Shared Leadership for Better Understanding Agile Teams

Jakub Perlak[1][0000-0002-9639-9655]

[1] AGH University, Krakow, Poland
j.perlak@gmail.com

Abstract. Leadership has been considered from every angle (almost) and the efforts are going strong. New ideas, books and trends, fads are popping out frequently. It's not a secret that leadership in Agile is a fundament, started looking from attitude and roles up to practice at every level of the organization. Leadership in Agile Teams is still under dispute. It is time to embrace shared leadership, a very helpful concept in describing an emergent team phenomenon whereby leadership roles and influence are distributed among team members. This approach has surprising support in studies about team performance, well-established history, and even anecdotal evidence from practitioners. This very short paper presents results from the initial research of the author.

Keywords: Agile Teams, Self-Organized Team, Shared Leadership.

1 Introduction

The environment of software development has been evolving over the years as long as the different forms of teams have been adopted. Agile methods over the last two decades [1] have become a widespread phenomenon. One of the most common forms of teams is self-organizing teams. Naturally, the question of the leadership nature of such teams has been raised [2]. In this very short summary, the author presents initial results from PhD research on shared leadership in Agile Teams. Shared leadership is defined along with studies based on social network analysis (SNA). The paper is finished with early results.

2 Shared leadership within research

Shared leadership can be described as a team-level emergent phenomenon where one or more team members take responsibility for leaders [3]. Among many possible leadership concepts that can help with a better understanding of the teams working with Agile methods, shared leadership brings promising light [2]. Shared leadership is a vivid concept and is under profound research by many scholars [4]. One of the interesting research streams in Shared Leadership is the usage of social network analysis [4].

The author takes inspiration from the classification of shared leadership [4] divided into four categories (Fig.1). The categories are created on a level of parameters, from low to high levels of density and decentralization. The first category concerns the lowest level of shared leadership, which is potentially hierarchical, where a low level of decentralization (or, conversely, a high level of centralization) indicates leadership still based on a certain hierarchy of the dominant person in the middle of the network, with the density of connections is high, which indicates that the connections are strong with people at the center of the network. The second category, defined as a low level of shared leadership, is characterized by a low level of both decentralization and the level of density of connections and corresponds to low shared leadership in the proposal of Carson and colleagues [3]. The third category, originally called moderate level, concerns an egalitarian distribution of leadership but with a low level of interaction, defined by low density [4]. Here, the more the level of density increases, but still only to the medium level, we have the equivalent of the medium level of shared leadership [3]. The last category is the category with a high level of shared leadership, where the network of connections is highly decentralized (or in other words the level of centralization is low) and the level of network density is high.

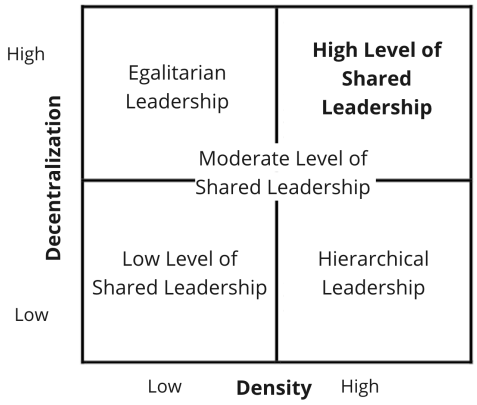

Fig. 1. Shared leadership classification

3 Method

The data collected as part of the survey was used for network analysis. Social network analysis, abbreviated SNA (Social Network Analysis), is widely used in social sciences and increasingly in management sciences [5]. Studying the systems of social relations between various actors and their connections is a research challenge. Network analysis tools allow for a comprehensive capture of such dependencies [5]. It is no coincidence that SNA is commonly used in the study of constructs such as shared leadership in a team [4].

	A	B	C	D
A	0	0	1	1
B	0	0	1	0
C	1	1	0	1
D	1	0	1	0

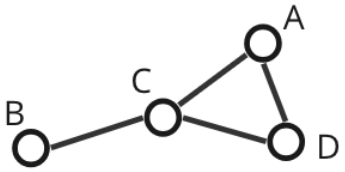

Fig. 2. Adjacency matrix and network graph

Data analysis in the case of social networks offers many possibilities and has a very rich number of measures [5] The study in this paper focuses on two measures of network density and decentralization. Density (G) in a directed network is the number of nodes (m) divided by the number of all possible nodes (n), which can be represented by the formula:

$$G = \frac{m}{n(n-1)}$$

The common measure in SNA is the centrality measure [5]. The group degree centrality (GDC) is the sum of the difference of the maximum degree centrality of a vertex (maxDC) to the specific degree centrality of a given vertex (DC) by the number of vertices in the network, which can be expressed by the formula:

$$GDC = \frac{\sum(\mathrm{maxDC}' - \mathrm{DC}')}{(\mathrm{N}-1)(\mathrm{N}-2)/(2\mathrm{N}-1)}$$

The group degree centrality measure takes values from 0 to 1. Where 0 means that all vertices in the network are equal, and when the value is 1, we have a case where one node completely dominates other nodes.

4 Results

In the collected data for 9 teams, most of them were around the average level of shared leadership. Missing responses from most team members, as in the case of teams 4 and 1, placed the shared leadership score in the "egalitarian leadership" quadrant, or in the low level of shared leadership, as in the case of teams 8 and 7. Network visualization along with the definition of shared leadership allows for a deeper look at the situation in each team and allows for recommending improvements.

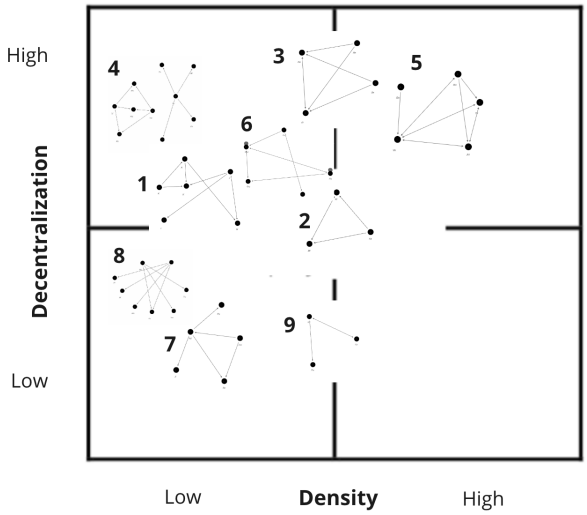

Fig. 3. Results of SNA analysis

Presenting the above analysis to assembled teams demonstrates the potential of social network analysis in exploring the issue of shared leadership. The undoubted advantage of the graphical illustration of the network in the form of a sociogram allows conclusions about its potential characteristics. Of course, this is a fragment of a rich method of social network analysis [6] and is only a foretaste of the possibilities offered by SNA, with a larger number of responses from teams.

5 Discussion

Shared leadership studied using Social Network Analysis can be a useful lens for examining leadership in teams, including Agile Teams. The amount of data collected from individual teams did not allow for a full SNA analysis. However, the collected sample showed the possibility of the method in the study of shared leadership. Self-organizing teams on average have a moderate level of shared leadership. It can be an implication for collaboration that is important in Agile [1].

Further research on leadership in self-organizing teams is recommended.

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