Management Structure and Work Team Processes; Responsibilities and Responsiveness

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Abstract

This paper explores the management structure of the team-based organization. First it provides a theoretical model of structures and processes of work teams. The structure determines the team's responsibilities in terms of authority and expertise about specific regulation tasks. The responsiveness of teams to these responsibilities are the processes of teamwork, in terms of three dimensions, indicating to what extent teams indeed use the space provided to them.

The research question that this paper addresses is to what extent the position of responsibilities in the team-based organization affect team responsiveness. This is done by two hypotheses. First, the effect of the so-called proximity of regulation tasks is tested. It is expected that the responsibility for tasks positioned higher in the organization (i.e. further from the team) generally has a negative effect on team responsiveness, whereas tasks positioned lower in the organization (i.e. closer to the team) will have a positive effect on the way in which teams respond. Second, the relationship between the number of tasks for which the team is responsible with team responsiveness is tested. Theory suggests that teams being responsible for a larger number of tasks perform better, i.e. show higher responsiveness.

These hypotheses are tested by a study of 109 production teams in the automotive industry. The results show that, as the theory predicts, increasing numbers of responsibilities have positive effects on team responsiveness. However, the delegation of expertise to teams seems to be the most important predictor of responsiveness. Also, not all regulation tasks show to have effects on team responsiveness. Most tasks do not show to have any significant effect at all. A number of tasks affects team responsiveness positively, when their responsibility is positioned lower in the organization, but also a number of tasks affects team responsiveness positively when located higher in the organization, i.e. further from the teams in the production.

The results indicate that more attention can be paid to the distribution of responsibilities, in particular expertise, to teams. Indeed delegating more expertise improve team responsiveness, however some tasks might be located better at higher organizational levels, indicating that there are limitations to what responsibilities teams can handle.

Introduction to the Literature

The issue of control plays an important role in the literature of autonomous or self-managing teams. Increased autonomy of teams in organizations results in a transfer of responsibilities and decision making power - in other words, control -from management to employees on the 'floor' (Van Eijnatten & Van der Zwaan 1998). The internal control function

of work teams has been described and studied extensively, often referred to by the term autonomy. A great deal of literature in this respect focuses on the task-design of teams. The autonomy of teams is often described and assessed in terms of both control needs and control capacity. The task characteristics of the work on a micro-level, and (mostly) on the lowest organizational level, are subject to numerous studies (Schouteten 2001). However, little attention is paid to the importance of implementing an overall control structure for the team-based organization, in other words, to the management structure external to teams. Some literature on cross-functional teams stresses the need for "eliminating or radically changing the role of the traditional functional management structure" and "tailoring almost all aspects of the organization to support the new reality that teams… are the basic performing unit of the organization", "in order to create true collaboration" in these teams (Mohrman, Tenkasi, & Mohrman 2000). LP literature reports on the "gap between the old and the new organization" after implementing teams with a higher degree of responsibilities; this took away one supervisory level in the organization (Karlsson & Åhlström 1996).

As we said, there is a limited amount of literature about the overall management structure of organizations working with semi-autonomous teams. There is some literature with a sociotechnical background on the issue; for instance, Thompson and Wallace (Thompson & Wallace 1996) refer to the "governance structure". However, their study mostly focuses on the role of the team leader. The role of the team leader or manager is also subject to the study by Doorewaard, Van Hootegem and Huys (Doorewaard, Van Hootegem, & Huys 2002). They focus on "the division of job regulation tasks between team leader and team members" in the "team responsibility structure". Both De Sitter (De Sitter 1994) and Van der Zwaan (Van der Zwaan 1999) developed a model, which distinguishes between internal versus external and routine versus non-routine regulation tasks. They argue that contrary to classical functional organizations - where working groups have no responsibility and first line supervisors are responsible for all routine tasks - all internal and external routine tasks in team-based organizations are delegated to the team, while all non-routine tasks are the responsibility of the team manager (coordinator).

There is other LP and Continuous Improvement literature dealing with organizational structures around teamwork (Delbridge & Barton 2002; Lindberg & Berger 1997). The type of teams referred to in this field of literature often concerns parallel teams or so-called off-line teams, such as quality circles.

Nevertheless, what is lacking in both LP and STS literature are fully elaborated models for characterizing the management structure of the overall team-based organization, as a frame of reference, or a clear empirical basis concerning the effects of the management structure on the functioning of work teams. This constraint of both traditions (LP and MST) might lead to a misfit between the typical characteristics and needs of semi-autonomous teams on the shop floor on the one hand, and a "traditional functional management structure" (Mohrman, Tenkasi, & Mohrman 2000) and similar support system within the organization, on the other hand. Kuipers and De Witte (2005b) call this the "double control structure" of an organization, in which both bottom-up and top-down control are used simultaneously.

In this study we aim to contribute to the body of knowledge concerning the overall management structure (in particular its division of control), particularly in relation to team responsiveness; the effects of this structure on the functioning of teams are underexposed. This means we will need to define the team responsibilities that form the framework or maneuvering space of teams. In short, team responsibilities means what teams can or are allowed to do, whereas team responsiveness shows to what extent teams are really doing this. Following we explore how these team responsibilities relate to team responsiveness. For this

we use three dimensions of responsiveness that characterize the developmental processes of teams.

Operating and Managing Systems

To provide insight into the management structure of team-based organizations Rice (1953; 1958) and Miller (Miller 1959) generally differentiate between operating and managing systems in organizations. Rice (Rice 1958) describes how the organization can be differentiated into different order systems. These orders are more or less comparable to hierarchical layers (Mintzberg 1979). The lowest order is the undifferentiated primary production system. The primary production concerns input, throughput (or conversion) and output of raw materials into products. At this level, in industrial jargon called the shop-floor, "separate operating systems cannot be discretely identified, and primary production systems are reached, in which management, control, and service are internally structured" (Rice 1958). This is the level of the work team, "which [comprises] a set of activities that [make] up a functioning whole … the basic unit" (Trist 1981), in other words, the semi-autonomous team with a complete task. Needless to remark, larger organizations can contain many teams, more than one primary production system and several orders of differentiation (Rice 1958).

The system external to the operating system is the managing system (Rice 1958). Rice & Trist (1952) defined this as "the system, external to the production unit, which controls, coordinates and services its activities". The authors also call the overall set of systems "the governing system" or "general management". Henceforth, we will use the term management structure. In the managing system, a management order is situated on the boundaries of the operating systems, since the management concerns "the mediation of relationships between the (operating) system and its environment" (Rice 1958). In other words, the relationships between the teams and other aspects in the teams' environment need to be managed; to this effect both a control and a service function are used. Teams contain the service and control of the primary process and the managing system contains the service and control of the teams.[1] Rice states that "the greatest operational efficiency is achieved when the functions of control and service are contained in the managing system of the same order as the operating system controlled and serviced" (1958); in other words, the management and support of production should be positioned as close as possible to the shop-floor operations. The exact border between control and service proves hard to define, since they are both "managerial functions at different places on a continuum" (Rice 1958).[2]

Doorewaard et al. (2002) do not refer to control or service, but discern three types of tasks in the management structure. They name these "three groups of job regulation tasks"; "work preparation", "work support" and "work control", based on De Sitter (De Sitter 1994). Doorewaard et al. (2002) discuss to what extent the team is responsible for these regulation tasks, or weather the team leader is in charge of them. With that perspective they consider only a two-order differentiation, with a team level and a team leader level, while Rice (1958) considers the order differentiation of the entire organization, including all hierarchical levels as well as service functions. Both authors relate the management structure to performance. Rice

[1] As mentioned earlier, the operating system also contains internal control and service. Rice (1958) says about this: "An operating system carries out a part of the primary task of the total production system; by contrast, a control function of the managing system does not".

[2] Control also implies delivering a service and a service implies a degree of control.

(1958) hypothesizes that "a managing system should contain all the functions necessary for effective performance and that their location outside the system, for whatever reason, decreases effectiveness". Doorewaard et al. (2002) conclude their study based on the opinions of line managers and HRM staff, with the notion that locating responsibilities at the teams increases the performance. However, the division of responsibilities between teams and other levels in terms of concrete regulation tasks is not clearly defined by any author (De Sitter 1994; Van der Zwaan 1999). Most authors distinguish only between control located inside or outside the team, while this position outside the team is limited mostly to the level of team manager or coordinator. We conclude that in the literature the management structure of team-based organizations is hardly elaborated.

Responsibilities and the Management Structure

Trist (1981) mentions how autonomous teams are learning systems and as such increase their decision space. The approach of our study is that teams do not increase their decision space all by themselves, but that control and service have to be delegated first. In our model, we will consider the teams' responsibilities as this decision space, noting that the concept of team responsibilities encompasses all the regulation tasks that have been delegated from the management structure downward to the team. It is this space, which is actually a property of the management structure, to which teams react in terms of team responsiveness. The important elements of the management structure and the resulting team responsibilities are summarized below:

- The *management structure* of an organization has a hierarchy consisting of different orders, containing both operating systems and managing systems.
- *Operating systems*, which are work teams that are responsible for a part or the whole of one or more of the primary processes of an organization.
- *Managing systems*. Managers throughout the organization control and service the operating systems - not the primary process - by managing the boundaries between teams and their environment.
- Control and service activities concern specific *regulation tasks* that can be related to the function of organization units.
- The *location of control and service* is either in an operating system, a managing system or a functional department.
- Control and service located with the operating systems determine the *team responsibilities*, also called the decision space of the team.

Based on the model by Rice (1958) and including the previously discussed elements, a schematic representation can be drawn from the management structure in a team-based organization (see Figure 1). It should be noted that the model does not show the location of regulation tasks (which are defined later in, but only the possible location of control and service regarding specific regulation tasks. The figure represents an example of an organization with three hierarchical levels: teams at the bottom, two management layers and a number of support functions, for instance maintenance and HR. Each two teams are managed by a second order managing system, a team manager for example, while in turn the two managers are positioned under a first order managing system, like a department manager. Each of the systems, operating or managing, contain service and control functions regarding specific regulation tasks. The overall organization is serviced on all three levels by support functions.

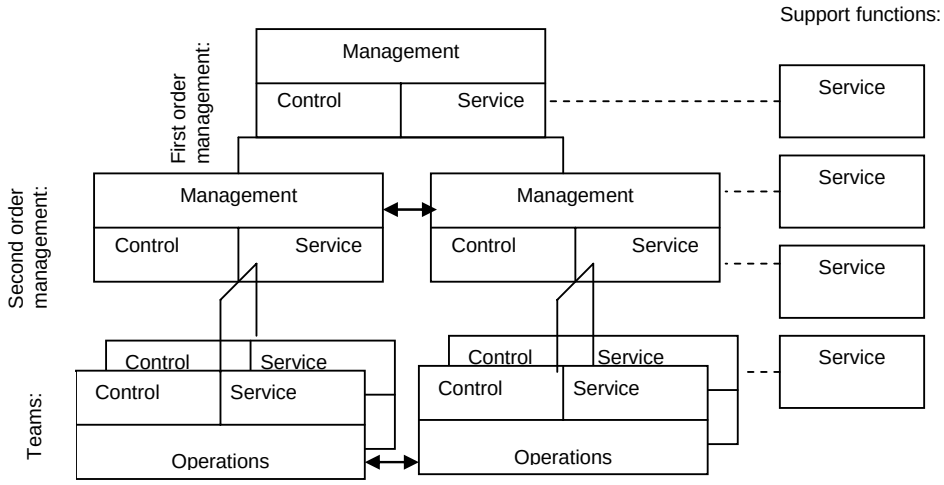

Figure 1 Management Structure of the Team-Based Organization (based on Rice,1958)

Rice (1958) formally does not define the terms "service and control", he leaves it up to the organization to regard a function either as service or control. For service he uses the example of production engineering, for control he mentions quality control. However, it is possible that they are regarded as both service and control. For the purpose of analyzing the management structure, we shall make a further distinction between service and control. We see the service function as specific expertise, while we regard the control function as authority. In case of quality control there is a certain expertise about what quality is and how to deal with it, besides there is the authority to ensure that a certain quality is delivered. We shall further elaborate on both in this section.

The expertise for a regulation task has to be located somewhere in the organization. This can be at an operating system (a team), a managing system (a team manager), a functional department (like the quality department) or even outside the organization (outsourced services). In comparing expertise to terms that are used in literature, we found two definitions. In terms of Molleman (2000), expertise can be seen as the can modality of teamwork, which expresses "the skills and abilities of the workers". Karlsson and Åhlström (1996) address this issue by referring to the training given to teams in different functional areas, but also by taking note of indirect tasks3 either performed by the team or by support functions. The question is where the expertise for a certain regulation task is located best to 'service' team responsiveness.

The same question is valid for the control function, in our terms, the authority for a regulation task. Kuipers & De Witte (2005b) regard authority as the formal entitlement of executing regulation tasks. Entitlement is a difficult term which ends in a lot of confusion, not least within the daily affairs of organizations. Authority will be referred to here as being in charge of, or in command of, performing a certain regulation task. It is not the actual execution of regulation tasks that matters here, but the formal authority entitled to make arrangements and final decisions; this to avoid the subtle difference between delegated control and formally entitled control. The term authority shows similarities with Molleman's may of teamwork modalities (2000), which "has to do with the distribution of control within an organization and refers particularly to local autonomy and decentralized control". Karlsson and Åhlström (1996) in this respect, refer to the decentralization of authority and relate these to "the number of hierarchical levels in the manufacturing organization". In other words,

[3] By indirect tasks they mean tasks that do not form part of the production function itself.

authority can be located lower or higher in the organization. Also, authority and expertise need not necessarily be on the same location. It is very well possible, as is the case in most line organizations with support functions, that the formal authority is located in the line of command, while expertise is provided by parallel support functions or even by functions outside the organization, for instance, external consultants.

So far we discussed literature that referred rather generally to control tasks or regulation tasks located on team level or team manager level. Each of these publications introduced only some examples of regulation tasks (Van der Zwaan 1999). Trist (1981) provides the example of maintenance as a support service, Rice (1958) mentions production engineering and quality control as examples of control and service functions, and Doorewaard et al. (2002) name a few examples for work preparation, work support and work control tasks. Of course, it is almost impossible to provide a full list of all possible regulation tasks in an organization in general, since this is dependent on the type of organization and the primary process to which its regulation tasks should be supportive. Kuipers and De Witte (2005b), however, developed a list of twelve crucial regulation tasks in an automotive plant for their diagnostic model for empowerment in team-based organizations. In this study we will use the same twelve tasks in determining the location of responsibilities. These 12 tasks are: (1) Personnel planning, (2) Training and education, (3) Working methods, (4) Material supply, (5) Product development, (6) Process development, (7) Personnel recruitment, (8) Production engineering, (9) Personnel appraisal, (10) Maintenance, (11) Health care and (12) Production planning.

Team Responsiveness

Team responsiveness we see as the process of team behavior as a response to given circumstances and inputs. These inputs can vary from job-design to leadership. In this paper, however, we consider the input of responsibilities to team responsiveness. Team responsiveness can be compared to team development theories on the one hand and process theories on the other hand. Team development is often considered by phase theories, stemming from the field of group dynamics (such as Tuckman 1965; Schutz 1958) and the contemporary management literature (Wellins, Byham, & Wilson 1991; Katzenbach & Smith 1993). However, some important criticism have been given to the, often normative, approach of sequential phase theories (see Seeger 1983; Gersick 1989; De Leede & Stoker 1996; Arrow 1997). Therefore we consider the alternative provided by process theories, for which various terms are used, such as "team attributes" (Dunphy & Bryant 1996), process dimensions (Marks, Mathieu, & Zaccaro 2001) or development dimensions (Hut & Molleman 1998; Kuipers & De Witte 2005a).

The approach we use for team responsiveness comes from Kuipers (2005) and is a combination of the processes of Gladstein (1984) and the team attributes by Dunphy and Bryant (1996). The result are three dimensions of teamwork (Kuipers 2005):

- *Job management* – the extent to which the team manages the broadening and deepening of its function,
- *Joint management* – the extent to which the team manages internal processes and common accountability, and
- *Boundary management* – the extent to which the team explores and develops its boundaries.

Each of these dimensions shows important relationships to team results, both in terms of business performance and quality of working life (Kuipers 2005).

Relating Team Responsibilities to Team Responsiveness

For exploring the relationship between team responsibilities and team responsiveness the location of regulation tasks can be considered in two ways. First, the proportional distance of authority and expertise towards teams in the organization, and second the total number of regulation tasks delegated to the team. Both indicate the location of team responsibilities, and team responsibilities are expected to have an impact on team responsiveness. The numbers provided in the figure refer to the hypotheses that will be formulated next.

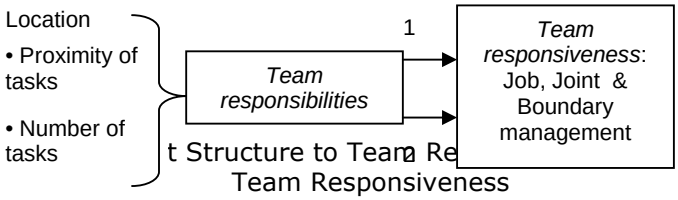

Figure 2 From Project Structure to Team Responsiveness: the Relationship with Team Responsiveness

The main assumption concerns the effects of team responsibilities on team responsiveness. Employing the framework of Rice (1958) for the management structure, the team responsibilities concern the location of service and control, which we have translated into expertise and authority. Teams cannot be expected to fully independently "absorb certain…functions" as Trist (1981) suggests. Instead, the expertise and authority for these functions (2002) are located somewhere in the organization, and as such are delegated or not to the working team. It is the proportional distance between the team and the actual location of expertise and authority for a certain regulation task that determines the responsiveness of teams. Rice (1958) formulated the following proposition:

"The greatest operational efficiency is achieved when the functions of control and service are contained in the managing system of the same order as the operating system controlled and serviced."

The assumption that follows from this proposition is this:

"The inclusion of a control or service function in a managing system of a different order from the operating systems controlled or serviced, implies an organizational weakness (Rice 1958)."

These assumptions refer to the location of authority and expertise for regulation tasks, which are indicative for the team's responsibilities. Two hypotheses can be derived from this in relation to team responsiveness.

Hypothesis 1: There is a positive relationship between the proximity of expertise and authority for a regulation task to a team and a team's responsiveness, with expertise and authority located closer to the team resulting in higher levels of responsiveness.

Hypothesis 2: There is a positive relationship between the number of regulation tasks that is fully delegated to the team and the team's responsiveness.

Hypothesis 1 refers to the management structure indicative for the overall organization. The proximity, in other words, the distance between the team and the actual location of the regulation tasks in the organization, is of importance here. For this hypothesis, we need to consider the actual location of expertise and authority for each specific regulation task at either the team level, one of the managerial layers or the functional departments.

For hypothesis 2, we consider the issue of team responsibilities differently. Here, the total number of tasks delegated to the team is of importance. The suggestion is that teams that

generally have a higher number of responsibilities show more responsiveness. By counting the number of tasks for which the team has authority and for which it has expertise and by relating this to the team's responsiveness, the hypothesis can be tested.

Methods and Measures

To test our hypotheses we studied the organization of a Volvo plant in Sweden. In this plant we surveyed 36 team managers and the members of the 119 teams for which they are responsible. All teams are so-called work teams in the production (Cohen & Baily 1997; Sundstrom et al. 2000). With a team development questionnaire of 46 items (Kuipers 2005) among the team members we measured the three dimensions of team responsiveness; joint management, job management and boundary management. The location of authority and expertise we measured for all twelve regulation tasks (Kuipers & De Witte 2005b) by interviewing the team managers.

Authority refers to the location of the formal entitlement to a regulation task in the organization. To start with, we have operationalized proximity of authority by the hierarchical level to which authority is located. The Volvo plant has five hierarchical levels. At the lowest hierarchical level there is the team (1) as the basic organizational unit. The second level is that of the team coordinator (2), which can be a team group coordinator or a special coordinator for specific tasks, such as maintenance or quality. This latter type of coordinator exists primarily in the body-in-white department, where specific technical expertise is required to work with the welding-robots. The third level is that of the team manager (3). Department managers that supervise the team managers of the same department belong to the fourth level (4). The highest level (5) is for the plant management. The team managers were asked to indicate on which of these five levels the authority for a regulation task is located.

A different classification of proximity is used for expertise. The division of expertise in the organization cannot be as strict as for authority, since expertise often is shared, whereas formal authority is not. Generally, four different locations of expertise can be distinguished: 1) supporting agents or departments as full experts, 2) supporting agents or departments with support or input from the team, 3) the team with support or input from supporting agents or departments, and 4) the team as full expert. At level 1 the expertise is located fully at a person or department external to the team, while at level 2 this person or department is dependent on input from the team. The latter is a form of shared expertise in which the external department or person is leading. At level 3 the opposite is the case: here the expertise is shared, but it is the team which has the leading expertise and the supporting department or agent only plays a supporting role. At level 4 the team is the autonomous expert and no external inputs are required. The team managers were asked to indicate on which of the four levels the expertise for a regulation task is located.

We have operationalized the location of authority as the number of regulation tasks delegated to the team. Therefore, we will simply count per team for how many tasks the manager indicated a level 1 for authority. We will use the same procedure to count the number of regulation tasks for which the team has the expertise.

Hypotheses 1 and 2 are each tested with a regression model. For hypothesis 1, the proximity of authority for all regulation tasks is entered into the regression model, and one by one the effects on joint, job and boundary management are tested. The same model is used for the proximity of expertise. The hypothesis is accepted in case the majority of tasks show a positive and statistically significant relationship, meaning that locations of regulation tasks lower in the organization result in higher team responsiveness.

For hypothesis 2, the number of regulation tasks for which the team has authority as well as those for which the team possesses the expertise are counted. These total numbers are entered into a cross-sectional model and related to all three dimensions of team responsiveness. The hypothesis is accepted if there is a significant positive relationship between the number of tasks for which the team possesses the authority and the expertise for at least two of the responsiveness dimensions.

Descriptives

Figure 3 provides a nice visualization of the division of authority and expertise over different levels within the Volvo plant. Noteworthy is the overall percentage of regulation task authority that is located at the team and team manager level. Both hold a similar percentage of about 42%; this means that a large majority of the authority is in hands of team and team manager, while other levels only play a minor role. Comparing the distribution of authority with those of expertise, it is interesting to see that teams hold the smallest percentage of expertise, whereas their share in authority is much larger. This indicates that that expertise and authority for a certain regulation task are not always in the same hands (similar observations were made by Kuipers & De Witte, 2005b). Nevertheless, more than half of the expertise in the organization is shared and for the majority of tasks the team is the first expert with the support of other agents.

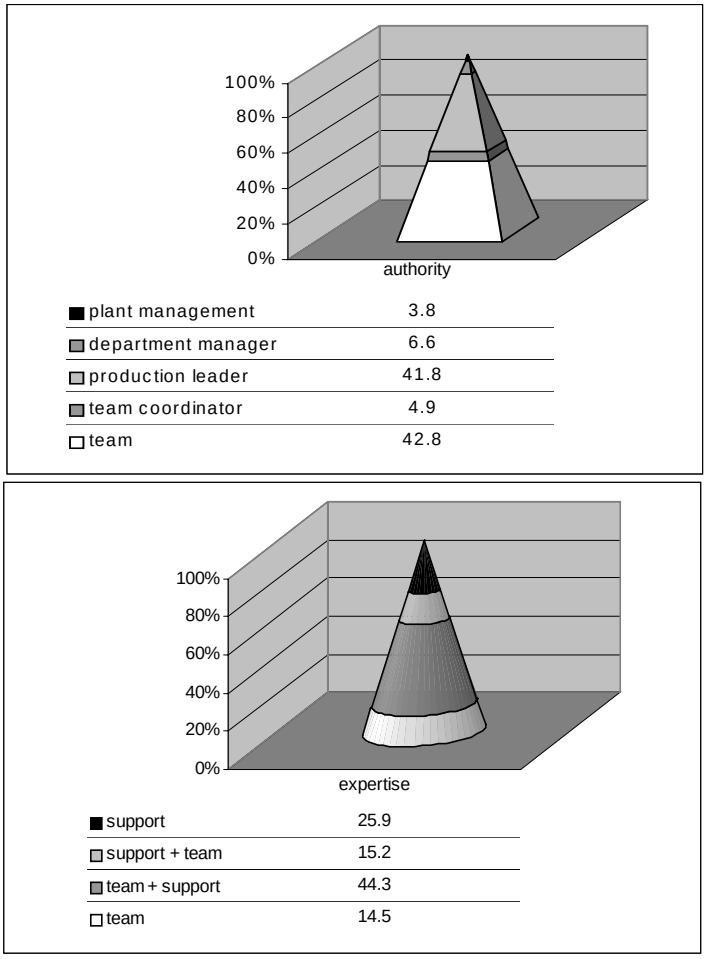

Figure 3 Location of Authority and Expertise at the Volvo Plant, in Percentages of Regulation Tasks per Hierarchical Level

Results

The Effects of the Proximity of Authority and Expertise

Hypothesis 1 says that if authority and expertise are located closer to the team, or within the team, higher team responsiveness will be the result. This hypothesis is based on Rice (1958), who states that this location is an organizational strength. To test this hypothesis, a regression analysis was used in which all regulation tasks were entered as input to the three dimensions of team responsiveness. The score for authority and expertise (their hierarchical positions in the organization) indicate the proximity of a regulation task's actual location to the team it concerns. This means that with a score of 1 the authority for a regulation task is at the team level and with a score of 5 that authority is at the level of the plant management. According to the hypothesis, the first situation is favorable for team responsiveness. The same is the case for expertise, where a score of 1 refers to expertise on team level and a score of 4 refers to expertise at the level of a supporting agent.

The results of the analyses are listed in the tables 1 (for authority) and 2 (for expertise). The outcomes for job, joint and boundary management are shown separately. While the first twelve rows show the beta for the regulation tasks' location, the last row provides insight into their total explained variance for each responsiveness dimension. A positive β in this case means there is a positive effect on team responsiveness when expertise or authority is located higher in the organization (with larger distance from the team). A negative β means that there is a positive effect on team responsiveness when the expertise or authority is located lower in the organization.

Table 1 Regression Analysis' Results for the Effects of *Authority* on Team Responsiveness

	Standardized coefficient Beta		
Authority	Job management	Joint management	Boundary management
Regulation tasks			
Personnel planning	-.221	.072	-.358**
Training & education	-.010	-.145	.054
Working methods	-.053	-.104	-.159
Material supply	.115	-.203	.098
Product development	.283¹	.403**	.134
Process development	-.343*	.082	.020
Recruitment	.081	-.089	-.028
Production engineering	.229*	-.062	.042
Personnel appraisal	-.160	.037	-.111
Maintenance	.159	.116	-.121
Healthcare	-.260¹	.210	-.067
Production planning	.017	.006	.164
Total R^2	.209*	.230**	.208*

*p<.05, **p<.01, ***p<.001, (¹p<.1), degrees of freedom=108

The most important conclusion regarding the results shown in table 1 is that hypothesis 1 needs to be rejected for the relationship between authority and responsiveness. The location of

authority for most regulation tasks has no significant effect on team responsiveness, and of the few significant effects only 5 out of 36 relationships show the expected outcome.

The results in this table show how the location of authority for the twelve regulation tasks explains a little more than 20% of the variance for each of the dimensions. In case of job management there are a few tasks for which the location of authority has a significant effect. A closer location of authority for process development and healthcare to the team turns out to contribute to the development of job management. Job management, however, is better off with authority for product development and production engineering located on higher levels in the organization. The location of the authority for product development at a further distance from teams is also positive for joint management. Boundary management profits from locating authority for personnel planning lower in the organization.

Table 2 Regression Analysis' Results for the Effects of *Expertise* on Team Responsiveness

	Standardized coefficient Beta		
Expertise	Job management	Joint management	Boundary management
Regulation tasks			
Personnel planning	-.083	.106	-.454**
Training & education	.208¹	-.075	-.015
Working methods	-.225¹	-.077	-.226*
Material supply	-.038	.174	.110
Product development	.204¹	-.032	.221**
Process development	.004	.005	.207¹
Recruitment	-.207¹	-.017	-.531***
Production engineering	.106	-.195	-.055
Personnel appraisal	.046	.128	.228¹
Maintenance	.159	-.023	.068
Healthcare	-.104	-.191	.027
Production planning	.201¹	-.200¹	.155
Total R^2	.301***	.160	.457***

*p<.05, **p<.01, ***p<.001, (¹p<.1), degrees of freedom=109

Sub-hypothesis 1, about the effects of expertise, is not supported either by the data concerning the relationship between expertise and team responsiveness (see table 2). Only 12 out of 36 relationships show significant outcomes, while in case of only half of these relationships the expected effect is found. For the rest of the regulation tasks there is no significant positive effect of expertise located lower in the organization on team responsiveness.

The results concerning the location of expertise in the organization are diverse. The total percentage of explained variance varies over the three responsiveness dimensions. Job management appears to be positively affected by the expertise for working methods and recruitment located lower in the organization, while the expertise about training and education, product development and production planning is better located higher in the organization. The expertise for the latter regulation task, production planning, affects joint management with a location closer to the team. Such an outcome forms a dilemma: whatever the location of expertise for production planning, it is always negative for either job or joint management. Maybe the middle location, at the level of the team manager, is the golden mean in this case.

The location of expertise for several tasks has positive effects on boundary management. In three tasks cases (personnel planning, working methods and recruitment), expertise shows positive effects of a location lower in the organization, while for another three tasks (product development, process development and personnel appraisal) the location higher in the organization affects team responsiveness positively.

In sum, hypothesis 1 can be rejected, considering both the effects of authority and expertise. For 7 tasks, the distance of expertise or authority further from the team shows significant positive impact on one or more responsiveness dimensions. On the other hand, the three dimensions are positively affected by the location of 9 regulation tasks closer to the team.

The Effects of the Number of Regulation Tasks

In this section, we will look at the total number of tasks for which authority and expertise are delegated to the team (hypothesis 2), expecting a higher number to result in higher levels of job, joint and boundary management. The effects of the number of tasks delegated to teams is tested with a cross-sectional model for responsiveness (table 3).

Table 3 Regression Analysis' Results for the Relationship between Number of Tasks on Team Level and Team Responsiveness

	Standardized coefficient beta	
Number of regulation tasks	Model 1	Model 2
Joint management		
Authority	-.149	-.119
Expertise		-.110
R^2	.022	.033
R^2 change	.022	.011
Job management		
Authority	.027	-.067
Expertise		.348***
R^2	.001	.113
R^2 change	.001	.112***
Boundary management		
Authority	.188*	.095
Expertise		.340***
R^2	.035	.142
R^2 change	.035*	.107***

*p<.05, **p<.01, ***p<.001, (¹p<.1), degrees of freedom=117
Model 1: enters authority, Model 2: enters expertise

The outcomes show positive and statistically significant relationships between the number of regulation tasks for which expertise is delegated to the teams on one hand and both job management and boundary management on the other. Increased numbers of expertise seem to make the team more multi-functional, they support the decision making process, improve the work communication and performance management, and also seem to make the team use more management and support activities. Expertise about a larger number of regulation tasks

might be an important condition for each of these aspects of job management. The same is expected for the aspects of boundary management. Expertise about more regulation tasks can be considered an important resource for initiating improvement activities, carrying out advanced management and support activities, as well as maintaining customer and supplier relations.

Authority for more regulation tasks seems to be of less importance to team responsiveness than expertise. The model shows no significant relationship between authority and responsiveness. The delegation of authority for more regulation tasks only shows a significant positive effect for boundary management. Perhaps the authority for tasks is required besides the expertise, to initiate more improvement activities, maintain better customer and supplier relationships, and take care of advanced management and support activities.

The conclusion is that the number of regulation tasks for which expertise is delegated to the team is an important predictor for team responsiveness. In total, the relationships between expertise and job management and boundary management are significant and positive for both dimensions. Therefore we consider hypothesis 2 to be supported only by the data for expertise. We may conclude that it seems that expertise on team level is a more important predictor for team responsiveness than authority on team level.

Discussion

A few remarks need to be made regarding this study. First, there generally is little empirical material about the management structure of team based organizations. This study was predominantly meant as an exploration to see to what extent the location of responsibilities can be measured and to what extent this location relates to the responsiveness of teams. Further research within this field is still necessary.

Second a few specific remarks need to be made about the effects found for the proximity of authority and expertise. Especially the authority delegated to teams was considered to be important, but the outcomes show that the location of authority for regulation tasks needs to be considered for each single task specifically. For a large number of tasks no significant results were found. Perhaps the location of their authority is of no importance to the responsiveness of teams. Only a few tasks show a positive effect if their authority is located lower in the organization. Both job and joint management are even positively affected by a location of authority for certain tasks higher in the organization. Contrary to the hypothesis that the delegation of authority is always positive for teamwork, in some cases team responsiveness gains from regulation tasks located higher in the organization, at a greater distance from the team. This interpretation leads to the conclusion that simply locating the authority for all types of tasks as low as possible in the organization is not positive for team responsiveness. Also, it seems that delegating expertise for all regulation tasks is either positive or negative for team responsiveness. Maybe some tasks are preferably located higher and others lower in the organization to have positive effects on the three dimensions. The outcomes of the analyses contradict the theory by showing positive effects on responsiveness when located on higher levels in the organization.

Summary and Conclusion

This paper described the management structure of a Volvo plant and tested 2 hypotheses which overall both needed to be rejected. Nevertheless, the results of this study are rather interesting.

The locations for authority and expertise of twelve crucial regulation tasks were determined. The delegation of these tasks, varying from personnel planning to product development, showed how the authority for the majority of regulation tasks was in hands of the team manager, followed by the team. For most of the expertise concerning these tasks the team is also dependent on some support from others.

Hypothesis 1, stating that the proximity of authority and expertise affects the team's responsiveness, could not be supported; this type of location only seems to be of clear importance for a small number of tasks. The specific kinds of tasks to be delegated seem to require special attention. Certain tasks, maybe, should not be delegated to teams and should instead be left at a higher organizational level.

The number of delegated regulation tasks (hypothesis 2), on the other hand, does matter; for instance, an increased number of team responsibilities appears to have a positive impact on team responsiveness. This hypothesis is supported by the data for expertise, since both job and boundary management are affected by a higher number of tasks for which expertise and authority are delegated. Expertise shows to be a better predictor than authority in this matter. This hypothesis need to be rejected for authority; thus appears to be only related to boundary management.

In sum the delegated number of regulation tasks is more important than the location of the specific tasks in the organization. It is suggested that increasing the number of delegated tasks, in particular increasing the expertise can enlarge team responsibilities. However, it seems that a few specific tasks should not be delegated to the team. Team responsiveness is supported in these tasks by expertise or authority at a further distance from the team. The approach that increased team responsibilities, regardless the task, always improve the team functioning, needs to be reconsidered.

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