

Teams or Communities? Organizational Structures for Knowledge Management

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ABSTRACT

Organizations are looking for new organizational structures in order to improve their knowledge management. Knowledge management is a general umbrella concept that covers many different processes, but here we limit ourselves to three specific knowledge management processes: knowledge creation, knowledge legitimization, and knowledge sharing. With this purpose in mind, we examine and define two types of group structures: teams and communities; and we elaborate propositions on their advantages and disadvantages for creating, legitimizing, and sharing knowledge in organizations.

Keywords

Teams, communities, organizational structure, knowledge management, knowledge creation, knowledge legitimization, knowledge sharing.

1. INTRODUCTION

There is general agreement that knowledge management will represent the biggest competitive advantage for organizations in the new millenium [15, 42, 51, 54]. Nevertheless, the agreement stops there. Everybody defines knowledge in a different way and offers different prescriptions on how to manage it. The learning organization is widely accepted and also the fact that learning can no longer be done exclusively by the isolated individual [49] and that the new work unit is the group. However, the term group is still too vague. There are many distinct group configurations and no configuration suits all types of tasks.

In this paper, we first examine and define two group configurations: the team and the community. They are not the only group configurations available to organizations nor are they opposites, but we believe they differ widely in their effectiveness to carry out particular tasks of knowledge management. Accordingly, we present three knowledge management processes: creation, legitimization, and sharing. They do not cover all the management knowledge processes but they are good examples. Next, we make propositions on how the structure of teams and communities may be more or less adequate for each of those processes. Finally, we discuss the implications of our propositions.

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2. LITERATURE REVIEW

2.1 Groups

Research has shown that organizations increasingly carry out knowledge work through groups instead of individuals. Groups are becoming the basic unit of work [17, 57]. PC software, one of the basic tools of the knowledge worker, is increasingly becoming GroupWare or at least "group-aware". However, there are many different types of groups.

Whenever more than two individuals do something together we call them a group. Depending on the number of individuals, the task they try to accomplish, the time they spend together, and many other factors we give these groups different names. Friends, families, teams, and communities are some of many group types. In layman terms, friends are people who spend time together, enjoy each other's company, and help one another; families are people with blood bonds; teams are small groups of people who try to accomplish something together; and communities are large groups of people that have common characteristics. Nevertheless, these definitions are too vague to be useful for managers who want to structure their organization competitively.

Following the principle of equifinality, there may be several group configurations that are adequate for one task. However, there is no one configuration best structured to accomplish all types of tasks [22, 37].

The literature is increasingly mentioning the use of "teams" and "communities" in the more competitive organizations. Unfortunately, there are almost as many definitions of the term "team" as there are books on the subject. The term "community" is more widely accepted, although there are still too many different interpretations of it. The following sub-sections discuss and define teams and communities in a form useful for management.

2.1.1 Teams

There are many interpretations of to the term "team". According to Katzenbach and Smith [31], "a team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable". Dyer [16] defines teams as "collections of people who must rely on group collaboration if each member is to experience the optimum of success and goal achievement". Additionally, some authors [22, 31] emphasize the criteria of effectiveness and synergy.

Teams are groups composed of a few individuals [31]. Since "few" is a relative term, they venture to say 25 as the largest feasible size; but new advances in communication technologies allow for even larger teams. There is general agreement in the literature [23, 30] that team members have to: trust each other, coordinate the work among themselves, understand each other's

importance for the task, and hold each other accountable. Therefore, if the team is too large, coordination and communication and especially keeping track of what all other members are doing, becomes extremely complex for the individual [9].

Interdependency is a critical factor in defining a team [1, 22, 55]. If the work required for the task can be divided in small pieces and each can be performed separately without any coordination other than meeting a common deadline, then, the group is not a team. Furthermore, all members of a team are equally responsible for the quality of the outcome. This creates an additional dependency among the team members who become mutually accountable to each other and mutually interested on each other's successful achievement of their respective task.

Synergy is an important reason for creating a team [16, 23]. When only additional manpower is required, any group of individuals who have the necessary knowledge can undertake the task. Teams, on the other hand, are groups that have synergy [22].

For Katzenbach and Smith [31] only effective groups are real teams; but complementarity and effectiveness are outcomes of the composition and smooth functioning of the team; therefore, they cannot be used to define the group as a team. If all members of the team have all the qualifications required to perform any task, then there is redundancy on the team. Complementarity allows for a similar result with less resources (or in other words, with an initially less qualified set of team members). Some teams will be effective while others will not. Successful completion of the team's goals is certainly desirable but teams can also fail and that will not make them less of a team.

The goal must be clear, measurable, and accomplishable [22]. General objectives are not goals. A group of people without a measurable and accomplishable goal is not a team [34]. They would not be able to measure each other's performance and mutual accountability would suffer. Goals must also be accomplishable in a relatively short period. Teams can go on to pursue new goals once they have accomplished their current goals, but they have to terminate or discard one set of goals before they start another. Before a goal is relinquished, all team members should agree on whether it was accomplished or not.

The reason for each team member to join the team may be different but the goal of the team must be the same for all and should be properly understood. Neither synergy nor good coordination could develop if the goals of the team are not the same and properly understood by all. Furthermore, in order to accept mutual accountability, members have to trust each other. An important part of that trust derives from the fact that all members understand the importance of the common goals to each of them and that the goals are the same.

Team membership is fairly stable [31]. As an exception, new members can join the team in mid-life and others may leave. When a member either joins the teams or departs from it, coordination and trust suffer. New members have to earn the old members' trust as well as learn to trust them. They have to understand what other members are doing and how they all interrelate. Members that depart generally leave behind unfinished tasks and gaps in the capabilities of the team. In fact, team members can be critical to the survival of the team.

The purpose of a team is to accomplish a set of clearly defined goals; not the survival of the team per se. Good team members

should be able to keep on working together in new teams once the current one is disbanded, but the accomplishment of the goal should not be subordinate to the survival of the team as a form of association among those individuals. Individual member's safety or welfare should not be sacrificed for the team to succeed (if this would happen, the members at risk would not trust the rest nor would they continue to work towards the common goal).

Teams require a large commitment from its members. An individual can be part of several teams at the same time, but not of too many teams simultaneously.

In summary, we define teams as:

A small group of perfectly identifiable individuals committed to a common, clear, measurable short-term goal that requires their coordinated and interdependent effort for which they hold themselves mutually accountable and who get together for a finite amount of time.

2.1.2 Communities

Recent studies have shown that there may be communities inside organizations and that such communities may provide a competitive advantage to their parent organizations [3, 32] But a scan of the management literature still shows very limited research in the area (with the notable exceptions of the previous work and that on electronic communities by Sproull and colleagues). Thus, in order to understand the intrinsic meaning of communities we have to refer to literature in sociology and anthropology.

Communities are generally seen as a large group of people who are collocated and that satisfy the safety, welfare, and social needs of its members [25, 46]. Advances in transportation technologies [50] and more recently in communication technologies have allowed for other types of communities to emerge. Thus, more recent definitions of the concept of communities are less rigid with respect to collocation [48]. We now have electronic communities composed of people who are not collocated. In that stream, Markus [35] defines a community as a group of individuals who communicate more within than across the boundaries of the group and share a common interest. In addition, we also interpret the gay or the black community as a community and not simply as a group. Still, all communities must satisfy multiple needs and there is some sense or feeling of belonging to the community in all its members [36].

Due to the large size of a community, many members may not interact among one another, or even not know each other [50]. Still, they will recognize each other's membership to the community. Although all members are supposed to work towards the benefit of the collective, that is not always the case; and as long as they do not act against the collective, the free rider is not always detrimental to the group as a whole (e.g. lurkers in an electronic community).

The purpose of the community is quite general and encompasses the needs of its members. Some communities will try to satisfy all the needs of its members as is the case of isolated tribes, but most communities are neither independent nor self-sufficient [36]. The less collocated a community, the less self-sufficient and all-encompassing it will be. Still, a community must satisfy more than one need. There will be some interdependence among members, but no one member is essential for the survival of the community [46].

A community may have one or several objectives. Members of the community engage in tasks to accomplish those objectives. The objectives must be clear to the whole community but the reason for their importance and commitment to its accomplishment may vary from one member to another. Not all objectives are accomplished and new objectives arise as old ones fade. The *raison de être* of the community goes further than just accomplishing one goal. The accomplishment of the common objectives gives life to the community.

Communities generally outlive individual members. Communities generally do not have predetermined life terms and exist as long as its members feel a need for it and act accordingly. This longevity creates a need for the community to "take care of their young" and "socialize the new members". Membership is not fixed and some members will disappear while others will join later in time. Many members actively work on ensuring that some one will replace them when they leave or die. But the survival of the individual member is generally less important than the survival of the community.

Communities are often not all encompassing. An individual can be a legitimate member of many communities at the same time. As s/he joins more communities, the attachment to each one lessens but the sum of all her or his "loyalties" is larger than the single "loyalty" that results from belonging to only one community. Analogously, the total satisfaction of the individual from all its memberships tends to be greater than that which results from belonging to only one community [18]. The variety of communities now available around the world allows individuals to satisfy needs that were not formerly satisfied.

To belong to a community does not absorb a great deal of energy or attention of an individual. That is because not all members have to be fully active participants in the community. Moreover, in some community forms the participation of most members is minimal as in the case of many UseNet groups. Still, all of them are legitimate members.

In the management literature, communities are described as emergent and thus could not be created [3]. Still, designers (e.g. managers, urbanists) can create the conditions for specific communities to arise. A community will only appear if the members feel some attachment and need (or use) for it. In order to create an urban community one has to build the living quarters but at the same time promote the conditions that will encourage people to move there. To build an electronic community one has to facilitate the infrastructure and provide an agglutinating theme to a critical mass of prospective members. Inside large corporations managers can also encourage the emergence of "communities of practice" by facilitating and even promoting interactions among its potential members [52].

Therefore, within an organizational context, we define community as:

A long-lasting group, composed of a large number of people with common recognized objectives that satisfy some of their individual needs, with low coordination but with many weak ties among members, where no member is critical for the survival of the group or the accomplishment of the common objectives.

Teams and communities are not the two extremes of a single continuum. They are similar in some dimensions while different

in others. There are groups that are not clearly one or the other. Still, to define their characteristics will help us analyze their advantages and disadvantages in tackling distinct knowledge management processes.

2.2 Knowledge Management

While we still can not fully grasp and define the term knowledge, there is general acceptance that sustainable competitive advantage in the 21 century will only be accomplished through knowledge management [15, 42, 51, 54]. Learning at the individual and the organizational level is believed to be the only source of sustainable competitive advantage [7, 12]. Knowledge management is interpreted by some authors as managing the intangible assets of the organization [53]. After examining the increasing importance of the service sector of the economy and the inputs that it requires, emerges another point of view: that knowledge management is mainly the management of the knowledge worker [42]. But others emphasize that to manage knowledge there is a need to separate the knowledge from the particulars of a specific knowledge worker [10]. Therefore, a perfect definition is not necessarily required in order to improve knowledge management.

For over 30 years we have witnessed discussions on the role of computers inside the knowledge process. Herbert Simon [47] believes that computer may parallel human thought and thus may produce some knowledge in the future. Dreyfus [14], on the contrary, believes otherwise and argues that living beings are the only creators and holders of knowledge. Blackler [2] adapts and extends Collins [6] knowledge types and suggests that there exists "embrained", "embodied", "encultured", "embedded", and "encoded" knowledge. Therefore, he argues, knowledge may reside in humans but also in groups of people, in organizations, in routines, and in software. For our purposes, knowledge may reside in different places but it is only knowledge if it helps an individual to act (or not to act) based on it. Thus, knowledge only has meaning when interpreted (or learned) and acted upon by the individual [13, 24].

One way of structuring knowledge management is by dividing it into the different basic processes that take place. Myers [38] divides the process in knowledge acquisition, codification, and transfer. Ruggles [44] divides it in knowledge generation, codification, transfer, and implementation. Others use a similar concept but with smaller and more specific grouping, as knowledge: creation, codification, storage, retrieval, validation, and sharing. Finally, when Jordan and Jones [28] try to study how knowledge helps organizations achieve superior performance, they study the processes of acquiring (creation), retaining (storing) and sharing knowledge.

Nonaka [40] classifies knowledge as tacit and explicit and believes that knowledge is created in the continuous conversion, back and forth, between tacit and explicit. His four processes (socialization, internalization, externalization, and combination) are all geared towards knowledge creation although they are at the same time accomplishing storage, legitimization, and sharing of knowledge. Since he sees knowledge existing only in people's understanding, he seems to conclude that the more individuals believe to have the same knowledge, the larger is the knowledge base of the group; an opinion also shared by Quinn [43].

Since (1) we have not found a generally accepted knowledge management framework and (2) the purpose of this paper is not to create one, but to define two group configurations (teams and

communities) and to hypothesize how those configurations may affect knowledge management processes; we are going to select three generally accepted knowledge management processes that are not all-encompassing, but are good exemplars of the whole.

We believe that knowledge creation and knowledge sharing are two clear, accepted, and distinct processes (included in most of the above-mentioned classifications). Knowledge storage is another currently accepted process, but since there is much controversy on where knowledge resides, we do not use it for our examples. Knowledge codification suffers from the same controversy; and we exclude it also. Finally, we include knowledge legitimization, which although seen by some as part of the creation or the sharing processes, seems to be less controversial.

2.2.1 Knowledge Creation

Knowledge creation is the process by which an individual gains some new insight. The new insight may be the result of an internalization or socialization process as defined by Nonaka [39]. The process may involve one or more individuals and it may be an individual or a collective insight. Collective insights may take either the form of many individuals having the same individualistic insight, or of collectives learning how to behave more effectively. Organizations are beginning to understand that planned knowledge creation requires group collaboration instead of individual actions [26]. But for both, the individual and the organization, there is the requirement of previous related and unrelated knowledge which Cohen and Levithal [5] call absorptive capacity. Both are needed in order to acquire the new knowledge and make it useful to the user.

The insight may come from learning facts, as is the case of a young child learning how to add or read. It can come from the discovery of something that although it did exist long before, was not yet known to man, as is the case of Ernest Rutherford's discovery of radiation. It can also come from the creation of a new method or design, as Sir Isaac Newton's differential calculus or Leonardo DaVinci's Mona Lisa.

In organizations, one common knowledge creation process is product innovation; another, is organizational strategy design.

2.2.2 Knowledge Legitimization

"Seeing is believing" used to be a maxim, but we no longer believe everything we see. We still have doubts as to whether anything is real or just an illusion. When we read something new, we still ask ourselves if it is true (especially if it comes from the tabloids). When people tell us certain facts, we are not always convinced of their truthfulness or of their capacity to fully understand what they are saying. We always try to test whether that new knowledge is true. The testing of new knowledge is what we call "knowledge legitimization".

Testing if "2+2" is really "4" is an easy test, but testing the amount of electrons in an atom of oxygen is quite another thing. Most of us believe we know how many electrons are contained in an atom of oxygen not because we counted them ourselves, but because we either trust the teachings of our professors or because the explanation given by them was plausible and we see no better explanation (or both).

Following our previous organizational example, strategies have to be legitimized. It is not enough for management to announce a strategy, they have to make sure that the organization believes that

it is feasible and will be followed. Improperly supported strategies are rarely followed.

2.2.3 Knowledge Sharing

Most of the knowledge that a fully grown human being possesses was not created by him/her but by someone else and shared with him/her. Our schools are the most common places for knowledge sharing, although, knowledge sharing starts at home from the day we are born. Knowledge sharing does not stop on the day that we graduate; we keep on learning from our own doings (which is closer to knowledge creation) and the doings of others. Firms are generally trying to control knowledge creation and sharing. They try to create as much knowledge as they can, distribute it among their stakeholders as they see fit, and stop sharing when it comes to competitors.

In order to share some knowledge it first has to be created, then it has to be legitimized, and finally, it may be distributed. You can not distribute what you do not have. Since most people will not accept what you give them at face value, you will have to legitimize its value and accuracy at the same time.

In our organizational example, strategies are not useful when they are kept exclusively in the heads of those who created them. Organizations have to share their strategies with all the stakeholders. Stakeholders have to understand the strategy and the ways in which it is going to be implemented.

3. PROPOSITIONS

According to Pinchot [41] managers in bureaucratic systems are responsible for total coordination of their subordinates; while in postbureaucratic organizations, teams of peers handle the coordination. Nevertheless, management is responsible for creating such teams. Teams are a form of organizational structure as is the m-form [4, 45] and the matrix form [11, 19]. Managers choose between the different organizational structures, and teams are not the ultimate solution to all of the organizational problems. An alternate solution may be to build communities [52]. But, neither the individual, the team, nor the community are the solution to all the problems. Thus, we will now build hypotheses on when a team or a community would be a better organizational structure for each of the chosen knowledge processes.

Knowledge creation, especially that which is planned for, requires a series of highly interrelated steps. Those steps will build up into the final result. They may all be taken by the same individual or by a group of individuals. When a group takes them, the individuals have to be closely interrelated since those steps are interdependent of one another.

Still, we must acknowledge that the closer and more homogenous the teams is, the less effective it will be for knowledge creation. Extreme team homogeneity may limit knowledge creation by the rejection of new ideas due to the *not-invented-here* syndrome [5]. One way in which teams get to be very homogenous is when they live too long [29].

Teams are specially designed for solving highly interdependent tasks. Team members are dependent upon one another and are highly coordinated. On the other hand, members of a community have a lower level of dependency and coordination. Most members of a community have little or no idea of the activities that other members are performing even if they are community-related activities. Therefore, since communication and

coordination is much looser in a community than in a team, we believe that:

H1: A team is a more effective structure than a community for planned knowledge creation

Following Blackler's [2] classification of knowledge, the previous hypothesis should hold for all types of knowledge except for encultured knowledge. But we believe that encultured knowledge is a very particular case. To create encultured knowledge we have to carry out all three processes (creation, legitimization, and sharing) several times in order to create a culture inside the organization, just as described by Nonaka's spirals [39]. Encultured knowledge creation requires less coordination and interdependency, while it needs more socialization and multiple ties. Thus,

H1a: A community is a more effective structure than a team for planned encultured knowledge creation

Knowledge has to be legitimized before it can be shared or distributed. What is legitimate for one person, may not be so for another. Legitimization can come from showing the entire deductive or inductive process that took place to create that piece of knowledge [33], or by having an individual endorsing the result [56]. The first form of legitimization is the strongest of all, but it is the most difficult to accomplish. Such a process may be too complex for the recipient to understand. Or it may be too long or too expensive to be repeated over and over again by each recipient. Therefore, in most cases, we resort to the later form of legitimization.

Legitimization must come from a trustworthy entity to be accepted by the intended recipient [56]. Not all entities are accepted as trustworthy by everybody and those few which are universally accepted can not, and will not, lend themselves to legitimate a piece of knowledge that they do not fully understand.

The process of legitimization is especially crucial for newly created knowledge that has not been as widely endorsed as traditional knowledge may have been [56]. The legitimization process may be a multiple-step process where knowledge is legitimized and distributed by one person to a larger group of people, then, that group does the same to an even larger group, and so on. Still, the initial legitimizing power is reduced as the number of intermediaries grows. It is not the same to say, "I know..." than to say, "Somebody whom I trust told me that s/he knows somebody that..."

A person with a strong positive tie to the intended recipient of the knowledge piece would be the most adequate person to legitimize it. On the other hand, studies have shown that weak ties are also reliable sources of knowledge [8] and today people tend to have many more weak than strong ties [20]. People with strong ties generally possess similar knowledge; thus, most new knowledge comes from dissimilar people joined by weak ties. It is through those bridges built with weak ties that new knowledge generally passes from one group to another [21]. Members of both, teams and communities, will have weak ties for which they can legitimize knowledge, but the larger number of community members in comparison with that of teams, will create a more powerful ripple effect. Therefore:

H2: A community is a more effective structure than a team for legitimizing knowledge

Following the same line of reasoning,

H3: A community is a more effective structure than a team for knowledge sharing

Both legitimization and sharing are processes that are best handled on a one-to-one basis. Knowledge transfer does not occur instantaneously, people need time to absorb information and convert it into personal knowledge [27]. A large numeric base of individuals at the start of the process will make the difference in quality and size of the effect. An exception may present itself when sharing encoded knowledge. If we believe that the sign and symbols that represent encoded knowledge can be easily copied and shared with others by distributing the media, then we do not need a community nor a team to accomplish the task, but just effective technology.

4. KEY RESEARCH CHALLENGES

To corroborate the previous hypothesis we foresee three important obstacles: (1) obtaining a large enough sample of teams and communities to study, (2) operationalizing the knowledge management tasks, and (3) making sure that those tasks are in fact top priorities for those teams and communities.

Teams are commonplace in organizations. Moreover, managers are constantly creating new teams to accomplish specific tasks. The creation of teams is not very complex nor costly. Thus, once we obtain cooperation from management at various organizations, we should be able to find all the required teams. However, the problem with communities is quite different. Communities are pervasive in large organizations, but they are found in fewer numbers. And although we could create communities, creating them for the only purpose of testing these hypotheses is not reasonable. Thus, we are limited to the existing communities in large organizations.

The knowledge management task has to be uniform for the teams and communities. But most knowledge management tasks are intertwined. There is very little use for knowledge creation if it is not shared among members and, to be shared, it has to be previously validated. Furthermore, we have not found validated measures of the quality of such processes; thus, it will not be easy to determine if one team or community did a better job than another.

Managers are generally the ones who assign goals and priorities to teams. So, management commitment should be enough to include the tasks as high priority in teams. On the other hand, already existent communities have their own objectives and it is not as easy to insert a set of high priority tasks into their agendas. That leaves us with only those communities that already have the desired "set of tasks" on their agenda.

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