5916>
- Hall, E.T (1959). “History of Intercultural Communication”
- Hauke, A. (2006). Impact of Cultural Differences on Knowledge Transfer in British, Hungarian and Polish Enterprises. *NOTA DI LAVORO 50.2006*. Retrieved on June 26th, 2018 from:
<http://ageconsearch.umn.edu/bitstream/12072/1/wp060050.pdf>

- Jepsen, A.L. & Eskerod, P. (2008). Stakeholder Analysis in the projects: Challenges in using current guidelines in the real world. *International journal of project management* 27 (2009) pp. 335-343.
Retrieve on September 24th, 2018 from:
https://www.researchgate.net/publication/257094411_Stakeholder_analysis_in_projects_Challenges_in_using_current_guidelines_in_the_real_world
- Gumus M. (2007). The Effect of Communication on Knowledge Sharing In Organizations. *Journal of Knowledge Management Practice*, Vol. 8, No. 2, June 2007. Retrieved on July 7th, 2018 from:
<http://www.tlinc.com/articl133.htm>
- Gupta, A.K. and Govindarajan, V. (2000). Knowledge management social dimension: lessons from Nucor Steel. *Sloan Management Review*, Vol. 42 No. 1, pp. 71-81. Retrieved on June 18th, 2018 from:
<https://sloanreview.mit.edu/article/knowledge-managements-social-dimension-lessons-from-nucor-steel/>
- Kouzes, J. and Posner, B. (2014). Leadership is a Relationship. *First published: 23 June 2014*
<https://doi.org/10.1002/9781118983867.ch1>. Retrieved on June 17th 2018 from:
<https://onlinelibrary.wiley.com/doi/abs/10.1002/9781118983867.ch1>
- Kuchta, D. & Sukpen, J. (2013). Culture and Project Management. *Journal of Intercultural Management*. Vol 5 (3), pp.23-38. Retrieved on June 17th, 2018 from:
<https://www.degruyter.com/downloadpdf/j/joim.2013.5.issue-3/joim-2013-0016/joim-2013-0016.pdf>
- Kiss, G. (2005). Managing cross-cultural communication challenge toward a more perfect union in an age of diversity. *Aarms Communications*. 4 (2), pp. 215–223. Retrieved on June 18th, 2018 from:
<http://www.matrixparents.org/wp-content/uploads/2017/06/Managing-cross-cultural-communication-challenges-by-Gabriella-Kiss.pdf>
- Kwak, Y. H. (2003). Brief History of Project Management. In K. A. Carayannis, *The Story of Managing Projects* (p. Chapter 2). *Quorum Books*. Retrieved on June 24th, 2018 from:
https://home.gwu.edu/~kwak/PM_History.pdf
- Luckmann, P. & Farber, K. (2016). The impact of cultural differences on project stakeholder engagement: a review of case study research in international project management. *Procedia Computer science* 100 92016) 85-94. Available online at www.sciencedirect.com
- Leybourne, S. A., Kanabar, V., & Warburton, R. D. H. (2010). Understanding and overcoming communications complexity in project. *Paper presented at PMI® Global Congress 2010—north America, Washington, and DC. Newtown Square, PA: Project Management Institute*. Retrieve on June 17th from: <https://www.pmi.org/learning/library/overcoming-communications-complexity-ambiguity-projects-6631>
- Luthra, A (2015). Effective Leadership is all About Communicating Effectively: Connecting Leadership and Communication. *IJMBS (International journal of management and business studies)* vol.5, issue 3, July-sept 2015. ISSN: 2230-9519 (online). Retrieved on July 14th, 2018 from:
https://www.mcgill.ca/engage/files/engage/effective_leadership_is_all_about_communicating_effectively_luthra_dahiya_2015.pdf

- Mavnezski, M. (2007). Managing complexity in global organizations. *IMD No. 141, February 2007*. Retrieved on June 17th, 2018 from: https://www.imd.org/research/publications/upload/PFM141_LR_Maznevski_Steger_Amann-2.pdf
- Mishra, A. (2013). Application of stakeholder theory in information systems and technology. *Atilim University, Singapore*. Retrieve on July 4th, 2018 from: https://www.researchgate.net/profile/Alok_Mishra5/publication/259186795_Applications_of_Stakeholder_Theory_in_Information_Systems_and_Technology/links/00b7d52a4023f22175000000/Applications-of-Stakeholder-Theory-in-Information-Systems-and-Technology.pdf
- Monteiro de Carvalho, M. (2013). An investigation of the role of communication in IT projects. *International Journal of Operations & Production Management, 34(1), 36-64*. Retrieved on July 7th, 2018 from: <http://www.toknowpress.net/ISBN/978-961-6914-13-0/papers/ML15-266.pdf>
- Müller, R & Turner, R (2010). Project oriented leadership. England: Gower publishing limited
- Muszynska, K (2015). Communication Management in Project Teams – Practices and Patterns. *Management, Knowledge and Learning, International Joint Conference, 2015*. Retrieved on July 10th, 2018 from <http://www.toknowpress.net/ISBN/978-961-6914-13-0/papers/ML15-266.pdf>
- Odine, M (2015). Communication Problems in Management. *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB), An Online International Research Journal (ISSN: 2306-367X) 2015 Vol: 4 Issue: 2* Retrieved on June 17th 2018, from: http://globalbizresearch.org/economics/images/files/54946_ID_S528_JEIEFB_Maurice%20Odine.pdf
- Obikunle, O. (2002). Dealing with cultural diversity in project management- a dilemma in communication. *Paper presented at PMI annual seminars, San Antonio, TX*. Retrieved on June 17th, 2018 from: <https://www.pmi.org/learning/library/dealing-cultural-diversity-project-management-129>
- Ozel, T. (2013). No fear complexity: rely on power of project management. *Paper presented at PMI® Global Congress 2013—EMEA, Istanbul, Turkey. Newtown Square, PA: Project Management Institute*. Retrieved on June 17th, 2018 from: <https://www.pmi.org/learning/library/increasing-business-complexity-strategic-alignment-5801>
- Pitts, V. E. Wright, N. A. & Harkabus, L. C. (2012). Communication in Virtual Teams: The Role of Emotional Intelligence. *Journal of Organizational Psychology, 12(3/4), 21-34*. Retrieved on July 14th, 2018 from: http://www.na-businesspress.com/JOP/PittsVE_Web12_3__4_.pdf
- Project Management Institute. (2013). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) (5th Edition Ed.). *Newtown Square, Pennsylvania: Project Management Institute, Inc.*
- Project Management Institute. (2013). The high cost of low performance: the essential role of communications. ©2013 *Project Management Institute, Inc. The Essential Role of Communications, May 2013*. Retrieved on June 18th, 2018 from: <https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought-leadership/pulse/the-essential-role-of-communications.pdf>
- Palmisano, S. Capitalizing on Complexity. *IBM case study*. Retrieved on June 17th, 2018 from:

<https://frankdiana.files.wordpress.com/2010/11/ceo-study.pdf>

Rajkumar, S. (2010). Art of communication in project management. *Paper presented at PMI® Research Conference: Defining the Future of Project Management, Washington, DC. Newtown Square, PA: Project Management Institute*. Retrieved on June 16th 2018 from:
<https://www.pmi.org/learning/library/effective-communication-better-project-management-6480>

Seymour, Tom. & Hussein, S. (2014). The History of Project Management. *International Journal of Management & Information Systems (IJMIS)*. 18(4). Retrieved on June 16th, 2018 from:
https://www.researchgate.net/publication/298341808_The_History_Of_Project_Management

Syed-Ikhsan, S. and Rowland, F. (2004). Knowledge management in public organizations: a study on the relationship between organizational elements and the performance of knowledge transfer. *Journal of Knowledge Management, Vol. 8 No. 2, pp. 95-111*. Retrieved from:
https://www.researchgate.net/publication/220363502_Knowledge_management_in_a_public_organization_A_study_on_the_relationship_between_organizational_elements_and_the_performance_of_knowledge_transfer

Sylvain, L. & Christoph, L. (2010). Lost roots: How project management came to emphasize control over flexibility and novelty. *California Management Review, 53(1), 32-55*. Retrieved on June 16th, 2018 from:
<http://www.sylvainlenfle.com/images/Publications/Ch2LenfleLoch2.0Megaprojects-NEW1%20copy.pdf>

Tesfaye, E., Lemma, T., Berhan, E., & Beshah, B. (2016). Key Project Planning Processes Affecting Project Success. *International Journal for Quality Research 11(1) 159–172 ISSN 1800-6450*. Retrieved on June 20th, 2018 from:

https://www.researchgate.net/publication/315575498_Key_project_planning_processes_affecting_project_success.

Visual Paradigm. *PMBOK 6: The 10 Knowledge Areas & 49 Processes*. Retrieved on June 18th, 2018 from:
<https://www.visual-paradigm.com/guide/pmbok/pmbok-6-10-knowledge-areas-and-49-processes/>

Weldearega, H (2014) The role of communication in managing projects. *Case study: Umeå 2014 European capital of culture*. Retrieved on June 16th, 2018 from <http://www.diva-portal.org/smash/get/diva2:537872/FULLTEXT02>

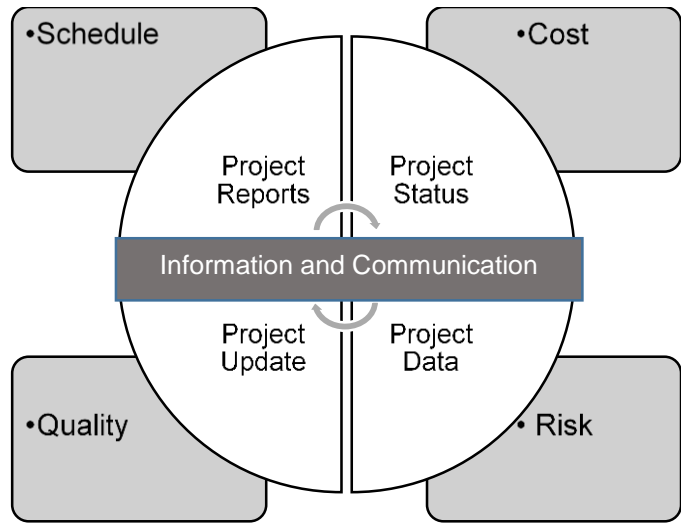


Figure1. Project objectives driven by project reports and data through communication system

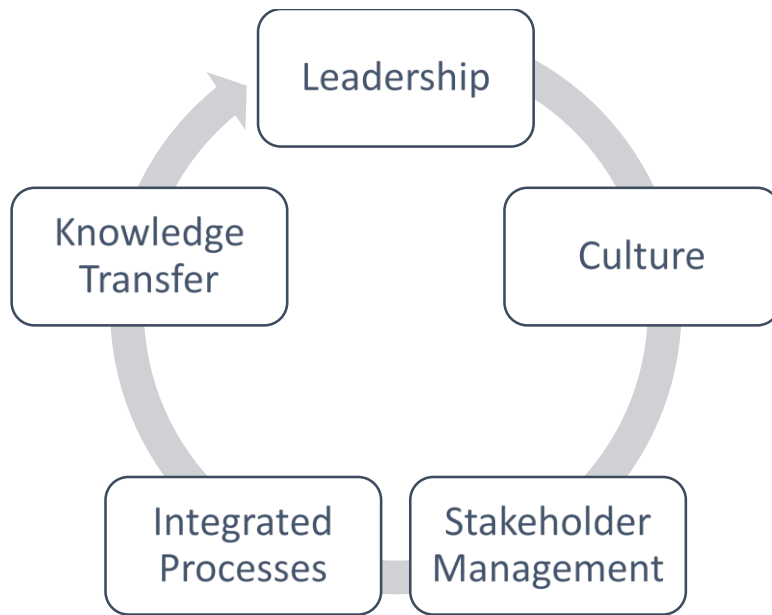


Figure 2. Key Drivers of Communication

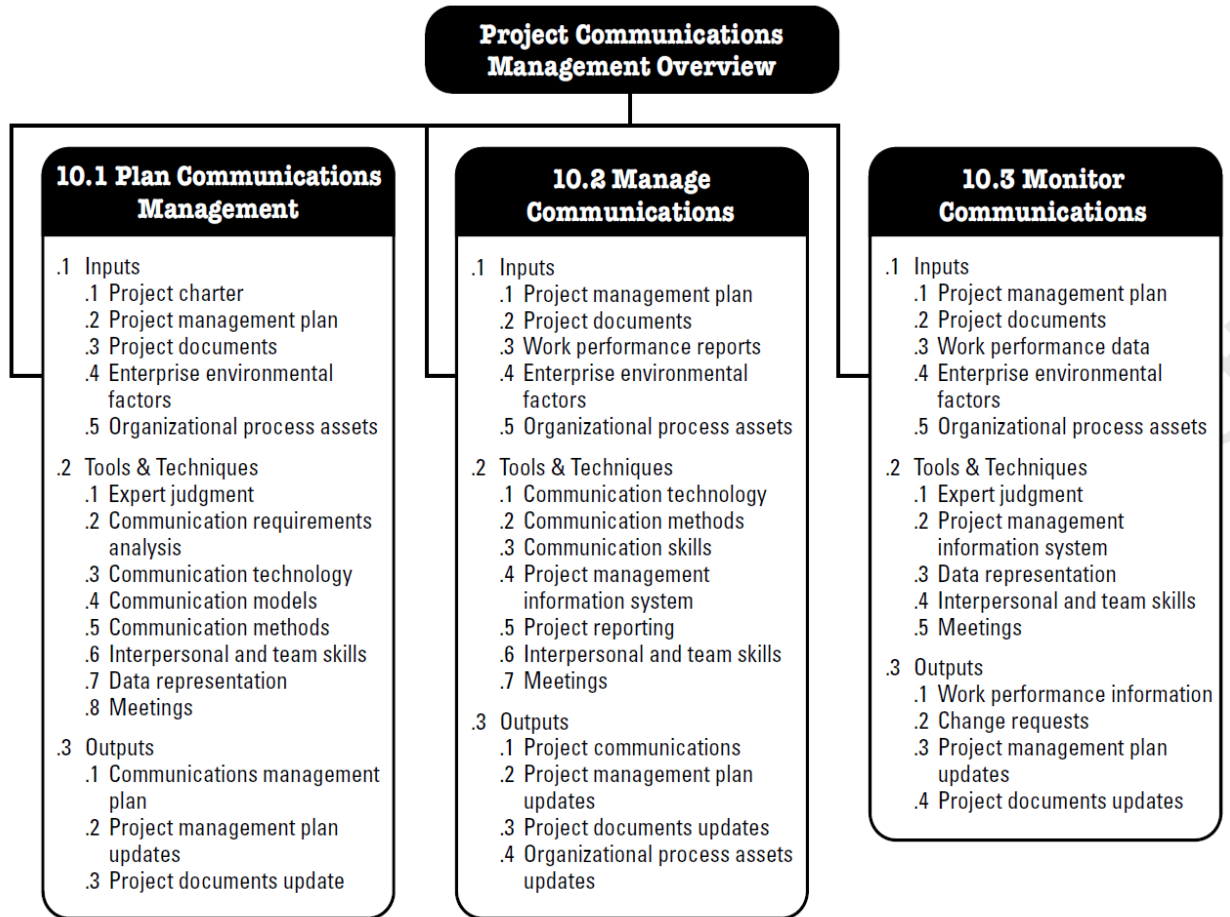


Figure3. Project Communications Management

Source: PMBOK sixth edition, 2017, <http://www.projectengineer.net/the-10-pmbok-knowledge-areas/>