

Investigation of the Relationship between Project Manager's Leadership Style, Teamwork and Project Success Using System Dynamics Approach

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ABSTRACT

Nowadays, Competitive advantage is considered as one of the main goals of organizations. The importance of this issue has caused many researchers study the factors influencing competitive advantage. Among these factors, the role of teamwork and manager's leadership style has been less paid attention. Also these factors are effective in the project success. This paper presents a system dynamics model for investigation of the relationship between project manager's leadership style, teamwork and project success.

KEYWORDS: Leadership style, Teamwork, System dynamics, Project success.

INTRODUCTION

Successful companies in addition to using rapid reaction to the market needs and increasing profits are always looking for a way to achieve competitive advantage. These companies usually avoid using methods that don't create added value for them. Several studies have shown that the role of a project manager is critical to project success [1]. Also teamwork can be another effective factor in this area. However, there has been no comprehensive industry-wide study on the impact of teamwork on project outcomes. On the other hands, no empirical study has been done on the associations between project leadership style and teamwork. This lack of information regarding leadership benefits along with uncertain competitive advantage from teamwork has resulted in a manager's reluctance to adopt different leadership styles [2]. Some project managers have introduced specific leadership style to achieve the project goals. Also these managers recommend teamwork to promote the probability of the success of the project. However, since the benefits of leadership behaviours can be rather intangible, this has slowed or prevented the implementation of leadership theories. Accordingly, the impact of leadership behaviours on project performance has been one of the major issues for both industry and academic fields [1, 3, 4]. In order to understand the benefits, there is a need for quantification of the benefits derived from leadership behaviours. Although researchers in a number of disciplines outside of construction have suggested that leadership style is becoming increasingly critical to project success, there is limited research in the construction context [5, 6, 7, 8].

This study attempts to fill the absence of empirical evidence by identifying the associations between leadership style, teamwork, and project success. This research has four main objectives. The first objective of this study is to investigate the effect of the project manager's leadership style on teamwork. The second objective is to assess the impact of teamwork on project success.

The third one is to examine the role of project management in the relationship between teamwork and project performance. Finally the last objective of the research is investigation of the role of change management in achievement of success and competitive advantage with a system dynamics approach. In this paper, factors such as leadership style of project management, teamwork, team performance and project performance are investigated and two system dynamics models for these factors are described. These models show how these factors affect each other and improve or stop the project. In the following sections at first the literature is reviewed, and then analysis of the system dynamics models are described in the next section and conclusion is discussed in the final section.

LITERATURE REVIEW

The development of leadership results in various definitions. DuBrin (2004) stated that leadership is the accomplishment of goals through communication towards others [9]. Goleman (2004) claimed that emotional intelligence may be the key attribute that distinguishes outstanding performers from those who are merely adequate. Five components associated with emotional intelligence were found in this study: self-awareness, self-regulation, motivation, empathy, and social skill [10]. Ivancevich et al. (1977) distinguished the specialties of leaders with six categories: physiological characteristics, social background, intelligence, personality related to work, and social interpersonal [11]. Stogdill (1948) categorized the leader's specialty into five categories: ability, achievement, responsibility, participation, and position [12]. Davis (1972) identified four kinds of personalities related to succeeding in leadership: social maturity and breadth, inner

motivation and achievement drive, intelligence and human relations, and attitudes [13]. Fiedler (1974) proposed three kinds of situation parameters in relation to leadership styles [14]. Additionally, Hersey and Blanchard (1972) proposed life cycle theory of leadership and then developed contingency leadership. They argued that leadership style should depend on different maturity phases of a relationship [15].

Prior studies indicated that empathy plays an important role in leadership. Salovey and Mayer (1990) defined empathy as the ability to comprehend another's feelings and re-experience them. They found that empathy may be a central characteristic to emotionally intelligent behaviour [16]. Kellett *et al.* (2002) stated that empathy is an important predictor of leadership emergence. The study concluded that perception of leadership skill is impacted by leader emotional ability through empathy. In summary, leaders are affected by their mental abilities, emotional abilities, and ability to perform complex tasks [17]. Similarly leadership is one factor effect on teamwork.

The results of previous studies indicated a correlation between teamwork (including team communication, collaboration and cohesiveness) and team performance. Solomom (2001) indicated that communication plays a critical role in team operations [18]. Team communication may result in uniformity of team members and make the team more effective. Highly cohesive teams can force members to comply with group positions [19]. Team cohesiveness can also improve uniformity of team members [20]. Thus; effective team performance may derive from successful team cohesiveness [21]. Additionally, several researchers have stated that project type may play a moderating role in the relationship between practice use and project success [22, 23].

Proposed system dynamics models

In this paper after investigation of effective factors in success of a project, a system dynamics model is proposed. In this model, dynamic effects of different factors is studied and after analysis and recognition of the negative and positive relations between factors that are engaged in success of a project, system dynamics rings that are related to the achievement of competitive advantage are proposed.

Investigated factors and variables of this study are divided into two subsystems. The first subsystem is related to project management leadership style, teamwork and project success. The second subsystem is a subsystem about green changes. Finally with combination of these subsystems, final system dynamics model is build. At first we analyse the first subsystem. Fig. 1 shows the system dynamics model and effective parameters which are related to project management and project success. These parameters include: Project management style, teamwork, team performance, project performance and success in project as main factors and the factors such as make commitment and responsibility about range, time, cost and project quality, creating a common language for expression of needs of stakeholders, the integration and harmonious communication, satisfaction of shareholders, project type, work quality, appropriate scheduling, cost and competitive advantage as effective factors.

According to the literature different types of projects require different styles of project management leadership, so project type as external factor effect on project management leadership style and as we know, two kinds of leadership, transactional leadership and transformational leadership are selected according to the type of the project. Regarding to available methods, each of leadership style, can create the sense of commitment and responsibility about range, time, cost and project quality. In other words whatever project management leadership be better, creating this sense will be stronger. As shown in Fig. 1, this relation is shown with positive sign. On the other hand leadership can create a common language for expressing the need of stakeholders in the project.

The common language at the stage of formation of project charter and responsibilities and even at other phase of implementation of the project brings satisfaction of shareholders. Whatever how this common language is more comprehensive, the requirement of shareholders is said more convenient and they will be more satisfied. In continue how shareholders are more satisfied, project performance is more promoted. In the other words, what shareholders and stakeholders expect from project to be done at a higher level, is named project performance. On the other side we realized that leadership creates commitment and responsibility between staff and these commitment and responsibility increase integrated and harmonious relations between staff and makes them to participate more in teamwork[2]. although the project type as external factor effect on this parameter.

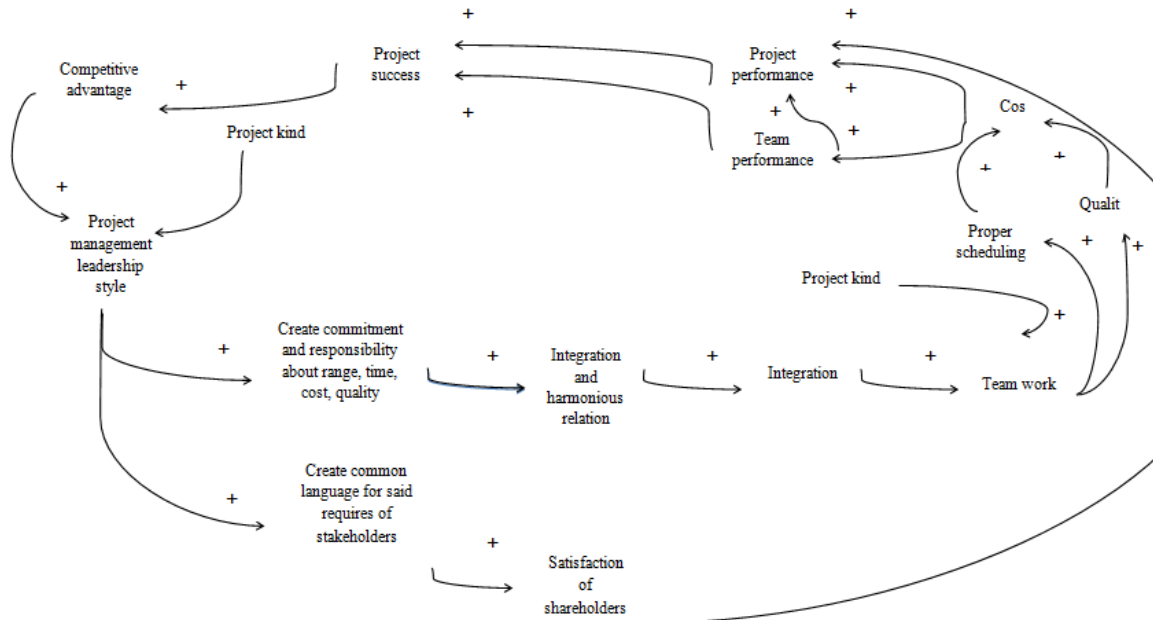


Fig. 1. First subsystem

According to the project type, the method of participation in teamwork is different. participation of staff in teamwork and then commitment of them to the project due to increasing work quality and proper scheduling of the project [2].with the increase in the quality and proper scheduling, the project implementation cost is reduced (with negative sign is shown at the figure1). Obviously, according to the definition of quality, people who are involved in the project try to accurate in all aspects of project like consumption of raw materials. Edwards Deming believes that root of quality is in board of directors and comes from the manager .how project scheduling is according to pre-programmed scheduling, indirect costs of implementation of the project like guard costs, insurance and store etc. will reduced. So these two factors effect on cost.

Cost reduction causes increase and improvement of team and project performance. With an example we clarify this relationship. It is assumed that in dam execute operation, people can save consumed resource and project time with proper teamwork and commitment and sense of responsibility and can promote quality and reduce cost. These results due to promotion of performance of staff and after that the promotion of project performance. With increasing in performance, project success is not impossible and if the executive can be successful in implementation of project they can achieve competitive advantage between competitors. Competitive advantage affects on project management leadership style. As example this competitive advantage due to expanding of work space and implementation of more projects which need its own leadership style.

In Fig. 2 we can see the rings related to the change management from kind of green changes. We saw at proposed model of Fig. 1 that project success is considered as a key factor. For this reason one of the effective factors of project and organizations success is organizations flexibility. project executive teams in the wavy conditions and full of change today's world should be able to react against changes such as change in taste of customers, the way of project implementation, etc. change is considered as only permanent element in life and business and always there are factors that force us to optimize the type of our performance in organizations. So that the organization should has appropriate reaction to these changes. The rings are shown in Fig. 2 describe a system dynamics model about change management process .change management as a one of the most important solutions for facing rapid changes in this era and at recent decades, more than before, has attracted the attention of experts.

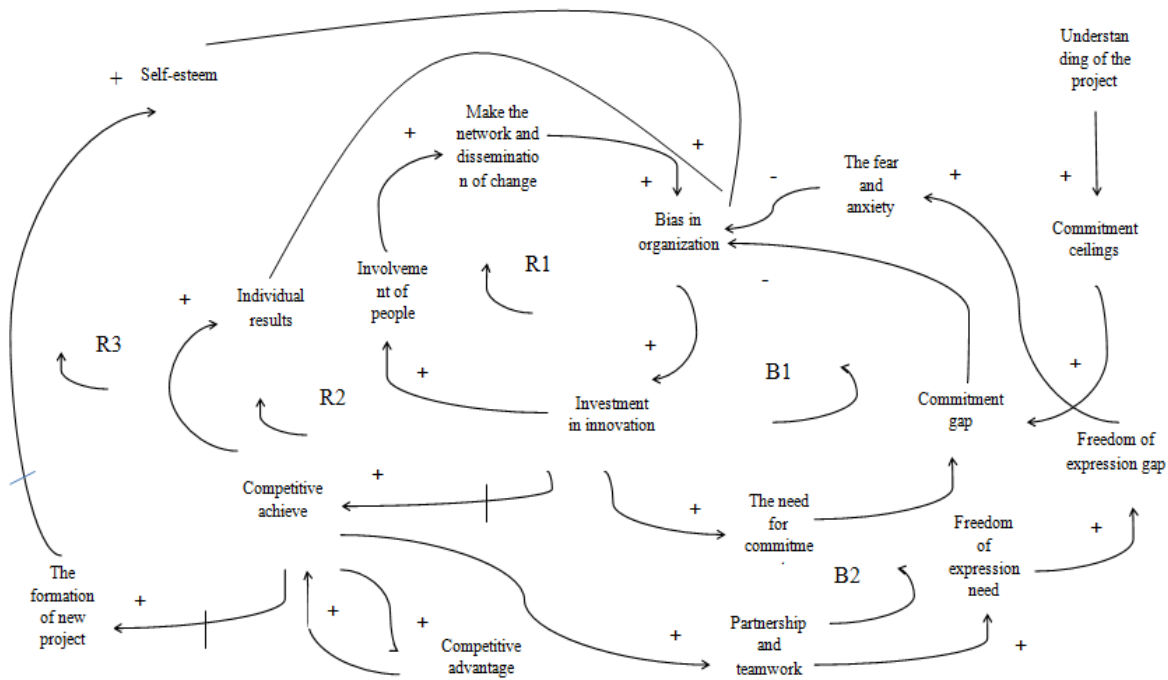


Fig. 2. .second subsystem

In this study, we know change management as an important factor in achievement of competitive advantage .In Fig. 1, the competitive advantage is shown as one of effective factor in selection of the leadership style of project management. Now, we analyse the factors of model that are related to change management. Factors shown in the model are green changes factors which are subset of nature time changes. These factors have been introduced by MIT University.

As shown in the Fig. 2, achievement of competitive advantage will create different abilities in staff of the organization. These capabilities are combined with a series of individual results and people experience will be increased. These individual results increase bias among the staff of the organization. This primary loop is called R1 because this loop is formed at the first. With increase of bias in the organization, investment in innovation and making changes are build. In fact, shareholders will create more innovation in the organization when they have bias in the organization. Investment in innovation will bring individual participation and it will create a network. This participation causes the publication of changes in the organization and again, it increase bias in the organization.

R2 loop is formed after R1 loop. In R2 loop, investment in innovation and changes is increased by increase of bias in the organization and then capabilities are obtained. After that, achievement of capabilities creates new projects with some delay. Formation of new projects creates self-esteem and self-esteem creates bias again. R1 loop and R2 loop and R3 loop are positive loops that increase bias in the organization and create capabilities and competitive advantages. As said before, bias is an engine in the organization. In system dynamics beside of positive loops, there are always negative loops in the system, these negative loops balance the system. In proposed model, we will study only B1 and B2 loop among several negative loops which are barriers to change in the organization. B1 is commitment gap loop and B2 is freedom of expression gap loop.

At first we study loop of B1: investment in innovation expands organization and creates requirement of commitment. This requirement at the next makes a gap of commitment (interval of personal commitment from the ideal range). This gap has negative effect on bias. Factors such as learning more about the project and the work due to increase of commitment and this increase has negative effect on commitment gap and decrease that. On the other side achievement of this ability increase the need of partnership and teamwork in the organization and this makes that we need freedom of expression in organization. This requirement is satisfied at the great range but it has an interval from ideal range and it creates freedom of expression gap. This gap makes the fear and anxiety of expression of opinion in the organization that this fear due to decrease in bias in the organization. As shown in Fig. 2, factors such as psychology factors have positive effect on personal and social capacity, This acceptance of freedom of expression due to decrease in freedom of expression gap. Finally this subsystem effects on the system that shown in Fig. 2 and creates competitive advantage that effects on project management leadership style.

CONCLUSION

How to select leadership style in the organization and executive team is so important in success of the team of a project in achievement of competitive advantage in market. On the other side management method and innovation are necessary for organization success. These factors have dynamic effects on each other and some of them are barriers for other factors and some reinforce each other. Therefore, the project management leadership should choose proper

leadership style regarding to project kind and create a suitable condition for confronting the changes in organization. Managers in organizations should guide organization to gain abilities and competitive advantages. This study investigate factors that are engaged in project manager's leadership style, teamwork and project success and presents a system dynamics model that can be a guidance for managers of organizations.

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