

Shared Leadership: An Analysis of the Evolvement Process across the Project Life Cycle

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Abstract—Shared leadership refers to an emergent team property, whereby leadership influence is distributed among team members. It is a dynamic phenomenon that has been widely endorsed by researchers. However few studies have focused on how shared leadership changes during a project life cycle. It is important for scholars and practitioners to recognize the evolution patterns of shared leadership over time, and to fully understanding the influence of shared leadership on team processes. Consequently, this research builds on previous work and presents a conceptual model that displays the characteristics of shared leadership over four phases of project life cycle: initiation, early phase, later phase and close. Our findings show that the optimal level of shared leadership appears in the early phase of a project, and when the team advances into later phase, the leadership turns to be more focus on few individuals. These findings bring important implications for both researchers and managers in industries.

Index Terms—Project life cycle, shared leadership, social network analysis.

I. INTRODUCTION

Problems related to team leadership are often regarded as the principal reason for the failures of team-based work [1], [2]. Because a single leader, despite the level of experience or educational background, it may be unlikely to have the sufficient knowledge and skills required to carry out all the leadership functions throughout the project life cycle [3]. This is owing to the fact that a project life cycle is made of the sequential phases, and each of them has different goals, missions, and resource allocation issues [4]. Numerous group studies have demonstrated that team performance needs to rely on its capability to draw upon the leadership skills from its members [5]-[7]. Therefore, a different form of team leadership, shared leadership has emerged in the literature and has proven to be more effective, compared to traditional hierarchical leadership structures [8]. Shared leadership, as a team-level construct, describes the state of mutual influence where group members participate in leadership activities, and undertake leadership responsibilities [9]. Moreover, shared leadership has proven to be affected by task complexity [1] and the internal team environment [10], thus, it may change over the project life cycle, as each stage has different task requirements. However, the current research in the shared leadership field mainly concentrates on the influences of shared leadership on team performance [8], [11], team effectiveness [6], [12], team creativity [13], [14] and team processes [9], [15].

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There is a dearth of studies that relate to how it unfolds within team and organizational settings. Therefore, we have little knowledge about how shared leadership evolves over time. This research, in order to gain a far more fine-grained understanding of shared leadership and its development, focuses on the project life cycle, and reveals the evolvement process of shared leadership during it. Our research also answers the callings in [10], [11], [16], to study how shared leadership develops or changes over time.

To do this, a theoretical model presented in [16] is used. This model considers shared leadership through the theoretical lens of social network analysis. Specifically it describes the characteristics of shared leadership in terms of network density and network centralization. We use this model to map the changed patterns of shared leadership over the project life cycle. Our analysis develops a conceptual model about how shared leadership evolves during the different stages of the project life cycle.

This study provides two key contributions to the current research in the shared leadership area. First of all, we display a better understanding of the concepts of shared leadership through classifying it into four key features. Secondly, by studying how shared leadership changes in the project life cycle, this research identifies the evolution track over time, so that we can gain a more integrated understanding about the influence of shared leadership on team processes.

The following sections discuss the extant literature associated with the core themes, namely shared leadership, project life cycle, and social network analysis. Based on an analysis of a theoretical model, we then put forward a conceptual model about how shared leadership changes during different processes of the project life cycle. After that, we discuss the research findings. Finally conclusions are drawn and the theoretical and practical implications are presented.

II. LITERATURE REVIEW

A. Shared Leadership

There are at least two sources of leadership influence within teams: one is from the appointed team leader; another from the team itself [13]. The former has received extensive attentions in the literature [17]-[19] and the latter has gained traction in more recent years [3], [9]. Our study concentrates on the leadership resources coming from its teams, where individuals exert leadership influence collectively. This type of situation is called shared leadership. Where leadership is shared, the relational structures of teams supplement the vertical leader-member influence with lateral peer influence [13]. Based on a synthesis of the literature, we propose that

there are four key features that can be used to describe shared leadership. These are (a) multiple, (b) interactive, (c) emergent, and (d) dynamic (shown in Table I). To be specific, shared leadership consists of multiple leaders within teams, rather than only a top-down leader [6], [11]; it is interactive in nature, describing a collaborative process of group interaction in which members engage in leadership activities while working together [9], [15]; based on [10], [20], it refers to a emergent phenomenon that means the serial arising of two or more leaders who perform leadership responsibilities; it is also a dynamic flow, which implies these leadership influence processes are simultaneous, and on-going [21].

TABLE I: FEATURES AND CONCEPTS OF SHARED LEADERSHIP

Features	Concepts	References
Multiple	Shared leadership consists of multiple leaders within teams, rather than only a top-down leader.	[6], [11]
Interactive	It describes a collaborative process of group interaction in which members engage in leadership activities while working together.	[9], [15]
Emergent	It refers to serial arising of two or more leaders who perform leadership responsibilities.	[10], [20]
Dynamic	It is defined as a leadership influence process that is simultaneous, and on-going.	[21]

Further to an extensive review of the literature, Table II synthesizes previous studies in the shared leadership field relative to research methods employed in the studies, the specific contexts in which the studies were conducted, and the key findings. These previous research, have proved that shared leadership, can enhance positive outcomes for both individuals and teams. For instance, members with shared leadership often experience less role overload, role conflict, role ambiguity, but greater job satisfaction [9]. Individuals also may become more responsible for decision-making process [22]. Furthermore, shared leadership was found to be negatively associated with team conflict, but positively related to team consensus, intragroup trust and cohesion [15]. In terms of the influence on team effectiveness, there are some debate in the literature. For example, both in [10] and [20], researchers found that shared leadership has positive relationship with team performance. However, in [11], researchers studied on field-based sales team and found that shared leadership cannot be used to predict team performance. Although there has been disagreements and controversy about the relationships between shared leadership and team performance, many empirical studies of shared leadership show its importance and demonstrate positive impacts to team processes and outcomes. Given that shared leadership is a dynamic process that changes over time, understanding when it occurs seems very important, so that we can facilitate these positive influences on groups. However, few studies in the shared leadership area have focused on it. Thus, this research tries to fill this gap, through exploring the development process of shared leadership in the project life cycle, to enhance team effectiveness in organizations.

B. Project Life Cycle

With the aims of analyzing how shared leadership evolves

throughout the project life cycle, it is necessary to figure out what is the project life cycle. It has been described as a sequence of identifiable stages, where the project is born, matures, carries through to old age and expires [23]. In general, these project phases are sequential, and each of them has different inputs and deliverables. This research divides the project life cycle into four phases [24], shown in Fig. 2. To be specific, 1) Initiation: this is the first stage of a project, which has very low inputs of cost and staffing. The main task is defining and authorizing the process. 2) Early phase: during the second stage, the inputs of cost and staffing increase gradually. In order to make a project managing plan, team members concentrate on defining and refining goals, planning and scheduling, as well as preparing and organizing [25]. 3) Later Phase: the inputs of cost and staffing continue to rise and reach to the top level. The project process focuses on integrating resources to carry out the plan, monitoring process for corrective actions and formalizing project acceptance [4]. 4) Close: when the project develops into the last stage, the inputs would decrease dramatically. The main task is project handover with final output being archived project documents.

C. Social Network Analysis

In order to better understand the evolution patterns of shared leadership, our research uses the theoretical model in [16] (see Fig. 1). This model considers shared leadership from the theoretical lens of social network analysis. Social network analysis (SNA), is regarded as an intrinsically relational method that provides complementary perspectives to advance our understanding of emergent form of leadership [11]. With SNA, this model describes the characteristics of shared leadership from two critical perspectives: network density and network centralization. The former is used to assess the emergence and quantity of interactions among team members. The latter is to measure the compactness and distribution of shared leadership.

As shown in the model, the vertical axis represents the density of shared leadership from low to high level and horizontal axis is the centralization. Totally there are four quadrants, and each of them has different degree of density and centralization. To be Specific, Quadrant I illustrates shared leadership with high density and low centralization, where team members fully exert leadership influence to each other, and the distribution of its effect is in an egalitarian way. It symbolizes the highest level of shared leadership. Quadrant II has high density and high centralization. It shows the leadership in a strong hierarchical structure, where most members connect to one or few individuals who make decisions for the team and stay at the center. Quadrant III has low density and low centralization. It embodies a low-moderate degree of shared leadership, in which there are small numbers of interactions, but with equal distribution.

Quadrant IV with low density and high centralization is totally opposite to Quadrant I. It means that there is domination by the few but with small quantities of links within groups. There even are some isolates in teams that several individuals has no connections to others at all.

TABLE II: STUDIES, METHODS, CONTEXTS AND FINDINGS IN THE SHARED LEADERSHIP AREA

Studies	Methods	Contexts	Findings	Researchers
Team effectiveness	Aggregating ratings	Change management teams	Shared leadership is a more useful predictor of team effectiveness than vertical leadership.	[6]
	Meta-analysis	Not defined	Similar as above	[12]
Team Functioning	Behaviorally anchored rating scales	Decision making teams	Teams with shared leadership experience less conflict, greater consensus, and higher intragroup trust and cohesion than team without shared leadership.	[15]
Team performance	Social network analysis	Consulting teams	The more leadership is distributed among team members, the better the team's performance.	[10]
	Aggregating ratings	Top management teams	Similar as above	[8]
	Social network analysis	Field-based sales teams	Shared leadership was not found to predict team performance.	[11]
Team Innovation	Aggregating ratings	Work teams	Shared leadership exerts positively impact on teams' level of innovative behavior.	[22]
Team Members	Aggregating ratings	Top management teams	Shared leadership was found negatively related to team member role overload, role conflict, role ambiguity and stress, but positively to job satisfaction.	[9]

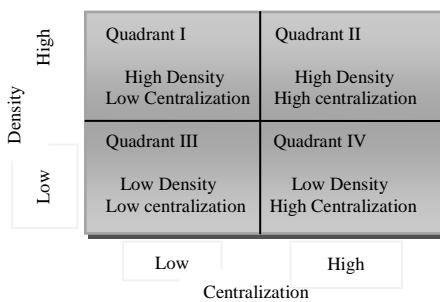


Fig. 1. Characteristics of shared leadership with social network analysis [16].

III. MODEL GENERATION

This research proposes a conceptual model that illustrates the evolvement process of shared leadership in the project life cycle, displayed in Fig. 2. In this model, shared leadership shows different features in the different phases,

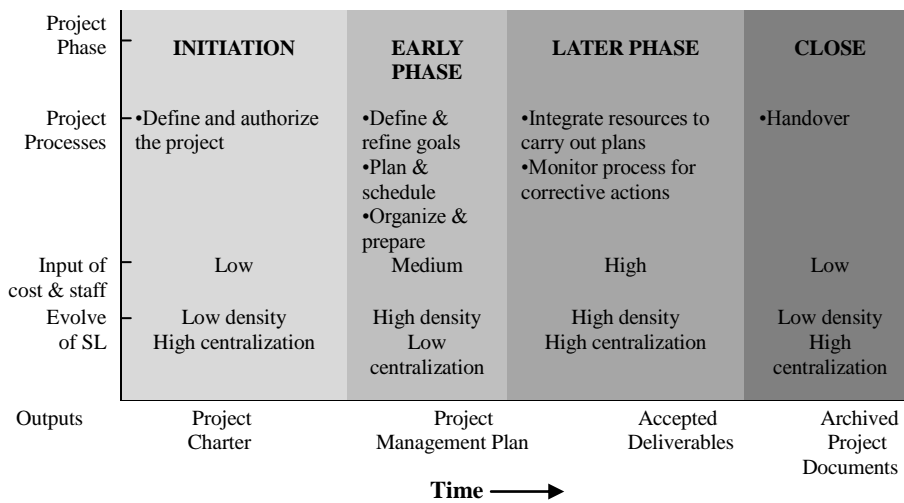


Fig. 2. A conceptual model of the evolvement process of shared leadership (SL) across the project life cycle.

• Early Phase: In the early stage, we propose that shared leadership has a high degree of network density and low centralization. First, due to the fact that the focal concern of the project teams centers on planning [4], [26], members will tend to have integrated cross-functional communication

as a result of changes happened in project processes, inputs and outputs.

• Initiation: at the very beginning of a project, the cost and staffing levels are low. The main tasks for managers are defining and authorizing a specific project. However, they face the greatest challenge of bringing together members who might be not familiar with each other in a short time. Much work centers on building shared understanding and smooth working relationship [13]. Moreover, because a project are likely to be equipped with members bringing varying knowledge bases and niche specialties often highly technical, the process of communication and integration may be further complicated. In this internal team environment, there is a hindering effect for members to displaying leadership activities [1], [10]. Thus, the amount of interactions among team members would be small. Besides, as few individuals are very central to make decisions in the beginning of a project, centralization of shared leadership would be high.

and coordination with each other. This interaction motivates individual experts to share and exchange information [25], which in turn helps to increase the level of familiarity among team members. Shared leadership is more likely to emerge in this situation, where greater number of actors

participate in the decision-making process and exert leadership influence collectively [13]. As a result, network density of shared leadership may be high because of large amounts of quantities of leadership influence within teams. Moreover, network centralization is low, due to the equal distributions of these influences among individuals. Therefore, at the early stage of a project, the shared leadership could represent the optimal level: high density and low centralization.

- Later Phase: As the teams advance into the later phase of the project, shared leadership would stay at a high level of density, but change become highly centralized. The main reason is that the emphasis of this phase is on executing project plans to meet deadlines and keep cost within budgets [25]. In particular, when the actual operations start, leadership responsibilities tend to gradually focus on few members who engage in integrating resources (cost and staffing inputs are in maximum level) to carry out plans. In addition, they are also required to monitor implementation processes for corrective actions. The need of controlling for the whole project in later stage is also a sign of shared leadership becoming centralized. The theoretical underpinning is based on the research in [27]. They found that there are few leaders in a team that can provide all the specific directions required to carry out task successfully. Outcomes related to this leadership role are maintaining the task-oriented project teams, particularly keeping it in time, and within budget. Thus, shared leadership presents high-level density and high-level centralization.

- Close: During the last stage of a project, the inputs of cost and staffing decrease dramatically. As the simplicity of tasks, the density of shared leadership is in a low degree and centralization in high. It will go back to the initiative status.

IV. DISCUSSION

This research explores how shared leadership changes in the project life cycle. We found that the highest level of shared leadership occurs, not at the later phase of a project, but the early phase where team members are encouraged to engage in interacting, cooperating and exchanging information toward planning and strategy generation. It is consistent with the emergence of shared leader reported in [10] and [21], who found that shared leadership would emerge in an environment with high levels of ‘voice’ associated with interaction of behaviors and participation in decision making.

Researchers have proposed two possible situations about the development process of shared leadership over time [28]. One is that team members have the opportunity to develop leadership skills so that leadership responsibilities would be collective within teams. On the other hand, a vertical leadership model can be fostered as time went by, due to the fact that one or a few individuals might consistently demonstrate greater leadership competence to group members. In this research, we assume that the leadership is more shared and distributed among team members during the early phase, but it changed to be more focus on few individuals in the later phase. The main reason lies in the changes of tasks during different stages of project life cycle, which is also accordance with arguments in [1], that the task

complexity plays a significant role in the successful implement of shared leadership.

V. CONCLUSION AND IMPLICATIONS

In conclusion, shared leadership is an important resource available to teams, which offers significant benefits for team process and team performance. By understanding the characteristics of shared leadership through the lens of social network analysis, this research focuses on the evolution of shared leadership throughout the project life cycle. We analyze the changed patterns of shared leadership and found that the early stage of a project is more conducive to the emergence of shared leadership than the later stage.

There are some suggestions and implications for both researchers and managers in industry. For researchers, our study on the shared leadership evolvement process provides a theoretical basis for further empirical work. Longitudinal investigations should be needed to examine how shared leadership changes over times. Because of the difficulty of collecting real data on numerous field-based teams, especially over time, we propose a feasible suggestion to overcome it. That is, researchers can follow the classic work in [29] to create experimental teams within laboratory settings, which allows them to design a wide range of various leadership structures and examines the development process in a controlled setting. As for managers or team leaders, this conceptual model provides the basic framework for them to manage a project. Besides, our findings suggest that the higher levels of shared leadership occurs in the early phase than the later phase. This advocates that the early stage is best time for managers to focusing on developing strong internal leadership patterns in order to maximize team effectiveness in organizations.

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