A MODEL FOR ALIGNING SOFTWARE PROJECTS REQUIREMENTS WITH PROJECT TEAM MEMBERS REQUIREMENTS

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ABSTRACT

The fast-paced, dynamic environment within which information and communication technology (ICT) projects are run as well as ICT professionals' constant changing requirements present a challenge for project managers in terms of aligning projects' requirements with project team members' requirements. This research paper purports that if projects' requirements are properly aligned with team members' requirements, then this will result in a balanced decision approach. Moreover, such an alignment will result in the realization of employee's needs as well as meeting project's needs. This paper presents a Project's requirements and project Team members' requirements (PrTr) alignment model and argues that a balanced decision which meets both software project's requirements and team members' requirements can be achieved through the application of the PrTr alignment model.

KEYWORDS

Project management, People focus, Organizational culture, Requirements, Model

1. INTRODUCTION

Every organization has a culture – be it good or bad. An organizational culture can either hinder or promote successful project management. This contention is also supported by [1] who state that an organization's culture has an impact on its project. [2] defines organizational culture as follows:

"A set of shared assumptions, values and behaviours that characterize the functioning of an organization."

Furthermore, [2] states that an organizational culture that strives to find a balance between the needs of employees and those of the organization is conducive to successful project management. This means that an organization should have an appropriate or an acceptable degree of people focus. The importance of having people focus in a project is informed by the fact that team members have an immense contribution in achieving project objectives [3] [4]. This contention is also supported by [5], who states that the ever changing demands of businesses are better met by teams. The view that a good organizational culture is key to project success is also supported by [6] who state that project success is dependent, amongst other things on the organizational environment. [2] defines people focus as:

"The degree to which management's decisions take into account the effect of outcomes on people within the organization"

The fast-paced, dynamic environment within which information and communication technology (ICT) projects are run as well as ICT professionals' constant changing requirements present a challenge for project managers [2] in terms of aligning projects' requirements with project team members' requirements. A change in technology, for example, that is used in a project may necessitate a change in the project's requirements. On the other hand, such a change may also affect the requirements of project members, for example, a need to be trained on the new technology so that project tasks may match their skills set.

There are numerous studies in human resource, leadership and organization management literature that are written on how to analyze and manage stakeholder expectations or requirements in a project. However, little if any, research has been done on how best project managers can align ICT projects' requirements with project team members' needs or requirements in order to achieve project and organizational objectives, while at the same time meeting employees' needs. Therefore, this research paper seeks to close this theoretical void by developing a conceptual model that demonstrates on how to align ICT projects' requirements, as expressed by the model of team effectiveness [7] with project team members' needs, as expressed by Maslow's Hierarchy of Needs [8] in order to find a balanced approach in project management decision making process. The aim of the proposed model is to find a balanced approach between organizational needs, which are expressed through project vision and project goals, and the team members' needs during decision making process by management and project managers to be more specific. According to Maslow's theory of motivation, people are motivated to behave in a certain way caused by unsatisfied needs. Therefore, this paper is aimed at leveraging these needs in order to create a balanced approach in decision making process by management.

2. LITERATURE REVIEW: ICT PROJECTS' NEEDS AND EMPLOYEES' NEEDS

2.1 ICT Projects' needs

Project success is generally measured using the triple constraint, namely, cost goals, time goals and project performance. Therefore, an organization would want to have a project finished within these constrains and thus some of a project's needs placed on project team members by the organization would revolve around meeting these needs. For example, given the fast-paced and rapid changes in ICT environment, an organization may want to complete a project within the set time in order for it to be first in the market with the product that will be created by the project. Such projects' needs are common these days because the marketplace gets more and more competitive [4]. However, such needs may probably require project team members to work extra hours. Furthermore, such demands by an organization may cause dissatisfaction on the side of project team members for various reasons based on their needs which should be addressed as well by the organization. The key question therefore is: how do project managers therefore ensure that a balanced approach is found in order to create a win-win situation for both the organization/project and team members? One of the important things that a project manager should do in order to effectively address the previous question is to fully analyze and understand project team members' needs.

2.2 Employees' needs

There are many factors that contribute to project success and these include, top management support, clear business objectives and an organizational culture where there is emphasis on focus on people (employees). In order to promote a culture of focusing on employee's needs while

striving to fulfil project mandates, project managers should fully understand employees' needs. Maslow's Hierarchy of Needs model [8] – see Fig. 1 below, helps us understand various levels of needs of a person. These levels are, *Self-actualization needs*, *Esteem needs*, *Social needs*, *Safety needs,* and *Physiological needs* [8].

2.3 Balancing 'Competing' Needs for a Win-Win Solution

When organizations deal with employees' complains caused by software project demands based on organizational needs or projects' requirements, they tend to react in a way that causes tensions between management and employees [4]. A project manager is expected to make key decisions on various project matters and such decisions have impact on the project outcome. Such decisions should be creative and be meant to solve problems, however, according to [6] project managers have little knowledge of how their decisions affect project outcome. [10] state that a project manager should a have balanced approach in decision making in terms of concern for project tasks requirements and concern for project team members requirements and should not be a IT technical savvy only, as mentioned by [11]. A task-oriented project manager endeavours to produce quality work, completed in time and within budget. This will be achieved by using initiating structure leadership skill set [12], where a leader will provide direction for people to perform their tasks. On the other hand, a people-oriented manager makes sure that employees' needs are taken into consideration in the process of pursuing project goals. This is in line with viewing employees as important and critical clients to success of a project [4]. Furthermore, [11] state:

*"The project manager will, almost on a daily basis, need to adapt project members task perceptions to changing **contingencies** (e.g. late deliveries) and resolve the interpersonal and emotional issues arising from the grind of schedules and work pressures."*

For a project manager in an ICT environment to successfully attend to team members' needs as mentioned by [11], he/she should focus on understanding individual employees' needs as identified by Maslow's Hierarchy of Needs model in Fig. 1, below. The aim is to ensure that project team members' needs are identified and then satisfied accordingly in order to keep individual project team members motivated [8] for maximum performance. Moreover, it is also intended understanding employee's individual needs and not only project's needs, in order to influence professional behaviour of employees and also to benefit both stakeholders [4]. At the same time, a project manager is expected to fully understand project's needs which express business needs. Project's needs on the other hand are expressed in project vision and goals. Therefore, one of the tasks of a project manager in an ICT environment is to successfully match somewhat volatile project's requirements with individual project team members' needs and thereby find a balanced approach in terms of satisfying these two sets (project's needs and team members' needs) of needs. The aim is to balance sometimes competing interests (dichotomy) of the employees and the project. The following statement by [4] sums up the importance of striking the abovementioned balance:

"Leaders who think in a balanced way about satisfying all important stakeholders tend to do the right things in the right way".

In order for a project manager in an ICT environment to successfully do this it is expected that he/she will perform a continuous stakeholder analysis and management.

He/she is also expected to continuously scan and analyze the volatile project environment for necessary changes to project needs. The project manager can use various tools and techniques in analyzing and managing the needs of project stakeholders. One of such techniques is human resource (HR) frame [2]. However, there is a gap in the literature on how best can project

managers match a project's requirements to project team members' needs. This paper is aimed at closing this important gap by creating a model which aligns these needs. The next section is dedicated to developing such a model.

2.4 ICT Projects' Needs and Project Team Members' Needs Alignment (PrTr) Model

In the above section it was pointed out that it is important that a thorough analysis of each project team member be performed with the aim of getting a better understanding of project team members' needs. [8] agree with this assertion and state that understanding how people behave and their current needs, as stated by Maslow's Hierachy of Needs, is important in keeping employees motivated in order achieve project objectives. It is also expected that all relevant project stakeholders should be fully aware of the project's needs as expressed in the project scope statement, and subsequently provided in the project vision and goals. Once a project manager is fully aware of the project's needs and the needs of each project team member, he/she should then map project's needs to individual team member's needs with the aim of finding a balance between project's needs and a team member's needs. Project managers in the ICT sector should understand that they are operating in a fast-paced volatile environment and are also dealing with people whose needs are dynamic based on both the volatility of the environment itself as well as when and how those needs get met. The key question is how to find the balance? The discussions in the paragraphs below answer this question.

Firstly, in order to practice people focus culture while striving to meet project's and organizational needs, an organizational culture which is conducive and supportive as well as inclusive [13] [14] for this should exist. Such culture should include, a supportive leadership style, such as a firelighter leadership style [11], project vision [16] which ignites stakeholders to achieve project goals, an appropriate reward system aligned with human resource strategy [3] [13] which is aimed at rewarding excellent project work as well as promoting team work, and finally, other critical factors which are important for project success. Furthermore, [7] developed a team effectiveness model, which depicts, among other things, vision and goals of the organization (project) that should be in place and be clearly understood by all team members in order for a team to be effective in meeting expected results. Secondly, project managers should clearly articulate and communicate project objectives, milestones to be achieved, success criteria to be used, rewards that are linked to project work performance as well as criteria to be used in distributing the rewards [5].

Based on the above discussion, this paper suggests a Project's needs and project Team members' needs alignment (PrTr) model, which is aimed at finding a balanced approach in decision making process in terms of concern for the project's needs and concern for project team members' needs. The PrTr model is based on two existing models, namely, the Maslow's Hierarchy of Needs model [8] as well as the model of team effectiveness by [7]. According to [7], for any team to be effective and successful certain things, such as, competencies and behaviours, project vision and goals must be in place in the organization. Furthermore, an organization should possess a culture of continuous learning and development in order to be able to provide its employees with necessary competencies in order to deliver the expected project objectives. This is requirement cannot be further from the truth for a fast-paced and dynamic environment such as ICT. On the other hand, Maslow's theory of motivation asserts that employees are motivated to behave in a certain way in order to meet their unsatisfied needs. A project manager must locate the needs of each team member using the Maslow's Hierarchy of Needs model [8]. The PrTr model, see Fig. 1 below, purports that if alignment is made between project's requirements and each individual project team members' needs then a balanced approach in decision making process in terms of concern for project's needs and concern for project team members' needs is possible. The aim is

to ensure that both the requirements (sometime changing requirements) of a project and needs of project team members are considered when project management decisions are taken.

[15] emphasizes the importance of having the end results in mind right from the beginning. The PrTr model enforces this – the end result is to reach 'equilibrium' in terms of making sure that project's needs and project team members' needs are aligned right from the beginning and continuously so in order to ensure that project's needs are met as well as individual project team members' needs. [8] identify five levels of Maslow's Hierarchy of Needs (see Fig. 1 below.) as consisting of the following: Air, food, water, clothing, shelter and sleep (all in the Physiological level), economic security, protection from harm and violence, and secure employment (all in Safety level), belonging, togetherness, approval and group inclusion (all in Social level), reputation, recognition (both in Esteem level) and need to perform at ones best (in Self-actualization level). Herewith below is the discussion which is intended to show how the model can be applied in principle in terms of aligning project's needs and team members' needs and thereby enabling a balanced approach for decision making process.

Self-Actualization level: On this level a team member's needs include *challenging work assignments* evoking one's creative skills. On the other hand, more than often, ICT project tasks are complex and challenging and thus require team members to use their creative skills to solve challenging difficult problems. A project manager should match project tasks to team members' capabilities and abilities. Moreover, such tasks should be meaningful and challenging enough for team members so that they enable team member's creative and innovative skills. [6] agree with this assertion and state that project managers should encourage creativity and eliminate fear of taking risks from team members. When team members are encouraged to use their creative abilities to solve project challenging problems, this does not only contribute to the project success but also result in solutions to the project tasks that are more robust and much more suitable for the problems being solved. Moreover, when team members feel their skills are valued, appreciated and are put to good use they would want to continue to be part of the team and contribute to project success. The alignment of project's needs, namely, robust effective solutions for each project task with a team member's needs which are challenging work assignments and the use of his/her creative skills will then result in a balanced decision. Moreover, this alignment will result in the realization of employee's self-actualization needs as well as meeting project's needs.

Esteem level: On this level a team member's needs include *reputation*, and *recognition* – the degree of importance. A team member at this level requires the acts of valuing, appreciation and recognition for his/her contribution to the project. On the other hand, a project requires that each team member should be committed and make valuable contributions to the success of the project. For team members to be committed and contribute quality work in a project they need to know that they will be recognized and appreciated for their efforts. If this does happen it will then boost the morale of a team member and motivate him/her to want to contribute more to the project in order to receive more recognition and appreciation. It also builds a good reputation for him/her as a person whose contribution to the project is of good value. Many research studies have been written on various forms of rewards and recognitions that can be given to team members. When the needs of team members have been properly aligned with project requirements this will result in a win-win outcome for both the project and the team members

Social level: On this level an employee's needs include *belonging*, *togetherness*, *approval* and *group inclusion*. IT project success is dependent on a cohesive project team [6]. For an IT project to succeed, project team members have to work as a unit where individual team members have a sense of belonging (satisfying the belonging need), the members have a sense that they are working together and collaborating (satisfying the togetherness need) as a team in achieving project results, and members perceive the team as an inclusive unit that promotes collectivism (satisfying the group inclusion need). Team members should be encouraged through rewards to initiate and practise behaviours that support cooperation, collaboration, teamwork and

collectivism [17]. This assertion is also supported by [5], who states that rewards should be directed at team initiatives and not at individual efforts. High task interdependence would, for example, promote team work instead of individualistic efforts. The discussion above demonstrates how one can align the project need of requiring a project team to work as a cohesive unit with the needs of a team member, namely, belonging, togetherness, approval and group inclusion.
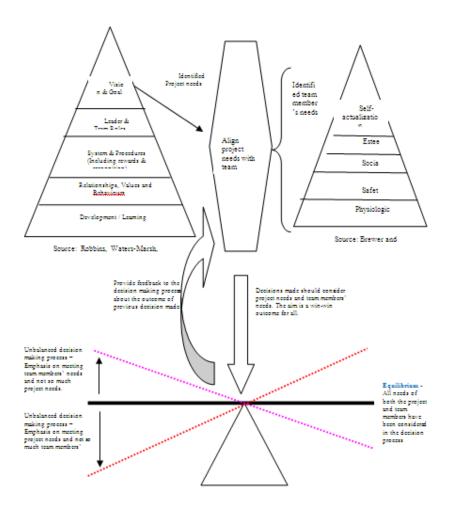

Figure 1: Project's needs and project Team members' needs alignment (PnTn) model

Safety level: On this level an employee's needs include *economic security*, *protection from harm* and *violence* and *secure employment*. An Organization wants employees to be loyal, committed to it and also to concentrate on working on current projects' tasks. Moreover, an organization wants every employee to contribute in providing a safe working environment for all concerned. For employees to do all these organizations should reward (pay) employees accordingly (meeting employee's economic security needs), it should also provide a safe environment by providing employees with proper ICT tools to carry out project tasks. For example, organizations should apply office ergonomic or computer ergonomic principles in order to minimize back injuries. The alignment of a project's requirements which are linked to organizational needs, namely, employee loyalty, employee commitment to organization and its projects with a team member's needs which are economic security, protection from harm and violence and secure employment will assist in reaching balanced decisions.

Physiological level: On this level an employee's needs include a*ir*, *food, water, clothing, shelter* and *sleep*. Again, as discussed in the safety level above, an organization wants employees to be loyal, committed to it and also to concentrate on working on current projects. Moreover an organization wants every employee to offer his/her labour service, after all that is why he/she was employed for. For employees to do and behave as required, an organization should reward (pay) employees accordingly thereby helping an employee to meet his/her basic needs. If an organization pays employees what is often called a 'living wage' will enable employees to meet the above mentioned needs. Again, the alignment of a project's requirements which are linked to organizational needs with an employee's needs as mentioned above, will assist in reaching a balanced approach in terms of meeting both project's needs and an employee's needs.

It is important to point out that the desired balanced approach which takes into account a project's requirements and an employee's needs depends on both continuous successful analysis of such requirements and needs as well as the successful alignment of these. Some of the employee's needs may seem to be social needs and therefore may seem to have little to do with the actual desired final project product or service [8], but meeting these needs helps in building a cohesive, happy, and productive project team which in turn meet project's needs [17]. Any concentration on either project's needs or employee's needs may result in unbalanced decision making process which may result in undesired consequences, such as a project not meeting its set constrains or a trusted, skilful employee leaving the organization or the project.

3. LIMITATIONS

Alignment of needs alone cannot be a source of promoting a balanced decision approach; there are other mechanisms that should also be considered in promoting this. Transformational leadership [11] and the interests of all other key stakeholders are just some of the critical factors in project management that should be considered in the process of decision making.

4. FUTURE RESEARCH

The PrTr conceptual model developed in this paper should be tested for its practicality and benefits that are claimed to accrue from its use.

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