
ARCHITECTING FRAMEWORK FOR MANAGING STAKEHOLDERS IN CONSTRUCTION PROJECTS

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ABSTRACT

Recently there has been major thrust and focus in construction sector across all formats of construction. Managing construction projects while integrating multidisciplinary engineering in all forms needs systematic approach, to and by stakeholders. Devising systemic plans and protocols to achieve products at desired levels is the need. Systemic thinking is important in every discipline – agriculture and airships, biology and business, culture and climate, design and development, economics and engineering, finance and fashion, mathematics and manufacturing, politics and production, technology and tactics. A systemic approach is required to find options for resolutions for complex problems.

Stakeholder characteristics triad – Interested, Involved and Influence – needs impartial analysis by project team. With the outcome of this analysis included in a SMART strategy and plan, coupled with right tools for desired outputs, always defines the effectiveness of any management strategy. Sometimes, stakeholder Management goes beyond strategy and plan. It builds relationships in project. Relationship Management is ‘the’ hinge for success and failure of a project.

Communication being an engagement model in a project, a systemic tool needs to be collaborative, robust, sustainable, responsive, and compact to facilitate relationship management in projects. Communication methods need to be adaptive to personalities, cultures and egos. The tool needs to be sustainable for entire lifecycle of any project. In this paper we have identify

inputs, tools and outputs for various process in communication and have provided an empirical framework as a tool for an individual or a team or project members to device a communication plan while managing stakeholders.

INTRODUCTION

'A picture is worth a thousand words. A good sketch is better than a long speech.' Often in it is a common practice that a formal presentation is adopted to demonstrate a vision, status, product, viewpoint etc. It is important to adapt and alter the communication method to suit the project position, situations to seek resolutions. Emotions, expressions and paralanguage methods are (mis)used too often, engendering failure of designated communication.

Communication in its current format is composite and complex. Few decades ago, with communication technology in its infancy, one device per activity prevailed. Now, devices have been immensely integrated with facilities to perform multiple communication functions. With this transformation, message and its response are now at new levels. The expectations of stakeholder on communication, has increased manifold, exerting pressure on project teams to communicate in real-time. Mode, Model and Technology is now vital ingredient for a communication plan.

Stakeholder play vital role in determining, formulating and successful implementation of project systems. Many authors & speakers have illustrated and demonstrated that Communication Management is vital, as vital as respiration for living beings, to feed all other functions and keep them alive. Identifying right stakeholders and communicating with them while managing them is crucial and integral part of in management of projects.

Based on the triad of interest, involved and influence, stakeholders are further categorized into those who have/has requirements, responsibility, accountability, importance, claims, stakes, expectations, objectives, networks and others. Apart from the acceptance of project deliverables, project teams need to manage stakeholders and see that all stakeholders' needs and requirements are channelized to the end deliverable. Communication is the key in this activity of channelizing.

On one hand we have communication models; on the other hand we have methods. We also have reasons for communications and intended outcomes from stakeholders. With stakeholder being influential, interested and involved, we have various types of communicating for each one of them. The type of communication varies with different situations. Further, we have internal and external stakeholders, the list of these stakeholders keep growing as the project elaborates. This makes this area of management quite complex for project teams to keep all these in focus while devising a communication plan. It is immensely necessary that these plans are constantly in focus for teams to be effective with their plan of communication.

Project teams who have their focus on deliverables are often distracted and get entangled in the web of communications. They too have their requirements from the stakeholders. They need all stakeholders to be participative, patience and tolerant. The response from the stakeholder also determines the pace of the execution, acceptance limits of deliverables and effectiveness of changes to the projects.

The relation of project teams and stakeholders is to seek more collaboration, guidance, attention, partnership, relationship, and benefits to and from the communication. The relations built in a project continue beyond the project thereby making the project communication plan even more important.

With such multidimensional essentials and possibilities, teams need to envisage various options of communications, plan communications, execute the plan, manage stakeholders expectations while report performance of the project. Project since its inception brings with it complex problems and one of subcategories is in communicating. With so many variables, having a system is necessary for PDCAi in communication. Here we propose – an ontological framework for understanding various possibilities of communications with stakeholders.

SAMPLE ONTOLOGY FOR PROJECT COMMUNICATION

Five processes defined in PMBoK needs elaboration while in projects. Planning a communication process through ontology would also address few questions while creating the plan. First level of query(worry) is as mentioned below in Table 1:

Table 1 – Indicative query list against communication process

Process as defined in PMI	Queries in real time projects
Identify stakeholders	how to classify them
Plan communications	not one type suit all reasons situations
Distribute information	What type of Information to distribute
Manage stakeholder expectations	What is expected response from them
Report Performance	What stages do you report

“We will define [an ontology] as a logically constructed n-dimensional natural language description of the problem. The dimensions are derived from the problem statement. Each dimension is independent of the other and is taxonomy of discrete categories. Each taxonomy may be flat or hierarchical. Further, the order of categories in a particular dimension at a particular level of the taxonomy may be nominal (no particular order) or ordinal (based on some parameter). The stages of progression along the dimension, the sequence of evolution, the progressive part-whole relationships, the scale, etc. are some bases for ordering the categories. Last, a dimension may have sub-dimensions with their own taxonomies. That is, a dimension itself may be hierarchical.”

The ontology is presented as a number of text columns, each column representing a dimension of the problem It is in fact an n-dimensional matrix with text entries in each cell. Each column contains categories and subcategories corresponding to the taxonomy of that dimension. A combination of categories or sub categories across all the dimensions, with specified prepositions and conjunctions, is a natural language descriptor of a component of the problem in the form of a sentence, sometimes an awkward sentence. The set of all combinations across all categories – that is all possible sentences – is a closed description of the problem. The full set can have a very large number of descriptors (individual combinations). However, many of the combinations may be irrelevant or meaningless – they may be discarded from further consideration. At

the same time some combinations may be novel and creative, providing valuable insights into the problem and its solution.

A parsimonious choice of dimensions, taxonomies of dimensions, and selection of combinations (with appropriate prepositions and conjunctions) is essential for effective formulation and solution. The formulation can be modified or extended by substituting or adding new dimensions, new taxonomies, and new categories and subcategories within taxonomies.”

A prototype of ontological framework for creating communication plan in a project is illustrated in the Fig 1. The following are the communication scenarios which can be envisioned through the sample framework

- a. Communicating formally with an expert using meetings for inputs during planning while in cost management
- b. Communicating informally with charismatic stakeholder using interview for clarifications during project execution while in human resource management
- c. Communicating with an informed stakeholder using facilitated workshop for information during planning phase while in procurement management

There are more than 100 thousand possible combinations. There would be very few illogical possibilities, we discard them.

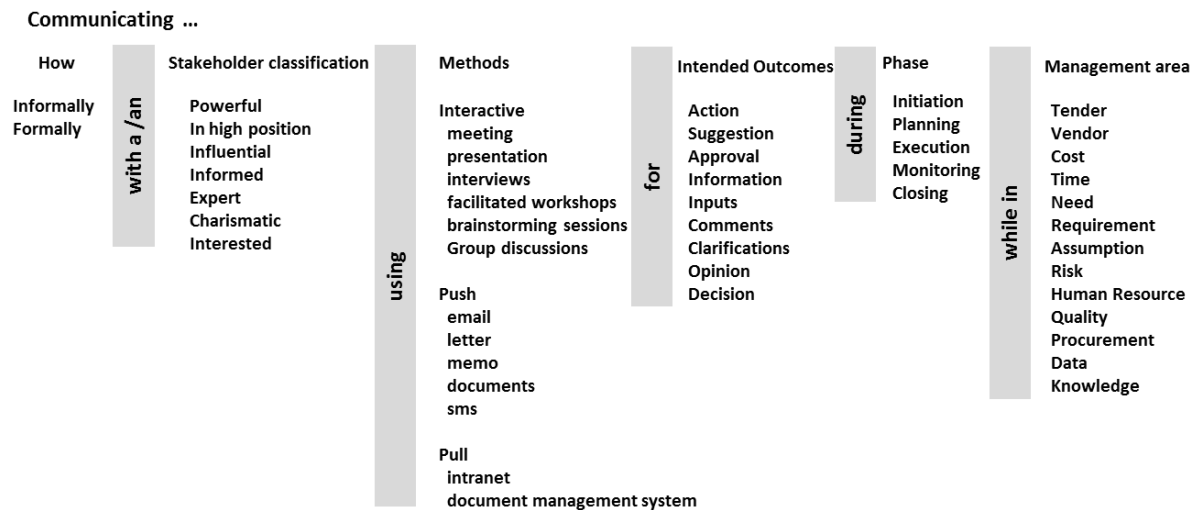


Figure 1 – Prototype of ontological framework for Communication Plan

ARCHITETING A COMMUNICATION SYSTEM

Understanding a stakeholder, formulation of plan, envisioning a response, modification of plan based on responses, in Communication Management is completely hinged to people. Every individual is unique with his / her personality traits. Data and information are always the content of any message in a Communication. Communication management is the child of Information Management.

Creation, synthesis and implementation of this system requires combinations of four psychological functions *Sensing, Intuition, Thinking and Feeling*. Hence, these are also being considered in this study for their conformance to creative activity of a framework for projects using ontology.

Project teams consist of various types of personalities, with different social backgrounds and learned types. *Mayer-Briggs* has classified these personnel into dichotomies of attitudes, preserving and judging functions, and perception to external world. These types of personalities are individually defined and perceived as:

- Personalities with *Sensing* as dominant character would access, gather, analyze, categorize, arrange, attribute and allocate information in appropriate manner for achieving solutions. With their questioning mind and inquisitiveness, sensitive persons would check and recheck data for its correctness, hence would have greater depth of the information. Sensing persons are generally proactive and systematic in considering information. They are efficient in delegation including solution driven.
- *Thinking* personalities have significant advantage on giving judgments and creating options of resolutions from *detached point of view*. For the gathered data, these types of people would assist in analyzing data, interpret them and pass judgment based on facts placed through systematic exploration and insights. These types of people would logically place data and would go by the rules of the project and assist in decision making.
- Persons with *Feeling* as their dominant function empathize on the situation to serve decision making. These personalities would look at the *needs of the people* would be catalyst for in converting data into meaningful actions.
- *Intuitive* persons are usually farsighted, abstract form of information would generate interest in them. They can see through the systems and are oriented towards theory rather than

regular practice. They are considered to be good resources for designing solutions and recommendations. They are efficient in delegation with empowerment. They are driven by deliverables rather than means to reach them. They are very articulate in their substantiation of their actions.

Dualities of attitudes and functions are requisites in architecting this system through ontology and translating it for resolutions in project life cycles. Possible combinations arising from four psychological functions identified by *CG Jung* are Sensing-Thinking, Sensing-Feeling, Intuition-Thinking and Intuition-Feeling types of personalities.

The combinations of functions are required for use of project framework from architecting the ontology, its analysis and use of several insights through ontology and firm up with options on resolutions. The traits of the personalities under each combination and their project functions can be enumerated thus:

- *Sensing-Thinking* types often categorize data into right problem areas, logically organize the issues, perform an in-depth analysis and assessments of the problem and generate insights. These personalities would identify problems in project plans, activities and execution alternatives.
- Personalities with *Sensing-Feeling* combination are perceived to validate project's challenges with available data and situation under consideration. They are ideal to play role of resolving problem under consideration after deep exploration and also create options for problems envisioned through ontology.
- *Intuitive-Thinking* personalities would look at the project environment, requirements in relation to inputs and deliverables; formulate the problems before they occur. They perform role of a evaluator in case of an ideas generated by the team members in order to further refine the idea.
- *Intuitive-Feeling* persons get energized with all interactions within a system; good at envisioning problems are creators of resolution. Unlike traditional *openness to experience*, they prefer to look at breadth than depth.

For developing a communication system using ontological framework, the combination of personalities and their functions are tabulated below in Fig 2.

In order to achieve correct, efficient and expandable type of architecture of system, relation between MBTI profiles and Archetype of job descriptions for capability of perceiving and solving problems can be drawn.

For evolution of project systems and its application, following are distinct iterative process:

- Employing experiential learning, historical information or utilizing existing templates and procedures – *Sensing, Feeling*
- Collecting, analyzing, attributing and categorizing of project specific data to the challenges – *Sensing, Thinking*
- Configure a framework to suit the project requirement, environment, Inputs and Outputs – *Thinking, intuition*
- Envision challenges through the framework with several possible interactions – *Intuitive, Feeling*
- Qualify the identified challenge based on locus of the problem, severity and impact – *Thinking, Intuition / Sensing, Thinking*
- Create and strategize options for resolution of challenge – *Feeling, Sensing / Intuitive, Feeling*

Inferences from above scales and requirement for communication system imply that the project teams should constitute combinations of traits to effectively utilize the framework for success of a projects communication leading to project success.

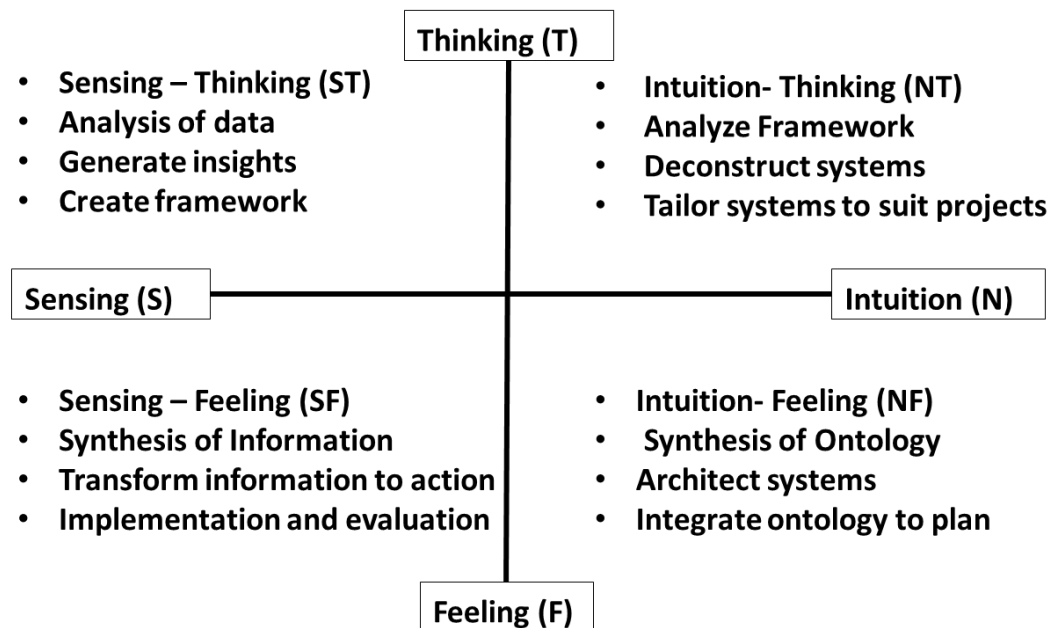


Fig 2 – Matrix of personalities and their functions for creation of frame work

CONCLUSION

Communication systems being specific to project, situation, status & levels of stakeholder need project specific system. Unknown and reality coexist in projects. Role functions need to be defined in communication system, for effective performance and efficiency of communication plan. Role functions of creating a framework, analysis of the formwork created, & envision the situations, synthesis of the solutions for situations and effective implementation of plans needs to be allocated based on the personality traits of individual team members.

Perfect balance is not always possible, certain amount of balance is required to achieve desired results from the plans created. To achieve higher level of efficiency, through framework, team roles needs to be *stretched* from one role to another with paradigm shift which would result in incremental and sustained learning and finally lead to an accomplished team performance.

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