

The influence of (de)centralization on motivation

An empirical study

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Abstract

This paper investigates how top management can use management decentralization to influence motivation of employees within the Royal Netherlands Air Force. The different types of decentralization under investigation relate to the degree of concentration of power and the segregation of duties, instruments and responsibilities. The three types of decentralization considered are: limited vertical decentralization, vertical decentralization and clean decentralization. The general hypothesis, that decentralization has a positive or negative effect on motivation dependent on the type of decentralization, is tested in a survey among 112 managers working on ten different departments or military airbases in the Netherlands. The paper contributes to the extant literature in at least two ways. First, it adds to the limited literature that examines complex influences on motivation. Second, the paper explicitly recognizes the role of decentralization in the optimal organization of businesses in order to influence the motivation of employees in a positive way.

Introduction

Decentralization occurs in larger companies that operate in an unpredictable, uncertain environment (Zimmerman, 2003). This applies to a large extent to the different Services that fall under the responsibility of the Ministry of Defense (MOD). Due to their specific tasking the Royal Netherlands Command Navy, the Royal Netherlands Army Command, the Royal Netherlands Air Force Command and the Royal Netherlands Marechaussee Command, each operate, in their own specific terrain, in an unpredictable and uncertain environment. They also qualify as large businesses with staff numbers of 11,000 (Navy), 34,000 (Army), 13,000 (Air Force) and 6,000 (Marechaussee). That is why in the mid nineteen-nineties the Ministry of Defense decided to introduce a decentralized management structure which came into effect as the new “Defense Management Model” in 2003. At this moment, the Netherlands defense organization is undergoing a comprehensive restructuring aimed at guaranteeing structurally affordable expedi-

tionary armed forces. An essential element in this is the revision of the management model and the overhaul of the top structure in order to allow optimal management and accountability to Parliament by the political leadership (Ministry of Defense, 2003).

The defense organization is seeking a new equilibrium: a well-balanced match of the tasks and available resources. This ensures the affordability of the armed forces and leaves room for investments. Cooperation, interdepartmental as well as international, and performance-oriented functioning are the keywords in the process of change.

In order to further improve the efficiency of the defense organization, policy making, execution and control are segregated. This causes a change in the management organization of the MOD. The staffs of the political and civil leadership and the Services have been amalgamated in the new Central Staff, led by the Secretary General, which gives guidance to the Operational Commands, the Support Command and the Defense Materiel Organization. The Defense Management Model was established on 31 October 2003, and the bulk of the restructuring of the organization was completed in 2006.

In the new organizational structure the Central Staff makes the policy that is implemented by the Operational Commands with the support of the Support Command and the Defense Materiel Organization. The paramount management instrument is the Policy Planning and Budgeting procedure. It encompasses the policy vision, the defense plan, the budget (including the policy agenda and long-range estimates), accountability and policy advice to the political leadership.

The various Commands have divided up their organizations into several “result responsible units”; in business administration terms: business units. Although this Defense Management Model has been in use for several years now, there are still indications from delegated managers that they cannot “really” be held accountable for their units, as duties and instruments and responsibilities have not been segregated properly. In spite of the fact that the decentralized structure should enhance that managers feel responsible for their task, everyday practice shows that this is not always the case and that managers also feel it that way. This has its repercussions for the managers’ motivation and effectiveness with regard to the organization’s objectives.

This paper discusses the possible effects that the manner of decentralization has on the motivation of the delegated manager within a non-profit organization like the Royal Netherlands Air Force Command. The next section deals with the theoretical background, leading up to a number of hypotheses. Subsequently, the method of investigation will be highlighted, after which the results will be presented. Finally, a conclusion will be given and recommendations will be made.

Research object for empirical study

This survey was carried out within a non-profit organization in order to neutralize the influence of a performance bonus system. As the survey focuses on the manner of delegating and its influence on the motivation of the delegated managers, the choice for a non-profit organization (or in this case a government organization) is slightly more obvious. Within profit organizations people are more reluctant to talk about motivation, as this is often linked to merit pay. Within the non-profit sector it is often easier to elicit non-biased answers on motivation as the link is absent here. Partly because the author works for the Ministry of Defense and is thus better positioned to access internal sources and archives, the survey is carried out within the Royal Netherlands Air Force Command.

The Defense Management Model was introduced in the Royal Netherlands Air Force as of September 2005, but, in contrast to the other Commands, it was decided not to change the degree of decentralization, while staying within the limits of the so-called “Blueprint Control” (which will be formalized after an evaluation in 2007). There is still a 2nd (staff of the Royal Netherlands Air Force Command) and 3rd (several airbases) level within the Royal Netherlands Air Force Command, the 1st level, being the Central Staff, as was seen above.

So, within the air force there is a decentralized organization and management structure. The Commander (manager) of the Air Force (2nd level) is held accountable for the deployment and maintenance of the “flying” Service and all aspects that this entails. This highest commander has delegated his responsibility to several commanders of different units (level 3). The airbase commanders are accountable for their “product”. Each unit commander (level 3) has his own delegated task, such as F-16 tasks, military helicopter aviation, physical air defense. But these unit commanders have delegated through their responsibilities to the respective squadron commanders of the various logistic, maintenance, support and flying squadrons.

In order to allow as broad a survey as possible, all disciplines are represented, covering management areas, such as logistics, personnel and organization, management, security, technology. The units involved in the sample were:

- the three F-16 units: Leeuwarden, Volkel and Twenthe airbases;
- two helicopter units: Soesterberg and Gilze-Rijen airbases, together making up the Tactical Helicopter group;
- the air transport unit: Eindhoven airbase;
- Air Operations Control Station at Nieuw Millingen;
- the Royal Netherlands Air Force Command’s Logistic Center;
- the Royal Netherlands Air Force Command’s Training Center;

- the Royal Netherlands Air Force Command's Head Quarter, incorporating the Staff.

Literature review

Decentralization

Most larger organizations consist of business units (Zimmerman, 2003: 172), often formed as a result of mergers, takeovers or decentralization. Generally speaking, organizations decentralize to grow and develop. An increased size and complexity often makes it hard for the central leadership to oversee all decisions that have to be taken. Duties, but also instruments and responsibilities, have to be transferred to lower decentralized management levels. This segregation causes a relation between centralized and decentralized, with the central leadership remaining accountable for the direction and course of the organization (Merchant & Van der Stede, 2003).

In addition, decentralization is often seen a consequence of (or remedy for) a company operating in an unpredictable and uncertain environment (e.g. Thompson, 1967). Galbraith (1973) claims that, especially in times of uncertainty, information is needed on the work floor and that decentralization can provide it. Waterhouse and Tiessen (1978) and Gordon and Miller (1976) also suggest that decentralization is an adequate response to a dynamic, uncertain environment. The logical conclusion would then be that managers operating in an uncertain environment should be able to exert a bigger influence on decision making, or in other words: not only decentralization but also delegation of responsibilities. But as the central leadership will remain responsible for the direction and course of the organization, this also immediately creates an area of tension; not only between the interest of the company as a whole and that of the individual decentralized units, but also between the delegating manager (the manager who delegates instruments and responsibilities) and the delegated manager (the manager who receives them).

Research often approaches decentralization as a variable from agency theory (Indjejikian, 1999; Merchant & Van der Stede, 2003). At the heart of this theory is the relation between the principal (employer) and the agent (employee). Central is the assumption that employees mostly act out of self-interest as much as they can and do not have the organization's interest at heart. Apart from that, it is impossible for the principal to observe every activity of the agent. As there is always an information asymmetry between principal and agent, it is of importance to find a match between the principal's and the agent's objectives. The extent of the agent's discretion to (not) act (in the interest of the organization) depends on the power of decision he has received from the principal (segregation of duties, instruments and responsibilities). It also depends on the measurability and verifiability of his actions and the reward system attached to it. To bring the

objectives of principal and agent closer together, rewards are often used. By rewarding an agent for activities aimed at the realization of the organization's objectives, he is focused on attaining them. But the use of reward systems, in particular, often leads to a neglect of alternative management tools, such as (de)centralization, however great their influence on this agency problem may be.

The question to what extent an organization has a centralized or decentralized management depends on the degree of decentralization and power of decision (Zimmerman, 2003: 164). That is why Merchant & Van der Stede (2003) called centralization a solution to prevent control problems. But in most (even smaller) organizations it is not possible to centralize all critical activities as managers do not (cannot) have the required knowledge and capabilities, so other solutions must be looked for.

According to Zimmerman (2003: 172) one of the most important mechanisms for solving the agency problem is the (decentralized) hierarchical structure that segregates decision management and decision control. In all hierarchic organizations there is a division in which managers have supervision over employees. Decision management refers to those aspects of the decision making in which the manager initiates or implements a decision, whereas decision control is all about monitoring a decision and approving or rejecting it.

By means of this structure Zimmerman (2003) indicates that an organization can make the division of the power of decision between the higher and the lower management more efficient and effective when the organizational structure is equipped with three systems: one to measure performance, one to reward or even punish performance and one to divide power of decision. He compares these three systems with a three-legged chair; all legs must be equal to make the chair stand straight. A change in one system automatically calls for a change in the others, but this is not always done consistently. An important element of the performance reward system is the internal accounting system. When this is changed, without adaptations to the reward and decision power systems, the total system is out of balance. This can cause a manager to be assessed on the wrong grounds (rewarded or punished) and to be given the wrong powers of decision. According to the 'controllability principle' (Zimmerman, 2003: 209) managers must be held accountable for the decisions for which they have power of decision. But an all too rigid application of this principle may lead to deceptive results and even dysfunctional behavior. Merchant (1998) and Egan (1989), too, stress the importance of giving managers and employees clear, measurable objectives they can influence.

On the basis of these objectives the managers and employees must be assessed and rewarded (Anthony and Govindarajan, 1992). In this way the agent is motivated to focus on the "right" objectives and to reach them. In the agency theory rewards are almost always presented in this context; attaining the intended objective will lead to a

reward. But other possible motivational aspects within the organizational structure are often neglected. Not only the reward system, but also the performance measuring and the decision power system can have motivational effects (Zimmerman, 2003: 171). In a decentralized organization where different managers of sub-units have different needs, the right decentralization of duties, instruments and responsibilities will allow them to make the right decisions. This will have a positive effect on the managers' performance and thus on their motivation (Sathe and Watson, 1987: 72).

Concepts and types of decentralization

Systems to divide power of decision occur in every hierarchical organization. In the bulk of the literature several forms of decentralization are distinguished. Decentralization is about the spreading of power of decision and delegation of duties, instruments and responsibilities (Mintzberg, 1989: 113). Delegation of authority through decentralization implies that employees are empowered for certain activities and decision making (Lee and Koh, 2001: 687). When all the power is concentrated in a single position this is called a centralized structure; to the extent that power is distributed over a number of individuals, it is possible to speak of a relatively decentralized structure. Mintzberg distinguishes vertical decentralization (delegation of formal power to line managers lower in the hierarchy) and horizontal decentralization (the extent to which formal or informal power is transferred from the line hierarchy to non-managers, such as executive personnel, analysts and members of support staffs). He also makes a distinction between selective decentralization (the distribution of power with regard to different decisions about different places in the organization) and parallel decentralization (where power over various types of decisions is laid down in one place in the organization). Overall, Mintzberg (1989) distinguishes six types of decentralization:

- *Vertical and horizontal decentralization*: All power rests with the strategic top. In these forms of decentralization there is no delegation. Decision management and decision control lie with the top management;
- *Limited horizontal decentralization (selective)*: The strategic top shares power with the staff, which standardizes the work of others. In this type the top management has transferred a number of steps in the decision making process, but more in a consultancy form. Even though the staff has some power here, as it advises the management, the eventual decision making is done by the management and the degree of delegation is limited. In addition, the lower management levels do not see this form of delegation as delegation, as they view the staff more as a management organ;
- *Limited vertical decentralization (parallel)*: The managers of units directed at certain markets are given power of decision for most decisions relating to their line units. This form of decentralization involves the limited delegation of power of decision to

the lower management. Not all power is transferred the lower management, only a part of the decision management is delegated;

- *Vertical decentralization*: Most power lies with the executive core low in the organizational structure. In this form the lower management has all decision powers and there is “only” monitoring by the top management. This is the ultimate form of segregation of decision management and decision control;
- *Selective vertical decentralization*: The power of decision is spread over various places in the organization, over managers, staff experts and executive personnel, working together in teams on various hierarchical levels. This form is specific for a project organization in which special teams have been formed;
- *Clean (pure) decentralization*: Power is shared more or less proportionally by all members of the organization. This is the ultimate form of decentralization. The power of decision is distributed proportionally over the higher and the lower management. The steps in the decision making process (decision management and decision control) are divided equally.

Hage and Aiken (1967) define a number of pre-conditions which decentralization must meet in order to be effective and work positively for an organization. In doing so, they further make Mintzberg’s forms of decentralization operational. First of all, the delegated manager must be given the authority to take the necessary decisions. Apart from that, “job satisfaction” is an important variable indicating the extent to which an employee holds a positive attitude towards his or her work. “Commitment” is described as the degree of an employee’s identification and involvement with the organization. Organizational commitment reflects an employee’s trust in the values and objectives of an organization and his readiness to cooperate in them to the benefit of the organization.

Hage and Aiken (1967) bring all these variables together in a number of measures for the degree of decentralization. The first is participation in decision making, which reflects the extent to which managers can influence the routine decisions of an organization. They relate to the basic decisions on allocation of resources, such as manpower and funds. The second scale, job codification, measures the extent to which there is work of which the tasks are clearly specified. This has a strong (implicit) relation with participation in the decision making. The more centralized an organization is, the smaller the number of people who have to take the most important decisions. For this the management needs a set of decision making tools in view of work and time pressure. The higher the extent of centralization, the more job codification. The third measure is degree of hierarchy. As decisions are taken according to the organizational model (command structure), Hage and Aiken (1967) think ‘hierarchy’ is the most logical term for this.

When employees can take their own decisions with regard to their activities, they are less dependent on a higher authority, which brings less hierarchy and social control with it. Conversely, when for every decision an immediate higher authority has to be consulted, there is more hierarchy. By means of these criteria it becomes possible to operationalize and measure decentralization. Hage and Aike's (1967) final scale measures the control on rule observation. It relates to the extent of hierarchy, as employees who feel constantly checked, also feel more dependent on their superiors.

Motivation

As motivation is a subject that involves people personally and has kept them occupied for so long, it is an intriguing topic for popular contemplation as well as scientific study. Motivation is important to keep people focused on the objectives. As it cannot be measured directly and is a complex phenomenon indeed, there is much that is not clear. This has spawned a great variety of definitions and theories, which makes it necessary to first consider the concept of motivation by studying a number of them.

'Motivation is the complex of factors (including drives and motives) which stimulates and focuses behavior. Motivation is not a personal quality. It is the willingness to make an effort for something. It ensures that behavior is "activated", "directed", "maintained or stopped"'.¹

'Being motivated means that you are moved to doing something. Someone who does not get a stimulus to do something is seen as unmotivated, whereas someone who is activated into attaining an objective is motivated' (Ryan and Deci, 2000: 54).

'Motivation is a psychological characteristic contributing to the extent to which someone makes an effort' (Stoner and Freeman, 1999: 342).

In the literature there is a basic distinction drawn between intrinsic and extrinsic motivation.

'In extrinsic motivation people are moved because of a stimulus from outside. The origin of the act lies outside them, they are stimulated from outside to fulfill existential or material needs. The motivators are, for instance, money or status' (De Moor, 1993: 14).

'Extrinsic motivation is a variable that is related to activities undertaken for their clear consequences or material value' (Ryan and Deci, 2000: 60).

'In intrinsic motivation people work of their own accord. They act without mediation of other persons or factors; individuals are motivated by the act itself when the objective to be attained

lies in the act itself. They are stimulated to act from within. The motivators find their origin, for example, in the nature of the work; being able to work independently, having responsibilities or experiencing self-development, self-appreciation, skills, capabilities and personal competence' (De Moor, 1993: 14).

'When someone is motivated intrinsically he is motivated to do something because it is fun or there is a challenge in doing it'. (Ryan and Deci, 2000: 56)

There exists a lot of research, for instance, into “work and motivation”. Reward for the work done is of course a motivational factor, but also the work itself, appreciation from the boss or colleagues can motivate. People have different quantities and types of motivation (Ryan and Deci, 2000: 54). So motivation is a broad concept. Below, the scientific literature on decentralization and motivation will be discussed further.

Decentralization and motivation

In the economic literature motivation is often incorporated in models for understanding and predicting the effect of extrinsic incentives on employee motivation, for example, the expectancy theory and need theory (Stoner and Freeman, 1999). But the relation between segregation of duties, instruments and responsibilities and motivation is one in which decentralization has an effect on intrinsic motivation (Spreitzer, 1995: 1444, Lee and Koh, 2001: 687). Deci's cognitive evaluation theory (1975: 61) states that intrinsically motivated employees meet two needs: the need for competence and the need for taking decisions. Intrinsically motivated behavior is increased when the feeling of competence and right to take decisions become stronger (Kunz and Pfaff, 2002: 280). This relation is described in the literature on psychology. Thomas and Velthouse (1990) define this specific form of motivation as “empowerment”, whereby mention is made of an increased intrinsic task motivation. Empowerment is a term that was very popular in the 1980s and which is now making a comeback. Recent studies have defined the concept to make it useful for organizations (see Conger and Kanungo, 1998; Thomas and Velthuis, 1990; Boren, 1994; Harari, 1994; Rothstein, 1995; Keller and Dansereau, 1995; Spreitzer, 1995; Lee and Koh, 2001). Thomas and Velthouse (1990) develop four dimensions to measure and explain empowerment:

- *Meaning*: the value of an imposed task or objective, based on the employee's ideals and standards;
- *Competence/self-efficacy*: the employee's confidence in being able to execute the imposed tasks;
- *Self-determination*: the employee's conviction that he can make choices with regard to initiating and regulating imposed tasks;
- *Impact*: the extent to which the employee is convinced he can influence the outcome

of imposed tasks (also see: Lee and Koh, 2001 and Spreitzer, 1995). The absence of one of the dimensions causes empowerment, and with it the motivational effect, to decrease or even disappear. So, together, the four specify an almost complete set of dimensions for measuring and understanding empowerment and with it (intrinsic) motivation (Thomas and Velthouse, 1990; Spreitzer, 1995).

Hypothesis design

As a basis for this research the following central question was formulated:

To what extent does the decentralization form of the central management influence the motivation of the delegated manager within a non-profit organization such as the Royal Netherlands Air Force Command?

Mintzberg's (1989) decentralization classification gives a description of different forms of decentralization. Each form has a different division of power. Limited vertical decentralization is a form of decentralization in which delegated managers have to deal with "shared" power. There are factors (non-external) over which they have no control and because of that they do not perceive "real" decentralization according to the four dimensions of Thomas and Velthouse (1990). As the delegated managers have to deal with shared power (limited vertical decentralization) their participation in the decision making is smaller and the degree of hierarchy is higher. According to Hage and Aiken (1967) this has a negative impact on "job satisfaction" and commitment, which in turn will have a negative influence on their motivation:

Hypothesis 1: Limited vertical decentralization has a demonstrably negative effect on the delegated manager's motivation.

Conversely, it is expected that in the case of vertical decentralization the managers perceive the decentralization as a full delegation of duties, instruments and responsibilities, as the power of decision is placed with the executive core. There are no factors over which they have no control, which causes them to experience full decentralization according to Thomas and Velthouse's (1990) four dimensions. As the manager is not confronted with delegation shared with other delegated managers or the management (vertical delegation), his participation in the decision making and the degree of hierarchy is greater. According to Hage and Aiken (1967) this has a positive influence on "job satisfaction" and commitment, which in turn will have a positive influence on motivation.

So,

Hypothesis 2: Vertical decentralization has a demonstrably positive effect on a delegated manager's motivation.

Mintzberg (1989) also describes a clean form of decentralization, in which the power is evenly distributed over the top management and delegated management. According to Thomas and Velthouse's (1990) four dimensions, this form of decentralization will also have a positive influence on the delegated manager's motivation, as he can still make autonomous choices and influence decisions. This corresponds to Hage and Aiken's model (1967), as participation in decision-making and the degree of hierarchy are still high. Although there is delegation of power of decision to the lower management, this is not full delegation such as with vertical decentralization. As the delegated manager does not have to deal with delegation shared with more delegated managers, but shared with the management (clean decentralization), this will have a positive influence on motivation. That is why this form of decentralization and its ensuing effect is presented and measured in a separate hypothesis. So,

Hypothesis 3: Clean decentralization has a demonstrably positive effect on a delegated manager's motivation.

Research method

For the execution of this research a combination of research methods, in particular an archives survey and a questionnaire, was used. For the latter 140 delegated managers of the 2nd and 3rd levels in the Royal Netherlands Air Force Command were approached. In smaller samples statistic analyses become less reliable (due to non-response) (Baarda and de Goede, 1995). It is expected that the response percentage will be lower than in interviews, but the reliability of the results will be higher, nevertheless. In interviews there is the danger of managers giving socially acceptable answers due to the presence of the researcher (Baarda and de Goede, 1995).

The selection of managers to measure the variable motivation was done by means of a strategic sample in order to improve the usefulness of the data. This, however, can be a disadvantage for the purpose of generalization of the research. For the delegated manager contingent the following two preconditions were set:

- They are managers who have a delegated package of duties, instruments and responsibilities (in whatever proportion and degree);

- They are managers who lead at least three co-workers, so that there is a possibility of “delegating through” and managers have a clearer perception of decentralization than otherwise.

In the questionnaire the respondents were asked about a number of personal characteristics, such as: gender, age and work place. By comparing these data with the same characteristics of the contingent, it was possible to get an idea of the representativeness of the sample. Finally, the variable ‘decentralization form’ was initially investigated by means of an archives survey. This was done as the decentralization form must be laid down in official policy documents within the organization (e.g., regulations for control, management agreements, memorandum of understanding,). In addition, the survey instrument for measuring the degree of decentralization on the basis of the index developed by Hage and Aiken (1967) was used.

Quantifying the variables

In order to test the hypotheses and to answer the central question, the various variables that are incorporated in it were quantified and incorporated into a questionnaire consisting of 47 questions in total. Part one relates to the general qualities of the contingent, part two and a number of self-designed questions from part four measure the varying motivation. Part three and a number of self-designed questions from part four measure the varying decentralization. The rest of this section explains how the variables of decentralization and the delegated manager’s motivation were made measurable and how they were incorporated into the questionnaire.

Decentralization

Decentralization is a difficult concept to measure. This research uses the “index of centralization”, developed by Hage and Aiken (1967), which consists of four scales.² The first, *participation in decision making*, gives an indication of the degree to which employees in various positions participate in the decision making on the allocation of resources and the establishment of the organizational policy. In the questionnaire a 5-point Likert scale was used, in which 1 indicates low and 5 is high. The higher the score is, the greater is the degree of decentralization. The second scale, *job codification*, measures the extent of standardized work, so in how far tasks are clearly specified. This has a strong (implicit) relation to participation in decision making, as the more centralized an organization is, the fewer people have to take the most important decisions. To this end the management needs a set of decision rules for reasons of work and time pressure. The more centralized an organization is, the more there will be job codification. In the questionnaire there were five questions making use of the Likert scale. The higher

the score was, the greater was the degree of decentralization. The third scale, *the extent of hierarchy of authority*, determines the degree to which employees are allowed to make decisions with regard to their own job, without having to consult a superior. A low score in this 5-point Likert scale indicates little dependency on a superior; the lower the score is, the greater is the degree of decentralization. The final scale, covering *rule observation*, was measured with the help of two questions. It is related to the degree of hierarchy of authority, as employees who feel constantly checked, also feel more dependent on a superior. A low score on this 5-point Likert scale means little control, so little dependency on a superior. The lower the score is, the greater is the degree of decentralization.

The questionnaire also uses a number of self-designed questions on expectancy, agreements, delegation and measurability. These questions are assessed in relation to the indexes described above, whereby the variable decentralization as well as motivation is analyzed in a broad sense. In answering the questions a 7-point Likert scale was used, where 1 indicates “totally disagree” and 7 “totally agree”.

Type of decentralization

To be able to give an answer to the classification of types of decentralization as they are phrased in the hypotheses, there is a question in the questionnaire about the place in the organization that a manager works. As was indicated above, various units of the Royal Netherlands Air Force were approached. The managers can be divided over three “workplaces”, which were given meaningful names for the interviewees in the questionnaire and which can be related to Mintzberg’s classification.

To begin with, it is expected that the managers who are active in an “operational workplace” at the 3rd level (not within a staff body) experience decentralization as a full delegation of duties, instruments and responsibilities, as power of decision should be placed with the executive core. That is why this group will be classified under vertical decentralization when assessing the answers.

Managers working in the staff of a unit of an airbase are expected to be “sharing” power. As they do not belong to the operational core of the 3rd level, or to the Staff of the Royal Netherlands Air Force Command (2nd level), it is expected that they will have to share power (limited vertical decentralization) and that their participation in the decision making is smaller and the degree of hierarchy higher.

Finally, managers working at the Staff of the Royal Netherlands Air Force Command (2nd level) are expected to experience a clean form of decentralization, according to Mintzberg’s classification (1989), as the power is divided equally over the management of the 1st level (Central Staff) and the 2nd level (see Royal Netherlands Air Force Command, 2004).

Motivation

The assessment of the variable motivation is done by means of Spreitzer's questionnaire (1995), developed on the basis of Thomas and Velthouse's (1990) four dimensions. In his study Spreitzer (1995) constructed and evaluated his scale. Kraimer, Seibert and Liden (1999) made an independent evaluation of the scale and the questionnaire. The questionnaire was used by several scientists, such as Kraimer, Seibert and Liden (1999); Liden, Wayne and Sparrowe (2000); Spreitzer (1996) and Spreitzer, Kizilos and Nason (1997). It was also discussed in great detail in Hochwälder and Bergsten Brucefors' study (2005). As the questions are interdependent, a 7-point Likert scale was used, where 1 represents "totally disagree" and 7 "totally agree".

Results

General description of the data

Of the 140 questionnaires, 112 were returned (response percentage 80%), 107 of which were usable for analysis. Four questionnaires lacked the answer to one question, and one lacked 11 answers (an entire page was skipped). As the response percentage was high, those five questionnaires were not included in the sample, so the final response percentage was 76%. Table 1 provides some characteristics of the people who returned the questionnaire.

| | | n | % | Rank | | | n | % |
|----------------------|----------|-----|------|-------|--------|-----|------|---|
| Type of employee | Civilian | 10 | 9.3 | | Pte | 0 | 0 | |
| | Military | 97 | 90.7 | | Cpl | 0 | 0 | |
| | Total | 107 | 100 | | Sgt | 3 | 2.8 | |
| | | | | | WOI | 16 | 15 | |
| Gender | Male | 85 | 79.4 | | WOII | 0 | 0 | |
| | Female | 22 | 20.6 | | Lt | 13 | 12.1 | |
| | Total | 107 | 100 | | Capt | 30 | 28 | |
| | | | | | Maj | 29 | 27.1 | |
| Age | 20-30 | 14 | 13.1 | | Lt-Col | 11 | 10.3 | |
| Distribution (years) | 31-40 | 46 | 43 | | Col | 4 | 3.7 | |
| | 41-50 | 36 | 33.6 | | Gen | 1 | 0.9 | |
| | 51-60 | 11 | 10.3 | | | | | |
| | Total | 107 | 100 | Total | 107 | 100 | | |
| | | | | | | | | |

| | | | | | | | |
|------------|------------------------------------|-----|------|--------------------------------|-------|-----|------|
| Work place | Operational | 65 | 60.7 | Time in function (Years) | <1 | 22 | 20.6 |
| | Staff 3 rd lvl | 33 | 30.8 | | 1-3 | 64 | 59.8 |
| | Staff 2 nd lvl | 9 | 8.4 | | 4-6 | 17 | 15.9 |
| | Total | 107 | 100 | | 7-10 | 2 | 1.9 |
| | | | | | >10 | 2 | 1.9 |
| | | | | | Total | 107 | 100 |
| | | | | | | | |
| Education | University | | | | | 20 | |
| | Higher vocational education | | | | | 36 | |
| | Royal Netherlands Military Academy | | | | | 21 | |
| | Middle vocational education | | | | | 13 | |
| | Lower vocational education | | | | | 17 | |
| | Total | | | | | 107 | |
| | | | | | | | |

Table 1 Characteristics of respondents

Table 1 shows that 9.3% are civilian employees. This can be explained from the characteristic work place, which shows that 91.5% of the respondents come from military air bases, where there are relatively few civilian personnel. The percentage of women within the CLSK (2006) is about 8%, so a response percentage among women of approximately 20% is rather high.³ The 30-50 age group is the largest in the sample. This is caused by sampling among managers who mostly belong to this age category. A lower response of the 51-60 category can be explained by the low retirement age of military personnel.

The division in ranks can be related to the management functions and the military ranks that go with them. In the NCO segment managers hold the rank of Sergeant (Sgt), but more often Warrant Officer (WO). This is reflected in the response percentages. In principle, any Commissioned Officer rank can mean a management function, but the most (direct) leadership functions are to be found in the Captain (Capt) and Major (Maj) ranks. This, too, is reflected in the response percentages. The lower response percentages among Colonels (Col) and Generals (Gen) can be explained by the organization of the ranks system according to the pyramid system.

The response percentages on work place show the distinction on the basis of the principle discussed in the previous section. Thus, an operational work place (60%) is associated with vertical decentralization, the staff of a unit (30%) with limited vertical decentralization and the staff of Royal Netherlands Air Force Command (10%) in Breda with clean decentralization.

This is where most (direct) managers are to be found and this is also the target group of the select sample, as they experience the consequences of centralization the most. More than half of the respondents (52.3%) have a Higher Vocational or University education. Almost 34% have a Higher Vocational education, which is probably caused by the

fact that NCOs with a completed Higher Vocational education are allowed to apply for officer ranks under certain conditions.

The duration of a function varies between 1 and 3 years for the respondent group. This is caused by the mandatory duration of a posting of two to maximum five years.

Testing hypothesis Hypothesis 1

Hypothesis 1 expresses the idea that limited vertical decentralization has a demonstrably negative effect on the motivation of the delegated manager. Table 2 shows that there is a significant (p-value, 0.000) and rather strong positive relation between vertical decentralization and motivation (0.598), in contrast to the expected negative relation. This means that the more there is limited vertical decentralization, the more the manager's motivation will rise. Besides, the regression analysis shows that (limited vertical) decentralization influences the delegated manager's motivation for 35.7%.

| Decentralization | Test | Motivation | P-value |
|-----------------------------------|---------------------|------------|---|
| Limited vertical decentralization | Pearson Correlation | 0.589 | 0.000; significant at 0.01 level (2-tailed) |
| | N | 33 | |
| Vertical decentralization | Pearson Correlation | 0.278 | 0.025; significant at 0.05 level (2-tailed) |
| | N | 65 | |
| Clean decentralization | Pearson Correlation | 0.665 | 0.051 |
| | N | 9 | |

Table 2 Outcomes hypotheses

Testing hypothesis Hypothesis 2

Hypothesis 2 supposes that vertical decentralization has a demonstrably positive effect on the delegated manager's motivation. Table 2 shows that there is a significant (p-value, 0.025) positive relation between vertical decentralization and motivation (0.278). This means that the more there is vertical decentralization, the more the motivation of the delegated manager will rise. The regression analysis shows that (vertical) decentralization influences the delegated manager's motivation for 7.7%.

Testing hypothesis 3

Hypothesis 3 supposes that pure decentralization has a demonstrably positive effect on the motivation of the delegated manager's motivation. Table 2 shows that there is a positive relation between vertical decentralization and motivation (0.665). This means that the more there is pure decentralization, the higher the motivation of the delegated manager will be. The significance value of table 5 shows this relation stops just short of being significant, however, at a significance level of 5%. The regression analysis also

reveals that (pure) decentralization influences the delegated manager's motivation for 44.3%.

Other results

Apart from the relations between forms of decentralization and motivation, it is also interesting to determine how the various decentralization and motivational aspects relate. What is striking here, first of all, is the significant relative relations. According to the respondents, the more there is hierarchy (so less decentralization), the less there is:

- *meaning* (-0.217): so, a manager values an imposed task or objective less when it is given to him hierarchically;
- *self-determination* (-0.405): the conviction that a manager is given the opportunity to make his own decisions decreases;
- *impact* (-0.389): the degree to which the manager thinks he can influence things decreases;
- *participation in decision making* (-0.359): the extent to which a manager can influence frequent decisions decreases, and
- *job codification* (-0.320): the measure of standardized work decreases.

The first four aspects are in line with expectations, but the negative relation between hierarchy and job codification is surprising. Apparently, there is less job codification when there is a hierarchical relation. This is also supposed by Hage and Aiken (1967: 82). There is also a significant positive relation between hierarchy of authority and rule observation. This shows that in a hierarchical relation between the higher and lower management there is more attention for rule observation. Apart from that, the logical and significant negative relation (-0.254) clearly shows that the more there is rule observation, the lower the manager's conviction with regard to his self-determination is.

Another positive correlation is that between the aspects "meaning", "competence", "choice", "impact" and "participation in decision making".

The more a manager:

- feels competent;
- is convinced he can make his own choices;
- has the feeling he can influence the outcomes of imposed tasks, and
- participates in the decision making,

the more he will value an imposed task or objective. This is entirely in line with the intrinsic motivation model, presented by Thomas and Velthouse (1990), amongst others.

Finally, it is shown that "participation in the decision making" and "choice" have a significant positive relation to "job codification". This correlation is hard to explain, but

a possible explanation is the idea that more participation in the decision making and self-determination will lead to more regulation of imposed tasks (Deci and Ryan, 1985).

Discussion and conclusions

In the above sections the conclusions with regard to the hypotheses have been described and where they did not tally with the predictions in the research model, they were elaborated upon. In table 3 the outcomes of the hypotheses are brought together once more.

| Hypothesis | Predicted relation | Result | Significant | Rejected/Supported |
|------------|--------------------|--------|-------------|--------------------|
| 1 | - | + | Yes (0,0%) | Rejected |
| 2 | + | + | Yes (2.5%) | Supported |
| 3 | + | + | No (5.1%) | Rejected |

Table 3: Findings hypotheses

The table shows that there is a demonstrable relation between the form of centralization of the central management and the delegated manager's motivation. On the one hand, this answers the most important part of the central question: does centralization influence a delegated manager's motivation? On the other hand, however, it is still impossible to give an unequivocal answer to the question about the extent of this influence. On the whole, this influence has a positive character, although the theoretical presuppositions on which the hypotheses 1 and 2 are founded, are not supported. There are various reasons that can explain why the results of the research do not match the predictions. In this section several possible intrinsic causes have been indicated. Below the limitations of the research and some ensuing recommendations will be discussed.

The above conclusions were drawn on the basis of 107 analyzed questionnaires. Although the size of the sample is more than sufficient to base conclusions on, the answers given are of a qualitative nature and only allow limited generalization. Nevertheless, the outcome of this research has shown that in making the choice for a certain management model, and with it the (de)centralization of an organization, the influence of this choice on the motivation of the managers involved must be taken into account.

It is of course possible that the research was not conducted in the most optimal and correct manner. Perhaps a case study or experimental environment would have yielded a better outcome. Questionnaires have often been the butt of criticism and are called "the poor man's experiment" as they are liable to the risk of interviewees giving the

“socially desirable” answers and because of their consistent impotence to exclude alternative hypotheses (Smith, 2003: 117). This manner of research, therefore, has a number of drawbacks. First of all, there is the relatively small number of questionnaires (140), although response can certainly be called high (107). However, it offers rather limited possibilities for generalization, and this can only become better by increasing the size of the sample. Another important limitation of survey-research is that it hardly possible to draw causal conclusions; case studies and experiments are more suitable in that respect. A solution for this problem is repeating the surveys, but that would have to be done in the context of a broader longitudinal research. Apart from that, the research used a number of methods, such as Thomas and Velthouse’s (1990) and Hage and Aiken’s (1967), which may have become obsolete to such an extent that the results may be distorted. It must be possible to develop more applicable research methods, a requirement which can be met by adding a section of self-designed questions to the questionnaire. This is of course not sufficient in itself, but developing an adequate research instrument is worth a final paper or research report.

In spite of the fact that as many units and work areas within the Royal Netherlands Air Force Command as possible were involved, there is the possibility that this research has only a limited external validity. The research was purposely limited and to lend it wider external validity it is necessary to expand it to non-profit companies and institutes, which will yield a broader survey of situations and relevant factors of influence.

The response percentage can be called rather high (76%), but the number of civilian employees that reacted is fairly low (9.3%), with the result that the findings may not be not representative for the entire Air Force. Therefore, a possible recommendation could be to repeat the research among the civilian employees for generalization purposes.

The research was directed at the influence of different forms of decentralization on the motivation of managers. It goes without saying that decentralization is only one among many factors influencing motivation. Motivation is a complex phenomenon and understanding it requires much additional research. At the moment there is quite a substantial body of scientific literature on a number of factors of influence, such as rewards and style of leadership. It is certainly interesting to investigate whether there are more variables (for instance, corporate culture) influencing the motivation of managers. This would provide a better idea of the motivation structure of employees, so that choices with regard to organization and management can be coordinated better.

Finally, there is always the danger that the results of the questionnaire were influenced by the possibility that the “language” used in the survey did not meet the perception of the environment of the respondents. The questionnaire was adjusted as much as possible to the “corporate language” as the writer works for the organization. There remains, however, the danger of using jargon not understood by the respondents.

Notes

1. See <http://www.motivatief.pagina.nl> and www.zelfontplooiing.nl/motivatief.htm
2. The index of centralization was used by several researchers. Acorn, Ratner and Crawford (1997) use it in their study, where reliability (by means of Cronbach's alpha) is considered to be sufficient (0.69 for participation in the decision making and 0.85 for the degree of hierarchy).
3. See <http://www.werkenbijdeluchtmacht.nl/WBL/Content.asp?Name=statistiek>

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