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PUBLICATIONS OF THE TURKU SCHOOL OF ECONOMICS



Maritta Ylärinta

***BETWEEN TWO WORLDS –
STAKEHOLDER MANAGEMENT
IN A KNOWLEDGE INTENSIVE
GOVERNMENTAL ORGANISATION***

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There is a juxtaposition and a strong division between the private and public sectors in the social discussion in Finland. From the perspective of the private sector, the public sector is seen as ‘a necessary evil’. It is expensive to maintain and should be as lean as possible. Moreover, the regulative role of the public authorities is seen to restrict business activities. Public sector organisations are considered stiff and slow to learn. If viewed from the perspective of public organisations, they have become aware of their deficiencies and made efforts to learn efficient and effective management modes; management by results and incentive salary systems are good examples.

An inspiration of this study has been the view of society as one entirety, where a government-business relationship can be developed to society’s overall benefit. This view created the impulse to offer the topic linked to governmental organisations as the theme of a dissertation at Turku School of Economics and Business Administration. This study aims to point out the important infrastructural role of governmental activities for private organisations. Thus, it is hoped that this study will serve as a bridge builder in the discussion of the government-business relationship.

A yet more individual orientation to the topic of the government-business relationship exists, arising from 22 years working in a governmental organisation, MTT Agrifood Research Finland, whose mission is to promote entrepreneurship and business activities in the food, agricultural and horticultural sectors. Composing, initiating and implementing changes in the management mode, both in strategic and operative management processes, has been an interesting adventure and inquiring expedition for the researcher.

This research focuses on studying MTT Agrifood Research Finland, a research institute under the Ministry of Agriculture and Forestry, between the years 1981 and 2003. The data collected by the interviews originate from 1999. Following that year, MTT has undergone drastic development. For example, in 2002, the corporate level strategy formation process was changed. The agricultural and food research conducted was divided into three research programme areas: ‘Agricultural Products and Food Chains’, ‘Production and Information Systems’ and ‘Agricultural Policies and Rural Environment’.

A number of people have helped promote this study in the past years. Professor Sirpa Niittymaa was key in recommending that I be granted the right to start my studies at Turku School of Economics and Business

Administration. Professor Raimo Nurmi inspired and maintained interest in the study with regular research seminars and the meetings of the study group 'Ramin Remmi'. In the final phase, Professor Satu Lähteenmäki coached me in challenging my way of presenting the study process and thus helped me to see the deficiencies of the manuscript. I am very grateful for your important advice and comments!

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Collaboration with MTT's directors in central administration and the operative units, and with team leaders and knowledge workers, made this story possible. The interviews of 29 people in 1999 formed the major empirical research data. My greatest thanks for all your contributions! One form of collaboration was the quality management and self-assessment project of all MTT activities starting in 1994. Ph.D. (Eng.) Kari Kankkunen facilitated our orientation towards the new thinking in governmental organisations. I thank you for broadening my narrow point of view in stakeholder management, a topic of current interest in both research and practical management.

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My friend M.Sc. (Econ.) Elina Piki has had a remarkable impact in moving this study forward. I thank you for maintaining my interest in studying, and reading and commenting on my manuscripts!

Were it not for the MTT Library staff's willingness to serve, this study would never have been finished. I owe my greatest thanks to Library Secretary Ritva Kalakoski in particular and to her colleagues. Without their help I would be wandering continuously in the dark and dusty cellars of Finnish scientific libraries.

My present superior, Jarmo Ratia, Director General of the National Land Survey of Finland, made it possible for me to get the necessary distance from the case organisation. Looking at MTT from the outside helped me crystallise the essentials and, finally, to finish the study.

I was happy to get practical help in preparing the manuscript for printing. Graphic Artist Anna Antikainen drew up the figures and Executive Assistant Mervi Laitinen finalised the lay-out of the book. Librarian Jouni Lyytinen

provided the newest reference literature. Mr. Alex Frost made the linguistic revisions. Thank you all!

Finally, my great thanks go to my family. This study project has been done in my leisure time – during the summers, at Christmas, on sports holidays, and during weekends. So time spent on the study was taken from my family, from Johanna Maria and Toni Juhani when they still were at home, and later from my aging parents, Lahja and Viljo Kujansuu. Their patience never tired in giving me incentive and encouragement to continue my long-lasting project.

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Maritta Ylärinta

ABSTRACT

The external and internal relationships of knowledge intensive governmental organisations are an object of growing interest and importance in management. This study focused on stakeholder management in this kind of organisation, aiming to clarify how relevantly and adequately the current stakeholder theory describes the complexity of stakeholder management and the conflicting demands of the different stakeholder groups. The phenomenon is studied from the perspective of the organisation, which is mainly represented by the middle management.

The research approach was action oriented. The methods used to conduct the study in a knowledge intensive case organisation, MTT Agrifood Research Finland, were participant observation, in-depth interviews, stakeholder and personnel satisfaction surveys and archive material.

First, the description of the case organisation was produced with the key concepts of the stakeholder theory, ‘firm’ (goals), ‘stakeholders’ and ‘stakeholder management’. Secondly, the management problems in a governmental multi-stakeholder organisation were examined. The object of interest was the dyadic relationships between MTT and its main stakeholder groups: the science community, companies and public research financiers.

The stakeholder theory implies that the goals of the firm are survival and growth. In the knowledge intensive governmental organisation, the goals are: the high quality of knowledge (scientific knowledge), responsiveness, and social responsibility. Responsiveness and social responsibility together form the societal impact. Moreover, the stakeholder theory implies that all the firm’s stakeholders are important – not only the owners. This is also relevant in the knowledge intensive governmental context, but the role of a single stakeholder group may be more versatile compared with that of a business firm.

Two different stakeholder management processes were identified: ‘Knowledge based (national) production management’ (process A) meant that the case organisation’s research was conducted with a tight connection to Finnish agricultural and horticultural production. The process named ‘Traditional knowledge production’ (process B) meant the common production of research knowledge without a concrete connection to the national production processes. Thus, the stakeholder approach appears in its ultimate breadth – the knowledge production of the knowledge intensive organisation was linked to the production processes of the stakeholder group

at a given time. Utilising the two management processes identified, the framework for the stakeholder management in the knowledge intensive governmental organisation was presented (based on the present organisation structure of the case organisation).

As the final result and the managerial finding, the framework of the reformulated organisational structure was derived from the framework mentioned above. This study implied the necessity to manage different stakeholder groups from their specific premises. The different – even opposite – demands and expectations of stakeholder groups cannot be satisfied with the traditional science based organisational structure. The organisational logics have to be changed to become stakeholder group based.

Keywords:

Strategic management
Stakeholder theory
Stakeholder management
Knowledge intensive organisation
Organisation theory
Governmental organisation
Management conflict
Public management

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“How to attain organized efficiency, and still retain the individuality, honor the personality, obtain justice for and secure the full welfare of all concerned. This is the great problem of the new epoch.”

*Kenyon Butterfield, President
Massachusetts Agricultural College
1917*

1 INTRODUCTION

1.1 Research area

Stakeholder management is an approach to strategic management which emphasises the crucial role of different stakeholders – not only that of shareholders (Freeman 1984, Carroll 1996). Important stakeholder groups such as customers, employees, the community and even competitors were identified as long ago as the 1940s (Preston & Sapienza 1990, 362; Rhenman & Stymne 1966) (see Figure 1). The last two decades have seen a dramatic growth of both interest in stakeholder management and the necessity of its implementation. Indeed, no organisation can survive without taking its stakeholders into account and a strategic approach based on stakeholders is a requirement for the survival of both private firms and public organisations.

Stakeholder management is based on *stakeholder theory*, according to which strategic management deals with particular groups, or stakeholders, and the issues of the firm. There are numerous definitions for the key concept ‘stakeholder’ (see Chapter 2.2.2). The most commonly used and referred to is Freeman’s (1984, 46), which this study also adopts:

A stakeholder in an organisation is any group or individual who can affect or be affected by the achievement of the organisation’s objectives.

In addition to the concept ‘stakeholder’, the stakeholder theory takes a position on the nature of the firm, especially in terms of its goals and how it should be managed. Stakeholder management points up the processes of integration and balance between stakeholders and issues. The main mode of management is interaction, which according to Freeman (1984) is active involvement in the driving forces and the creation of a future for all parties involved.

In the stakeholder theory, the focus of management lies on stakeholders or stakeholder groups, whereas in *the knowledge intensive perspective of organisation theory* it lies on knowledge workers. In the former, we look at the organisation’s external and internal actors, but in the latter the focus is on internal actors. The knowledge intensive perspective within the organisation theory studies knowledge intensive firms or organisations, and describes the

specific features of an organisation where internal know-how and the needs of the firm's customers meet (Nurmi 1998; 1, 8). These are organisations whose capital is predominantly human. Their main product is knowledge or know-how that can neither be defined as mass, series or single products nor as tangible services. Managing knowledge intensive organisations is different from that of other organisations; the main differences are the possible incompatibility of business and professional demands, and the loose connections between processes and structures (Lehtimäki, Kontkanen & Nurmi 1991, 41; Viitanen 1993, Nurmi 1998, 29). The definition of the knowledge intensive organisation can be crystallised as follows (Nurmi 1998, 26):

Knowledge intensive organisations process what they know into knowledge products and services for their customers.

The concept 'knowledge intensive organisation' in organisation research was first launched in Sweden in the 1980s ('kunskapsföretag', knowledge firm). There has been a great increase in the number of knowledge intensive organisations during past decades as the industrial society has been transformed into the information society. In terms of individual firms, their knowledge intensity is also in general rising. Knowledge intensive organisations have become increasingly common in the fields of law, consulting, education, research, auditing and IT. Both private firms and public organisations may be knowledge intensive.

As is the case for other organisations, it is important for knowledge intensive organisations to have a vision, a course of action looking to the future. The strategy – a path to get from the present to the future – is also a pattern for consistent behaviour over time. The strategy should reveal the economic and non-economic contribution the organisation intends to make towards its shareholders, employees, customers, and involved communities (Mintzberg 1991; 23, 241; Andrews 1988, 43). Normally, strategies are formulated in a process which involves the activities of managers at different levels in the organisation. Strategies may also emerge from some *autonomous* strategic activities that fall outside the scope of the current strategy (Burgelman 1983, 61). The latter is common in knowledge intensive organisations and tends to result in *strategic management being seen as problematic in these organisations* (Hall 1968, Mintzberg 1983a, Brante 1988).

Dependences have been shown to exist between strategic development and learning in knowledge intensive firms (Kirjavainen 1997, 327-332). Strategy can be defined as an idea for strategic capability that gives a concrete form to the intended competitive advantage. Diversity and autonomy within the knowledge intensive organisation make the emergence of new knowledge

possible. The best way to enhance strategic learning is to manage the core of this process by developing conceptual tools and organisational arenas for collective self-diagnosis and reflection.

Stakeholder management is an approach to strategic management which serves as a kind of a tool and arena for self-diagnosis and reflection in organisations. Diversity and internal autonomy enhancing creativity in knowledge intensive organisations may cause fragmented activities which may in turn result in fragmented performance. In the long run, the survival of the knowledge intensive organisation may be threatened by the lack of strategic consistency and organisational coherence. In addition, a resource-based organisational structure, which is common in knowledge intensive organisations, contributes to narrowness and constrained thinking.

This study focuses on stakeholder management in a knowledge intensive governmental organisation¹. It describes the meanings of the concepts of the stakeholder theory in this context. The way in which the stakeholder management is carried out is as an object of special interest. The ultimate objective is to construct a framework for the stakeholder management of knowledge intensive governmental organisations.

The situation of knowledge intensive organisations, e.g. of research institutes, has taken on an aspect of conflict as the research policy and traditional financing structure have changed. The transition started in Europe in the early 1980s and in Finland in the late 1980s, with the object of increasing efficiency and effectiveness in public research and development activities. Research funding was until that time allocated directly from the State's yearly budget. Since then and presently the basic financing of these organisations comes directly from the State budget; but an increasing part of financing has to be acquired by 'selling' the organisations' know-how to *public research financiers* (national and EU research financiers) and *companies*. Research initiatives have thus been given a competitive dimension in order to increase research effectiveness. Besides *the science community* (national and international universities and research institutes) and *government*, which are the traditional stakeholder groups of the knowledge intensive governmental organisation, there are now new stakeholder groups with different, maybe also conflicting, needs and expectations.

The most challenging task in this kind of organisation is to balance the demands derived from the science community and from companies, because of *the different operative logic of the both organisational types*. Traditionally, knowledge intensive organisations are a national resource and produce new

¹ In Finland, the term 'governmental organisation' means essentially that the organisation is a non-profit organisation. Most often in governmental organisations, the majority of their funding is allocated directly in the state budget to carry out public services.

know-how that is expected to contribute long run benefit to society. The operative logic of the science community is driven by truth and the common good (e.g. the environment, the safety and healthiness of food). It is typical that it takes time to conduct a research project and performance is manifested as delay in terms of the process of scientific publication. Companies, on the other hand, are customer stakeholders expecting swift returns on their research investments and easily applicable solutions to their acute problems e.g. to maximise profits. The traditional paradigm of the research institute has been to aim at scientifically high quality results, the achievement of which is time consuming and easily runs into conflict with companies' needs for results in a shorter time frame.

1.2 Stakeholder management in strategy research

Stakeholder management is an approach to strategic management, the theoretical base of which is the stakeholder theory (Freeman 1984, Brenner 1993, 1995, Carroll 1994, Cochran 1994, Donaldson & Preston 1995). The stakeholder theory describes specific corporate characteristics and behaviours, and explains dependencies between the organisation and its stakeholders. It also attempts to predict the results of different kinds of decision making and implementation of decisions (Wood 1994, 102; Donaldson & Preston 1995, 70). One of the most well-known proponents of the stakeholder theory is R. Edward Freeman (1984), who formulated the theory and the practical management tool based thereon.

It is also suggested that no independent stakeholder theory exists, rather a variety of overlapping and loosely defined approaches (Brenner & Cochran 1991). Näsi (1995, 19-32) prefers to speak of stakeholder thinking. This study employs the concept of 'stakeholder management'.

Preston and Sapienza (1990, 362) reported on the first appearances of the concept 'stakeholder' in various contexts. In 1947, Johnson & Johnson's president listed the company's 'strictly business' stakeholders as customers, employees, managers and shareholders. In 1950, General Robert Wood, who led Sears' rapid post-war growth, listed the four parties to any business in their order of importance as customers, employees, community and stockholders. Wood argued that if the appropriate needs and interests of the first three groups were looked after effectively, the company's stockholders would be the beneficiaries. In the 1960s, Rhenman and Stymne (1966) presented a new perspective on the management of the firm: in addition to the owners, there are other interest groups or stakeholders that are as important to the firm as the owners. This perspective of focusing on the variety of stakeholders in organisations in order to survive was further elaborated at the Stanford

Research Institute. Freeman's stakeholder conceptualisation is shown in Figure 1.

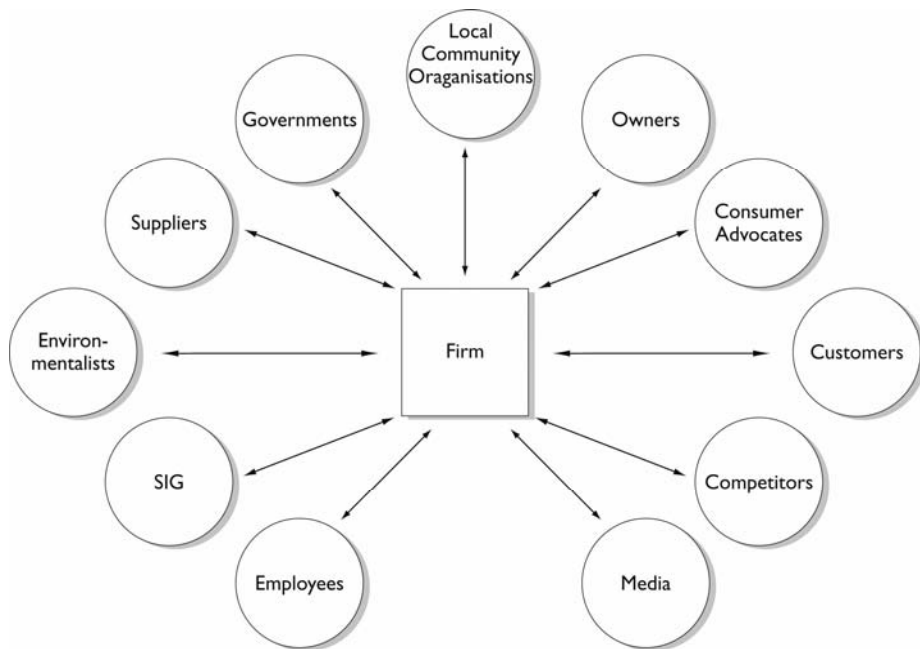


Figure 1: Stakeholder view of the firm (Freeman 1984, 25)

The stakeholder approach attempts to explain and predict how organisations function with respect to stakeholder influences (Brenner 1993 in Rowley 1997, 895). Freeman (1984; 23-24, 151) presented this as an approach to strategic management, dealing with particular groups or stakeholders and the issues of a firm, identifying the processes of integration between these issues and groups. Freeman sees the basic mode of management as interaction, meaning active engagement with external forces and pressures, which seeks to delineate the future for all parties concerned.

Emphasising the interests of all the parties involved with a firm, the stakeholder theory challenged the prevailing idea regarding the purposes of the firm. The neoclassical and currently common concept of the corporation presents it as existing primarily to serve its shareholders, namely to maximise profits and financial value in the first case, for the primary benefit of the shareholders or owners (Friedman 1970; 33, 122, 124, 126). Thus, the business relates to the society only through the marketplace, and marketplace transactions constitute its existence and *raison d'être*. The marketplace function is an abstraction of the corporation's greater context and the multiple relations and responsibilities which that involves (Buchholz & Rosenthal 2005, 146-147). These multiple relations are based on the interests of all other

participants in the organisational activities. They are adequately protected by some kind of contractual arrangement, which is either legally binding or, more likely, purely psychological. Each contract is assumed to satisfy fully and equitably the legitimate concerns of all interested parties (Clarkson 1998, 1-2).

De George (1999, 196-198) justified the perspective of stakeholders in terms of two different kinds of consideration. The first is that shareholders, although legally the owners, are very often simply speculators with no real interest in the long-range future of the company. The second is that although the stockholders of a corporation are technically the owners and have rights, including the right to have it well run, there are other parties with a much stronger interest and involvement in the firm, and a much greater stake in it and its continuance and success. Hence this consideration argues that instead of taking account of only the shareholders in running the firm, all the stakeholders should be considered. Thus, the stakeholder theory offers a value-free conceptualisation of the business organisation (Wartick 1994, 110-111).

Rowley (1997, 890) enlarged the stakeholder considerations. He proposed the networking aspects to be taken into account in the stakeholder theory and argued that stakeholder relationships do not occur in a vacuum of dyadic ties, rather in a network of influences. A firm's stakeholders are likely to have direct relationships, too, with each other.

Two popular managerial approaches based on stakeholding lend a special interest to studying stakeholder management. Kaplan and Norton (1992, 73-79; 1996a; 1996b, 83) developed stakeholder management further to make it a more practical tool for managers. They took performance in relation to different stakeholder groups as one of the starting points in their management philosophy. This 'Balanced Scorecard' approach contains a management system in which performance derived from the company's vision and strategy is seen as an interplay of 'Learning and growth' (employees), 'Internal Processes' (e.g. suppliers), 'Customers', and 'Financing' (owners). These four perspectives are hierarchical, so that the first is the driver for the second, which in turn drives the third which drives the fourth. Another derivation of stakeholding is quality management. The EFQM's (European Forum for Quality Management) quality criteria are directly linked to stakeholders (customers, personnel, society). The quality of management is seen as value added for all stakeholder groups.

In the 2000's, stakeholder issues have been developed still further. Research has been directed at the stakeholder theory itself, concerning its ethical issues (Gibson 2000, Lampe 2001), at the differentiation of stakeholder theories (Jawahar & McLaughlin, 2001; Kaler 2003), and the theory's development adopting the stakeholder relationship as a starting point (Friedman & Miles 2002, Buchholz & Rosenthal 2005). Moreover, new models have been presented (Butterfield, Reed & Lemak 2004, Preble 2005).

Stakeholder actions (Rowley & Moldoveanu 2003), the effects of stakeholder management on shareholder value (Hillman & Keim 2001), and measuring and assessing the company's performance from the different stakeholder groups' perspective (Sirgy 2002, Joyner and Raiborn 2005, Meijer & Schuyt 2005), have all been objects of growing interest during recent years. Stakeholding is seen to produce success for all parties and this will transform the overall performance of the firm, e.g. its long term survival.

Up until this point, stakeholder research seems to have focused on the stakeholder issues of firms in general. This study attempts to describe stakeholder management in the context of the knowledge intensive and governmental organisation and thus to go further into the stakeholder theory. The final aim is to present a framework of stakeholder management in the knowledge intensive governmental context and an organisational framework to manage different stakeholder groups.

1.3 Knowledge intensity in organisational research

1.3.1 Knowledge as a factor of production and as a product

Knowledge intensity is a concept that comprises a number of specific organisational characteristics. It is connected with factors of production, with products and with the employees of knowledge intensive organisations.

Knowledge business is created when the organisation's internal know-how meets the needs of customers external to the organisation. The intentional development of market know-why can bring these two together. Knowledge intensive organisations, knowledge intensive firms, or professional service firms process knowledge into knowledge products as well as abstract knowledge services for their customers. These kinds of organisation are companies e.g. in areas of consulting, training, education, research, auditing, IT, architecture and planning. These organisations are communities whose production processes are less capital intensive than those in manufacturing industries and more knowledge intensive – based on human professional work – than other service industries (Nurmi 1977, Lehtimäki 1993, 1996, Davenport & Smith 2000, 284). In a knowledge intensive organisation, the main factor of production, knowledge, is owned by the knowledge workers. Their knowledge is totally portable and an enormous capital asset (Drucker 2000, 276). Unlike physical assets, knowledge increases in value with use. Properly stimulated, knowledge and intellect grow exponentially when shared. Knowledge also

fades if it is not used (Prahalad & Hamel 1990, 82; Quinn, Anderson & Finkelstein 1996, 75).

Davenport and Smith (2000, 285) argue that knowledge intensive firms were the early adopters of the concept of knowledge management. Thus, they are a bellwether for knowledge management, leading the way for other firms and industries. How to leverage and reuse the knowledge that already exists in the organisation has been a new challenge for knowledge intensive organisations, as work is organised in a fairly organic or “adhocratic” way. Kärreman, Svenningsson and Alvesson (2002) show that there is a trend in managing knowledge intensive organisations towards the standardisation of tasks and working methods, and the reinforcement of exchangeability of individuals and units.

1.3.2 Knowledge workers

In management literature, various terms are used to mean persons working in knowledge intensive organisations and possessing high expertise. For instance, the terms ‘expert’ (Stehr 1994; 165, 171), ‘professional’ (Mintzberg 1983a), ‘professional intellect’ (Quinn, Anderson & Finkelstein 1996) and ‘knowledge worker’ (Machlup 1981, 17 in Stehr 1994, 179) are used. The terms are often used as synonyms but e.g. a person called a ‘professional’ may produce both knowledge and goods or tangible services. Later, the term ‘knowledge worker’ has been used generally concerning persons working with IT and knowledge management.

Machlup (1981, 17) defines knowledge workers as workers in occupations that produce and transmit knowledge. Knowledge work may include transportation, transformation, processing, the interpretation or analysis of knowledge, as well as knowledge creation. Knowledge workers possess cognitive knowledge (know-what), advanced skills (know-how), systems understanding (know-why) and self-motivated creativity (Quinn, Anderson & Finkelstein 1996, 72).

Knowledge workers are furthermore the key resource of a knowledge intensive organisation, as they possess the knowledge that is the primary factor of production of these organisations. New knowledge always begins with the individual. *Making personal knowledge available to others is the central activity of the knowledge-creating company.* In a knowledge-creating company, everyone is a knowledge worker, and as Nonaka (1991, 97-98) puts it, an entrepreneur.

Alvesson (1993, 1000) points out that an education system can provide people with only standardised knowledge, whereas exceptional expertise is needed to create a knowledge intensive firm. That expertise enables complex

problems to be solved through creative and innovative solutions (Sveiby & Risling 1987; Alvesson 1993, 1001). Starbuck (1992, 716) differentiates between esoteric expertise and widely shared knowledge. Every firm possesses some unusual expertise, but exceptional expertise must form a key contribution for the knowledge intensive organisation. Exceptional and valuable expertise must dominate commonplace knowledge. Prahalad and Hamel (1990, 84) state that exceptional expertise must constitute a significant contribution to the perceived customer benefits of the end products. Knowledge is transformed into knowledge services and the value added of the organisation (Lehtimäki 1993, 1996).

The concept of knowledge intensive service places less emphasis on the boundaries of professions with their scientific body of knowledge, long formal education and ethical codes. Rather it stresses the nature of the work in which various types of knowledge, interpersonal skills and creativity are employed (Alvesson 1993, 1012); the characteristics of knowledge workers are a formal education and experience or training (Stehr 1994, 175).

Knowledge workers form the operating core that is the key part of the organisation (Mintzberg 1983a). The basic attitude of knowledge workers is one of autonomy and this is also part of the work. Other knowledge workers constitute their chief reference; the major sources of ideas and judgements are taken from knowledge worker colleagues (Quinn, Anderson & Finkelstein 1996, 72-73).

Recent studies on knowledge workers concern how to attract, motivate and retain them. The effectiveness of monetary compensation in promoting performance has been a matter of interest (Smith & Rupp 2003). Horwitz, Heng and Quazi (2003) argue that the most effective strategies with which to motivate knowledge workers are the freedom to plan one's work, challenging work, access to leading-edge technologies and top management support.

In this study, the terms 'knowledge intensive organisation' and 'knowledge worker' are used in their original meaning and context as in the knowledge intensive perspective of organisation theory. This means that IT workers and knowledge management do not lie at the absolute focus of the study. Knowledge workers are seen here as the key internal stakeholder group. On the other hand, they are the key actors in terms of working with the external stakeholder groups at the strategy level as well. It has been shown that in knowledge intensive organisations, the organisational strategies are defined not only by the decisions of top management, but are also formulated by the knowledge workers. This is possible, because *the boundary between strategic and operative management is not very clear in knowledge intensive organisations* (Kirjavainen 1997, 20; Viitanen 1993).

1.4 Stakeholder theory and knowledge intensive perspective in this study

1.4.1 Weaknesses in theories and rationale for this study

In spite of the wide range of studies concerning the stakeholder theory and the knowledge intensive perspective in organisation theory, obvious 'black boxes' existed at the time this study was in its early stages. With regard to the stakeholder theory, it has been argued that there is a necessity to take a broader perspective on the organisation's environment and its dependence on that environment. Ethical and performance views in linkage to corporate social responsibility and corporate social performance have been pointed out. It is evident that there are areas not yet dealt with. For instance, the processes of stakeholder management have been formulated, but the researcher has not found literature concerning which kind of processes the different interests of *different stakeholder groups* are responded. Freeman (1984, 193-209) deals with the conflicts of different stakeholder groups at the board level. There would also seem to be a lack of research concerning *how conflicting demands of different stakeholder groups* or the integration of these demands with common multiple issues are managed.

With regard to the knowledge intensive perspective, the lack of consistency in these kinds of organisations, and its consequences to the management, have been studied. A special characteristic of knowledge workers, autonomy, has been an object of interest (e.g. Hall 1968, Starbuck 1992, McAuley et al. 2000). Tuunainen (2005) studied knowledge intensity at a traditional university from the point of view of the sociology of science. Shrum, Chompalov and Genuth (2001) focused on science communities and studied trust, conflict and performance in scientific collaborations.

The theoretical justification of this study lies in its expectations to add value to the stakeholder theory and to the knowledge intensive perspective of organisation theory. Stakeholder management integrates the approach of multiple stakeholders or stakeholder groups regarding multiple issues. Since the knowledge intensive organisations have been shown to be challenging to manage their consistency of strategy, this outlook is expected to increase the success of management in these organisations. It changes the logic of thinking and increases knowledge workers' understanding of the knowledge intensive organisation's competence in relation to the needs of the stakeholders.

Stakeholder management brings some order to knowledge intensive organisations where ‘creative chaos’ can easily arise (Yläranta 1999, 20-21).

Thus, this study combines two ultimate or contrasting perspectives, namely *autonomy*, the typical feature of knowledge intensive organisations’ knowledge workers, and the *interactive mode of action*, the typical feature of stakeholder management. Moreover, this study aims to discover what a knowledge intensive context on the one hand, and the governmental or public context on the other, can contribute to the stakeholder approach of strategic management. There is good reason to study whether the governmental organisational form contributes new aspects to the stakeholder theory, e.g. through the management of governmental knowledge workers. In sum, this study goes on in the stakeholder theory, presenting a framework of stakeholder management in the knowledge intensive governmental context, and finally presents a solution, where the conflicts based on the changed research policy could probably be eliminated.

1.4.2 Stakeholder concept in this study

The stakeholder map of the knowledge intensive organisations includes in addition to *the science community* (national and international research institutes and universities), *companies* (food and raw materials industries) and *public research financiers* (national public research financiers), e.g., employees, government, citizens, suppliers, media, etc. Among external stakeholder groups, *this study focuses* only on the first three aforementioned. Suppliers for delivery of the products and services needed for conducting research in the organisation are excluded; as is the media, though it has a drastic role in making the outcomes of the knowledge intensive organisation visible.

The grounds for this limitation are as follows: the science community is the traditional and natural stakeholder group for a research institute. Companies as a stakeholder group are the appliers and utilisers of the new knowledge and innovations to increase their competitiveness. Public research financiers are key actors to interpret society’s future needs being active in the formulation of research policies.

Each of these three stakeholder groups is dealt with as one entirety in spite of the fact that every group is highly heterogeneous in its internal stakeholder map. For instance, the ‘company’ stakeholder group includes small, medium-sized and large companies in different food and agricultural raw material industries. The stakeholder group ‘public research financiers’ and ‘government’ acts like an agent for several stakeholder groups: authorities,

citizens and also farmers and extension services. Employees are dealt with as the internal stakeholder group, as *knowledge workers*.

In sum, in this study, the term ‘stakeholder group’ is applied in the sense of ‘stakeholder category’. The opening of the stakeholder category or group to its constituent stakeholder elements and analysing them would have produced a very detailed picture of the stakeholder management in a knowledge intensive governmental context. The reason not to open the category is that an addition to it would have provided material for several studies; in relation to the chain of evidence of this study this has not been seen to be necessary.

Moreover, the aspect of networking between external stakeholder groups and networking between single stakeholders within one stakeholder group is excluded from this study. Public research financiers, e.g. ACAR and TEKES, are actors building networks of research organisations, companies, firms, farms, etc. These problematics have been touched upon in Chapter 5.3.1. (Demand for rapid outcomes) in the form of the presence of competing companies in the research project. It would have needed assistant resources or a research team to carry out more comprehensive screening of external stakeholder groups as could be achieved by utilising the interviews conducted and the stakeholder satisfaction surveys.

1.5 Research design

1.5.1 Research problem

Stakeholder management as an approach to strategic management is seen to have much potential for firms’ success, growth and long-run survival. The concept ‘company’s social responsibility’ emphasising the firm’s responsibility towards all its stakeholder groups has its origin in the stakeholder approach. It is seen to have a link with the ‘company’s social performance’, meaning the entirety of performances produced for the different stakeholder groups. It is the term used concerning performance in stakeholder management (Carroll 1995, 48-51).

Knowledge intensive governmental organisations have an exceptional role amongst other knowledge intensive organisations. Often, they are research institutes and universities. They are responsible for nationally important scientific issues that create the basis for productivity and security. They are national resources with the task of producing new know-how for the long term benefit of the society (Bozeman 1989; Brante 1998). According to Hamel (1994, 28), it is challenging for the knowledge intensive firm whose

fundamental philosophy is based on expertise to transform its expertise into core competence such as is consistent with stakeholders' needs and expectations. It is moreover extremely challenging for knowledge intensive governmental organisations, which have a large variety of different stakeholder groups whose expectations and demands may be diametrically opposed to one another's.

Stakeholder issues have been studied in business firms, just as have the issues of knowledge intensity. There are fewer studies dealing with stakeholder issues in non-profit, governmental organisations. Moreover, the stakeholder management of governmental knowledge intensive organisations has been the focus of only a few studies (Lehtimäki 1993), a state of affairs that is part of the rationale for this study.

This study examines the adequacy of the stakeholder theoretical concepts in a knowledge intensive governmental context. The inter-linkage of two theoretical perspectives aims to produce a new holistic view both of the stakeholder management and of the management of knowledge intensive organisations, as justified in Chapter 1.4.

1.5.2 Purpose of the study

The external and internal relationships of knowledge intensive governmental organisations are an object of growing interest and importance in the management of this kind of organisation. These kinds of organisation are for their part an infrastructure of the society and must be able to provide added value and well-being in the competing and ever more complex world. The purpose of this study is to provide an understanding of the phenomenon and an empirically based framework. The research task is described in the form of the following questions:

The research question:

How relevantly and adequately does the current stakeholder theory describe the complexity of stakeholder management and the conflicting demands of the different stakeholder groups in a knowledge intensive governmental organisation?

The operative research questions:

Relevance of the stakeholder theory:

- 1 How adequate are the key concepts 'firm' and 'stakeholder' as used in business firms' stakeholder management when applied in the stakeholder management of a knowledge intensive governmental organisation?

Complexity of management:

- 2 How is 'stakeholder management' conducted in this kind of organisation?
- 3 How can the different demands of the different stakeholder groups be taken into account?

The phenomenon under examination in this study is viewed through the eyes of the case organisation's managers and its external stakeholder groups. They balance the demands and expectations of external (e.g. the science community, companies and public research financiers) and internal (knowledge workers) stakeholder groups in a knowledge intensive governmental organisation and strive to achieve a consistency of strategy.

The proposals of earlier research on stakeholder management and knowledge intensive firms are reviewed and summarised. The literature review is used to construct a framework that is further examined by applying the case study method in the empirical part of the research, which focuses on MTT Agrifood Research Finland, a knowledge intensive governmental organisation. Due to its size (around 900 personnel) and the variety of its activities (nine operational units), it serves as a rich example of real-life management in knowledge intensive governmental organisations.

First, the case organisation is described using the concepts of the stakeholder theory and their relevance is examined. The concepts 'firm' (goals), 'stakeholders' and 'stakeholder management' are in the focus. The aim is to assess the operational validity of the concepts generally developed for business firms in the context of governmental and knowledge intensive organisations. This part of the study results in a framework for the stakeholder management of knowledge intensive governmental organisations. It shows the interplay between strategic management and the stakeholder groups to produce performance for each stakeholder group.

Secondly, the management problems in multi-stakeholder organisation are examined. The stakeholder map and analogically the expectations of the performance of the knowledge intensive governmental organisation have become diversified, because of the change in the financing structure of this kind of organisation which is at this point a very acute issue. The stakeholder management is acting 'between two worlds', meaning that a knowledge intensive governmental organisation has to be able to balance the conflicting demands of very different stakeholder groups, those of e.g. the science community, companies, ministries and public research financiers.

Finally, and in terms of a managerial impact of this study, the solution to managing the conflicting demands and expectations of different stakeholder groups in knowledge intensive governmental organisations is presented.

1.5.3 Preliminary conceptual framework

The preliminary conceptual framework of the study includes two areas of the research: the stakeholder approach to strategic management and the knowledge intensive perspective in organisation theory. *The focus of this study is organisational strategy* and, especially, the managerial processes involved in its formulation. Both the stakeholder approach in strategic management and the knowledge intensive perspective in organisation theory respond to the goals and management of the firm.

Figure 2 shows the interplay of the concepts ‘firm’ (which is defined by its goals), ‘stakeholder’ and ‘management’ in the literature according to the stakeholder approach of stakeholder management. The ultimate goal of the firm is to help its stakeholder groups achieve their goals by creating and distributing increased value to them. The role of management is continuously to monitor stakeholder demands and expectations and to respond to changes in those. This is best achieved using an *interactive strategy process with the stakeholder groups, starting by setting a strategic direction and ending in keeping score with stakeholder groups*. This procedure is seen to result in the growth and survival of the firm.

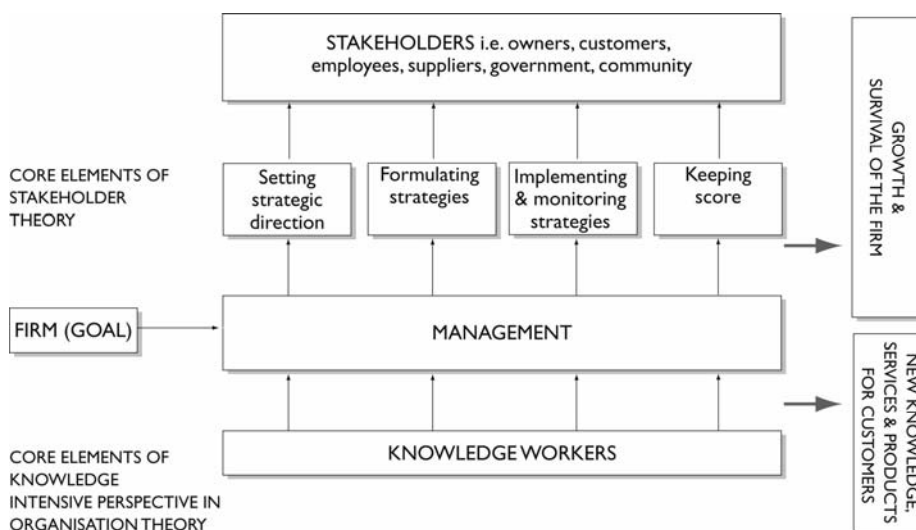


Figure 2: Preliminary conceptual framework of the study

Also the existing literature of the knowledge intensive firms, takes the position to the goals of the firm and to its management. In knowledge intensive organisations, the knowledge is both a factor of production and the product itself. Thus, the goal of these organisations is to produce and transmit

knowledge, which is in itself the main part of the products and services delivered for customers. Another goal is the training of the knowledge workers who are the key resource in these organisations, and their management is challenging because of the knowledge workers' exceptional expertise. The greatest success is thought to be achieved through 'bottom-up' management.

The preliminary conceptual framework is used as a starting point to produce the final framework with the help of the empirical case study.

2 STAKEHOLDER THEORY – A SPECIFIC PERSPECTIVE ON STRATEGIC MANAGEMENT

2.1 Background of the stakeholder theory

2.1.1 Philosophical base

Two philosophical lines form the base that the stakeholder theory builds on, namely ethics and pragmatism. The *normative aspect* of the stakeholder theory (Donaldson & Preston 1995, 69-74; Carroll 1998) is derived from ethics. It emphasises the justified interests of the wide variety of the stakeholder groups rather than only those of the owners. The *instrumental aspect* of the stakeholder theory has its basis in pragmatism (Donaldson & Preston 1995, 69-74). The focus of the instrumental aspect lies in the connection between the stakeholder management practices and corporate performance. In order to understand the basics of the stakeholder theory more fully, this chapter presents an outline of ethics and pragmatism in this context.

The normative aspect has its roots in Aristotle's thinking. He found that any well-functioning society would be dependent on the effective workings of all three intellectual virtues: science, art/craft, and ethics (*episteme*, *techne* and *phronesis*), respectively (Flyvbjerg 1993). Yet Aristotle emphasised *phronesis* as the most important virtue, "for the possession of the single virtue of prudence [*phronesis*] will carry with it the possession of them all [the intellectual virtues]". Later, the ethical view was especially contributed to by Immanuel Kant (1724-1804). He formulated his famous moral law, the categorical imperative: we should always act in such a way that it could be a universal law (Kant 1969, 44). Kant (1969, 16; also Dietrichson 1969, 174) states that often ethical actions are just a consequence of a selfish purpose and not that of a duty. Though we act on maxims that can be universalised in full, it may be for the sake of attaining certain advantages or escaping certain disadvantages. That point of view is close to the instrumentalism derived from pragmatism.

The instrumental aspect of the stakeholder theory stems from *pragmatism*. It was developed by American philosophers Charles Sanders Peirce (1839-1914), William James (1842-1910) and John Dewey (1859-1952). Peirce developed the notion of *logical method* as an underlying conception capable of unifying the various oppositions. James pointed out the appeal to *experience as a common test* to which all constructions are to be brought. John Dewey elaborated a *theory of intelligence* in offering a unified conception of thinking as an active interchange between organism and environment (Scheffler 1974; 2, 76-82, 103-104, 109-110).

To summarise, pragmatism points out the verification of truth by a person's own experience. The experience defines the value of any action i.e. whether the action has instrumental value. The underlying philosophies of the stakeholder theory seem to be paradoxical to each other – the ethical view pointing out the sincerity and honest will to do friendly deeds for other people, the pragmatist view turning on the instrumentality of actions from the point of view of the future expectations of an actor. Both lines of thinking, the normative and instrumental views, are vital in the management literature.

2.1.2 Roots of the stakeholder theory

The stakeholder theory is based on the modernist approach of the organisation theory. The modernist approach started to develop in the 1950s and was active until 1980s. The famous modernist theorists are such as Herbert Simon, Talcott Parsons, James March and Ludvig von Bertalanffy. The core of modernism was to see an organisation as a living organism (especially von Bertalanffy 1968). The organic metaphor focuses on organisational processes which are seen essential in the survival of the organisation.

The modernist approach emphasises environmental dependence. March and Simon (1958, 25; also Rhenman & Stymne 1966, 23-24; Pfeffer & Salancik 1978, 26) argue that the viability of the organisation is dependent on the coalition which lends support to it. The balance between the contributions made to the organisation and the rewards received from it are essential. The stakeholder theory is close to the *resource dependence theory* (Pfeffer & Salancik 1978, 258-262): the firm actively tries to reduce the uncertainty of its environment by identifying and following important actors and critical dependencies.

Von Bertalanffy (1969) presented his modernist view of the organisation in the General System Theory. The key concept of the theory is a system, which is defined as a thing with interrelated parts. Katz and Kahn (1966, 14-26) formulated *the open system theory*, in which the firm is seen as a potential

two-way interaction or exchange of influence. The firm does not operate in isolation, and the survival of a single firm depends on the efficiency of the whole system, of which the firm is a part (Low 1988).

The roots of the stakeholder theory lie in the organisation theory and organisational strategy research. The stakeholder theory makes pragmatic recommendations about the strategic management of firms. It deepens the issues of interaction between the organisation and its environment, and grows from the need to understand the complex and turbulent environment of the firm. It is the system of concepts which tries to turn external change to internal change, thereby reducing uncertainty and discomfort (Freeman 1984, 4-13). Cochran (1994, 96-97) argues that the stakeholder theory is an attempt to integrate *customer theory*, *worker theory*, *stockholder/worker theory* and *managerial theory*, emphasising the firm's obligations to a wide range of different constituents.

In the modernist organisation theory, the concept of *strategy* refers to top management's planned efforts to influence organisational outcomes by managing the organisation's relationship to its environment (Quinn 1978; Quinn, Mintzberg & James 1991; Mitroff 1983; Johnson 1992; Priem in Van De Ven 1992, 170). *The focus of this study is organisational strategy*. The contents of strategies are not analysed, as the object of interest is the managerial processes in the formulation of the organisational strategy.

2.1.3 Different classifications of the stakeholder theory

Stakeholder theorists have presented different classifications of the stakeholder theory. Donaldson and Preston (1995, 69-74, 87-88; also Jones 1994, 98-101; Jones 1995, 406) present and justify three aspects, all supporting each other, of the stakeholder theory – descriptive/empirical, instrumental and normative – normative being the central core of the theory. According to them, the stakeholder theory is *descriptive* (what happens) in terms of what the corporation is, a constellation of cooperative and competitive interests. The stakeholder theory is also *instrumental* (what happens, if), a classification with which the connection between the practices of stakeholder management and corporate performance can be examined. Jones (1995) presents an instrumental stakeholder theory, which is the synthesis of the stakeholder concept, economic theory, behavioural science, and ethics. In Goodpaster's (1998, 116-119) synthesis, the core of stakeholder relationships lies in their direct managerial obligations.

Donaldson and Preston (1995, 69-74) see the *normative* aspect (what should happen) as the basis of the stakeholder theory, because of its new perspective on the management of a corporation. Stakeholders are identified by their

interests in the corporation, and by that, those are of intrinsic value. A normative theory attempts to interpret the function of, and offer guidance about, the investor-owned corporation on the basis of some underlying moral or philosophical principles.

Among stakeholder theorists, also Laurila (1995, 204) favours the normative aspect and emphasises the crucial role of two stakeholder groups, employees and competitors. Moral issues are important and problematic in these relationships because of the company's dominance over those stakeholder groups. Dodd (1998, 37) and Goodpaster (1998, 119) agree with Laurila regarding the employees; the employees are putting their labour and lives into the business of the company. In addition, the authors note stockholders, who have put their capital into the company, and also customers and the general public.

Stoney and Winstanley (2001, 607-610) take a critical perspective on stakeholder management and illustrate further the different stakeholder aspects and the assumptions on which those are based. They argue that adopting stakeholder management has more to do with beliefs than empirical evidence; stakeholding may be seen as both economically and socially more desirable than alternative forms of governance.

Connections between the instrumental and normative aspects of the stakeholder theory have been revealed in a new way. Jones and Wicks (1999, 215-219) have argued for *the convergent stakeholder theory*, which exceeds the standards of symbiosis and meets those of integration. The theory emphasises *the managerial maxim*. Both normative and instrumental principles are needed to achieve competitive advantage. Donaldson (1999, 240) refers to managers' duties and points out that the benefits expected by the stakeholders and the shareholders can be reconciled, if the interests of other stakeholders also serve the best interests of share owners.

Berman, Wicks, Kotha and Jones (1999, 488-494) further developed the stakeholder theory and formulated *the strategic stakeholder management model* and *the intrinsic stakeholder commitment model*. The first takes in the idea that the nature and extent of stakeholder management is determined solely by the expectation of improved financial performance. In the second, firms are viewed as having a normative (moral) commitment to treating stakeholders in a positive way, and this commitment is, in turn, seen as shaping the firms' strategy and impacting their financial performance.

Besides the descriptive, instrumental and normative aspects mentioned, the stakeholder theory is *managerial*. This deals with attitudes, structures and practices that together constitute stakeholder management. Managers can be seen as the agents of all other stakeholders (Hill & Jones 1992, 134).

This study concentrates on the descriptive approach, which is the least developed stream among the different stakeholder approaches (Butterfield,

Reed & Lemak 2004, 162-163). There are connections to normative and instrumental aspects, as the core concepts of stakeholder management have normative and instrumental contents.

2.1.4 Considerations of performance

Stakeholders represent, translate and deliver societal expectations to companies. Thus, the term ‘stakeholder’ can be broadened to the term ‘society’ (de Bakker, Groenewegen & den Hond 2005, 285). The concept, *corporate social responsibility (CSR)* launched by the stakeholder theorists (Wood 1991, 695; Wood 1994, 121-138; Carroll 1995, 48-51; Carroll 1996, 30-39; Joyner & Raiborn 2005, 526) is based on the normative aspect. It emphasises that the firm and the society are very closely linked to each other rather than different entities. Therefore, the society expects certain behaviour and results. Carroll and Näsi (1998, 75) define corporate social responsibility as follows:

$$\text{Corporate social responsibility} = \text{financial responsibility} + \text{legal responsibility} + \text{ethical responsibility} + \text{philanthropical responsibility}^2$$

According to this aspect, the firm must simultaneously aim at profits, follow laws, act ethically and be ‘a good citizen’. Moral management takes into consideration all of these four factors; amoral management neglects ethical responsibility.

In connection with corporate social responsibility and the stakeholder theory, the concept of performance employed is that of corporate social performance (CSP) derived from the concept corporate social responsibility. Wood (1991, 693) defines CSP as *a business organisation’s configuration of principles of social responsibility, processes of social responsiveness, and observable outcomes as they relate to the firm’s societal relationships*. CSP exists in a domestic and global context of social, economic, political, technological and ecological factors.

An interesting issue is what is the real predictive validity of the stakeholder theory as to the success of business. Is there empirical evidence to illustrate the instrumental value, namely the economic or social advantage of applying the principles of stakeholder theory in management? As far as it is known, there are not many studies made of what is the influence of stakeholding in the real world of business (Freeman 1984, 177; Donaldson & Preston 1995, 77;

² Philanthropical responsibility in the meaning of sponsoring e.g. sports, education or welfare of those who need help.

Stoney & Winstanley 2001, 608). Donaldson and Preston (1995, 789) argue that most of the social and financial performance studies made do not include reliable indicators of the stakeholder management side of a relationship. It has been studied to which extent the multiple stakeholder objectives are achieved and how the achievement of stakeholder objectives is associated with other aspects of corporate performance. In addition, consumer sensitivity towards the company's CSP has been studied (Meijer & Schuyt, 2005).

However, it has been argued that the needs of different stakeholder groups can be satisfied – the benefits of one stakeholder group need not to come entirely at the expense of another (Preston & Sapienza 1990, 373). It has also been shown that a firm's size, financial performance, and environmental performance (amount of pollution emissions released by the firm) do impact the firm's level of CSP³. Fostering positive connections with key stakeholders can help the firm's profitability. Moreover, stakeholder relationships and resource allocation decisions are inseparable, because the distribution of resources inevitably has implications for the strength of stakeholder relationships, and these sets of variables interact to affect the firm's financial performance (Kotter & Heskett 1992; Ruf, Muralidhar, Brown & Paul 1996, 293-298; Wheeler & Sillanpaa 1997; Stanwick & Stanwick 1998, 198-201; Berman, et al. 1999, 494-503).

Clarkson (1991, 350) presented a proposition concerning the connection between performance and the mode of stakeholder management. The corporations whose economic performance is above average in their industry will be found to manage stakeholder relations and social issues in a proactive (to lead the industry) or accommodative (to be progressive) manner. The corporations with below average economic performance in their industry will be found to manage stakeholder relations and social issues in a reactive (fighting) or defensive (doing only what is required) manner.

In spite of widely accepted management philosophies, in practice, economic forces and political pragmatism tend to lead to subjugating considerations concerning the social benefits of a stakeholder based society. According to Stoney and Winstanley (2001, 618), trends in Germany, Japan and the Nordic countries are moving towards a more market based or Anglo-American approach.

In this study, performance is under examination only indirectly. It is studied as the satisfaction of the different stakeholder groups. Performance in linkage to stakeholder management is not studied.

³ The Corporation Reputation Index (with the attributes of quality of management, quality of products and services, innovativeness, long-term investment values, financial soundness, ability to attract, develop and keep talented people, wise use of corporate assets and responsibility in the community and the environment) was used as a proxy measurement of CSP.

2.2 The core elements of the stakeholder theory

2.2.1 The firm and its goals

Stakeholder theorists point out that the goals of the firm are in practice the goals of the stakeholders (Rhenman & Stymne 1965, 10-101). This *stakeholder view of the firm* is a developmental stage in management thinking, where managers were required to see the firm's multilateral relationships with multiple constituents, namely stakeholders, including investors, creditors, consumers, employees, etc. It was preceded by *the managerial view of the firm* which emphasised the interaction with major constituent groups. It required the adoption of new concepts and ideas which dealt with owners and employees. Originally, before the managerial view, business activities consisted of buying raw materials from suppliers, converting it into products, and selling them to the customers. In this traditional *production view of the firm* owners worked with members of their families. The business was successful, if the owner-manager-employee satisfied the needs of suppliers and customers (Feeman 1984, 5-7, 25; Carroll 1996, 74).

In order to be able to contribute to the stakeholders' goals, it is necessary that management defines the boundaries of the firm. It has to be known which parties belong to the organisation and which ones are outside it. March and Simon (1958, 90) suggested including the suppliers and the distributors of the manufacturing core of the organisation. On the other hand, it was argued that it is impossible to draw the boundaries of an organisation once and for all; the firm is a coalition of individuals on the whole (Cyert & March 1992, 31; Hatch 1997, 9697). The conception must be simplified by focusing on the participants in a particular area – either temporal or functional. The boundary between the organisation and its environment is an arbitrary invention of the perceiver (Cyert & March 192, 31; MacMillan & Farmer 197, 277; Starbuck 1976, 1071). It can be said that the environment is not always the given factor to which the organisation must adjust; the organisation may choose its environment itself, too (Starbuck 1976, 1078).

According to the core of *the neoclassic view of the firm*, the goal of the firm is profit maximisation for the shareholders (Friedman 1970, 122, 124, 126). The stakeholder view of the firm challenged this neoclassic economic perspective. Even before the stakeholder theorists, modernist organisation theorists (e.g. Simon, Cyert, March) presented ideas similar to the stakeholder view. Cyert and March (1992, 8-9) say that profit maximisation is either one among many goals of business firms or not a goal at all. The objectives grow out of interaction among various participants in the organisation. It is more

appropriate to replace profit maximisation with the goal of making satisfactory profits (Simon 1952, 109-111, 114; Aoki 1984, 56-57). The profits represent a level of aspiration that the firm uses to evaluate alternative policies, and this level may change over time. Thus, the primary motive of the entrepreneur is long term survival. The decisions aim at maximising the security level of the organisation (Cyert & March 1992, 9).

To sum up, the firm has no universal or exact goal such as profit maximisation. An important and challenging task of the management is to integrate and balance the goals of different stakeholder groups into a consistent strategy for the firm (Näsi 1995, 24; Freeman 1984, 64-80; Carroll 1996; Rhenman & Stymne 1965). The firm is a system of primary stakeholder groups, a complex set of relationships between and among stakeholder groups with different rights, objectives, expectations and responsibilities, which should all be managed in a successful way (Clarkson 195, 107).

2.2.2 Stakeholder and stake

Stakeholder

The concept 'stakeholder' was defined as follows: a stakeholder in an organisation is any group or individual who can affect or is affected by the achievement of the organisation's objectives (Freeman 1984, 46). There are also other definitions of stakeholder in the management literature but, in general, they define the relevant groups of the firm in terms of their direct relevance to the firm's economic core interests. All of the definitions have at least two common reference points: the stakeholder, and the entity with whom the stakeholder is connected, such as an organisation, an individual, or a society (Starik 1994, 90). The common message of the definitions is that without the support of stakeholders, an organisation would cease to exist. Mitchell, Agle and Wood (1997, 857-858) present a summary of different definitions of 'stakeholder' (Table 1).

In different definitions, the dependence of the parties on each other has been pointed out. The motive to be a participant in a firm is driven by his or her own interests and goals (Rhenman 1964). Owners, employees, customers, suppliers, government, community, media, unions, consumer groups and environmental groups are all representatives of typical stakeholders. Mintzberg (1983b, 26-27) uses the expression 'external coalition' meaning owners, associates, employee associations, and publics (which are groups representing the interests of the public at large). These are external influencers which have power over the organisation. The term 'distal stakeholders' is used

when meaning those with indirect influence on the survival and growth of the firm (Sirgy 2002, 145).

The diversity of the field has led to further classifications (Carroll 1996, 78). *Primary* stakeholders are those who have formal, official or contractual relationships with the firm. The firm's survival and continuing success depend on the ability of its managers to create sufficient wealth, value or satisfaction for those who belong to each stakeholder group, so that each group continues as a part of the corporation's stakeholder system (Clarkson 1995, 107).

Other stakeholders are *secondary* stakeholders. They influence or affect, or are influenced or affected by, the corporation but are not engaged in transactions with it. They are not essential to its survival. The media and special interest groups are considered to be secondary stakeholders (Clarkson 1995, 107). There is also another way in which to classify stakeholders. Core stakeholders are strategic stakeholders who are essential for the survival of the organisation. They form the particular set of threats and opportunities it faces at a particular point of time. Environmental stakeholders are all others that are not core or strategic. Starik (1994, 91) states that there are actual or current stakeholders and potential stakeholders.

Mitchell, Agle and Wood (1997; 854, 873-874, 879) developed a dynamic stakeholder theory, according to which stakeholders can be identified and prioritised by their possession of one, two or all three of the following attributes: 1) a stakeholder's power to influence the firm, 2) the legitimacy of the stakeholder's relationship with the firm and 3) the urgency of the stakeholder's claim on the firm. Those stakeholders who or which possess only one of these attributes are *latent* stakeholders (dormant, discretionary, demanding). *Expectant* stakeholders are those possessing two of these attributes (dominant, dependent, dangerous). *Definite* stakeholders are those possessing all three attributes. Individuals or entities possessing none of the attributes are non-stakeholders or *potential* stakeholders. Different degrees and types of attention depending on their attributed possession of power, legitimacy, and/or urgency, and the levels of those attributes, can vary from issue to issue and time to time.

Table 1: Who Is a Stakeholder? A Chronology (Mitchell, Agle & Wood, 1997, 858)

SOURCE	STAKE
Stanford memo, 1963	“those groups without whose support the organisation would cease to exist” (cited in Freeman & Reed, 1983, and Freeman, 1984)
Rhenman, 1964	“are depending on the firm in order to achieve their personal goals and on whom the firm is depending for its existence” (cited in Näsi, 1995)
Ahlstedt & Jahnukainen, 1971	“driven by their own interests and goals are participants in a firm, and thus depending on it and whom for its sake the firm is depending (cited in Näsi, 1995)
Freeman & Reed, 1983:91	“can affect the achievement of an organisation’s objectives or who is affected by the achievement of an organisation’s objectives”
Freeman, 1984:46	“can affect or is affected by the achievement of the organisation’s objectives”
Freeman & Gilbert, 1987:397	“can affect or is affected by a business”
Cornell & Shapiro, 1987:5	“claimants” who have “contracts”
Evan & Freeman, 1988:75-76	“have a stake in or claim on the firm”
Evan & Freeman, 1988:79	“benefit from or are harmed by, and whose rights are violated or respected by corporate actions”
Bovie, 1988:112, no. 2	“without whose support the organisation would cease to exist”
Alkhafaji, 1989:36	“groups to whom the corporation is responsible”
Carroll, 1989:57	“asserts to have one or more of these kinds of stakes” – “ranging from an interest to a right (legal or moral) to ownership or legal title to the company’s assets or property”
Freeman & Evan, 1990	contract holders
Thompson et al., 1991:209	in “relationship with an organisation”
Savage et al., 1991:61	“have an interest in the actions of an organisation and...the ability to influence it”
Hill & Jones, 1992:133	“constituents who have a legitimate claim on the firm...established through the existence of an exchange relationship” who supply “the firm with critical resources (contributions) and in exchange each expects its interests to be satisfied (by inducements)”
Brenner, 1993:205	“having some legitimate, non-trivial relationship with an organisation (such as) exchange transactions, action impacts, and moral responsibilities”
Carroll, 1993:60	“asserts to have one or more of the kinds of stakes in business” – “may be affected or affect”
Freeman, 1994:415	“participants in “the human process of joint value creation”
Wicks et al., 1994:483	“interact with and give meaning and definition to the corporation”
Langtry, 1994:433	the firm is significantly responsible for their well-being, or they hold a moral or legal claim on the firm
Starik, 1994:90	“can and are making their actual stakes known” – “are or might be influenced by, or are or potentially are influencers of, some organisation”
Clarkson, 1994:5	“bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm” or “are placed at risk as a result of a firm’s activities”
Clarkson, 1995:106	aim, ownership, rights, or interests in a corporation and its activities”
Näsi, 1995:19	“interact with the firm and thus make its operation possible”
Brenner, 1995:76, no. 1	“are or which could impact or be impacted by firm/organisation”
Donaldson & Preston, 1995:85	“persons or groups with legitimate interests in procedural and/or substantive aspects of corporate activity”

Different strategies – those of reaction, defence, proaction or accommodation – may be exercised towards different stakeholders, but also towards a specific stakeholder. The specific stakeholder becomes more or less important as an organisation evolves from one stage to the next. Organisations are likely to use different strategies to deal with the same stakeholder, depending on whether they are at the stage of start-up, emerging growth, maturity or decline/transition (Jawahar & McLaughlin 2001, 405-410). This approach eliminates the weakness of stakeholder management, i.e. that organisations may narrow down their list of stakeholders, leaving those who are too small or insignificant to others to concern themselves with. Ignoring a stakeholder or stakeholders may sometimes prove to be a mistake, because these groups at times hold the balance of power (Carroll 1994, 130).

In this study, stakeholders in the following roles are in focus among external stakeholders: owners, customers, utilisers of knowledge products, and cooperation partners. Among the internal stakeholders, knowledge producers or knowledge workers are studied. Special attention is paid to the primary stakeholders: the science community, companies, public research financiers and knowledge workers (Table 5).

Stake

There is a potential two-way interaction or exchange of influence with a stakeholder. Business organisations need to be responsive even to individuals and groups that they earlier viewed to be powerless or unable to make any claims on them. *A stake is an interest in an undertaking, or claim asserting a right to something* (Carroll 1996, 72-74; Clarkson 1995, 106). For instance, an owner or a stockholder has an interest in and an ownership of the equity of a business. Some actors are both stakeholders and influencers (e.g. large investors), but some recognisable stakeholders (e.g. job applicants) have no influence, and some influencers (e.g. the media) have no stake (Donaldson & Preston 1992, 86). The stake exists in connection with power – power is a function of the type and legitimacy of the claimed stake. Part of this power is the ability of a particular stakeholder to influence others who can affect a stakeholder's interests (Wartick 1994, 113).

Freeman (1984, 57) also gives an example of the stakes of the stakeholders in a company. Stakes may exist in a particular customer segment: High users of product – improvement of product. In the case of another customer segment the stakes may be: Low users of product – no available substitute. In the case of political parties the stakes may be: High users of product – able to influence regulatory processes, able to get media attention on a national scale. With regard to employees the stakes may be: Jobs and job security, pension

benefits. For the owners the stakes may be: Growth and income, stability of stock price and dividend.

Freeman (1984, 91-95) presented a framework for analysing the stakes (interests, effects) between the firm and the actual stakeholder group. The purpose of this analysis is better to understand the firm's enterprise strategy. A particular stakeholder may have *economic, technological, social, political or managerial* effects on the firm. Conversely, actions of the firm may affect the stakeholder in question in the same areas. By analysing the stakes in these aspects, the cause and effect relationships between an organisation and its stakeholder attain deeper enlightenment.

2.2.3 Stakeholder management

Stakeholder management is an approach to strategic management. As Mintzberg (1994, 23) puts it, the strategy is a plan or a direction, a guide or course of action into the future, a path to get from here to there. It is also a pattern of consistency in behaviour over time. Corporate strategy is the pattern of decisions that determines a company's objectives. It reveals the economic and non-economic contributions it intends to make to its shareholders, employees, customers and communities (Andrews 1988, 43). According to the typology of strategy formation presented by Mintzberg, Ahlstrand and Lampe (1998, 286-300), stakeholder management belongs to the category "the Environmental School", where strategy formation is a reactive process. It also has features of strategy formation 'as a process of negotiation' and 'as a collective process' (Mintzberg et al. 1998, 250-251, 272-278).

Stakeholder management has been developed from organisational theory and organisational strategy research (Chapter 2.1.2). In order to guarantee its future, the firm has to conduct interaction with its stakeholders (also referred to as interest groups, constituents or participants). These basic ideas were presented in the 1950s by March and Simon (1958, 83-90). They stated that to survive, the system must bring in more energy from outside than it uses. Inputs are contributions that organisational participants make for the outputs or inducements of the organisation. These may take the form of money, goods, information, status, power, etc. (Näsi 1995, 25). This principle of the continuous inflow of energy (inputs) from the external environment and of the continuous export of the products (outputs) was further identified by the open system theorists Katz and Kahn (1966, 21-23).

The survival of the organisation depends on its ability to maintain the coalition of parties who contribute the resources. It is the management's task to take into account the demands of interest groups on which the organisation depends for resources and support. Challenges arise from the fact that the

organisation is dependent on its environment, but the environment is not dependent on the organisation (Pfeffer & Salancik 1987, 43-51; Lawrence & Lorsch 1967, 85; Brenner 1995, 77).

Strategy formation is a dynamic process, corresponding to the dynamic conditions that drive it (Mintzberg 1994, 241; Andrews 1988, 43). Also Freeman (1984, 23-24) points out the dynamics, and bases stakeholder management on *interaction*, which is seen as a way to cope with the changing external environment. He states that it is more than a pre-emptive mode, predicting the external environment and positioning the organisation for changes that will be realised in the near future. The interactive mode is active involvement with the external forces and pressures looking for and setting the direction and role of the organisation in the society.

Freeman (1984, 52-53) put forward a stakeholder management framework describing the relationship between the organisation and the stakeholders. It consists of the 'rational' level, the 'process' level and the 'transactional' level. From the rational perspective, it is necessary to understand who the stakeholders are in the organisation, or what is the stakeholder map of the organisation and what are the perceived stakes. The process perspective implies that the organisational process must be understood and be able to manage the relationships of the organisation with its stakeholders. These processes should fit the organisation's stakeholder map. The transactional perspective means understanding the set of transactions or bargains among the organisation and its stakeholders. Freeman describes stakeholder management capability as the ability to link the stakeholder map, the organisational processes and the stakeholder transactions together successfully.

Carroll (1998, 154-157) presents the concept of 'moral management' in stakeholder management. The orientation of this management model toward different stakeholders has been summarised in Table 2.

Table 2: Orientation of 'moral management' toward different stakeholders
(Carroll 1998, 154-157)

<i>Stakeholder</i>	<i>Orientation of management</i>
Owner/shareholder	Shareholders' interest (short- and long-term) is a central factor. The best way to be ethical to shareholders is to treat all stakeholder claimants in a fair and ethical manner. To protect shareholders, an ethics committee of the board is created. A code of ethics is established, promulgated, and made a living document to protect shareholders' and others' interest.
Customer/consumer	Customer is viewed as an equal partner in transaction. Customer brings needs/expectations to the exchange transaction and is treated fairly. Managerial focus is on giving the customer fair value, full information, fair guarantee, and satisfaction. Consumer rights are liberally interpreted and honoured.
Employee	Employees are a human resource that must be treated with dignity and respect. Goal is to use a leadership style such as factors of consultative/participative that will result in mutual confidence and trust. Commitment is a recurring theme. Employees' rights to due process, privacy, freedom of speech, and safety are maximally considered in all decisions. Management seeks out fair dealings with employees.
Community	Sees vital community as a goal to be actively pursued. Seeks to be a leading citizen and to motivate others to do likewise. Gets actively involved and helps institutions that need help – schools, recreational groups, philanthropic groups. Leadership position in environment, education, culture/arts, volunteerism, and general community affairs. Firm engages in strategic philanthropy. Management sees community goals and company goals as mutually interdependent.

Thus, the orientation toward all stakeholders should be driven by ethics and fairness. As management is not seen as a stakeholder, but an actor interacting with stakeholders, it is the challenge of the management to balance different, even conflicting, stakeholder demands and expectations. Stakeholders' importance for the firm may be different. Those critical for the firm's survival are primary stakeholders, an object of special attention on the part of the firm's management. The empirical part of this study focuses on the primary stakeholders of the case organisation with the basic attitude of Carroll's 'moral management'.

An additional aspect to the balancing problem is caused by the networking of the stakeholders (Rowley 1997; 888, 896). The nature of the organisational stakeholder network (network density) and the focal organisational position in the network (the organisation's centrality) impact the organisation's degree of managing the stakeholder pressures. Depending on the position, the organisation's behaviour towards the stakeholders may be commander, compromiser, subordinate or solitarian. The mutual networking of different stakeholders is not dealt with in this study.

Stakeholder management process

Strategy making is future thinking, decision making and efforts aiming to control the future. It is formalised procedure with an articulated result in the form of an integrated system of decisions (Mintzberg 1994, 7-15). Many different formalised procedures have been presented in the literature.

Mintzberg (1990, in Hatch 1997, 106) presented a rational model of the strategic management process. It includes external and internal appraisal, strategy creation, strategy evaluation and strategy implementation. Thus, he turned to the new line having earlier emphasised the emergent character of strategy leaving less importance vested in the formal process (Mintzberg & Waters 1985). Ruohonen (1995, 139-144) presents the implementation of stakeholder management in the context of information strategy planning. It is essential to identify and integrate critical stakeholder groups in strategy formation. Wartick (1994, 115) and Näsi (1995, 25) point out the necessity of interpreting the stakeholders' world and shaping concrete goals based on that for everyday activities.

Other stakeholder management processes have also been reported (Carroll 1979 in Clarkson 1995, 96 and Preston 1977, in Clarkson 1995, 93). In the Carroll's model, the basic competition strategies *reactive*, *defensive*, *accommodative* and *proactive* are applied to different kinds of stakeholder groups, not only to competitors. In the Clarkson's model, a framework to analyse the management of corporate social issues by corporations is presented. It is assumed that managers follow stages of a process identified as corporate social involvement. The stages of the process are as follows: a) awareness or recognition of an issue, b) analysis and planning, c) response in terms of policy development and d) implementation.

Freeman's model (1984, 85) is an approach to strategic management, wherein the focus lies on the management of the relationships between the firm and its environment. The core point is that strategic management is a continuous process; it is not just the yearly planning meetings. The stakeholders or stakeholder groups are at the focus in all the stages of the strategy process, and the future is viewed from the perspective of stakeholders.

The stages of the process are: 1) *Setting strategic direction*, 2) *Formulating strategies for stakeholders*, 3) *Implementing stakeholder strategies*, 4) *Monitoring stakeholder strategies* and 5) *Keeping score with stakeholders* (Figure 2).

In Freeman's formulation, 'setting strategic direction' means performing stakeholder analysis, value analysis and social issues analysis (economic, technological, political, social and managerial issues) of the major social issues today and in 5–10 years as a starting point. 'Formulating strategies for stakeholders' includes stakeholder behaviour and coalition analysis, and constructing generic, specific and integrated strategies for stakeholders. 'Implementing stakeholder strategies' is allocating resources according to the strategy, gaining commitment to it within the organisation and changing 'wrong' transaction processes that exist with stakeholders. 'Monitoring stakeholder strategies' means controlling implementation concerning strategic programmes and strategic direction. 'Keeping score with stakeholders' can also be seen as being included in the 'monitoring' stage; it is the measuring of the performance for the stakeholder. Freeman (1984, 177-181) developed a scorecard whereby organisational performance can be measured by stakeholder categories which have their own short-term and long-term performance measures.

Also Preble (2005, 415) presents a stakeholder management process model: the 'Comprehensive Stakeholder Management Process Model', which is based on that of Freeman's. It has six steps: 1) Stakeholder identification, 2) Identify the general nature of stakeholder claims and power implications, 3) Determine performance gaps, 4) Prioritise stakeholder demands, 5) Develop organisational responses and 6) Monitoring and control.

All the described approaches to the management processes point out the need to take the environment or stakeholders into account. Freeman's and Preble's models differ from others in the respect that stakeholders are the essential parties in every stage of the management process. In this study, the starting point is Freeman's (1984, 83-192) way of leading the strategy process (Figure 2). An investigation is made of what the stages 'setting strategic direction', 'formulating strategies for stakeholders', 'implementing stakeholder strategies', 'monitoring stakeholder strategies' and 'keeping score with stakeholders' mean in the context of a knowledge intensive governmental organisation.

2.2.4 Summary of stakeholder management

Stakeholder management has two philosophical bases, namely ethics and pragmatism. The normative aspect has its origin in ethics and the instrumental

aspect in pragmatism. Those managers who favour stakeholder management believe that it has positive consequences for the firm's financial performance. While there are studies confirming this, there are also doubters. Corporate social performance (CSP) is the wider concept of performance used in connection with stakeholder management. Its focus lies in social, economic, political, technological and ecological factors.

The core elements of the stakeholder theory or the factors where differences from other managerial theories exist are as follows: *the firm, especially its goals, stakeholder and stake, and managerial processes*. According to stakeholder theorists, the firm does not actually have goals of its own; they are in practice those of the stakeholders. Thus, *the goal of the firm is to create and distribute increased value to its stakeholder groups, among which the primary or strategic stakeholders are the most important*. A firm's survival depends on its ability to create value sufficient to ensure primary stakeholder groups continue as a part of the firm's stakeholder system. A stakeholder in an organisation is any group or individual who can affect or is affected by the achievement of the organisation's objectives. Besides primary stakeholders, the firm also has secondary stakeholders. The firm bears financial, legal, ethical and philanthropical responsibility for its stakeholders. There is a potential two-way interaction or exchange of influence, which is called a stake. It can also be defined as an undertaking, or a claim asserting a right to something.

One role of management is to monitor and respond to changes in stakeholder demands and expectations, and to integrate and balance different demands. Thus, the key attitude of stakeholder management is *interaction*. The interactive mode – not pre-emptive or predictive – is the base mode of management. This is built into every stage of the stakeholder management process i.e. in setting strategic direction, formulating strategies for stakeholders, implementing stakeholder strategies, monitoring stakeholder strategies, and keeping score. Success in the stakeholder management process guarantees the growth and survival of the firm.

The perspective of this study is that of the descriptive perspective of the stakeholder theory. Normative (social responsibility) and instrumental (performance) perspectives are also referred to, because these different perspectives are intertwined (Donaldson & Preston 1995, 74). A particular interest is directed at the core concepts of the stakeholder theory – the firm, especially its goals, stakeholder and stake, and stakeholder management, which are studied against Freeman's conceptualisation and Carroll's managerial approach.

3 KNOWLEDGE INTENSIVE PERSPECTIVE IN ORGANISATION THEORY

3.1 Management of the knowledge intensive organisation

3.1.1 Management of consistency

This study investigates stakeholder management in a special context, that of knowledge intensive organisations. The knowledge intensive perspective in organisation theory derives from the special type of output – knowledge – that has added value for customers. Knowledge intensive organisations *produce knowledge services and their main factor of production is knowledge* (Nurmi 1985, Lehtimäki 1996). Thus, basically, the stakeholder view is built on the knowledge intensive perspective. However, the special features of knowledge intensive organisations tend to produce fragmented strategies and performance. The management principles of the stakeholder approach, which integrates the demands of multiple stakeholders or stakeholder groups regarding multiple issues, contains inherent conflicts.

Much research has been conducted concerning knowledge intensity (Alvesson 1996; Starbuck 1992, 716; Lehtimäki 1996, 32; Nurmi 1998, 28), knowledge workers (McAuley, Duberley & Cohen 2000; Starbuck 1992, Hall 1968), and the characteristics and organisational culture of knowledge intensive organisations (Weick, 1976).

From the managerial point of view, the twin issues of knowledge intensity and stakeholders become intertwined as one of strategic fit. Hatch (1997, 102-103) defines ‘fit’ (congruence or match) as a successful strategy that brings what the organisation can do (its competences) into alignment with the needs and demands of its environment. When the competences of the organisation fit the demands of the environment, the organisation is selected and retained, provided with resources and legitimised.

So, how to manage ‘fit’ and reach consistency in a knowledge intensive organisation? The high level of expertise owned by knowledge workers (the term as used in this study has been defined in chapter 1.3.2) creates autonomy

and self-management (Weick 1976; Drucker 2000, 272). A knowledge worker holds his or her powerful position because of proven abilities and achieved competence, not due to ascribed status (Hall 1968, 93; Brante 1988, 121). Moreover, the knowledge workers' power derives from the fact that not only is their work too complex to be supervised by general managers or standardised by analysts, but also that their services are typically in great demand.

As knowledge workers are autonomous individuals, they want to make their own decisions unencumbered by external pressures from others. In the worst case, this may lead to their ignoring the needs of their clients and encourage them to ignore the needs of the organisation, too (Mintzberg 1983, 208). In the best case, however, the knowledge worker, i.e. consultant, works in a state of close interaction with clients and together they produce new knowledge (Nurmi 1998; Weick 1976).

Knowledge workers control their own work and are independent of their colleagues, but work closely with the clients they serve. This phenomenon is called 'organisational loose coupling', which takes in the idea of simultaneous strictness and freedom, or flexible strictness. Loose coupling is defined as a situation where the parts of the system influence and react with each other, but their separate nature and characteristics prevail. A system can be said to exhibit loose coupling if the parts influence each other occasionally, insignificantly often or indirectly (Weick 1976; Orton & Weick 1990, 203).

Loose coupling also means the organisation is faced with consequences that resist change and seek stability. Buffering as a general characteristic of the system is useful, because it helps isolate a collapse in one part of the organisation that will therefore not affect the other parts. Disadvantageously, while the system may isolate its problematic parts and prevent the problem spreading, improving the weak part becomes difficult (Weick 1996).

In a way, every knowledge worker is a profit centre, despite working and learning together with colleagues and customers. This creates problems with coordination; formal coordination is scarce in knowledge intensive organisations. The issue of strategy as a single integrated pattern of decisions common to the entire organisation is also affected, with too much of its meaning being lost in a knowledge intensive organisation. It has been stated that strategies in these organisations are largely those of the individual knowledge workers within the organisation. The strategies of a knowledge intensive organisation represent the cumulative effect of the projects, or strategic initiatives over time, which its members have been and are able to convince the organisation to undertake (Mintzberg 1983, 201; Brante 1988, 132-133).

3.1.2 Management of the scientific knowledge intensive organisation

3.1.2.1 Effects of the internal characteristics

A special example among knowledge intensive organisations is a science organisation, which tends to create extra challenges for management. The product of these kinds of organisation is scientific knowledge, the underlying concept of which is aspiration to *truth*. Truth is in itself accepted by all in science community as the ultimate product of scientific endeavour. Scientific knowledge is defined as a body of coherent, systematic knowledge of any subject, formal or empirical, natural or cultural, arrived at using any method. The method is based on hard, honest and serious study and research, and achieves insights not available to laymen or superficial observers. Thus, science is an autonomous institution, creating knowledge that is an accurate representation of a unified natural world, and, hence, not subject to external manipulation (Scheffler 1974, 100; Machlup 1980, 69, 125, 233; Busch et al. 1983, 190).

Efforts to achieve truth bring special features to the work involved. According to Merton (1972), persons working in science possess exceptional expertise and are governed and characterised by four specific 'functional imperatives' as follows: *Communism* meaning that there is no private ownership in the scientific community; scientific results are common goods. *Universalism* meaning that hypotheses are examined by means of pre-established and impersonal criteria. *Disinterestedness* refers to the institutional mechanism involving close scrutiny and critique that is built into the scientific community in keeping cheating and fraud at a distance. *Organised scepticism* means that scientists suspend judgment until all the facts are at hand and an hypothesis is either proved or disproved.

Busch et al. (1983; 191, 193; Busch & Lacy 1983, 230) deal with the problematics concerning the decision making about research problems in public financed agricultural research. This is an extraordinarily complex process, in which in addition to scientific criteria, administrative directives, political comments, personal avocations, peer approval, career advancement, client orientation, and utility play their role. The authors state that scientists' perceptions of the importance of research to society are based on the scientists' commonsense assessments of societal needs rather than inquiries into those needs. On the other hand, they argue that agricultural scientists take a long-term view of fundamental issues in their research while clients tend to take the short-term, practical position.

The underlying paradigms of the work create the challenge for the management of the scientific community. According to Brante (1988, 132-133), this type of organisation is dominated by competition, and the major force behind the efforts of scientists is the desire to climb the career ladder. From the individual point of view, this is a rational aim, offering not only economic advantages, more status and power, but also better working conditions in the form, for example, of more time to conduct one's own research. The way to reach a high position is to gain the recognition of colleagues, notably those in top positions (referees for appointments). Hence, the direction and content of research is, to a great extent, governed by the desire to satisfy those who have influence on direction and content in the scientific community. In turn, those people also have the power to define what is good and bad science, what is competent and relevant research, etc. They tend to define the subject, the crucial areas of research, the recognised methods, etc., in accordance with their own competence. Therefore the individual strategies are inevitably not chosen primarily by researchers, because their solutions are intended to be beneficial to the welfare of mankind in general. Strategies are primarily internally oriented. Scientists turn inwards to the 'marketable' paradigm and puzzles, the articulation of which is strictly ranked in the scientific community. This makes it difficult to manage a scientific, knowledge intensive organisation, because conflicts may appear between the strategies of individual scientists and those of the organisation running the scientific research.

McAuley, Duberley and Cohen (2000, 87-110) studied the management of public sector research scientists and their relationship to management. They argue that research scientists, particularly at the more senior levels, have an understanding of the strategic issues that confront them in the conduct of their work. Their understandings demonstrate a capability to make sense of their environment that moves beyond the merely adaptive. The key issue to research scientists is that management is embedded within the activity – it is a means towards the end of the production of good science. The study referred to suggests that research scientists have an interest in management and strategy but, on occasions, give a different meaning to what they require from management compared with e.g. managerialist orthodoxy. The members of laboratories were quite critical in their understanding of the efforts not only of head office but also those of their own managers. The research scientists were strongly averse to the possibility of being managed by a non-scientist, someone who is 'only' a professional manager. Management and science are interwoven. It was felt that in order for management (as opposed to administration – the burden of which it was felt should be removed from scientists) to be able to contribute effectively, an understanding of science was essential.

These considerations mentioned in the literature are meaningful in this study and come under more scrutiny later.

3.1.2.2 Effects of external changes

The changing role of European public sector research sets new challenges for the management of scientific knowledge intensive organisations. Two different perspectives affecting management become visible in considering this change of science and technology policy, which forced public research organisations to compete for the new public funding and to search for contract research. The first perspective is the growing demand for potential and opportunities for innovations, and the second is the impacts of decreasing direct governmental financing of the public sector research organisations.

The first perspective is dealt with, for instance, by Faulkner et al. (1995; 1-2, 78, 231). Research institutes and academic laboratories have been primarily concerned with the production of knowledge – largely, it is claimed, ‘for its own sake’. Now, more and more emphasis is placed on their importance in the realisation of future opportunities for industrial innovation. They are a demanded significant contribution to innovative R&D activities. For companies, research is a source of new knowledge in specialist fields of science and engineering, and also a source of practical help and assistance.

The existing potential is best realised by the establishment of close links between companies and public sector research. These links for providing new knowledge in companies are both informal and formal. Linkage from company to public sector research starts at an individual level, knowledge and trust being the driving forces. Utterback (1971 in Faulkner et al. 1995, 36) argues that knowledge flows between organisations are mainly person-embodied. According to Gibbons and Johnston (1974 in Faulkner et al. 1995, 36), half of the science and technology input from public sector research is obtained by reading the research literature, the remainder stemming from personal contacts.

The second perspective is linked to the first, in the sense that success in knowledge flows to companies probably helps public research organisations to cope though direct governmental resources are decreasing. Sanz-Menéndez and Cruz-Castro (2003; 1297-1298, 1305) showed how the degree of autonomy affects the activity level of public research organisations in searching for new funding opportunities. These organisations encourage their researchers to compete for external funding by letting them enact the decision making in terms of what they work on.

Challenges to manage top level scientific experts in traditional knowledge intensive organisations, at a university under the circumstances of external

change, are studied by Tuunainen (2005). Constructing an entrepreneurial start-up firm at the scientist's initiative at a stable university of traditional public bureaucracy caused conflicts, which could finally be resolved by drawing clear boundaries between the social roles and physical resources of university researchers and entrepreneurs.

The external change in the knowledge intensive organisation's environment is intertwined with the problematics of this study. The case organisation is producing scientific knowledge in the public sector context.

3.1.3 Commitment of knowledge workers

The second challenge for management is to succeed in keeping the knowledge workers, the capital asset, in the organisation. The crucial questions are how to attract and hold the highest producing knowledge workers, and what is required to increase their productivity and convert that greater productivity into performance capacity for the organisation (Quinn, Anderson & Finkelstein 1996, 71; Drucker 2000, 276).

One thing that helps keep competent knowledge workers in the organisation is that they believe their work benefits the public and practitioners; it is considered a calling and they would want to do the work even if fewer rewards were available (Weber 1946 in Busch et al, 1983, 191)). Thus, the knowledge work as such motivates them (Hall 1968, 93; Brante 1988, 121). More evidence for these arguments has been produced in later studies, too. Horwitz, Heng and Quasi (2003, 32) show that a competitive pay packet is important when organisations are trying to attract or retain knowledge workers. The most effective motivation strategies are the freedom to plan one's own work, challenging work, access to leading-edge technologies or products, and the support of top management. These characteristics of the work are, no doubt, more connected with emotions or core affective experiences, a motivation concept defined by Seo et al. (2004, 424). Another factor affecting commitment is that the knowledge intensive organisation offers learning opportunities for knowledge workers, an issue which is of great importance to them. Set against this, knowledge workers tend to feel that the organisation is a springboard for their learning, which from the perspective of the employer organisation may be a disadvantage. In the traditional types of organisation, the individual is pro the organisation and tied to it by job descriptions and other formal means (Nurmi 1998, 28-29).

Nonaka and Takeuchi (1995, 127-128, 150) recommend accepting the special character of a knowledge intensive organisation and managing it by utilising that specialness. The best way to manage a knowledge intensive organisation is via the middle-up-down model, which is a continuous iterative

process through which knowledge is created. Knowledge is often created by team leaders via a spiral conversion process involving both the top and front-line employees. Middle managers are the key to continuous innovation and true knowledge engineers. The top-down model deals primarily with explicit knowledge, the bottom-up with tacit knowledge (Nurmi 1998, 28-29), while middle-up-down covers both types of knowledge.

Thus, the question of how new know-how is identified and integrated in the organisational strategy and operations model is also important. The means are all those structures and systems that influence information flows between customers and strategic decision makers and between the organisational units. It is important for successful management that individual learning will be converted to organisational learning through interaction between different organisational levels and different know-how (Kirjavainen 1997, 286, 311-313).

The scientific community as such provides a specific motivation factor for scientific knowledge workers, namely the option to produce innovations based on the theoretical knowledge. Theoretical knowledge produced, codified and enriched in universities, research organisations and intellectual institutions is increasingly becoming a strategic resource in all societies. The rise of theoretical knowledge has made scientists and engineers in post-industrial society the power brokers replacing the entrepreneur, the industrialist, the manager and the politician as the power holders in industrial society. Scientists are sometimes referred to as the priests of a new age and a new religion linked to science and power (Bell 1973, 26 in Stehr 1994, 66; Eden 1999).

Latour and Woolgar (1986, 189-202) studied scientists' motivation and commitment at a research laboratory. They argue that these have a strong link with the "credit" and "the credible circle". The credit is seen as a reward, which symbolises peers' recognition of scientists' past scientific achievements. It also serves as a potential for future research resources, because credit for its part nurtures credibility, which concerns scientists' ability to do science. Accumulation of credibility is prerequisite to investment and makes possible the conversion between money, data, prestige, credentials, etc. These are parts of the endless cycle of investment and conversion. A successful investment from the point of view of the scientist means that others show interest in his work, he is believed more easily and listened to with greater attention, he is offered better positions, his assays work well, data flow more reliably and form a more credible picture. Latour and Woolgar argue that scientists are strategists choosing the most opportune moment, engaging in potentially fruitful collaborations, evaluating and grasping opportunities, and rushing to credited information.

Ellemers et al. (2004, 472) also identified belonging to an expert group as a motivating factor, in their studies on how social identity processes influence the motivation and behaviour of individuals and groups at work.

Scientific knowledge makes special demands on quality. It is highly ethical in its aspiration for truth. Moreover, the definitions of high-grade and seriousness are its very characteristics. All these characteristics bring about the fact that the production process of new knowledge is demanding on time and there is a delay in the availability of outputs. This is important to scientific knowledge intensive organisations when their responsiveness is evaluated by different stakeholder groups with different expectations.

3.1.4 Summary of the knowledge intensive perspective in organisation theory

The object of interest of this study is strategic management, especially that of the stakeholder approach, in the context of the scientific knowledge intensive organisation. In the organisation theory, knowledge intensive organisations are defined through core elements concerning the *firm, knowledge workers and management* of these kinds of organisation.

A typical dimension of the concept 'firm' in relation to knowledge intensive organisations is that knowledge is both the *major factor of production and the product itself*. The key actors are the knowledge workers, who possess an exceptional expertise. The goal of the firm is *to produce and transmit knowledge*. *Learning* also plays essential role from the knowledge workers' perspective.

Managing this kind of organisation is considered challenging, since knowledge workers' exceptional expertise means they consider their colleagues to be their major source of ideas and judgement. This fact in turn means that *achieving the shared vision and common strategy is problematic*. Moreover, strategies are often intertwined with operative activities and the boundary between these is clouded.

The best response to satisfying the needs of stakeholders' different demands is to combine different competences; those that exist inside the organisation, and with those external to the organisation. It is the task of management to define the core competences, *the integration of a variety of individual skills*. This is a question of the 'messy' accumulation of learning, comprising both tacit and explicit knowledge (Hamel 1994, 11-12).

It has been pointed out (Mintzberg 1983; Prahalad & Hamel 1990, 82) that a major innovation requires cooperation and fully open-ended diagnosis. Seeking a creative solution to a unique problem requires adhocracy, a highly organic structure with little formalisation of behaviour and high job

specialisation based on formal training – features often found in knowledge intensive organisations. More importance has to be given to coordination and cooperation.

Producing a strategic ‘fit’ is about successfully combining an organisation’s competences with the needs of its environment, for which Prahalad & Hamel (1990, 82) and Nonaka & Takeuchi (1995, 76) recommend the coordination of diverse production skills and integration with multiple streams of technologies. This means communication, involvement, and deep commitment to working across organisational boundaries. This is in alignment with the principles of stakeholder management: working in interaction with the organisation’s stakeholders and integrating the needs and expectations of multiple stakeholders or stakeholder groups with regard to multiple issues.

4 RESEARCH METHODOLOGY

4.1 Research approach

The research approach of this study is *action oriented* (Lukka 1991), which aims at an understanding of intentional human action and is often seen as an opposite to a nomothetic (positivist) paradigm. In the philosophy of science, an action oriented approach is connected to *hermeneutics*, which deals with understanding and the prerequisites for achieving understanding.

A basic point of the action oriented approach is that human beings create their own ideas in order to understand the world about them and negotiate a shared image of its nature with other human beings. The world can only be understood from the perspective of the actors involved in the events studied, because the social world of the actors cannot be separated from their experience. The role of the actors interviewed in action oriented studies is crucial. The actors both interpret the world and are inseparably intertwined with the world and with their knowledge about it. The image of human nature, according to the action oriented approach, is that a human being has free will and autonomy in the actions to be taken (Burrell & Morgan 1979, 5). Methods to conduct the action oriented approach are *participant observation and in-depth interviews*.

Charles Sanders Peirce (Hartshorne & Weiss 1960; 28-29, 48, 53, 153) presented the three fundamentally different kinds of reasoning or argument, *deduction, induction and abduction* (usually called adopting a hypothesis), which are all needed in comprehensive research.

Deduction is an argument representing facts in the premise. It forms a diagram of that state of things, perceives in the parts of that diagram relations not explicitly mentioned in the premises, and satisfies itself through mental experiments. *Induction* is reasoning that adopts a conclusion as approximate, because it results from a method of inference which must generally lead to the truth in the long run. Induction from past experience strongly encourages us to hope that it will be successful in the future. *Abduction* is the *provisional adoption of a hypothesis*. Every possible consequence of it is capable of experimental verification, so that the application of the same method may be expected to reveal its disagreement with facts. It is seeking a singular premise

where the singular conclusion and the general premise are known (Niiniluoto 1983, 154).

Abduction goes by the hope that there is sufficient affinity between the reasoner's mind and nature to render guessing not altogether hopeless. Each guess is checked by comparison with observation. The agreement does not show the guess is right, but if it is wrong it must ultimately be found out. The effort should therefore be to make each hypothesis, which is practically no more than a question, as near to an even bet as possible.

An abduction is an argument that presents facts in its premise which present a similarity to the fact stated in the conclusion. It could also be true without the latter being so. Thus, we are not led to assert the conclusion positively but are only inclined toward admitting it as representing a fact. An abduction is a method of forming a general prediction without any positive assurance that it will succeed either in the special case or usually, its justification being that it is the only possible hope of regulating our future conduct rationally. Niiniluoto (1983, 155) states that the hypothesis to be presented has to include the known facts, namely it gives an important criteria for the hypothesis being worth testing.

To summarise, according to Peirce's logic, abduction creates, deduction develops and induction verifies. This study follows Peirce's system of reasoning as in Figure 3. From the research phenomenon a provisional hypothesis has been drawn (abduction). From that, through the preliminary conceptual framework, proposals have been deduced. These and proposals inducted from the empirical data produce the new framework for stakeholder management in knowledge intensive governmental organisations.

The main research methodology applied in this study is in-depth interviews. Because the interviews were internal and restricted to one year, other research methods were applied, too. The documents of archival material, e.g. stakeholder satisfaction surveys, made it possible to widen the investigation to take in external stakeholder groups' opinions. The participant observation of the researcher of this study covered the whole research period.

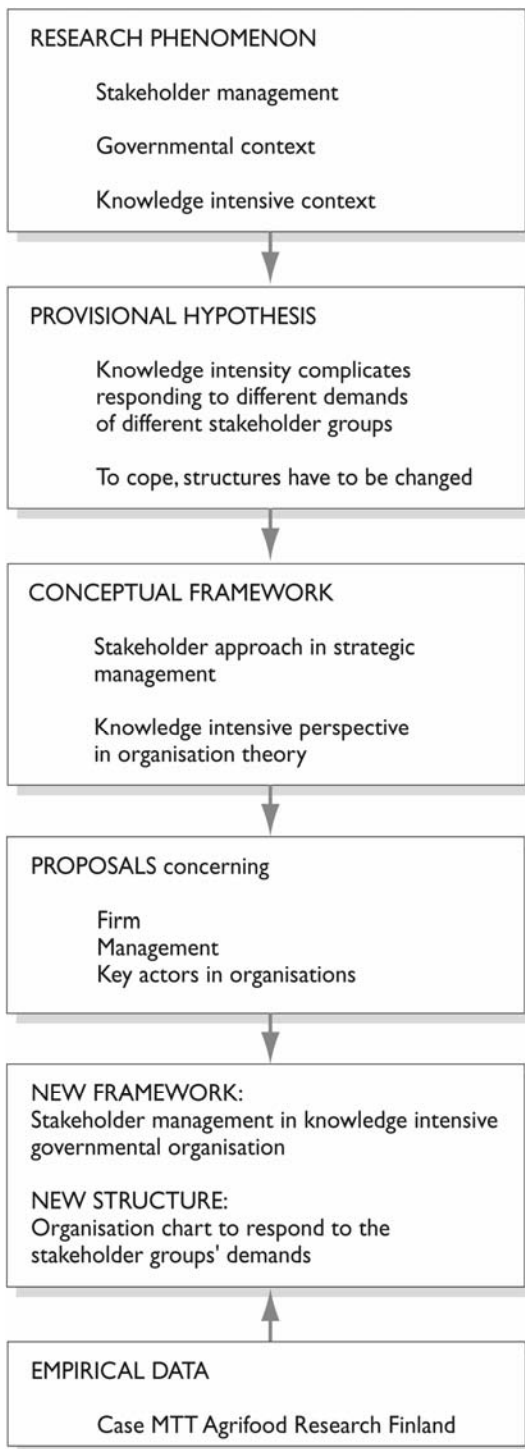


Figure 3: The process of knowledge in the study

4.2 Case study approach

The empirical part of this study was conducted as a case study. In order to produce meaningful results on complex and evolving relationships of stakeholder management and knowledge intensive organisations, a deep understanding must be achieved. This can be accomplished by employing versatile methods of data collection, which makes a more in-depth interpretation possible.

A case study is a research strategy, the aim of which is to focus on the understanding of the dynamics present within single settings (Eisenhardt 1989, 534). The case study method is suitable for studying complicated social phenomena in a real-life context, where the boundaries between the phenomenon and the context are not self-evident. The method makes it possible to preserve the holistic and meaningful characteristics in the research, for instance, the processes of the organisation and management (Yin 1994, 3).

The use of versatile data collection methods is characteristic of the case method: documents, archive material, interviews, questionnaires, direct observation, participant observation and artefacts. Case research can be utilised for different goals: to produce a description, to test a theory or to generate a theory (Eisenhardt 1989, 534).

The substance of this case study is from a knowledge intensive organisation. The relevance of the stakeholder theory is researched here by describing the knowledge intensive organisation with the core concepts of the stakeholder theory. The aim of the empirical research is to study and evaluate the preliminary framework (Figure 2) and create further understanding to develop the framework in the real-life context, a governmental knowledge intensive organisation.

It should be noted that the aim of the case study is not to produce statistically generalisable results, rather an analytical generalisation. Analytical generalisation occurs at the level of theory, resulting from theoretical reasoning and the comparison of existing theory, the theoretical framework and the empirical evidence provided by the case study (Yin 1994).

4.3 Selection of the case study unit

This research aims to create understanding about the stakeholder management of knowledge intensive governmental organisations, *using MTT Agrifood Research Finland* as a case organisation. To facilitate the reader's orientation to the special context of this study, some background information, managerial procedures and efforts made to improve management are presented. In outline,

some facts concerning MTT's development and size, tasks, strategy, performance and satisfaction of its stakeholders are described (Chapter 4.4). Explaining the selection of the case study units means answering questions concerning the number of case organisations, the areas of industries and the levels of management, taking the goals of the study as a starting point.

The selection of the case study unit and the industry sectors is based on their anticipated contribution to highlighting the research phenomenon. Another reason for the selection was that the researcher had worked in the case organisation from 1981 to 2003. This had created a preliminary understanding of the research phenomenon.

The number of case organisations

A case study can be conducted in a number of organisations or in a single organisation. The decision to select just one case organisation was made in order to enable a deeper analysis and interpretation. It is not possible to conduct in-depth case studies successfully with too large a number of case organisations. Furthermore, a single case organisation normally includes several subsettings (Miles & Huberman 1984, 36). The case organisation MTT Agrifood Research Finland was involved in a large variety of activities (9 organisational units, around 900 personnel). This made it possible to study the investigated phenomenon in a more holistic fashion.

The area of industries

The area of industry selected is governmentally financed knowledge intensive organisations conducting research activities. Research organisations are a national resource and to an increasing extent also a global resource (OECD 1989; 7-9, 26). The theoretical interest in studying stakeholder management in this area is based on the conflicting interests of the different stakeholder groups of this kind of organisation.

This situation is the consequence of the drastic changes in the Finnish governmental research sector during the last two decades. An increasing share of governmental financing is allocated on a programme and project basis. The new Finnish and European models for research financing also presuppose that private companies will commit to research financing, which has various implications for the external and internal life of research organisations. From a theoretical perspective, it means that there is an increasing need to understand stakeholder management in these kinds of knowledge intensive organisation. This transition has increased the importance of managing stakeholder relationships, also in the context of Finnish research organisations. Thus, the issue has become extremely relevant for study.

Furthermore, much research has been conducted concerning the stakeholder management of business organisations. There is less earlier research concerning the stakeholder management of governmental organisations and especially that of governmental research organisations.

This study focuses on the Finnish so-called sectoral research centre in the area of biological and economic agricultural research, MTT Agrifood Research Finland (formerly – to 1st March 2001 – Agricultural Research Centre of Finland). ‘Sectoral’ means that MTT operates under the authority of the respective sectoral ministry, the Ministry of Agriculture and Forestry (MAF). It is the only sectoral research organisation carrying out agricultural and food research.

The levels of management

Despite using a single case organisation, *different ways in which to carry out the strategy process and internal management processes* were assumed to be identifiable at different levels of management. The role of managers as informants is of special interest because of their acting in a continuous conflict of pressures, i.e. between external stakeholder groups and scientists, internal knowledge workers.

Knowledge workers are autonomous craftspeople, and there needs to be fundamental mutual trust between them to be able to contribute successful joint projects (Shrum, Chompalov & Genuth 2001, 717-718). It is argued that in scientific collaborations easily more conflicts arise the more these are managed. Collaborative projects where decision making is hierarchical are more likely to face conflict between scientists and management. The paradox lies in the fact that in circumstances of high autonomy, e.g. in analysing data, projects will be long and exceed their timetables. Chompalov, Genuth and Shrum (2002, 766) point out the necessity of better management and alternative intermediary forms of organisation, in the context of academic culture and intellectual autonomy. This is forced by changing funding environments and such management and organisation would probably be better suited to the participants’ interests and common goals, as well as the technological challenges of working together.

A suitable number of observations for stakeholder management should be achieved. Hence, sub-cases were selected at the following levels:

Management level 1

- | |
|---|
| <p><i>Top management</i></p> <ul style="list-style-type: none"> • Director General • Research Director • Communications Manager |
|---|

Management level 2

- | |
|--|
| <p><i>Middle management (a)</i></p> <ul style="list-style-type: none"> • Heads of the operative research units |
|--|

Management level 3

- | |
|---|
| <p><i>Middle management (b)</i></p> <ul style="list-style-type: none"> • Heads of the research areas (subunits) |
|---|

Management level 4

- | |
|--|
| <p><i>Management of research teams</i></p> <ul style="list-style-type: none"> • Team leaders |
|--|

Level 1 was represented by three of the five members of General Management: The Director General and his two direct subordinates, the Research Director and Communications Manager. Level 2 included the heads of the operative research units and Level 3 the heads of the research areas (subunits), which were larger and scientifically uniform entities within the operative unit comprising from three to ten research teams. Level 4 contained the managers of the research teams, a team being the basic research unit.

4.4 Case organisation

4.4.1 The Finnish governmental research system

The general strategies and broad guidelines of Finland's governmental research bodies are formulated by the Science and Technology Policy Council, chaired by the Prime Minister of Finland. The Finnish governmental research system includes 20 universities and 20 research centres, working for instance in the research areas of national economies, technology, geological surveys, forestry, agriculture, game and fishing, meteorology and marine studies. The

autonomous research funding agencies, the most important of which are the Academy of Finland, and the Finnish Funding Agency for Technology and Innovation (TEKES), form an essential part of the research system. In addition, there is the network of 31 polytechnics, which have an important role in promoting development and business in their region. Polytechnic R&D expenditure, though still modest, is growing rapidly. Also the private sector produces considerable research output, especially in the fields of electronics and information and communication technology.

In 1981, total Finnish State R&D output amounted to MEUR 900. During the whole of the 1990s, the relative share of the private sector grew while that of the public sector diminished. State research funding in 2003 totalled MEUR 1,416.7. In 2003, the State research funding of MEUR 1,416.7 was allocated as follows:

Universities	MEUR	386.7	27 per cent
University Central Hospitals	MEUR	48.7	4 per cent
TEKES	MEUR	399.3	28 per cent
State research institutes	MEUR	234.0	17 per cent
Academy of Finland	MEUR	185.1	13 per cent
Other funding	MEUR	162.9	11 per cent
TOTAL	MEUR	1,416.7	

In 1998, the total research expenditures accounted for 3.0 per cent of the GNP. This investment in research put Finland top of the OECD countries (<http://www.aka.fi> and <http://www.research.fi>).

4.4.2 MTT Agrifood Research Finland

Background

MTT was founded in 1898. At that time, MTT was made up of five departments, which were: 1) Crop Science and Tool Testing, 2) Agricultural Chemistry and Peatland Cultivation, 3) Frost and Agricultural Physics, 4) Bacteriology, Plant Physiology and Plant Diseases and 5) Entomology (Figure 8). The most important challenge for research was to guarantee crop production in difficult climate conditions.

In 1957, MTT was given legal status under the authority of the Ministry of Agriculture and Forestry (MAF). The present status and tasks of MTT are set out in the Act of Parliament (Statute Book of Finland (1395/1997). More precise provisions are set out in the specific legislation (156/2001 and 832/2005).

In 1999, MTT had six research units (Food, Plant Production, Animal Production, Resource Management, Agricultural Engineering, Regional) and four units for internal services (Administrative Unit, Experimental Farm, International Cooperation Unit, Data and Information Service). In 2003 (Figure 9), the organisation comprised seven research units (that of Agricultural Economics was merged on 1st March, 2001) and two units for internal services (Research Services and Administrative Services). MTT had activities in 20 districts in different parts of Finland, due to the need to cover different climate conditions and soil characteristics. The headquarters, the major part of the research units and the units for internal services are located in Jokioinen, a small municipality of 5,800 inhabitants in Southern Finland. That part of MTT was moved from the Helsinki metropolitan area between 1979 and 1981. The most northerly place where MTT is active is Rovaniemi on the Arctic Circle. The map of the local centres is shown in Appendix 1.

In 1999, MTT's annual budget was MEUR 37. Of the total budget, the MAF allocated 67 per cent directly. The funding of the partners of the joint ventures accounted for 27 per cent and funding by business activities 6 per cent. The relative share of direct governmental funding has decreased during the last decade if compared with that of 1980's.

Table 3: The financing structure of MTT between the years 1999 and 2003 (per cent of the total financing).

	1999	2000	2001	2002	2003
Government	67	66	66	68	68
Joint Projects	27	29	29	27	23
Business activities	6	5	5	5	9*
TOTAL	100	100	100	100	100
Total budget MEUR	37	38	43	45	47

* Including income from selling agricultural products produced as by-products of research.

In 1999, the number of personnel was on average 905, of which 79 (9 %) persons had a doctoral or licentiate degree. The personnel structure developed as shown in Table 4.

Table 4: The personnel structure between 1999 and 2003 (personnel total full-time equivalent (fte), and per cent of the total number of the personnel).

Year Group	1999		2000		2001		2002		2003	
	fte	%	fte	%	fte	%	fte	%	fte	%
Researchers	240	27	224	26	266	29	288	31	288	31
Directors	28	3	29	3	32	4	31	3	34	4
Other personnel	637	70	607	71	611	67	611	66	598	65
TOTAL	905	100	860	100	909	100	930	100	920	100

During the last ten years, the number of personnel has yearly fluctuated between 872 and 930.

Values, vision, mission and tasks

MTT's activities concentrate on the governance and sustainable utilisation of natural resources: plants, domestic animals, land, water, and air. MTT is committed to the shared values of the agriculture and food sector. These are the welfare of citizens, the competitiveness of the food sector, the vitality of rural areas and the care of living environment. MTT's operative activities are

based on the values of high ethical standards, stakeholder orientation, expertise and innovation, well-being of the personnel and continuous improvement.

MTT produces and disseminates scientific knowledge, develops and promotes the transfer of new technology to the agriculture and food sector as a whole. The vision is to maintain and increase being appreciated as a societally influential actor and to be an independent, reliable and desired cooperation partner in Finland and abroad.

MTT's research know-how focuses on plant and animal production, environmental factors, agricultural economics, and also on food processing technologies. The holistic approach is based on understanding the physiology of plants and animals, and understanding the processes of soil and the impact of production on the environment. The research scope is enlarging to cover agricultural production systems as a whole.

General stakeholder map

At the general level, MTT's stakeholder map was drawn as in Figure 4. The stakeholder groups were shown from the perspective of MTT's top management. Organisationally, the closest stakeholder group for top management was the personnel, which is the *producer of knowledge*. The second circle was formed by the *financiers of the research*. They could be called *customers*, since they made the decisions concerning the purchasing of research services. These were the Ministry of Agriculture and Forestry, public research financing agencies (TEKES, Academy of Finland, Ministries, Labour and Trade Centres, EU etc.) and the private sector (food and raw materials companies in agriculture). The third circle was formed by the *utilisers of the knowledge and innovations* produced. These were national and international research communities, food and environmental authorities, polytechnics and higher vocational schools, agricultural extension services, farmers and horticultural producers, food industries, etc. *The end users of the welfare services* were citizens and consumers. The roles of different stakeholder groups are summarised in Table 5.

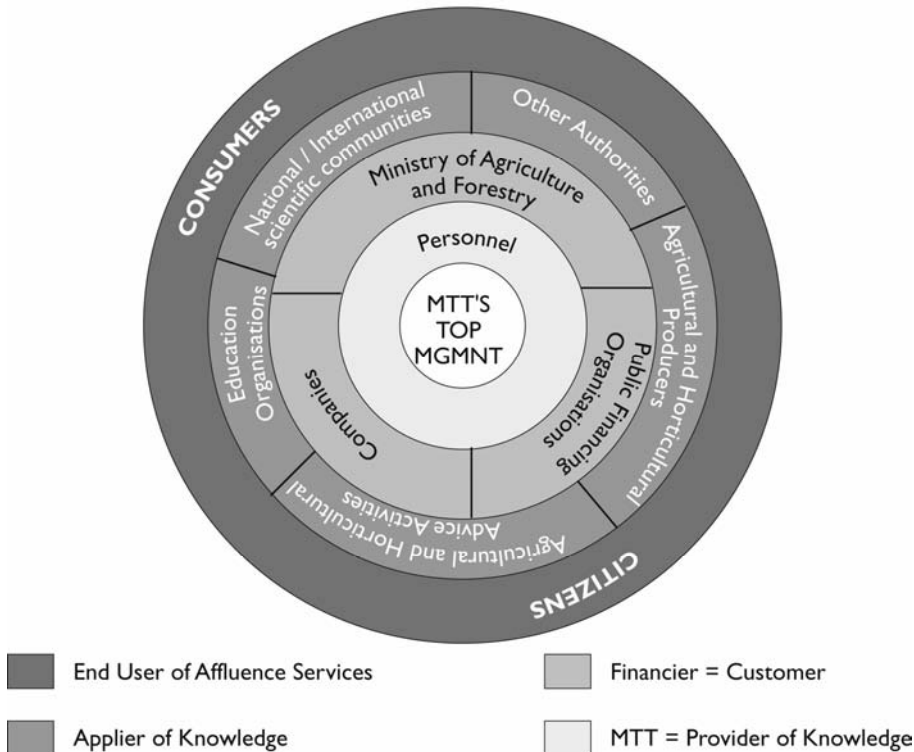


Figure 4: The general stakeholder map of MTT

According to MTT's Act, there were nine members of the Board. In practice, they represented the most important stakeholders (organisations or sectors): the MAF, food industries, national science community, food safety control agency, agricultural extension services, Farmers' Union, Labour and Trade Centres and personnel. In addition to these, the Director General was a member of the Board. The food industries' representative acted as the Chairman of the Board of Directors from 1998 to 2000, and the representative of the science community (University of Helsinki) from 2001 to 2003.

Current information about MTT is available on its website at www.mtt.fi.

Table 5: The stakeholder groups and their different roles.

<i>Stakeholder group</i>	<i>Role of stakeholder group</i>				
	<i>Owner</i>	<i>Customer = financier</i>	<i>Utiliser of knowledge produced in MTT</i>	<i>Co-operation partner</i>	<i>Producer of knowledge</i>
<i>External stakeholder groups:</i>					
Citizens, consumers			X		
Public research financiers		X			
Ministry of Agriculture and Forestry (MAF)	X	X *)	X		
Companies (food & raw materials industries)		X	X	X	
International & national science community			X	X	
Farmers & horticultural producers		X **)	X		
Agricultural & horticultural extension services			X		
Other authorities		X	X		
Polytechnics and higher vocational schools			X		
EU decision makers		X	X		
<i>Internal stakeholder groups:</i>					
Knowledge workers (or researchers)			X ***)		X

*) MAF also acts in the role of customer as a public research financier

***) Only horticultural producers occupy the role of financier

***) Knowledge workers also play the role of utilisers, for example new analysis and research methods developed at MTT

The strategy process

Faced by the winds of change in public research policy, European bodies responsible for the financing and coordination of public research had to involve parties producing R&D outputs, and those implementing these outputs in administration and business, to search deeper for relevant research areas. Research was earlier mainly science-pushed by independent academic operators, but the transition to a larger research context with demands to provide future competitiveness for business meant growing attention being paid on demand-pull. The need to identify emerging technologies and the areas of strategic research on which they will be based had become actual. For instance, in the UK comprehensive technology foresight programmes were

implemented to make it easier to decide on research priorities when there is too little money to go around. To formulate the policies, different methods were utilised, e.g. steering groups, foresight seminars, panels, Delphi processes and socio-economic panels (Hamney et al. 2001; 1205-1208; Shackley and Deanwood 2003).

Also in Finland and in agricultural research, the policies were to be revised by the Ministry of Agriculture and Forestry (MAF) and its research council, the Advisory Committee for Agricultural Research (ACAR). The first foresight process was conducted in 1985 and 1986 as an initiative of the MAF aiming at the formulation of a national strategy for agricultural research. The report 'Agricultural Research 2000' presented six research priorities (certainty of production, quality of products, interaction between agriculture and environment, vitality of agribusiness and rural areas, domestic and international competitiveness of agriproducts, and new research methodologies), the necessary research topics concerning each one, and the model for carrying out cooperative research projects.

In MTT, at the beginning of the 1990s, the strategy process included an annual strategy meeting of the Management Group. In 1994 the strategy process was taken under inspection and evaluation as an objective to improve the stakeholder orientation of the agricultural research, and a more systematic approach to strategy formation was implemented. As a result and to increase cooperation between organisational units, MTT's activities were organised into expertise areas in 1995 (Appendix 2). These areas were hierarchically horizontal groups of experts from different operative units. The expertise areas collected customer orientated programmes and projects under one umbrella. The ten expertise areas were: Milk production and processing, Meat and egg production, Food crops and oil plant production, Vegetable, berry and potato production, Greenhouse production, Information Systems, Non-food crop production, Equine, fur and other animal industries, Agricultural environment protection, Environment and landscape management. Each had a chairman, whose responsibility was to organise seminars at least once a year to identify future research demands in the area. These seminars functioned as arenas of discussion among the knowledge workers and stakeholder groups. In 2002, the research projects were classified into three Research Programme Areas: Food and Markets, Production and Information Systems, and Rural Policy and Environment. Each area has its own expert group with the Research Directors acting as chairmen.

From the point of view of a certain research team, the basic philosophy described above was thought to link the different expertises of MTT's operative units with those of MTT's stakeholder groups. The key objective was to link MTT expertise with specific external expertise, and so avoid recruiting or developing exactly the same specific know-how within MTT

itself. This philosophy is shown in Figure 5. MTT's performance and especially the impact of its activities were expected to increase through integrating the knowledge needed in the different phases of the food chain, 'from field to fork', into comprehensive research programmes.

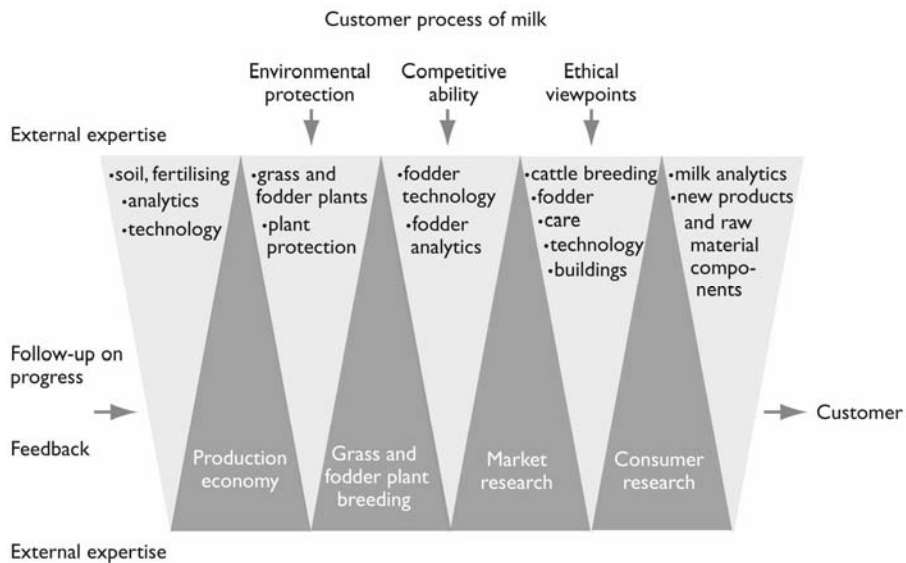


Figure 5: Linking the different expertises within MTT and between MTT and its stakeholders.

In 1999, MTT's top level strategy process was improved with the expertise areas as its key platform (Figure 6). As part of the annual strategy cycle, a seminar concerning the changing forces, the role of MTT in the society or performance and its measurement, was organised at the beginning of the year.

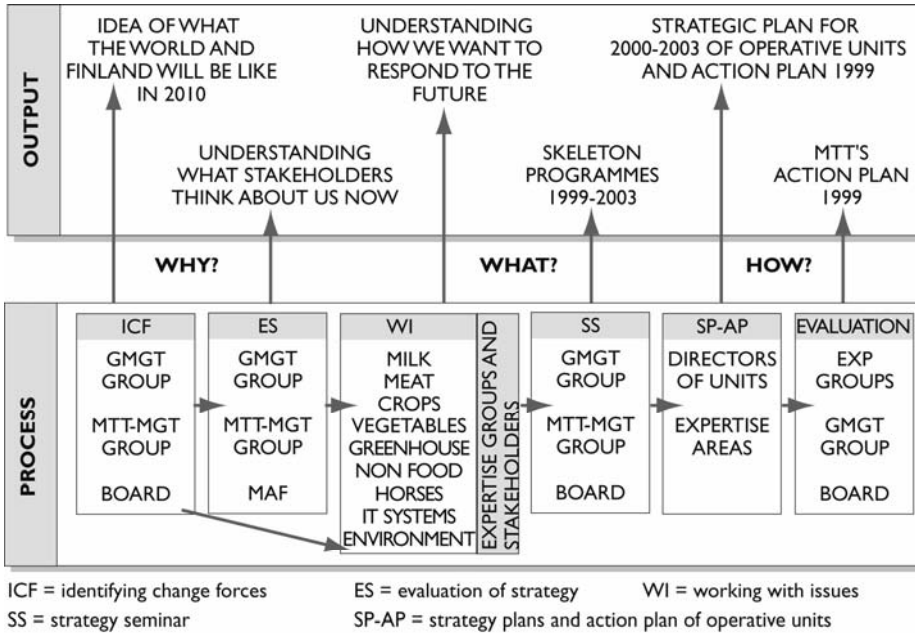


Figure 6: The MTT strategy process in 1999

The participants were the members of MTT’s Board (stakeholders), the members of the Management Group, and MTT’s key experts. From January to April, the expertise areas organised their own seminars. In February and March, MTT’s performance during the previous year was evaluated by the Ministry of Agriculture and Forestry, after MTT had evaluated the performance of its operative units. In May, a strategy seminar was organised (participants as for the year’s first seminar) to review the results produced by the annual process to date. They were the basis for the research units’ strategic plans.

The performance of MTT

Since 1995, MTT’s Balanced Scorecard had comprised the following performance perspectives: 1) Effectiveness (society, citizens, consumers), 2) Outputs (for customers and utilisers of research knowledge & innovations), 3) Finance, 4) Production processes and 5) Personnel. These were seen to form a cumulative chain of impact with the personnel as the starting point and the solid base. The perspectives and the respective key performance indicators are shown in Figure 7.

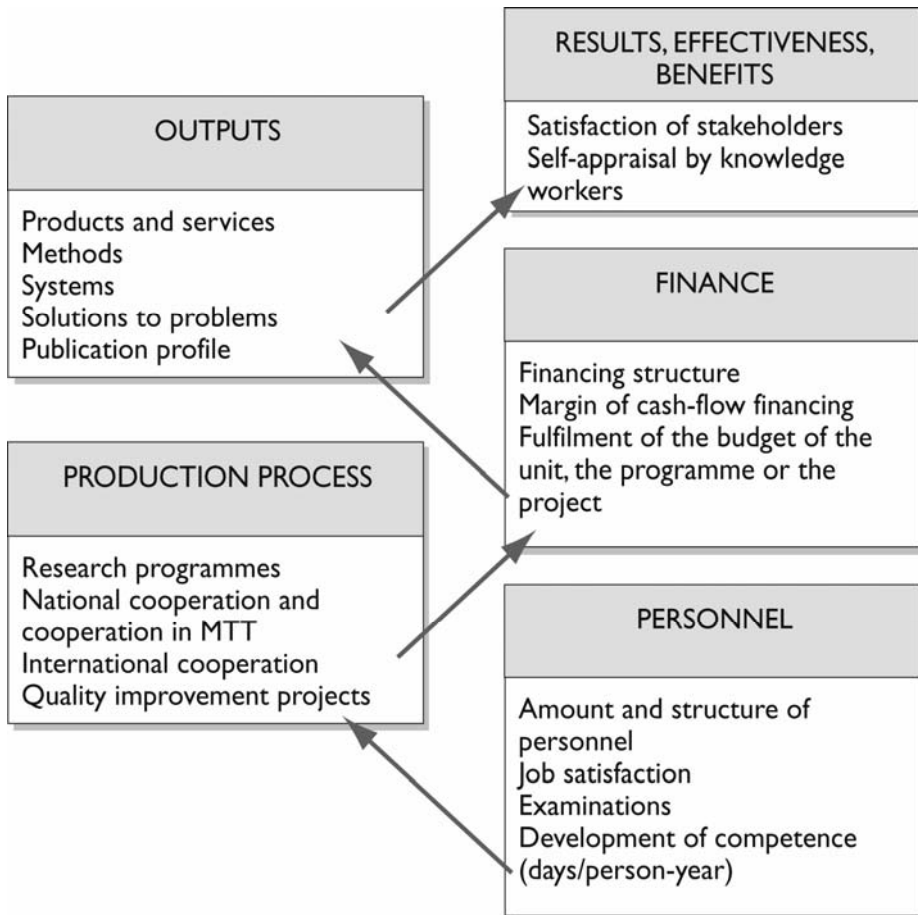


Figure 7: Performance perspectives and respective key performance indicators.

The linkage between the key performance indicators and the stakeholder map was constructed as follows: The final benefits for the consumers and citizens were realised as the societal impact. This was evaluated by the different stakeholder groups in stakeholder satisfaction surveys. Also project managers evaluated the potential societal impact of the research results they had produced. Outputs benefited the financiers (Ministry of Agriculture and Forestry, public financing agencies, private sector financiers). Cooperative working processes and improving internal processes impacted finances, which in turn created value added for all groups in the stakeholder map. Progress in personnel measures self-evidently benefited the personnel.

Satisfaction of external stakeholder groups

The satisfaction of the external stakeholder groups was a measure of MTT's performance i.e. that of effectiveness or societal impact. It implied the experiences that MTT's external stakeholder groups had of the benefits produced for their own activities. MTT first measured stakeholder satisfaction as part of its 1985 strategy process (the stakeholder groups were e.g. farmers' organisations, extension services, companies, science communities, authorities). The first research on MTT's organisational image was conducted in 1992. In 1995, 25 CEOs among the important food industry stakeholders were interviewed by a business consultancy. The objective was to discover what stakeholders wanted and the requirements for the starting point of research development.

The stakeholder satisfaction survey was conducted in 1996, 1998, 2000 and 2002 using in-depth interviews of the CEOs and telephone interviews of about 200 stakeholders. In 2002, the survey was conducted through the Internet. A variety of stakeholder groups was represented: food and raw materials companies, science communities, agricultural extension service firms, etc. The reports of the surveys conducted until 2002 were based in total on the *responses of 1250 persons in surveys and on 100 in-depth interviews*. Appendix 5 presents a summary of the background data.

In the surveys, MTT's ability to identify changing forces, the level of cooperation, the know-how of the researchers and MTT's role in the society was evaluated. Measured using Finland's school marking system from 4 to 10, the average satisfaction of the external stakeholder groups was as follows:

1992	7.49
1996	7.67
1998	7.85
2000	7.78
2002	7.98

At a general level, the trend is clearly one of growing satisfaction. According to the consultants conducting the surveys, an improvement of 0.2 means important improvements in activities. However, there was variation in opinions among the different stakeholder groups mentioned above. A general summary about the surveys is that the representatives of the agricultural extension services were the most satisfied group and those of industries the most unsatisfied. Stakeholder surveys are used as one source of evidence taken from the perspective of the external opinions and their triangulation and more conclusions drawn from the stakeholder surveys are dealt with in Chapter 5.3.

Satisfaction of internal stakeholder group

The satisfaction of the internal stakeholder group, personnel, was studied from 1992 using personnel surveys. They have been conducted every second or third year. The general feature is that the expert personnel, knowledge workers, are the most satisfied with their work. They appreciate its freedom of and the possibilities to learn.

Decisions aimed at improving performance

Changes in organisational structure:

Several organisational changes were made between 1981 and 2003. MTT grew mainly through the decisions of the Ministry of Agriculture and Forestry. MAF's objective was to rationalise its map of research organisations, decrease overlapping research and so increase the efficiency of the research in its sector by merging small independent research institutes or experimental stations into MTT. The ministry also made decisions moving in the opposite direction where MTT's Plant Breeding Institute was merged with plant breeding activities in the private sector. This was also justified in the name of efficiency, because both public and private plant breeding activities were relatively modestly resourced.

In the 1980s, there were a number of structural changes. MTT had nine *research departments*, 15 research stations, four units for support services and four governmental business establishments in 1981. By 1988, one new experimental station had been established and one merged from another organisation. One of the business establishments became a research station. In 1989, there were six *research institutes* consisting of 13 research areas, and there were 20 research stations. In addition, there was a Central Laboratory, General Department and two Production Units.

In the 1990s, seven changes were made. In 1991, there were seven research institutes, and research stations were grouped into four research units, those of Western, Central, Eastern and Northern Finland. Two research stations were downsized. In 1994, production units were uncoupled from MTT. In 1996, the Unit of International Affairs was established. In 1998, six *research* units existed. Regional Research comprised seven regional research stations. The special research stations were grouped according to their research focus under the other units.

In the 2000s, there were seven units. Agricultural economic Research Centre was merged in 2001 to form a new unit. Regional Research was renamed Regional Unit. In 2002, support services were grouped into Administrative Services and Research Services.

Structures for developing and commercialising science based products and services

In 1992, *Agropolis Ltd.* was founded to utilise MTT's resources to develop competitive business and promote interaction between research and the business world. The activities were started through cooperation with the local communities (around Jokioinen), MTT and regional agricultural extension services. The area of operations was defined to include among other things science parks and science and information centre activities. The MAF allowed MTT to acquire the shares of *Agropolis Ltd* in 1998. In 2003, *BioTRIM* was founded within *Agropolis Ltd.* It provided a link between research and companies which need separation technology (batch chromatography, batch and continuous filtration, supercritical fluid techniques) services to optimise their production processes. In addition, it produced pilot-scale batches before the set-up of actual production.

Agronet – a network for a rural entrepreneurs' information service – started in 1992 as a co-operative effort of MTT, agricultural extension services and Farmers' Union. The net brings together different, scattered domains locating information beneficial to rural entrepreneurs, such as the knowledge produced in agricultural research.

Organisational structure and stakeholder groups in 1898 and 2003

Figure 8 presents MTT's organisation chart and stakeholder groups in 1898. The organisational structure was built on the premises and facts that were thought best to decrease agricultural risks and promote crop cultivation in Finland. Farmers were the most important stakeholder group. There was also interaction with Finnish agricultural associations, The Imperial Alexander University of Finland (later University of Helsinki) and international universities.

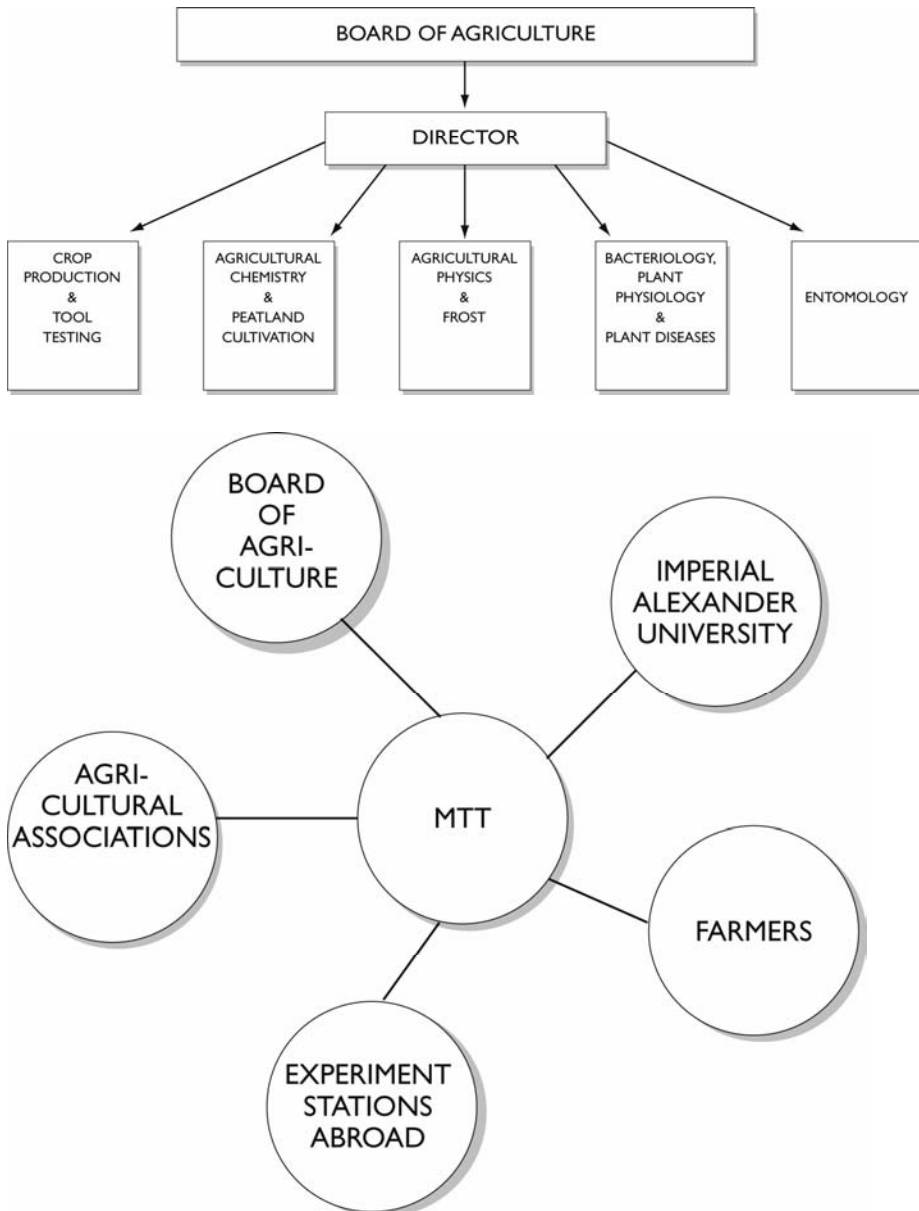


Figure 8: MTT's organisation chart and stakeholders in 1898

Figure 9 shows MTT's organisation chart and stakeholder groups in 2003. There were six science based organisational units and three research programme areas linking the activities of the units to the larger research schemes, programmes and projects. Food, economy, environment and animal production constitute new organisational units in the chart.

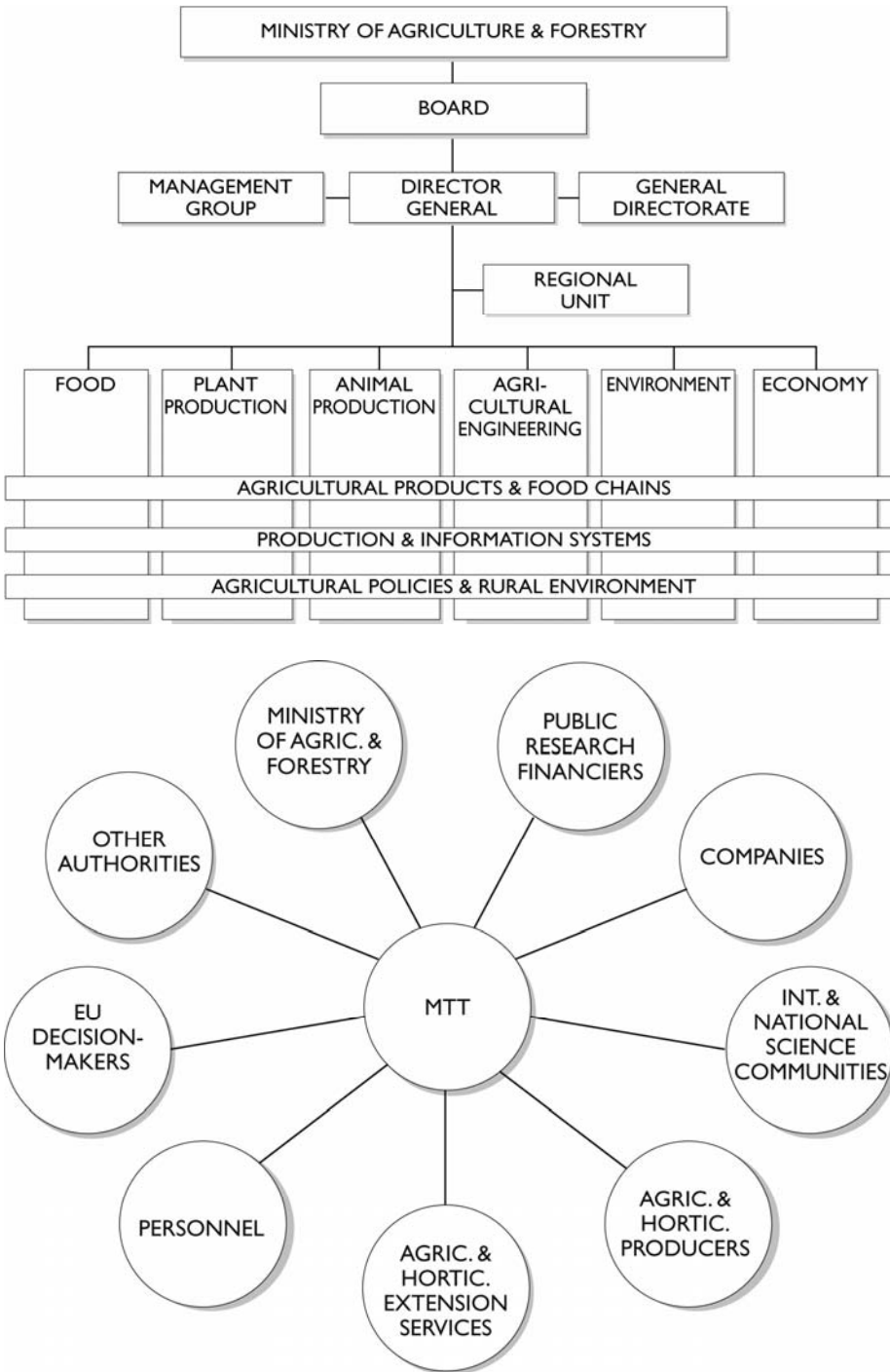


Figure 9: MTT's organisation chart and stakeholders in 2003

In comparing the two organisational structures, it can be seen that both are based on scientific disciplines though they are grouped in larger entirety in

the new structure. The Faculty of Agriculture and Forestry at the University of Helsinki had corresponding research and teaching areas. The new stakeholder map is made up of new elements, e.g. public research financiers, companies and EU decision makers.

4.5 Data collection

The case study method as a qualitative research tool gives the researcher considerable freedom and alternatives from which to select the data collection methods. Case studies aim at a deep understanding of the real-life phenomenon under the investigation. Thus, it is essential to select the data collection methods which provide wide and versatile information.

The phenomenon under investigation, stakeholder management, *is looked at through the eyes of the middle management and external stakeholder groups.* The summary of the data used is shown in Table 6.

Table 6: The research questions in linkage with the source of data and the findings.

<i>Research question</i>	<i>Source of data</i>	<i>Findings presented in chapter no.</i>
How adequate are the key concepts – ‘firm’ and ‘stakeholder’ – as used in the stakeholder management of business firms and the stakeholder management of a knowledge intensive governmental organisation?	In-depth interviews, 1999 Participant observation, 1981–2003 Report on stakeholder satisfaction survey 1998, 2002 (2003*) Seminar 20 May, 2003	5.1.
How is ‘stakeholder management’ conducted in this kind of organisation?	In-depth interviews, 1999 Participant observation, 1981–2003 Reports on stakeholder satisfaction survey, 2002 (2003*) Seminar 20 May, 2003	5.2.
How can the different demands of the different stakeholder groups be taken into account?	Report on stakeholder satisfaction surveys 1995, 1996, 2002 (2003*) International Evaluation Report, 1996 Report on personnel surveys 1996, 1998 Participant observation 1981–2003 Seminar 20 May, 2003	5.3.

*) The survey conducted in 2002 was reported in 2003.

In this study, the primary source of information was the in-depth interviews conducted by the researcher. The interviews were carried out in 1999. The stakeholder satisfaction surveys and researcher’s personal observations in the case organisation were also an important source (inquiry from inside). The interviews enabled the researcher to learn different managerial procedures taking place ‘in the field’, as well as the interviewees’ motives, attitudes and desires. In order to capture as holistic a picture as possible, several persons were interviewed. The number of interviewees and interviews was 29 in four managerial levels.

1	top management	3 directors
2	middle management (a)	6 directors
3	middle management (b)	5 managers
4	team management	15 team leaders
	Total	29 persons

The criterion for selecting the interviewees was their central role in directing the research activities and working in connection with the stakeholder groups. Team leaders are MTT's key experts. The basis for selecting a high number of key experts is derived from the characteristics of a knowledge intensive organisation: Knowledge workers form the core of the organisation and possess the key production factor, knowledge (Nurmi 1998, Mintzberg 1983). They are the key informants concerning the basic activities of the case organisation. The directors are the key informants of management. The list of the interviewees comprising their education and status in the case organisation is given in Appendix 3.

Triangulation of evidence is necessary in order to increase the reliability of and confidence in the conclusions drawn. In this study, triangulation or confirmation of the observations has been realised by drawing the conclusions from different sources of information. The elements of triangulation were: in-depth interviews, researcher's participant observation, documentation material, and the seminar which was held after the findings of the study were apparent.

The data collection process can be seen as starting from the preliminary understanding achieved in practical orientation to the management of the knowledge intensive organisation during the years 1981 and 2003. Appendix 6 shows the researcher's role in MTT. The researcher's tasks were administrative, including research, and economic and human resource management. In earlier years, research management was about maintaining and developing research coordination structures, the Research Committee and its subgroups. In 1985 and 1986, the researcher's main project was conducting the first strategy process of the agricultural research. The specifications of the first research data file were defined as a consequence of that project. Later, one of the researcher's duties was to maintain MTT's system of management by results (Figures 6 and 7) and conduct its development processes.

The pre-understanding led to the careful examination of the relevant literature concerning the stakeholder theory⁴ and the knowledge intensive perspective in organisation theory, in order to discover the key elements for a theoretical framework of the study.

Secondly, the base for the individual interviews was prepared, with stakeholder management the focus of the interview questions. The starting point was to screen for the interviewees' opinion of MTT as a 'firm' i.e. what are its goals. The core data were collected using questions concerning the

⁴ de Bakker, Groenewegen & den Hond (2005, 313) searched the ISI Web of Science Social Science Citation Index (WoS/SSCI) database for stakeholder* on February 22, 2005. This resulted 3,308 hits. Thus, in this study, the attempt has been made to concentrate on the most central part of the wider literature.

enactment of the strategy processes in MTT's units. At the other end of the continuum, the questions dealt with the management of a knowledge intensive organisation. The focus of the questions was to screen for whether the specific features described in the literature of knowledge intensive organisations could be found in MTT. Thus, the questions complied with the framework constructed at the beginning and the key elements of the case. The list concerning the central themes of the questions is presented in Appendix 4.

The themes were the same for all of the 29 interviewees but the organisational status of each was taken into account. However, the more detailed questions were based on the management level of the interviewee. The interviews lasted from one to two-and-a-half hours and all were recorded. In order to diminish the risk of the interviewer directing the interviews to too great an extent, the interviewees were given the possibility of discussing the issues from other perspectives, too. There was no rule that opinions concerning the actual discussion theme would have been expressed in connection with it; those opinions were often heard in connection with other themes.

Internal documentation from the case organisation was collected in addition to interviews. This contained, for instance, international evaluation reports, and reports on stakeholder and personnel satisfaction surveys. Other important documentation included the strategic plans and annual reports. Of all these, the stakeholder satisfaction surveys were considered the most important, because they mediated the external stakeholders' opinions about MTT's activities and effectiveness. Since comprehensive stakeholder studies had been conducted in 1985, 1992, 1995, 1996, 1998, 2000 and 2002, there was no rationale for making a new stakeholder satisfaction survey in this study process (Appendix 5). The surveys covered the following external stakeholder groups: farmers (1992), extension services, companies, science communities, and governmental organisations. Another part of studies were the in-depth interviews conducted among influential persons in the organisations and in the society.

To evaluate and ensure the relevance and reliability of the findings, a seminar on the research topic was held on 20th May, 2003, and all 29 of the persons interviewed in 1999 were invited to participate. Two of the interviewees had retired and three had been recruited outside MTT. The findings of the study were presented and discussed with a view to garnering any new perspectives to take into account. The directors of MTT in fact stated that the findings serve as guidelines along which MTT should also be developed in practice.

4.6 Interpretation of the data

Maintaining the chain of evidence is the key issue concerning the interpretation of data. This is to ensure that the derivation of any evidence from the initial research question and collected data for the ultimate case study conclusions can be followed (Yin 1994). Maintaining the chain of evidence is also a prerequisite for analytical generalisation in which the results can be generalised through theoretical reasoning.

The answers to the research questions were sought by describing the case organisation MTT using the terms of the stakeholder theory. The study describes the behaviour of the managers and the other key persons, knowledge workers, when they were dealing with stakeholder issues. The main part of the interpretation consists of studying the stakeholder management processes of MTT, though the description also deals with the preconditions and the outcomes of the management process. The knowledge intensive perspective in the organisation theory supports the investigation of MTT's management

Figure 10 summarises how the chain of evidence was maintained in this study. Some pre-understanding existed of the phenomenon as the object of interest, but not all relevant variables were known in advance. The pre-understanding led to the utilisation of the existing theoretical starting points, stakeholder theory and the knowledge intensive perspective in organisation theory (Table 7). The questions for the interviews were formulated consistently from the conceptual framework (Figure 2). First, the interview material was reduced to main categories, those of the characteristics of firm, stakeholders and stakeholder

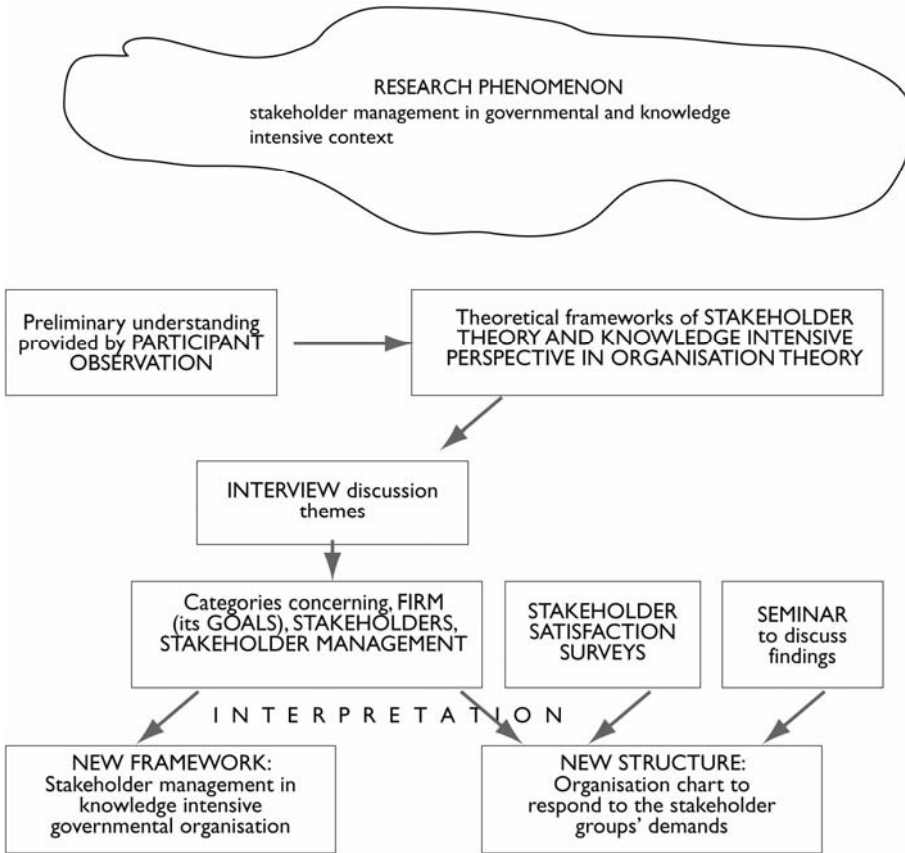


Figure 10: Maintaining of evidence

management. Classification was achieved by listing the opinions of the interviewees according to the themes discussed. After that, within a category, similarities and differences were sought, classified and organised, and the preliminary interpretation of the data could be made (Figure 12, Table 11, Figures 13 and 14).

The preliminary interpretation adduced from MTT's internal sources was complemented by the external stakeholders' opinions collected in stakeholder satisfaction surveys. The interpretation made was submitted for the common reflection and assessment produced in the interviewees' seminar. After that, the final conclusions were drawn (Figures 15 and 16).

Table 7: The framework and interpretation of data.

<i>Research question</i>	<i>Theory framework/perspective</i>	<i>Literature</i>
How adequate are the key concepts – ‘firm’ and ‘stakeholder’ – as used in the stakeholder management of the business firms and the stakeholder management of a knowledge intensive governmental organisation?	Stakeholder theory: Mainly descriptive perspective, also normative and instrumental Knowledge intensive perspective in the organisation theory: Knowledge intensive firm and its goals, knowledge worker, management	Donaldson & Preston 1995, Freeman 1984, Matikainen 1994, Näsi 1995 Nurmi 1985, 1998, Mintzberg 1983, Lehtimäki 1993, 1996
How is ‘stakeholder management’ conducted in this kind of organisation?	Stakeholder management process	Freeman 1984
How can the different demands of the different stakeholder groups be taken into account?	Level of interpretation: 1) Organisational/ Stakeholder groups. 2) Dyadic Managerial approaches: Reactive, defensive, accommodative, proactive	1) Clarkson 1995, 2) Rowley 1997 Carroll 1979, Clarkson 1995, 109

The level of the interpretation is that of the organisation, meaning that interaction is studied between MTT and its wide sets of stakeholder groups, though the stakeholder management is carried out by individual managers and other organisational key persons, mostly with specific stakeholder issues and relationships (Clarkson 1995, 104). Their activities lead to overall organisational performance, which is considered against the stakeholder groups. In addition, the focus of the study lays in the dyadic relationships between the organisation and the actual stakeholder groups. The dyadic mode means that the focus lies in the relationship between the organisation and stakeholder groups, and the networking or relationships between different stakeholder groups are not taken into account (Rowley 1997, 890). Networking between different stakeholder groups and its influences on the dyadic relationships of MTT could be an issue for further research.

5 RESEARCH RESULTS – STAKEHOLDER MANAGEMENT IN THE CASE ORGANISATION

“Research, institutes and researchers should use all possible means to promote practices where stakeholders are brought on board in the research planning phase. For the sake of effectiveness, the presence of the stakeholder in the innovation chain from the research phase to product development, to its market launch and utilisation is important whoever the stakeholder is: consumers, MAF, farmers, other rural entrepreneurs, food processors, consultants, equipment manufacturers, fertiliser businesses and so on.

Yet more importance should be attached to the stakeholders’ engagement in financing research schemes. Concrete financing on the part of the stakeholders increases interest in the issues at stake, and the probability of marketable outcomes or real effectiveness will increase. If this commitment to the different phases of the innovation chain could be increased, the diffusion of knowledge from research to practice would be less of a problem than has now been described.”

Mr. Kalevi Hemilä, Minister of Agriculture and Forestry in 2000 (Commentary in ‘How can research benefit agriculture and agribusiness’. The Scientific Agricultural Society of Finland).

5.1 The description of the case organisation using the concepts of the stakeholder theory

5.1.1 MTT as a firm – its goals

How adequate is the key concept ‘firm’ of the stakeholder theory in the knowledge intensive governmental organisation? What is the case organisation like if described as a ‘firm’? According to the stakeholder literature, a firm is defined especially by its goals. Are the goals of the case organisation similar to or different from those proposed in the stakeholder theory? If they are comparable, where are the similarities or differences?

According to the stakeholder theorists (Rhenman & Stymne 1965, Carroll 1996, Freeman 1984, Näsi 1995), the goals of the firm are those of its stakeholders. When responding to the needs and desires of the stakeholders, the firm will survive. In the optimal situation, consistency and a certain kind of unity of goals exists among these actor organisations. Then the boundaries between the firm and its stakeholders become vague. The boundaries may also change in the course of time.

What MTT's goals are was screened with the help of the quotations of interviewees' answers and those from the stakeholder satisfaction survey (1998).

The interviewees' opinions of MTT's goals were asked for at the beginning of the interviews. A deep devotion to solving the problems and answering the challenges in the society was noted inside MTT. The central content of the comments made were the points of view concerning 'to produce knowledge', 'benefit of consumers and mankind', 'maintaining Finnish agriculture', 'to maintain core competence', 'quality of knowledge' and 'societal impact'. These aspects are expressed, for instance, in the following quotations:

...survival is a goal, but I would see also nobler goals...producing science as such is an important goal, but to make science there must be an organisation." (Management of research team)

In my opinion, MTT's goal would be to maintain a certain core competence, for instance biotechnology...it's increasing all the time. It's a sector with large potential." (Middle management b).

It was seen that MTT has no value as such. The justification for its existence is derived from the benefit which it produces. As a body of national innovation structure, its goal is to produce such knowledge and innovations as support Finnish agriculture, rural areas and the food industry. Earlier it was enough to produce just barley or wheat. Now malt barley, fodder barley and starch barley are needed. The instrumentalisation of knowledge was pointed out. Working for the well-being of mankind, for instance affecting the food production prerequisites in less developed countries, was also seen as a goal.

Based on the interviews conducted, it can be said that there was a unanimity concerning the opinions on MTT's goals. The opinions on demands for societal impacts were consistent with the values of the agricultural and food sector and the values, vision and mission of MTT; and the managers were willing to work for them.

In the stakeholder satisfaction surveys, the stakeholder groups mainly pointed out their expectations of MTT's goals. The following quotations are from the stakeholder satisfaction survey in 1998:

The future role of MTT should be to produce knowledge for decision making, to promote the competitiveness of the lines of business, to search for new possibilities.

MTT should be the driver of the development of agriculture.

MTT could be a data bank which knows the top skilled persons in any research area all over the world and the contacts are at our service. MTT must be at the top where it's acting.

MTT is the image builder and maintainer of the national agriculture, the researcher of the economic development of global agriculture and the reliable forecaster of agricultural and economic aspects also in the long run.

The stakeholder groups liked to see MTT as a forerunner and an active determinator of the course, rather than a passive responder to the changing forces. They also emphasised deep knowledge to be a success factor in that. The internal and external opinions of MTT's goals were not in conflict although the view is different. External stakeholders who answered the survey questions occupied top positions in their organisations. This explains why their opinions were more comprehensive taking global perspectives into account. The starting point of the internal opinions was the individual Finnish actor in the agricultural and food sector.

Summary of 'MTT as a firm'

The opinions regarding MTT's goals can be summarised as producing benefit for stakeholder groups, which is generally speaking consistent with the stakeholder theory. In sum, the specific goals of the governmental knowledge intensive organisation are shown in Figure 11.

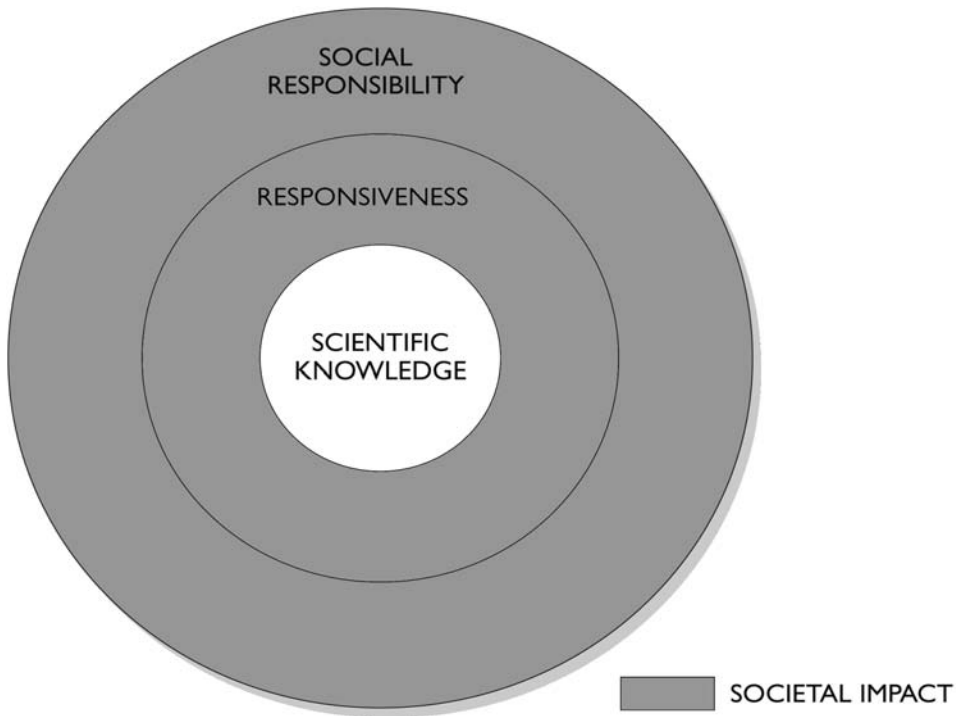


Figure 11: The summary of the goals of MTT.

Social responsibility is the most important goal among these. It was understood that MTT is one of the important actors in guaranteeing the well-being of citizens in Finland *in the long run* and creating value added at the level of mankind, too. *Responsiveness* is the organisation's response to the needs of those stakeholders whose task environment demands the solutions of the problems *in the short run*. Social responsibility and responsiveness together form *societal impact*. The quality of knowledge (*scientific knowledge*) is the base on which the responsiveness and social responsibility rests and from which they grow. Without that, the other two goals cannot be achieved. None of the interviewees mentioned a financial goal as the goal of the case organisation.

5.1.2 MTT's stakeholder groups

How adequate is the key concept 'stakeholder' of the stakeholder theory in the knowledge intensive governmental organisation? What are the stakeholder groups like? Which factors enhance and restrict the management of different stakeholders?

The stakeholder groups as a second perspective of the stakeholder theory were *examined on a general level*. The relationships between MTT and three different external stakeholder groups – the science community, companies and public research financiers (Ministry of Agriculture and Forestry) – *are presented and described* here and a more precise analysis is made when studying ‘stakeholder management’. The stakeholder groups were examined *from the perspective of managers*. As stated earlier, the managers are not seen as stakeholders in this study. The relationship between MTT and its knowledge workers was studied as a perspective of the internal stakeholder group. Managers represent here the organisation in relation to the external stakeholder groups, though they in the internal consideration could be looked at as stakeholders of the knowledge workers.

The relationship between the organisation and its stakeholder groups was studied also by analysing the ‘stakes’ between them (Freeman 1984, 91-95). Analysing the economic, technological, political, social and managerial stakes gives a detailed understanding of the cause and effect relationship between an organisation and its stakeholder groups.

5.1.2.1 Relationship between MTT and the science community

“It’s useful to cooperate, because the different experts’ know-how is complementary...We have tried to bear in mind that we are not here for charity. We have to benefit from cooperation.” (Management of research team)

The science community as a stakeholder group is formed by cooperation between MTT and partners from Finnish and international universities and research centres. MTT has agreements on cooperation with Finnish and international science organisations, but the agreements are not the prerequisite for cooperation. Active cooperation always takes place at the level of individual knowledge workers.

Factors enhancing the relationship

In general, the easiest international research relationships started from contact between an MTT knowledge worker and an international researcher whose knowledge bases were in the same research area. Thus, similar know-how seemed to attract knowledge workers all over. The deepest relationship seemed to have been established with a foreign research institute, if MTT’s knowledge worker or manager had studied or worked in that. To get the opportunity to work in famous universities or research institutes often presumed that MTT had been positively distinguished in some interesting

research area, that MTT had outstanding competence in the special area. This had been made visible during years past, for instance, in international congress presentations or acting in confidential posts at international scientific associations. Studying and working in famous universities also enabled still wider networking, for those are places where experts from other European countries, the US and Australia go to spend their sabbatical leave.

An example of how the relationship grew further was given in the following citation:

It is very important that we are strong in some area...the cooperation is easiest then...it deepens knowledge where we are already good. But then there is another aspect, e.g. looking for support for some project. We have a tradition in some area, but then a new area emerges and we know that our colleague in Edinburgh is good in it. Then, after the discussion, we have agreed that he will participate in the research and we invite him here, and we are easily invited there, too. Our PhD student will visit Edinburgh and the professor will come here to make the research plan. (Management of research team)

As the financial research resources are always limited, integrating new competences into the research projects and programmes offered a possibility – besides the anticipation of more comprehensive problem solving – to apply for research funding from international joint venture financing sources. Knowledge workers felt that completing competences with international partners was attractive also in terms of achieving more rapid results. The opportunity to gain more influence and power in international forums in the specific area of expertise was also motivating for knowledge workers as expressed in the following:

We cooperated with English researchers with whom we planned our experimental chambers. The cooperation helped us get into the activities of the International Panel of Climate Change. (Management of research team)

Relationships with national scientific partners were motivated by “attractive exchange”. Access to the national sources of research funding presumes a coalition where many research aspects and different types of know-how and competences are represented. Each party has to benefit in some way, and the realisation of the ‘win-win principle’ maintains the successful cooperation and produces good performance in the research scheme.

Factors restricting the relationship

The flip side of the coin was that there are also factors limiting or preventing cooperation in the science community. At its worst, cooperation could mean competition for scarce research resources between the research organisations at the national and also international levels. Some MTT middle managers had experienced this side of relationships among parties in the national science community. In joint venture research plans, scientific parties look to include perspectives relevant to their own research context. The following example shows this cooperation paradox:

We have an interesting situation. We are happy to talk about joint venture research institutes...at the same time, they are our competitors...If I think clinically and brutally in terms just of our own goals, I'm quietly setting our own agenda...I think coldly of other institutes as our competitors...IT'S cold-blooded because the others act like that, too! (Middle management b)

As it was a question of 'resource competition', knowledge workers designed the research programmes with old ideas. They never revealed the very latest ideas in their research plans. Once the funding decision had been received, a part of the funding was used to produce something 'top secret'. This was the way of working because the game was brutal. Knowledge workers were afraid of the theft of their newest ideas, which would then spread like wildfire. The worst thing that happened was when research funding had been applied for together with a partner and then MTT dropped out in the final phase. Up to that point, much work had already been done, and in fact the plan and even part of the research had been accomplished for the other party.

In sum, stakeholder relationships between MTT and the international and national science communities were mainly built on the personal contacts of MTT's knowledge workers. Stakeholder relationships were based on equality of inputs and outputs and were successful as long as both parties gained from cooperation.

Fragmentation derived from the fact that individual knowledge workers took the initiative in establishing international stakeholder relationships between MTT and the science community. The strategic approach of building relationships on a base of intentional and systematic selection was therefore lacking.

Stakes in MTT–science community relationship

Analysing the factors affecting, or the stakes in, the relationship between stakeholder parties is a part of stakeholder analysis. It should be done

systematically, stakeholder by stakeholder (Freeman 1984). This kind of analysis was not performed at MTT until 2003. At a general level, with regard to the entirety of the stakeholder ‘science community’, a rough example analysis is made in Table 8 according to Freeman’s (1984, 91-95) framework.

The MTT–science community relationship is a part of the entirety of science communities. Thus, the stakes have equal effects on each party.

Table 8: Stakes between MTT and science community.

<i>Effect</i>	<i>Effects of MTT on the science community</i>	<i>Effects of the science community on MTT</i>
Economic effects	<u>‘Free raw material’</u> : New knowledge for the science community’s knowledge production processes <u>Resource savings</u> : Dividing tasks among research partners saves resources in the science community	<u>‘Free raw material’</u> : New knowledge for MTT’s knowledge production processes <u>Resource savings</u> : Dividing tasks among research partners saves on MTT’s resources <u>Access to national and international financing sources</u> : Cooperation is the precondition for financing
Technological effects	<u>Faster progress</u> : MTT offers new and more efficient research methods and technologies for the science community	<u>Faster progress</u> : The science community offers new and more efficient research methods and technologies for MTT
Political effects	<u>Power</u> : MTT’s outputs empower the science community’s views with regard to the legislation of regulation	<u>Power</u> : The science community’s views empower MTT’s outputs with regard to the legislation of regulation
Social effects	<u>Organisational image</u> : MTT improves the organisational image of the parties in the science community in successful co-projects	<u>Organisational image</u> : The science community improves MTT’s organisational image in successful co-projects
Managerial effects	<u>Changes in management systems</u> : MTT drives more interactive management in the partners’ science communities	<u>Changes in management systems</u> : Science communities drive more interactive management at MTT

The conclusion is that cooperation is highly recommended; it entails only positive impacts for all parties. The scope of resourcing becomes multiplied and its outcomes are more effective due to quantity, quality and scheduling. However, the prerequisite for effectiveness is the efficient coordination of comprehensive research schemes.

The general stakes analysis summarises the positive influences of the stakeholder management or interaction with the stakeholder group ‘science community’. For the stakes analysis to be of value as a practical management tool, it must be performed at the level of a single stakeholder, and thus it is possible to build scorecard or performance measures into it. Studying every current and potential stakeholder through the criteria ‘economic, technological, political, social and managerial’ creates the base for the evaluation and decision making of the active stakeholder management. Conducting these stakes analyses in terms of a single stakeholder was not within scope of this study.

5.1.2.2 Relationship between MTT and companies

The MTT–company relationships studied here deal with companies producing agricultural and horticultural inputs, or companies in the food processing industry. The companies are mainly domestic enterprises, meaning that their owners are either Finnish, or wholly or partly foreign parties with production units in Finland. Up until 1999, there were only a few international companies (with no production units in Finland) with which MTT had any research cooperation. Nevertheless, MTT has been selling pesticide testing services to international pesticide companies for many decades.

Factors enhancing the relationship

As with the relationship with the science community, excellence and top level expertise created the base on which relationships between MTT and companies are built; it is the first precondition for trust, something that was also gained from MTT being a research actor with a governmental background. The crucial factor increasing companies’ interest in research cooperation is the possibility of public financing (e.g. from TEKES) e.g. for research aimed at producing a new product. The precondition for funding to be granted from the public purse is that the company utilising it is a member of the research coalition. The allocation of resources from companies, the research actor and public financing actors often leads to the companies involved having the first access to new knowledge or inventions.

These perspectives on the positive interaction between MTT and companies are borne out in the following citation:

Our common interest is that our research capital will increase as a goal to increase our knowledge...The exchange of knowledge is made in an open atmosphere... They don't demand strict product

development, they can afford to share knowledge also with others...they participate in this national task. (Middle management a)

If the company is large, it may be willing to take part in promoting the general strategies of the agrifood sector. However, this presumes that the company has personnel with a scientific education and that consistency can be found in cooperation. As cooperation develops through individual contact channels, through knowledge workers, the company's scientific orientation and even its own research activities enhance the cooperation relationship. Trust, previous experiences and the awareness of each other's resources helps. In the most favourable case noted, a top level scientist had been recruited from MTT by the company. After the initial shock, this kind of loss of knowledge workers developed into success from the perspective of MTT's research, too.

Factors restricting the relationship

There are situations where a stakeholder relationship does not start to grow. First, a research partner might decide not to carry out the research cooperation with the company and there were cases where broadening the cooperation relationship had to be limited. The possibility of acquiring financing from external sources was a motivation to cooperate, but there was a risk of overly fragmented basic resources. The managers had refused to conduct research cooperation, as shown in the next citations:

Stakeholders are changing all the time...We also have new opportunities, but there is a danger that our resources will be allocated in too many directions. I have already been answering 'no'. Centralisation is important...otherwise we may become burned out. (Middle management a)

The external financing has been increasing every year and we have now reached the point at which this external financing cannot increase more within these systems...we have been faced with difficulties...the machinery doesn't swallow this...the laboratory is overloaded and there are too few cows in the production experiments. (Middle management a)

Secondly, the company partner could refuse research cooperation, if the partners had different opinions on the time-span demanded for results. Expectations set by companies for research cooperation were often based on looking for rapid results in order to contribute to their production or marketing strategies or to eliminate current problems involved in production and marketing. It could happen that MTT needed the company's commitment from

the very outset of the research, but the company was interested only once the final product was taking shape.

Thirdly, an individual knowledge worker could prevent the enhancement of cooperation. The knowledge worker in question might be a leading expert in his area. Especially if his or her orientation was towards the basic research, there could be a gap between negotiating parties as described below:

*Sometimes I find a hell of a difficulty in sending researchers to negotiate at the same table, for instance, with the representatives of food industries, because they...DAMN!...cannot speak about anything else but a bit of a gene of their own or the contents of a hormone!
(Middle management b)*

Stakes in MTT–companies relationships

As in analysing stakes in the MTT–science community relationship, factors effecting the MTT–companies relationship can be analysed with the framework ‘economic, technological, political, social, managerial’. In Table 9, the stakes are listed as a general level example.

Table 9: Stakes between MTT and companies.

<i>Effect</i>	<i>Effects of MTT on companies</i>	<i>Effects of companies on MTT</i>
Economic effects	<u>'New knowledge and products'</u> : New or improved products and innovations	<u>Practical knowledge</u> : Companies give practical knowledge and information for MTT's knowledge production processes → innovations <u>Resources</u> : Companies participate in resourcing the research
Technological effects	<u>Better end product quality</u> : MTT offers new knowledge about the raw materials and methods to handle them properly	<u>New technologies to study</u> : Companies offer new production technologies and products to be tested or studied at MTT
Political effects	<u>Power</u> : MTT's research results form a base for legislation and regulation. This may help or restrict the activities of the companies	<u>Power</u> : Companies accept MTT's research results in their statements concerning the preparation of legislation and regulation
Social effects	<u>Organisational image</u> : MTT improves the organisational image and conspicuousness of companies	<u>Organisational image</u> : Companies improve MTT's organisational image and conspicuousness
Managerial effects	None	<u>Changes in management systems</u> : Companies drive more interactive management at MTT. There are effects on improving the interactive capabilities of knowledge workers

From the perspective of the case organisation, the positive impacts of interaction with the stakeholder group 'companies' are summarised in the table. MTT receives essential practical knowledge and financial resources and it may be the early adapter of the new technologies. Companies commit themselves to the coming legislation and regulation, if they have a connection with those in the preparatory phase. Working with companies forces MTT to develop its modes of action. As in the case of the MTT–science community relationship, analysis should be performed at the level of a single current and potential stakeholder company.

5.1.2.3 Relationship between MTT and public research financiers

The importance of public research financiers has grown simultaneously with the decrease in budgeted research funds in governmental research organisations. In Finland, the major research financing organisations are the Academy of Finland, the Finnish Funding Agency for Technology and Innovation (TEKES), the Advisory Committee for Agricultural Research (ACAR, in the Ministry of Agriculture and Forestry) with its joint venture research funds, and the Ministry of Environment. EU financing from the framework programmes and regional development funds has become more important, too. In this chapter, the focus is on ACAR's joint venture research financing, applications for which are open to competition from any Finnish research party. The ACAR programme and project based funding were the most significant of the MTT's so-called joint venture funds.

Factors enhancing the relationship

From the perspective of a research organisation, success in a relationship with a public financier means an optimal market share acquired from the public research funds under competition. In order to attract ACAR financing, research proposals have to be in line with the Ministry's guidelines for developing Finnish agriculture and food industries. In addition, a successful proposal has to show potential in combining different research areas in MTT and linking with the external research community and company party, too. A director explains his experiences in MTT's relationship with the Ministry of Agriculture and Forestry (ACAR):

As a sectoral research centre, we accept the authority of the MAF as the highest strategic guiding force. Another alternative would be to take the activities of MTT as an academic guideline. Then we would see what the trends in agricultural research are in the world and the strategic force would be drawn from there. In a way, it comes through the food industries or even more through consumer organisations...okay, then there is international agricultural policy. Surely, in this phase, our strategic line is to look at it from the viewpoint of the MAF. (Middle management a)

In the late 1980s, the Ministry of Agriculture and Forestry adopted an assessment procedure along the lines of strategic programmes for agricultural research. In the 1990s, ACAR followed its 'Priority Areas for Agricultural Research Policy in Finland' programme until the year 2000. In order to increase the effectiveness of research financing, the Ministry of Agriculture and Forestry established a so-called cluster approach, gathering experts from

different disciplines around the same issue in a more holistic fashion. Representatives of research organisations and organisations from the business world took part in formulating the strategies. Thus, MTT's knowledge workers were also a part of the community discussing the priorities of future research. Knowledge workers also have the potential as experts alongside other EU knowledge workers to offer initiatives for large framework programs, which EU countries finance together.

The attitude of MTT team leaders and managers towards ACAR's guidelines and priorities was respectful. The Ministry of Agriculture and Forestry's long run research strategies and published goals were utilised when formulating MTT's own research plans. Many of the team leaders and managers had positive experiences. Financing had been granted from ACAR funds, meaning that knowledge workers had correctly interpreted the financier's target settings and expectations.

Factors restricting the relationship

Factors restricting the relationship were the opposite of those enhancing cooperation; if the Ministry of Agriculture and Forestry's guidelines concerning the development of the agriculture and food industries, and its cooperative principles, were not followed then restrictions would be applied. In an extreme case, important issues might be omitted and unfunded if they were not listed in the Ministry's programme. There were cases where the research application remained without financing. The problematics of the public research financier were dealt with by the Secretary General of ACAR, as follows:

It's sometimes difficult for applicants for research financing to understand that a research scheme, especially one of very high scientific quality, may remain unfinanced, if it's in a phase of basic research and if the chain of utilising the outcomes cannot be seen.

Also for industries an important scheme may remain unfinanced, if it's designed incorrectly or is weak in its research methods. And above all, good schemes may remain unfinanced because of a lack of money.

When reading the applications, it seems to me that the schemes are not always planned to solve some problem in agribusiness, but to employ a researcher for some years. And apparently, researchers don't share their ideas willingly. I am astonished when two separate applications concerning the same issue may come from the same institute. (Mr. Markku Järvenpää, Secretary General of ACAR, in MTT's customer magazine, March 2004).

From the point of view of the case organisation, the stakeholder relationship was unsuccessful in such cases because of a lack of practical perspectives, methodology, money or sufficient cooperation between knowledge workers. From the financier's point of view, this kind of stakeholder interaction was justifiable from the perspective of coordinating research and limited research funding.

Stakes between MTT and public research financier (MAF/ACAR)

Consistent with the other stakeholder groups, stakes as effects in the MTT–public research financier relationship could be analysed using the framework 'economic, technological, political, social and managerial'. In Table 10, the stakes are listed as a general level example.

Table 10: Stakes between MTT and public research financier (MAF/ACAR)

<i>Effect</i>	<i>Effects of MTT on public research financier</i>	<i>Effects of public research financier on MTT</i>
Economic effects	<u>'New knowledge and products'</u> : New knowledge or new or improved products improve the profitability of farms.	<u>Resources</u> : Prerequisite for research activities.
Technological effects	<u>New knowledge</u> of legislation and regulations concerning quality of foodstuffs, cultivating techniques, farms' health and safety.	<u>Possibilities</u> to study new technologies and to improve old ones.
Political effects	<u>Facts</u> : MTT's research results serve as a base for formulating agricultural and rural resource policies.	<u>Political effects</u> are those of science and technology policy.
Social effects	<u>Opportunities</u> for rural populations to earn their living and stay in the countryside.	<u>Maintaining</u> working opportunities for personnel.
Managerial effects	None	<u>Steering Ministry</u> has crucial effects on MTT's management.

Stakes between MTT and MAF were not analysed systematically, but were dealt with as a yearly result steering process of the MAF and in strategy seminars. In addition, they were discussed in meetings held almost monthly.

Summary of the external stakeholder groups

The factors that according to the interviewees develop and restrict stakeholder relationships with regard to the stakeholder groups termed the science community, companies and public research financiers are summed up in Table 11. They serve as a source of information in describing the different stakeholder management processes in Chapter 5.2.

Table 11: Factors developing and restricting the relationship.

<i>Stakeholder groups</i>					
<i>Science community</i>		<i>Companies</i>		<i>Public research financiers (ACAR/in MAF)</i>	
+	-	+	-	+	-
<i>Studying or working in foreign institutes</i>	<i>Potential partners are actually competitors</i>	<i>Common interest in knowledge</i>	<i>Inadequacy of basic resources</i>	<i>MAF's clear guidelines & knowledge worker's ability to follow them</i>	<i>The research plan consists of only part of the basic research</i>
<i>Being strong in some area</i>	<i>Financing application is made together, MTT happens to drop out in the final phase -> partner utilises MTT's input</i>	<i>'Our man' in the company</i>	<i>Company's expectations for rapid results</i>	<i>Knowledge worker's ability to combine different expertises</i>	<i>Research methods are irrelevant</i>
<i>Equality among different parties (no charity!)</i>	<i>Fear of stealing ideas</i>	<i>Company's will to participate in the national task (= company internalises MTT's values)</i>	<i>Knowledge worker's deep orientation towards fundamental research</i>	<i>Trust in expertise</i>	<i>The research issue in question has not been coordinated within MTT</i>
<i>Expectation of gaining access to influential international forums</i>		<i>Company's own research activities</i>		<i>Knowledge worker's opportunity to influence the contents of programmes</i>	
		<i>Reliability, honesty</i>			
MTT					

The relationships 'MTT–science community' and 'MTT–companies' that were experienced as motivating, were built on personal relationships – on trust, expertise and knowing each other's resources. If the company was a large one with a strong market position, it was possible to get it convinced about the project and interested in long term participation, in other words moving towards the national research goals. Thus, the stakeholder approach increased the effectiveness of the knowledge intensive governmental organisation, and at the same time helped to guarantee and maintain employment for its personnel.

In the positive cases, the parties from the science community and companies formed a coalition with MTT's knowledge workers in the form of a

plan for a research programme, which was then financed by ACAR's joint venture funds.

5.1.2.4 Relationship between MTT and its knowledge workers

“The personnel has misunderstood management by results. It has never had a positive response...it's understood to be a system of measuring, examining, expectation and control. It's a system where the objectives have been set at the top and when they have been reached they are raised... the personnel has felt that acceptance will never be achieved. Their feelings are never taken into account...that they are creators...Although we are on the way to being able to measure economic thinking, I compare the research process with arts...it's a creative process and if the creativity is not taken seriously, they will not invent...” (Middle management b)

As an internal stakeholder group of MTT management, MTT's knowledge workers are now examined. Knowledge workers are the key resource of the knowledge intensive organisation. They process knowledge into new knowledge products and services. A typical facet of knowledge workers is their autonomy, which makes managing them challenging. The interviews with the directors of the research units, the managers of subunits and team leaders confirmed the views of the literature. The basic issue is that of autonomy vs. coordination according to the common guidelines. Furthermore, managers had different opinions on how strict the coordination should be.

Factors developing the relationship

A notable feature of the knowledge workers in the case organisation was that they were highly motivated in their research work. Creative persons like scientific knowledge workers preferred to go their own way and motivation was strengthened by their status as governmental officers, which conferred a feeling of independence. A scientific knowledge worker might be the only representative of a special research area in the country, or one of a very few. However, the success and continuance of research activities would have presupposed the unity that was provided in systematic management practices.

There seemed to be different ways of trying to increase the coherence of the research communities. There were strategy oriented points of view, though the strategy cannot be very strict. This is reviewed by the comment of a team leader:

My opinion is that a shared strategy must exist. The entirety doesn't remain coherent without it. Another issue is how strict the strategy policy is at the unit level. Here we have a well developed strategy...of course, it's extremely difficult to move the researchers in the same direction, but there must be significant guidelines. (Management of research team)

The directors who supported the consistent strategy approach had organised efficient internal forums to promote it. These dealt with and discussed research guidelines in order to test the potential of research ideas, providing internal acceptance of one's ideas and advice on how to conduct the project. Although unofficial, these discussions served as decision making forums of a kind; in addition to finding common opinions about what to study and how to start, they increased efficiency. It might be discovered, for instance, that some experiments and analyses had already been carried out in another knowledge worker's research. Resources could be saved and duplication reduced when issues were linked together in this fashion.

But, there were also opinions arguing that strategies are not needed and high expertise runs ahead of strategy. This point of view is expressed in the following citation:

This may be a cynical attitude, but the research community, generally...it progresses through its best parts, it's successful whatever the strategy. If somebody is able to discover a surface protein of a lactic acid bacterium, to find out some wonderful detail and publish it...reputation will surely grow. No strategy is needed. (Middle management a)

It seems typical for research communities to proceed through this informal decision making that little by little becomes official in action plans. The role of the director became visible when scarce resources had to be allocated to different projects, or if internal conflicts arose.

Factors restricting the relationship

From the managerial perspective, the most challenging issue was communicating with autonomous knowledge workers who were very deeply immersed in the substance of their specific research and orientated to examine the basic issues of the area itself. In the worst cases, they were not willing to develop general competences such as the ability to be a negotiator or a public performer. Financial measurement, the follow-up of the amount of financing from external sources, could cause conflicts. Opportunities to acquire joint venture financing varied from one research topic to another, and this could cause a feeling of inequality among knowledge workers when measuring

personal or team performance. The following two examples of citations express the pain of the managers:

In our unit there are guys who it's difficult to sell to joint projects, because... if I put it like a gentleman...they are to some extent peculiar persons, you must know how to talk to them. If you comment on their problems in cooperation, they become surprised and say that they have no problems in cooperation.” (Middle management a)

It seems to be very difficult for some researchers to communicate about their own research in clear Finnish language, how their work is linked to this entirety...and personally I am very angry about it! My opinion is that this is a waste of taxpayers' money, if we are not able to show what the project is linked to. But the tools to correct the state of affairs seem to be very scarce...it is this sensitivity to react! (Middle management b).

Managers interpreted the knowledge workers' attitudes towards changes and development. Some managers argued that the ideal situation from the knowledge workers perspective would be that there was no development of administrative and managerial systems and procedures. Participation in development groups was perceived to disturb research work. Changes carried out by central administration without offering knowledge workers the possibility of participating in the development process would have been still worse. This paradox often caused managerial problems.

Some managers had applied principles of 'innovative management' to soften the management by results style that was considered too hard in the research community. Financial indicators should not be used as they were seen to threaten creativity. An innovative management approach included directing attention to know-how and how to enhance it rather than financial indicators; performance measurement did take place but 'behind the scenes'.

There were knowledge workers who preferred to conduct research alone; this restricted efficiency and was by no means desirable. Sometimes it seemed to be necessary to reduce the independence of the knowledge workers, if only it could be handled properly. One method was to share knowledge with the technical personnel, which in a way amounted to limiting the power of the knowledge workers. Sharing knowledge motivates technical personnel, but on the other hand the knowledge was then owned by more people.

Summary of the internal stakeholder groups

“More economic research factors should be combined into research projects with a hypothesis: what economic or social benefits will the research produce or possibly produce. I believe that a special type of project management across unit borders would increase the motivation of the researchers to take the broad view, when working on another unit’s research project rather than for their own unit. The researcher easily gets too deeply involved in his own problems and doesn’t see the entirety. This causes another unit or even his own unit to suffer a lack of resources, even though there are in fact enough resources.”
(Stakeholder satisfaction survey, 2002)

The observations made about issues concerning the shared strategy and cooperation within one research unit can be summarised as follows: Most of the managers preferred knowledge workers’ mutual cooperation to working alone and saw its benefits in cost efficiency and outcomes. Much needless work is put aside and progress is faster as a common deadline approaches. A common dialogue is also needed. It had been observed that a single preoccupying research problem could have been solved long ago, even within the knowledge worker’s own research unit. However, the knowledge workers were just learning to cooperate with each other and team managers faced the management problems discussed.

As the knowledge workers were intensely occupied with their own special research task, forums for helping to understand the whole were needed. The formal forums for internal cooperation, especially inter-unit cooperation, were so-called expertise areas, which completed the normal, informal interaction between the knowledge workers. The observations made in this study show that interaction between knowledge workers varied from one research unit to another, and also within a single research unit from one team to another. The observations strengthened the knowledge based on the literature of knowledge intensive organisations.

5.1.3 Conclusions on ‘MTT as a firm’ and ‘MTT’s stakeholder groups’

In addition to the differences discovered in the firm’s goals between the stakeholder theory and the case organisation, the following proposals linked to the firm’s goals that challenge the stakeholder theory are presented in the concluding remarks.

- 1 *The content of the concept ‘social responsibility’ was different from that in the stakeholder literature. In the stakeholder literature*

'corporate social responsibility' means financial, legal, ethical and philanthropical responsibility (Carroll & Näsi, 1998, 75). In the stakeholder management of the governmental knowledge intensive organisation, *social responsibility* refers to the society stakeholder. It means the positive long run development of the society for which the governmental organisation in question is responsible within its own mandate. In the case organisation, the social responsibility is to produce knowledge to help secure the food production chain 'from field to fork' for the well-being of the citizens. Social responsibility is a part of financial responsibility, meaning that the governmental organisation has to deploy the taxpayers' money in a responsible fashion. Ethical responsibility is presumed to be present in all governmental activities.

- 2 *The meaning of the concept 'survival' was different from that in the stakeholder literature.* In the stakeholder theory, survival is the ultimate goal of the organisation. In a governmental knowledge intensive organisation, it is a consequence of being successful in terms of three goals: social responsibility, responsiveness (together forming societal impact), and quality of knowledge; but survival as such is not a goal.

It can be stated as a concluding remark on 'MTT's stakeholder groups' that

- 1 *The concept 'stakeholder' was relevant also in the case of the knowledge intensive governmental organisation.*
- 2 *However, the role of a single stakeholder group could be more versatile if compared with that of a business firm as described in stakeholder theoretical literature.*
- 3 *The stakeholder 'science community' could act as a co-operation partner to produce knowledge products and services for consumers and citizens. In another context it could act as a competitor for scarce research funds.*
- 4 *The stakeholder 'company' could act as a research financier, but also occupy the role of genuine 'customer' once the research task had been accomplished and the results could be applied in the company's production processes.*
- 5 *The stakeholder 'public research financier', such as the MAF, played the role of owner through the governmental budgeting procedures, but also that of a customer through assigning funding for individual research schemes.*

- 6 *The stakeholder 'knowledge workers' is a special section of the stakeholder group 'personnel'. From the perspective of stakeholder management, it can be stated that the individual knowledge workers were lead well – respectfully, appreciatively and permissively – by the knowledge intensive governmental organisation. Another question is whether stricter leadership would have been more successful in the long run.*

The stakeholder groups of the knowledge intensive governmental organisation were analogical with the general stakeholder map of the firm conceptualised by Freeman (1984). As a consequence of the goal of the non-profit organisation, the roles of the stakeholder groups are different from those of business firms.

5.2 MTT's stakeholder management

5.2.1 Two different processes

How is stakeholder management conducted in a knowledge intensive governmental organisation? An especially important aspect of stakeholder management is the management of the strategy process, the product of which is 'the corporate strategy' or 'the enterprise strategy' that deals with the question of what business the firm should be in. Another product of the strategy process is 'the business strategy' dealing with the question of how to compete in a particular business (Ansoff in Quinn et al. 1988, 2; Hofer & Schendel 1984, 46; Freeman 1984; 85, 111).

Though the stakeholder management processes are especially those of strategic management, the crucial role of stakeholders is emphasised in the whole management process. Stakeholders should be integrated into the processes starting with the formulation of strategic issues and ending in the reviewing of the performance. The key operating mode is interaction. The organisation has to support every stakeholder group according to the stakeholder's goals. The organisation should be able to integrate these different stakeholders' strategies into a consistent strategy of its own.

Management processes are a matter of special interest in the description of the case organisation's management and the description of the organisation's stakeholder management process is based on Freeman's (1984, 83-192) conceptualisation and the interviews conducted in the case organisation itself. Freeman identified the following phases of the management process: 1) setting

strategic direction, 2) formulating strategies for stakeholders, 3) implementing and monitoring stakeholder strategies and 4) keeping score with stakeholders.

As the case organisation is knowledge intensive, the boundary between strategic and operative management is not clear. Though the organisation has a strategy process of its own, the interpretation is made at the operational level. In practice, the strategic and operative management are intertwined in the case organisation. As Mintzberg (1983b, also Nurmi 1998, Kirjavainen 1997, 281, 286) puts it, it is typical in human-centred knowledge intensive organisations that knowledge workers with high expertise have power and a crucial role in management processes. But also the stakeholder management as an approach to strategic management ‘melts’ intensively strategic and operative management together. Every act in management is seen through the eyes of the stakeholders.

In the empirical research, *two different orientations* to the management of MTT’s external stakeholder groups were identified. They differed from each other in their interpretation and implementation of the principles of stakeholder management.

The management processes termed ‘*Knowledge based (national) production management*’ (A) implied that the production of the research knowledge is carried out *tightly connected, sometimes literally online*, with Finnish agricultural and horticultural production. In this kind of setting, the research institute has a role in production management in the country. Thus, the governmental research institute is a part of national production processes for agricultural and horticultural products.

The management processes termed ‘*Traditional knowledge production*’ (B) implied a mode of producing of research knowledge without a concrete and tight connection with the national agricultural and horticultural production processes. Once the research projects are completed, new knowledge is distributed through different diffusion channels for potential utilisers, channels such as scientific and professional publications, seminars and congresses.

The management processes are compared with each other according to Freeman’s framework of the stakeholder management process. The way in which the setting of strategic direction, formulating, implementing and monitoring stakeholder strategies, and keeping score with stakeholders, happen in the two stakeholder management processes are described.

5.2.2 Comparison of two stakeholder management process

5.2.2.1 Setting strategic direction

The first phase of the management process is setting strategic direction. This entails exploring, identifying and evaluating changing forces and stakeholder desires. At MTT, *idea generation* seemed to be essential in setting strategic direction.

Idea generation – differences between two stakeholder management processes

Idea generation is typically the first step in the strategy processes of science communities, and so was it the case in MTT's management processes termed '*knowledge based (national) production management*' (A) and '*traditional knowledge production*' (B). However, ways in which to enact idea generation varied within those two.

There were differences in activity concerning internal and external contacts and communication. Knowledge workers in both processes participated in international congresses and seminars. Those in '*traditional knowledge production*' (B) gathered ideas from congresses and seminars, and also from publications, but they did not seem to bring them into common discussion in their working community. At least common idea generation was much rarer than in '*knowledge based (national) production management*' (A). The activity of knowledge workers in the latter process appears in the following citation:

For me and all the other researchers, too, the source of topics is the possibility to participate in international congresses. They leave new thoughts in the subconscious mind, create new contacts, etc...This is especially so if more than one researcher is able to participate. Some years ago five of our researchers participated in a congress...ideas welled up and were gathered the whole autumn! (Management of a research team)

In that kind of working community, no solid or formal process existed; the knowledge workers talked and philosophised about the issues continuously in their teams under the guidance of visionary team leaders. The knowledge workers' task was to perform as well as possible in their own area. The main lines of research strategy were based in that knowledge and not changed, rather adjusted as a consequence of the discussions.

Besides international contacts, knowledge workers searched actively for partners from Finnish universities to combine their specific knowledge with

MTT's knowledge and through that increase the effectiveness of their work. In addition, the online data systems signalled problems, which were utilised as ideation material for further processing. Stakeholders also offered research ideas direct to knowledge workers, who on receiving them decided how they would be crystallised in the later phases of the strategy process. At the same time, they struck a positive and grateful attitude which won the producers' and private sector's commitment to MTT's work and prevented they themselves from becoming too introspective. The following example expresses the knowledge workers' freedom of prejudices and proactive attitude towards the stakeholders in this management process:

The issue often comes from us. We don't sit here twiddling our thumbs and wait for issues from stakeholders. We propose actively and so are able to keep our research on our own lines. After the issues come from here, it's a matter of mutual idea generation with the stakeholders. It's not like they give us a commission that we then carry out.
(Management of research team)

As stated earlier, the activity of knowledge workers in 'traditional knowledge production' (B) was less to do with actively contacting stakeholders. They preferred the opposite way of working to their colleagues in 'knowledge based (national) production management' (A). It was more passive:

We are influenced from outside...

There are contacts from outside MTT...

Then there may be a real problem or an accident...

...if it has been studied abroad, so we think that attention should be paid to it here, too. (Management of research team)

After that they reacted and started thinking about how to solve the problem in question. Thus, the source of research initiatives or the search for ideas was more a question of waiting for problems to arise in practical farming and animal production than actively proposing research issues.

As a concluding remark it can be stated that the way of working and basic attitude towards needs in the task environment was **proactive** in 'knowledge based (national) production management'(A) and **reactive** in 'traditional knowledge production' (B). Both have their plusses and minuses and both modes are needed. The phase of 'Setting strategic direction' – idea generation resulted in a 'Set of ideas'. In the first case, the number of potentially interesting research ideas was presumably much larger than in the latter case.

At the enterprise level of strategy (Freeman 1984, 91-101), an answer is sought to the question ‘What should we stand for?’, and providing an answer requires three kinds of analysis, that of stakeholders, values and societal issues. Corporate level (Freeman 1984, 111-117) analysis means a ‘stakeholder audit’ i.e. a highly detailed investigation of stakeholders. This is achieved in steps by stating the mission, identifying stakeholder issues and concerns, assessing corporate strategies for stakeholders and adjusting corporate priorities.

At MTT, the definition of mission and values and the analysis of social issues was part of the MTT-level strategy process. The systematic stakeholder analysis was not conducted with the aim of answering the questions: who are our stakeholders; what effects do we have on each in political, economic and social terms; and what effects do the stakeholders have on us (the two last questions are about the analysis of stakes). A systematic value analysis where MTT’s values would have been compared with those of the stakeholders had not been carried out.

5.2.2.2 Formulating strategies for stakeholders

The second phase of the stakeholder management process, formulating strategies for stakeholders, includes interaction between knowledge workers and stakeholders. Idea generation is succeeded by *brainstorming ideas and focusing issues* for research projects and programmes.

Brainstorming ideas – differences between two stakeholder management processes

Usually, there were organised forums for brainstorming, but it could happen without those, too. In the ‘*knowledge based (national) production management*’ (A) strategy, seminars or workshops were held once or twice a year, at which strategies were formulated for the next 5 or 10 years together with internal and external stakeholders. The occasions also served to gain stakeholders’ commitment to participating in and even financing research schemes and projects.

Weekly team meetings served as a more informal practice for brainstorming. Simultaneously, these meetings operated as learning forums for younger knowledge workers as shown in the following example:

Our team holds meetings almost weekly...one of us presents his/her own research topic and then it’s discussed. It concerns some ongoing research or the planning of new researchThis is how we support

the young researchers' research planning. (Management of a research team)

Communication with external stakeholders and also with internal stakeholders in MTT's other units also happened without seminars. There were cases where contact was continuous; "a matter of non-stop" interaction concerning what should be done together next. This continuous interaction between knowledge workers and stakeholders was one of the most efficient ways to engender commitment. Efforts to affect stakeholders' opinions were also made by distributing knowledge produced in earlier research projects. In addition, brainstorming was an essential part of the daily life of this type of research community within MTT.

Brainstorming in '*traditional knowledge production*' (B) was also practised. The most important forums were meetings of management groups. Most of the topics on an agenda dealt with obligatory, often administrative issues. In addition, team workshops were organised for brainstorming, but external stakeholder representatives did not normally participate in these. The knowledge workers were not very interested in regular seminar practice as shown in the following citation:

I have tried to start a continuous seminar practice and discussions, but the researchers have not... (Management of research team)

It was seen that brainstorming could be carried out in team meetings, but managers complained that the discussion was not open enough. However, it was their opinion that a brainstorming group does not need more than 10 participants. It was a typical feature of knowledge workers that they like to ponder a research problem alone for too long a period of time and contact only a few colleagues and stakeholders. They should learn and notice in time which earlier or ongoing research topic their own research could be linked with.

In sum, the brainstorming was a necessary phase to analyse a mass of issues. The less relevant ideas fell away in the course of conversations. A typical facet of brainstorming in '*knowledge based (national) production management*' (A) was that ***the wishes of the stakeholders were listened to, but it was as important that the stakeholders were convinced of the scientific aspects of the knowledge workers thinking concerning the actual research problem.***

In '*traditional knowledge production*' (B), the general attitude seemed to be that ***it was difficult to template knowledge workers into a common and open exchange of ideas.*** This would be particularly necessary for organisations whose primary role is to create knowledge. Davenport & Prusak (1998, 89) emphasise the importance of spontaneous, unstructured knowledge transfer for the organisation's success. Specific strategies should be developed to encourage spontaneous knowledge exchange.

The output of the brainstorming is a ‘Set of tested ideas’ for further development. Testing ideas in the ‘brainstorming ideas’ phase is more comprehensive in ‘*knowledge based (national) production management*’ (A) because of stakeholders’ participation.

Focusing issues – differences between two stakeholder management processes

Next, the research issues were focused from the tested set of ideas. The research problems were crystallised into projects, programmes and schemes. In this phase they ‘had been woven together’. The Director and the management group of the unit could be involved in this, but the key actors were the knowledge workers. The timing of this phase was driven by the schedules of financing applications, as a Director from the middle management level put it: “*The rhythm is decided by the financing application schedule.*” As such, one could not avoid the impression that the research projects are probably designed in a very short period of time, maybe too short. In addition, according MTT’s practice, the operative units made their annual plans for the following year on the same schedule, in the middle of October.

Applying for financing from the public project financing sources preceded making the detailed research plan individualising the goals, scientific content and research methods, relevance of result expectations and the potential benefits of the results. As many public financing sources presume also the commitment of the enterprise partner to financing, interaction with the stakeholders may be especially active in this phase. In ‘*knowledge based (national) production management*’ (A) they played a crucial role, as can be seen in the following example of the citations:

Stakeholders are participating when we are making the preliminary research design. If they are also financiers, then they are involved in experimental designs, too. They give us know-how about what we are missing. (Middle management b)

In the management mode mentioned above, interviewees often emphasised contact with stakeholders. There were different ways to conduct this stakeholder contact. For instance, the responsibility for contacting and negotiating with a stakeholder was handed to an expert, who had an understanding of the unit’s competence and other resources. More knowledge workers were involved after stakeholder negotiation and the group processed the research design, details of how to conduct and follow up the research in question. In some cases details, e.g. which parties would contribute expertise, which parties contribute analysis, etc., were agreed within meetings in which a larger group of knowledge workers and representatives of stakeholder groups participated.

In the interviews concerning ‘*traditional knowledge production*’ (B), the terms ‘Director of the unit’, ‘management group’ and ‘we’ meaning knowledge workers were more common than ‘stakeholders’. The knowledge workers ‘were turned inwards’ in the earlier phases of the management process, and the same attitude towards stakeholders continued here. It might happen that the knowledge workers tried ‘to protect the research design against the Director of the unit’ in order to put forward their own points of view. This is shown in the following citation:

The director of the unit is involved in the process in its definition phase, but before that we have already worked a little... it could otherwise happen that the director dictates...there must be some base. We must have considered the theoretical side a little.... (Management of research team)

According to Freeman’s (1984; 126, 128) concept, formulating strategies for stakeholders is formulating strategic programmes for dealing with a broad range of stakeholder groups. Any set of strategic programmes must consider how the resources of the firm can be used to implement the business mission.

This phase of the strategy formulation is also a process of its own. It comprises the following tasks (Freeman 1984, 130-142): Stakeholder Behaviour Analysis, Stakeholder Behaviour Explanation, Coalition Analysis, Generic Strategy Development, Specific Programmes for Stakeholders and Integrative Strategic Programmes. The final output is an action plan for stakeholders. The coalition analysis can be based on stakeholder groups’ communality in behaviour. The coalition formation is natural, if the stakeholder groups have common interests, similar actual, cooperative or competitive behaviour, or if they have already formed coalitions with each other. The ranking of stakeholders is made in terms of their relative cooperation potential.

In the case organisation, the analysis of stakeholders and coalitions was based on the knowledge workers’ experience of the stakeholders. This was made visible in the knowledge workers’ common conversations and meetings. There was no formal and systematic analysis in terms of what a stakeholder group is trying to accomplish in the long term. The common interest of stakeholders became clear in efforts to formulate common programs for the whole food chain starting from farms, and linking the food industries to those. The last link, to the trade, was often missing. One leading motivation for the programmes and projects was the potential for financing from external financing sources. MTT had a small amount of special funds which were allocated for programmes at the decision of the Director General. The allocation had a link with financing from external sources.

In terms of Freeman's (1984, 147) classification of specific stakeholder programmes, the 'offensive' programme is typical in the '*Knowledge based (national) production management*' (A) process. It can be stated that to some degree the orientation was offensive when trying to affect stakeholders' objectives or broaden their thinking. ***It was typical that interaction with external stakeholders was based on the initiative of knowledge workers (researchers).*** They were the proactive actors willing to affect and develop the actual production processes of agricultural and horticultural products in Finland. They will also exist to adopt the specific objectives of the stakeholder where research knowledge was required concerning a particular issue and the research was commissioned with a total cost base.

5.2.2.3 Implementing and monitoring stakeholder strategies

Differences between the two stakeholder management processes

Once strategic programmes have been formulated to set a strategic direction, those programmes must be translated into action plans i.e. deciding who is to do what. MTT achieved this at an earlier stage in programme and project planning as part of its 'focusing issues' phase, which also set programme and project budgets.

The 'implementing stakeholder strategies' phase at MTT involved conducting the research after the programmes and projects have been accepted for start-up. The final decision on the annual action plan and resource allocation was made by the Board. The research itself was also viewed as an independent process, i.e. the research process with its own managerial activities. In biological research, the duration of the phase varies normally from three to five years per project. It starts after the positive financing decision from the financiers. A manager in 'middle management b' explains how the project is managed in the first phases of the research process:

Last week we received the financing decision...process design is already clear. Simultaneously the laboratory group is informed to prepare the diagnostics. The project is the interface with the stakeholders...there are customers, universities. We aim to integrate a production expert, and the senior research scientist who has a network with international and national universities. This has met with approval. (Middle management b).

A typical feature of the '*knowledge based (national) production management*'(A) process was that the experiments were established on the stakeholders' farms, or no experiments were established but the production

processes of the Finnish agricultural or horticultural firms had been linked to the research process through online electronic communication. After designing the experiments, making other arrangements and establishing the experiments on the farms, the experiments were maintained and data collected. Data analysis and result reporting completed the research process. The following citation describes how research was carried out in close partnership with stakeholders:

They participate in financing, they participate in our research, for instance by giving us material, or we carry out experiments on their farms. The major part of the research that was conducted here earlier is now transferred to the farms. We make a strict contract with them according to which they must not hand the material over to the third party. (Middle management b)

Monitoring progress with stakeholders means making sure the project proceeds as planned and in addition ensuring that the original course of action is still appropriate for all concerned. Monitoring progress in stakeholder strategies at MTT occurred at project level. The public project financing system included project 'steering groups', a method of formalising the stakeholder management process for research financiers. These groups were made up of representatives from the financiers' organisations and from other key stakeholder groups. The steering groups met once or twice a year and their function was to follow project progress and set tighter guidelines for carrying the project further.

The practice of running project steering groups guaranteed project implementation kept to the planned scope and schedule. However, it could not guarantee the true effectiveness of the project, as expressed in the following citation of a representative of 'middle management b':

We are children of nature...it [management] varies from case to case. Some projects have no follow-up meetings... follow-up takes place as part of the progress of the work. For instance, 'Doctor Green's' development process is an example of poor management and yet the result was 100 per cent. The 'flax scheme' is an example of good management, but there will be no result. Well, the results will come, but they cannot be implemented in practical production...nothing concrete will come of it. On the other hand...results are good, BUT they will not lead to what would be a global product for Finland.

In the 'traditional knowledge production' (B) management mode, experiments were established in MTT's own fields and cowsheds, external farms were seldom utilised. The next steps were maintaining the experiments, collecting data, and analysis and reporting. Just as in 'knowledge based

(national) production management' (A), during the years in which the experiments were conducted, there were check-points where the project was reviewed. These consisted of the steering groups' formal meetings. In accordance with MTT's official annual management procedures, the performance and progress of the projects in the previous year was accounted for in individual – in some cases also in team – reports and in the operative units' result reports and result discussions.

Monitoring means controlling the implementation of the strategies, checking that strategic programs are moving in the desired direction (Freeman 1984; 159, 171-177). In its purest form, it should be shown that the resources have been allocated to deal with various stakeholder groups. In other words, there should be a consistency between the effects for stakeholders and the amount of resources allocated to deal with them.

The cycle for programmes and projects at MTT was from three to five years, in some cases even longer. Annual monitoring was achieved in the steering groups and the final evaluation was made under the guidance of the Research Director once the programme and project had finished. Resources were not intentionally allocated according to stakeholder groups and thus controlling was not done accordingly.

5.2.2.4 Keeping score with stakeholders

Differences between the two stakeholder management processes

'Keeping score with stakeholders' means in Freeman's (1984, 177-181) framework measuring corporate performance both with each stakeholder and with the entire set of stakeholders. A scorecard made for every stakeholder group includes possible near and long term measures for performance.

The chain of the process phases described earlier resulted in different kinds of outcome; scientific and consultative publications, new or improved production methods and systems, etc. These were gathered and reported on annually at the operative level and the case organisation's level according to the description of the MTT strategy process. However, the true performance was achieved by adopting new knowledge, methods and systems in real production processes in the country, which was possible in *'knowledge based (national) production management' (A)*. The integration of the research and the actual production process is assumed to provide the most efficient adaption of new knowledge.

A team leader talks about the degree of integration between research and practice in his research team:

We have quite a good coverage...for instance, concerning frozen vegetable foods we have 100 percent coverage...which means at this point we hold data on 250 farms and the whole cultivation process. Coverage in berry production is some tens of per cent. As for greenhouse production...for certain crops it's 100 per cent...for instance, all rose producers are in the rose projects. A sector where we want to raise coverage drastically is ecological farming. First, it's challenging from the research perspective and secondly the whole research thinking starts from a bottom-up ideology...it starts from the terms of the farm. We are not able to operate at all, if they will not be comprehensively integrated with the research." (Management of research team)

Another team leader also works in a very tight partnership with his stakeholders as follows:

It's a breeding organisation with which we have operated with mutual goals. We have been concentrating on the same issues and negotiated and even divided tasks. The basic idea has been that because this must done, you do that and we will take care of the development. We think and you execute! (Management of research team)

A middle manager talks about the benefits of conducting research on the farms as follows:

We are also a little bit cunning...when we link them concretely to us like this, we are at the same time marketing our own products for them to use...Indeed, this is not a bad model. The importance of this is that the new research outcomes will be utilised simultaneously. (Middle management b)

Research was based on online interaction utilising information technology or on continuous contacts and visits to the enterprises conducting the experiments. Carrying out research in this manner guaranteed true performance, i.e. changes and development in actual production processes in farms and horticultural enterprises. ***The findings and benefits of the research became applicable and were applied during the research process.*** Thus, the operations covered the whole production chain. This meant a very big transition compared with the traditional operating mode: cooperation with agricultural and horticultural extension services, consulting activities with the task of distributing research findings to the farms.

Although stakeholder management in MTT was not in line with the principles of the scorecard based on stakeholder groups, the management

exceeded the original principles in another aspect. If it is compared with the principles of stakeholder management, the operating mode described above goes beyond the basic idea of interaction or transaction processes to manage stakeholder groups (Freeman 1984, 164-170). The highest form of transaction would be *explicit negotiation* meaning two-way communications, informal negotiations, a proposal-response-compromise cycle, and unilateral action. These were in use in this stakeholder management case. In addition, there was a transactional process, which can be termed *interchange referring to online connections and even daily exchange of information and knowledge*.

In 'traditional knowledge production' (B) the output of the management process was new knowledge or inventions in the form of improved agricultural, horticultural or food production methods, systems, problem solutions, etc. These were reported to the international science community in scientific publications, on MTT's website and in international congress and seminar presentations. National reporting includes consultative publications and articles in professional magazines in the agriculture and horticulture sectors, websites and seminars organised by MTT or some other body.

The important utilisers of the knowledge produced are the authorities, i.e. the Ministry of Agriculture and Forestry, Ministry of the Environment, Ministry of Trade and Industry, and the Ministry of Social Affairs and Health. The channel for knowledge workers, in affecting governmental decision making and legislation, is to make official statements based on MTT's research area. The following citation describes this activity:

I see the MAF as one of my clients preparing the legislation. Now we have worked hard in preparing the environmental subsidies programme. In a way, it's nice but frightening to see how literally our texts may have been used there. (Management of research team)

In this mode of the stakeholder management process, interaction with stakeholders was minimal as in the previous phases of the management process. Follow-up meetings were not normally held during the research process, but a meeting could be called if there were problems to address. A meeting was in fact held when the first results were available. There was insufficient interaction among knowledge workers, as indicated in the following citation:

We said at the team meeting that we have not discussed the results achieved enough...and it could be useful. Normally the research is carried out, but information is not disseminated until it's published through some channel. Many valuable comments could be received [if information and experiences had been exchanged earlier]. This aspect of the process is almost totally missing, and there has not been time

for it, but there is a need for this kind of discussion. (Management of research team)

Discussions were restricted to steering group meetings and especially to the final phase of the research when results were available. There could be more discussion amongst knowledge workers in the early phases of this kind of management process, but they also complained of a lack of time to evaluate results after research was completed. Common discussions at that phase would serve as learning forums and could provide valuable observations for further research.

5.2.3 Conclusion on two stakeholder management processes

The stakeholder management process '*Knowledge based (national) production management*' (A) has been summarised in the Figure 12. Phase 1, 'setting strategic direction' results in MTT's 'corporate' strategy. It was based on priorities set at the EU and national (ministerial) level. It included the possible revision of the mission and vision. In addition, the alignments of broad strategic areas were drawn based on MTT's role in the society. They were areas of priorities or wide-ranging research programmes. This phase also included the first step in formulating the 'corporate' strategy: free idea generation producing a broad set of ideas.

Phase 2, 'formulating strategies for stakeholders' was led through brainstorming ideas and focusing issues to results: the set of programmes and projects which formed the inputs for 'implementation and monitoring stakeholder strategies' (phase 3). The outputs of this phase – scientific and consultative publications – were 'half-finished' products or adjacent results with improvements in national food production chains. The ultimate performance was economic benefits for firms and companies and improvements in food quality measures (phase 4).

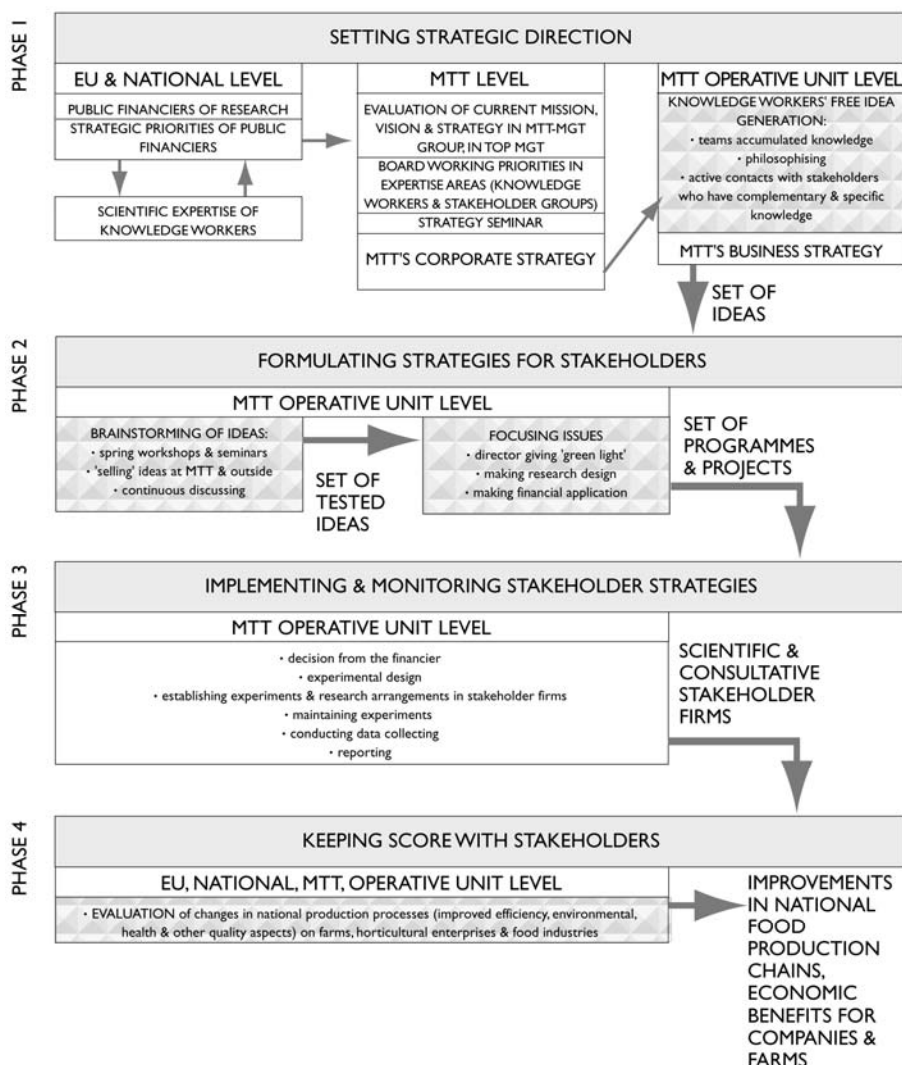


Figure 12: Stakeholder management process 'Knowledge based (national) production management' (A)

The stakeholder management process '*Traditional knowledge production*' (B) has been summarised in Figure 13. Phase 1, 'setting strategic direction' was equivalent to Phase 1 of '*Knowledge based (national) production management*' (A) in formulating the 'corporate' strategy at EU, national and MTT levels. A part of 'setting strategic direction' was also performed in this mode of strategic management at the level of the operative units through 'free idea generation'.

Phase 2 'formulating strategies for stakeholders' included brainstorming ideas and focusing issues as in the other mode. The output in the form of

programmes and projects was the input for Phase 3, ‘Implementing and monitoring stakeholder strategies’. Phase 4 ‘keeping score with stakeholders’ had scientific and consultative publications, official statements, seminar and congress presentations as its outputs.

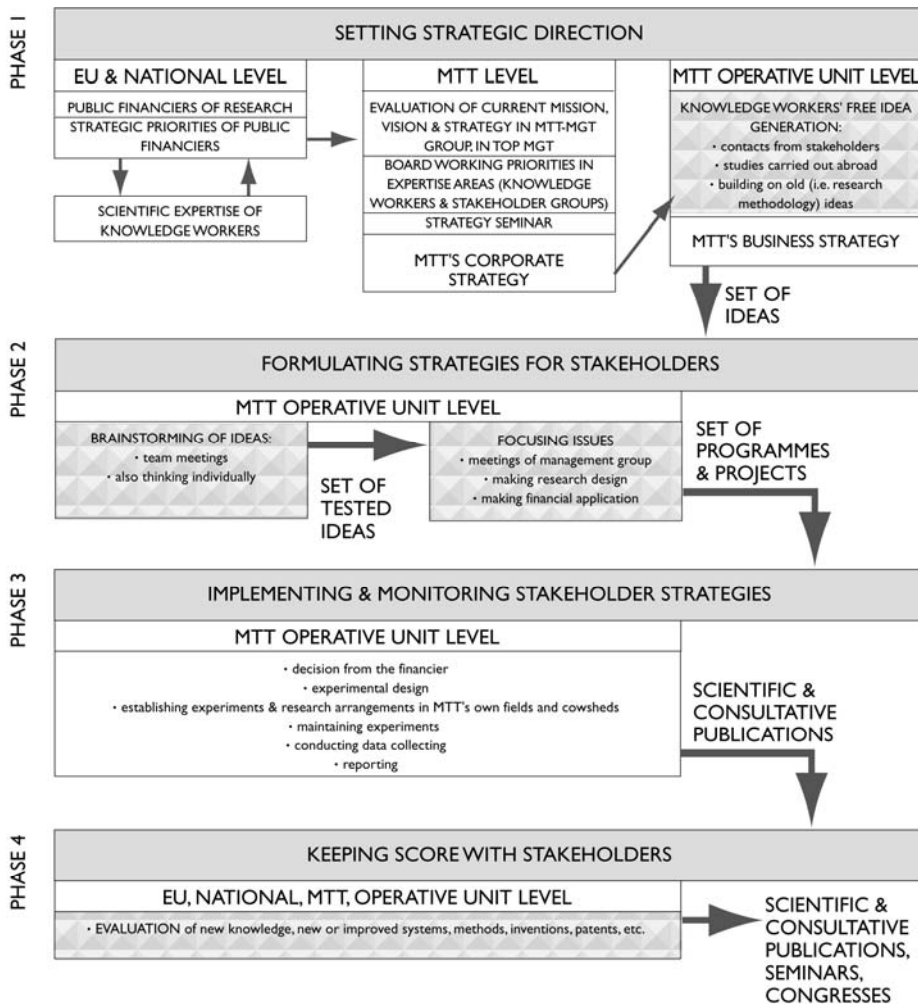


Figure 13: Stakeholder management process 'Traditional knowledge production' (B)

The two modes of stakeholder management process – neither of them good or bad – differ from each other as shown in Table 12.

The basic difference between the two modes was that ‘*Knowledge based (national) production management*’ worked directly at the stakeholder interface. It can be stated that the border between MTT and its stakeholders had become vague in this mode. The outputs of the research were applicable

even during the research process. Practical applications often *preceded* scientific and professional publications.

'Traditional knowledge production' first produces qualified scientific publications. Results were presented at international and national congresses and seminars, the science community being a very close stakeholder group in this mode. The results were also offered to farmers in professional articles and seminars to be applied.

Table 12: Differences between the modes of stakeholder management process: 'Knowledge based (national) production management' and 'Traditional knowledge production' (B) Factors developing and restricting the relationship.

<i>Process phase</i>	<i>Knowledge based (national) production management (A)</i>	<i>Traditional knowledge production (B)</i>
Setting strategic direction:		
* EU, national, MTT level	X	X
* MTT operative unit level free idea generation	Active contacts with stakeholders, knowledge workers' own initiatives, informal discussion.	Reacting to needs of task environment, reacting to ongoing research issues and discussion in international science community.
Formulating strategies for stakeholders:		
- brainstorming ideas - focusing issues	Wishes of stakeholders are listened to, but it is as important to convince them of the scientific and long term aspects of actual research problems, continuous open discussion in the team and operative unit. 'Selling' research topics to stakeholders.	Formal procedures, also thinking about research problems alone, difficulty to template knowledge workers to common and open discussions. Contacts linked to making the financing applications.
Implementing and monitoring stakeholder strategies:		
- experiments and research arrangements - contacts with stakeholders	Externalised to the stakeholders' firms or no experiments are established, but firms are linked (e.g. online connections) to current research. Current and informal contacts with stakeholders.	Experiments are established in MTT's own fields, glasshouses, cowsheds, etc. Meetings of steering groups.
Keeping score with stakeholders:		
- outputs - effectiveness	New knowledge, scientific and consultative publications, congress and seminar presentations, official statements. Continuous – also in real time – changes and improvements in national food production chains, economic benefits for farms, food industries, horticultural firms.	New knowledge, scientific and consultative publications, congress and seminar presentations, official statements. New knowledge is implemented with a delay, therefore also effectiveness can be stated with a delay.

The knowledge intensive governmental organisation has practices of its own to conduct interaction with its stakeholder groups, to carry out its stakeholder management.

- 1 The concept 'stakeholder management' is relevant also in the knowledge intensive governmental organisation.
- 2 However, it differs remarkably from that of business firms (Freeman 1984): The stakeholder management process has features of its own. '*Setting strategic direction*' includes 'Free idea generation'. '*Formulating strategies for stakeholders*' consists of 'Brainstorming ideas' and 'Focusing issues'. '*Implementing and monitoring stakeholder strategies*' is 'Organising experiments and research arrangements' and 'Contacting stakeholders'. '*Keeping score with stakeholders*' concerns both 'Outputs' and 'Effectiveness'.
- 3 There are settings in the knowledge intensive governmental organisation where stakeholder management is more intensive than in standard business firms: Instead of 'interaction' the relation is 'interchange' meaning the continuous exchange of data, information, knowledge, etc. – through telecommunications and individual contacts – between the organisation and its stakeholder groups.

The two different stakeholder management processes serve as material for the later investigation and conclusions drawn in Chapter 6.2.

5.3 Managing MTT's different stakeholder groups

5.3.1 Conflicting demands and expectations of stakeholder groups

How can the different demands of the different stakeholder groups be taken into account? In order to answer the question it is necessary to investigate what the demands of MTT's different stakeholder groups actually were. Managers constantly have to assess the stakeholders' salience, the degree to which they give priority to competing stakeholder demands. Criteria are, for instance, a stakeholder's power and legitimacy or the urgency of its claims (Preble 2005, 410; Michell et al. 1997, 873). It is a special challenge for business organisations applying the recommendations of stakeholder

management to balance the often conflicting needs and expectations of different stakeholders. There is a special dilemma concerning the management of stakeholder groups in knowledge intensive governmental organisations carrying out national tasks. The management challenge culminates in balancing the demands of social responsibility and those of responsiveness. This crucial issue is also linked to resource allocation. An additional challenge is created by knowledge intensity combined with public employment.

Since the beginning of the 1990s, questions such as “Who is our customer? Is it the MAF, a farmer, an agricultural extension organisation **or** a company? Are we an institute making science **or** conducting product development work?” have been asked in the case organisation once again. The confusion concerning the issue of what constitutes a ‘customer’ originates from the change of the public financing base in the 1990s, and is faced by all the public research organisations. Acting ‘between two worlds’ in a knowledge intensive governmental organisation means trying to balance the demands derived from the science community and from expectations concerning the common good (responsibility; guaranteeing the basic preconditions of the food production chain and sustainable development) with the short run needs (responsiveness) of the customer stakeholders who participate in the financing of the research.

In practice, this means a continuous ‘play for power’ between these two goal elements in the knowledge intensive governmental organisation. Mintzberg (1983b; 4, 23-24) defines power as the capacity or ability to affect organisational outcomes. In an organisation, there are internal influencers and around the organisation external influencers. Thus, power plays a role between organisational actors, between organisational and stakeholder actors, and between different stakeholders. Prime bases of power are for instance: the control of a resource, a technical skill or body of knowledge, anyone critical to the organisation. Nickols (2000, 7) mentions power resources as those of politics (power derived from relationships among people), position (power derived from formally constituted authority) and profession (power derived from specialised knowledge). Wartick (1994, 114) argues that though analysing normative cores may be the starting point for effective stakeholder management, the engine that drives it is power relationships.

Demand for scientific knowledge

In 1996, the MAF performed an international evaluation of MTT. The objective was to clarify both the scientific level of research activity and its responsiveness in relation to stakeholder groups’ expectations. The international evaluators were satisfied with MTT’s scientific expertise, the reliability of results, ethics in conducting research, and physical resources. This was noted by the experts as follows:

In our visits and discussions there were many aspects of the work of MTT with which we were very favourably impressed. The facilities we saw were good, both in range and quality, the staff we met showed a high level of scientific competence and professional commitment, and the projects we examined were in general soundly designed and scientifically and practically relevant. (International evaluation report, 1996)

The international experts also stated problematics concerning the scientific orientation:

...MTT lacked a sharp focus and a clear scientific strategy and, as reflected in the output of refereed scientific papers, the Centre's productivity must be considered modest by international standards." (International evaluation report, 1996)

An interesting observation is that consistent with the international experts, the directors of the research units and team leaders were also worried about the reduction of power in the scientific part of research projects. They wished that even top management would interfere in the matter, as is expressed in the following citation of a team leader:

MTT's external financing and continuous growth have become more appreciated. It's somewhat negative. MTT had earlier in a sense 'birch and star' [very pure] goals, but when I came to MTT, myself and my superior strongly represented the goals of the science community. It means that if we conduct good research and continuously maintain an international standard and publish a lot, this would be a sufficient goal for us and everything else will come with it. It must be said that there has been some prostitution. We are even willing to do low quality research, if we are paid for it. It should not be accepted at MTT level! (Management of research team)

The research line is veering away from the science because the character of MTT as an institute of applied research is emphasised. It means that more financing should flow in from companies and more applicable research results should flow out of MTT. The negative side of this is that all know-how will be tied to product development. The interviewees worried that there is an insufficient increase of knowledge connected with this kind of way of working. They predicted that this will have fatal consequences; it would lead to the loss of MTT's status as a national and international authority. It was their opinion that MTT's profile must build on the high level expertise.

The key experts also had another fear. There is a threat and a risk that some important areas will remain without research input, if external financiers are not interested in them. The principle in carrying out joint venture projects was

that funding from the internal budget would be allocated to the project that had external financing sources. Areas at risk could include e.g. soil and pollution research, which are not popular financing objects among companies. In any case, it would be the responsibility of the public community to plan and define the tolerance of pollution and also to analyse where the pollution load stems from. These studies would need spatial soil data files and digital soil data which did not exist.

Although the relationship with companies had been developed, there was dissatisfaction on their side, too, as can be noted given their needs and desires.

Demand for rapid outcomes

Serious efforts were made at MTT to interpret the governmental task and combine the resources of a special sector of agriculture into comprehensive research programmes. The objective was to achieve more effective and faster results and to improve the competitiveness of the agricultural and food sector. MTT was active in forming coalitions in which more than one company party would participate in the financing. In some research areas, it was easier to connect several, even competing companies to one research project, but there were cases where the short run expectations of one party could threaten the success of cooperation:

When I started as a researcher we had a project that many companies participated in. The objective was that with each company's specific input the basic research could be conducted for mutual benefit. The term 'basic research' was even mentioned in the research topic and we noticed that some companies tried to infiltrate their short-run objectives into the research...It's not impossible that several companies should participate in one project, but there is the possibility of too much tension existing between these parties. The more parties, the more risk of 'soloists'. (Management of research team)

Forming a working and active research coalition with several companies was difficult, because company parties are often mutual competitors. They were afraid that the competitor would succeed in getting some confidential knowledge in a cooperative coalition, which it would utilise and thus weaken the other company's market position. There was thus a conflict of interests; companies demanded rapid outcomes, but were not inevitably willing to participate in projects with integrative research issues and common game rules. Participation would have given the best access to results even during the ongoing the research project.

Companies' common dissatisfaction could be identified in stakeholder satisfaction surveys, too; what was experienced was that MTT did not serve companies' needs.

MTT's approach to research and the results yielded were generally considered not very usable; they were regarded as abstruse basic research, for which the industry's role was merely that of financier. Nevertheless, there were some new areas that aroused interest. (The Customer Process in the Food Research Institute, Report 1995)

Company representatives criticised the state of affairs in stakeholder satisfaction surveys in 1996, 1998, 2000 and 2002, too. It was seen that MTT's role was not clear from the perspective of different stakeholder groups. In addition to promoting the competitiveness of primary production, the demand was also made to promote the competitiveness of the industries and trade, hence that of the whole food chain. The wish was that MTT should play a more active role in the formulation of strategies for developing competitiveness. One recommendation of the 1996 survey was to deepen cooperation with the environmental cluster, which is a successful, export oriented and fast growing business sector.

MTT's directors and managers were worrying about the risk of a loss in the scientific character of research under pressure to carry out production development for companies. The demand for rapid results also made the situation problematic. In fact, the cause of the companies' dissatisfaction was mostly about the lack of speed. The companies have a short schedule for realising research results, whereas knowledge production in a scientific setting has its own time-demanding procedures. One interviewee said that in his research area, company engineers had been set the objective of producing a new product and it must be marketable as early as next year. The implementation of the prevailing research practice made it impossible to meet these demands. There was another aspect of warring over such demands, too; through profound search, yet more productive solutions could be found. According to the research expert, these would guarantee the company's success in the long run. The expert states with a rather frustrated tone of voice:

The research is going around and around trivial problems...let's try this, and that. After a year the results are reviewed and it's all nonsense! (Middle management b)

The company might also have special expectations of the outcomes. It could happen that after the research had been completed and the final results were available, they did not support expectations. Conflicts might appear and steering group meetings were needed to solve the problems. These aspects can be noted in the following citations:

The company had invested much, expecting the special factor to be of great importance, but the research didn't back that up. The researchers were asked at least not to point out that the factor had no impact. This caused a conflict.” (Middle management a)

For directors and managers, handling the conflicting demands of different stakeholder groups meant a continuous balancing act. The issue included guaranteeing the future knowledge base and scientific level. Another aspect was linked to the choice of actual research issues. In the case organisation, most managers tried to guard the scientific part and most of the knowledge workers succeeded in negotiating the parts of the basic research into the research project, if these were justified for joint venture research with company financing. This created the opportunity to provide profound knowledge accumulation in connection with the responsive project, and thus mitigated the conflict between science or the public task, and the short run goals of the companies.

Demand for ‘new openings’

Some of MTT’s managers felt that the governance of basic budgetary resources was not adequate. They were worrying about the input for innovative activities and resource allocation for risky but potentially new areas. This worry is expressed in the following citation:

...we have this permanent budget...it should be used for this kind of preliminary research and efforts to discover something new...now we have the opposite situation – the budget funding is being used for the most routine tasks.” (Management of research team)

The directors’ wish was that the strategy could express clearly how the budget funding should be allocated. A subunit manager said that at the operative unit level, the allocation of basic funds was made according to future core areas in which they were trying to build top research units. In order to achieve effective outcomes, research should be started using basic budgetary resources. The basic and promising preliminary work would guarantee a wider interest in the issues and a broader coalition of financiers – both public research financiers and companies – and future utilisers of the final outcomes.

5.3.2 Managing the conflicting demands of the external stakeholder groups

How were the different demands of the different external stakeholder groups taken into account? How did the key research actors operate under the

pressure of handling competing companies and their demands for rapid and positive research results, and balancing these with the ethical demands of scientific work? The next citation illustrates a director's sound attitude towards conflicting demands:

I have an experience of my own from ten years ago. I made a statement, and they didn't like it. Remarks were made at the highest level of the company and by the Ministry, too. It's exciting that the same people tell me now that I was right then! (Middle management a)

From the managerial point of view, the most demanding task in handling cooperation with the companies was to bring competing companies from the same sector into the same research project, as stated earlier. As a consequence, there was most often only one company party in a joint research project. However, some research areas had succeeded in creating trust even among competing companies. MTT's negotiator in such circumstances must be able to argue the topic and convince the parties of the benefits that would ensue. The independence conferred by governmental status was seen to promote coalition formation as shown in the following citation:

We are an independent node, in a way, and have the merit of being an objective party that is able to link two different commercial stakeholder groups in an intelligent fashion. We have also adopted the role of mediator, in the peat sector for instance." (Middle management b)

There were also examples of where it had been possible to react to demands for rapid results, in one instance where farms were linked to the research process by telecommunications. Short-run success was possible because research was able to respond rapidly if data from farms showed up problems.

The way in which to manage the balancing act described in the knowledge intensive governmental organisation was to provide, strengthen, maintain and possess profound expertise in the selected areas. Combined with the knowledge worker's assertiveness and skills of argumentation, expertise conferred the power to make the society's long run needs apparent to customers, and linked their point of view to the whole. Both profound expertise and skills of interaction formed the base from which to expand the research coalition, making it possible for it to comprise more than one customer stakeholder (company stakeholder). The larger the coalition, the more objectives of different stakeholder groups could be coordinated and combined, and the better the output of basic governmentally financed resources. This kind of cycle led to opinion leading based on profound

research. Then the research organisation operates as a change force, and as an actor of change and real development in the society.

5.3.3 Managing internal stakeholder groups, knowledge workers: knowledge intensity and public sector employment

Lane (1993, 3-51) deals with the issues of the motivation of public employees and the status of public interest. He argues that public employees orientate towards tasks within the public sector in terms of vocation or a sense of duty to fulfil the obligations of their roles. Public employees act as the agents of the citizens, as their principals.

The public role and authority create work motivation for the knowledge workers in spite of the governmental compensation policy. Salaries in governmental research organisations in Finland are lower than those in the general labour market in corresponding professions. In fact, salaries in research organisations are even lower than the general level of compensation in governmental professions.

Despite the level of compensation, MTT's knowledge workers were satisfied with working at MTT. According to the personnel satisfaction surveys, the knowledge workers are one of the most satisfied personnel groups in terms of the content of work. When asked for their opinions about overall enthusiasm, independence, challenge, and the potential to affect decisions concerning their work, the average score on a scale from 1 to 5 was 4.2 (1999) and 4.3 (1996).

The motivation of knowledge workers in the case organisation is expressed in the following citations:

The idea that this year we have to sell more than last year is not sufficient motivation...it's flat. But if you are able to perform a little larger task for the firm, it makes us important. (Middle management a)

The knowledge workers' motivation stems from the fact that their work has the potential to affect the development of the agricultural, horticultural, environmental and food sectors in the country. There are potential and real possibilities to have an effect at the international level, too.

A deep enthusiasm for other contextual factors, for instance, the character of public employment, may cause conflicts between management and an internal stakeholder group, namely knowledge workers. One expression of the stakeholder conflicts becomes visible in the knowledge intensive organisation where the key experts occupy permanent posts as civil servants. Knowledge workers may concentrate on maintaining the scientific level of the research

and go very deeply into some scientific details perhaps forgetting the wider contexts of the research in question. This was referred to earlier when dealing with factors which restrict the development of relationships between MTT and companies. The next citation shows a solution that has been found to the problem:

Continuously, we have this civil servant culture. We should start to open up to the world and acquire financing, but the researchers easily curl up and keep and clutch at the old activities. I try to affect this by delegating responsibility...at first the [budget] resources are divided evenly... at least in the first phase for everybody, and then it's possible to acquire more [from external sources]. If one will not do more, then he or she must be satisfied with a smaller part, but the greater use of basic resources is not permitted. (Middle management b)

In 1998, changes were in the case organisation's management structure. Then, the MAF nominated an expert from the business world as Chairman of the Board of Directors. This caused anxiety amongst the knowledge workers – they expressed their concerns about the future of conducting their public and scientific tasks. A representative of MTT's central administration was told that the researchers have become unhappy and was asked: *“Why is the Board composed of a majority of non-doctors?”*

The nomination of a representative of the business world as Chairman of the Board of Directors was a message to MTT to redirect activities to serve business. It was, in a way, a statement of the fact that the publication of scientific and professional papers on research outcomes was not in itself enough. They are semi-finished products rather than practical benefits for companies.

5.3.4 Conclusion on managing different stakeholder groups

The knowledge intensive governmental organisation of this study had been faced with a paradigm shift in its operational premise. In order to carry out its national task it had had to widen the starting point of its research activities – besides being knowledge worker driven, the research must also be society driven and customer driven. Research must satisfy the long term needs of the society and the short term demands and expectations of (real, physical) customers. How to manage these conflicting tasks that should be enacted simultaneously was a constant problem.

The directors and managers worked continuously under a kind of conflict of pressures emanating from the different stakeholder groups. In addition to

MTT's directors' and managers' experiences of the difficulty of managing different stakeholder groups, the problematics were apparent also in stakeholder satisfaction surveys.

Stakeholders' satisfaction was first examined in connection with strategy formation in 1985. The emphasis was on defining the priority areas of the agricultural research, but MTT's ability to serve different stakeholder groups and the societal interest was evaluated, too. In 1992, the focus was predominantly the same – the clarity of the mission and objectives, the allocation of services and the societal impact. In later surveys, an evaluation was made of MTT's ability to identify forces for change, on cooperation, the know-how of the knowledge workers and MTT's role in the society.

Stakeholders appreciated MTT's *will* to serve and *efforts* to develop its service capability. The most satisfied stakeholders were interested in scientific expertise, the reliability of results, the ethical conduct of research, and physical resources. In addition there were excellent examples of success in management concerning individual projects. The stakeholder group 'advisory or extension services' was also content with MTT's research.

In spite of all the efforts made to increase effectiveness, including MTT's reorganisation of research into Research Programme Areas, the overall stakeholder satisfaction survey showed a level of dissatisfaction in 2002:

The majority of the stakeholders does not challenge MTT's know-how – in some areas it's considered top in the world...The science community is the exception – it does not consider the agricultural research to be of high quality, still less innovative, especially in terms of research institutes. MTT conducts research on the basics of traditional basic agriculture. MTT's organisational image has improved recently yet the traditions are seen as a burden. Instead of high-quality basic knowledge, innovative and easy to put into practice adaptive knowledge and solutions are required. MTT's function need not be changed, but research has to be allocated according to the needs of the sector. The starting point of activities must be MTT's real effectiveness as a part of the food chain. (Stakeholder Study, 2002)

The transition in the finance base is challenging to research management at all national levels, from that of the Ministry to the self management of individual knowledge workers. It was observed in this study that the deep knowledge intensity became weaker as a result of the changes described. Simultaneously with increasing entrepreneurship (using the term to describe the procedures of research financing applications and result reporting), a sort of independence, but also uncertainty, could be seen regarding the wish for stricter coordination. Those working in the front line of the research seemed to be longing for a little deeper guidance from organisational level management

as to research guidelines, priorities and even operative objectives combined with consistent resource allocation.

It can be argued that the change in the basis of governmental research financing is breaking the traditional autonomy of the knowledge workers or knowledge intensity of knowledge intensive governmental organisations. Chasing research funding and making research project applications has caused much work with no value added, because 'overselling' is the way to guarantee a certain level of financing from external sources. All the extra work in the earlier phases of research is eating into the capacity for completion and finalisation of research projects. This results in fewer, especially scientific, publications and a loss in productivity and performance.

6 DISCUSSION

6.1 Summary of the key results of the study

6.1.1 The relevance of the stakeholder theory in the knowledge intensive governmental organisation

The purpose of the study was to search for the answer to the research question: *How relevantly and adequately does the current stakeholder theory describe the complexity of stakeholder management and the conflicting demands of the different stakeholder groups in a knowledge intensive governmental organisation?*

It was studied by locating the key concepts developed for the stakeholder management of business firms in the context of a knowledge intensive governmental case organisation. The concepts studied were 'firm' and 'stakeholders'. They are suitable for knowledge intensive governmental organisation to the following extent.

The knowledge intensive governmental organisation 'as a firm'

The stakeholder theory implies that the goals of the firm are survival and growth. *The goals of the knowledge intensive governmental organisation are: the high quality of knowledge (scientific knowledge), responsiveness, and social responsibility. Responsiveness and social responsibility form the societal impact* (Figure 11).

One of the conclusions of this study is that the features that constitute the knowledge intensive governmental organisation as a 'firm' differ drastically from those of business firms. The most remarkable difference concerns the expression of goals. In the case of a knowledge intensive governmental organisation the core goal is the *quality of knowledge*. It creates the basis *to respond to* the actual needs and desires of customers as well as to be *responsible* for the long term well-being of the society. Together with the quality of knowledge, *responsiveness* and *social responsibility* – the last two forming *societal impact* – are the goals in this kind of organisation. Thus, the

meaning of the concept ‘survival’ is different in the governmental organisation from that of a private company. It can be seen as a function of these variables: the quality of knowledge and the societal impact. In the governmental context, the concept ‘social responsibility’ means the positive long run development of the society for which the governmental organisation in question is responsible, for its own part. The other side of social responsibility is to take care of the governmentally financed organisation’s social task by using the taxpayers’ money in a responsible manner. Ethical responsibility is presumed to be present in all governmental activities.

‘Stakeholders’ in the knowledge intensive governmental organisation

The stakeholder theory implies that all the firm’s stakeholders are important – not just the owners. *This is relevant in the knowledge intensive governmental context, too, but the role of a single stakeholder group may be more versatile compared with that of a business firm.*

Like business firms, *the strategic stakeholders are customers who make financing or buying decisions for research. In this study, the primary stakeholders are termed the stakeholder group that is linked to the research process (‘first front adapters’).* (Figure 12)

Relationships between the case organisation and its major stakeholder groups were studied and interpreted. The stakeholder groups ‘science community’, ‘companies’ and ‘public research financiers’ were examined. Numerous successful relationships exist between the case organisation and the stakeholder groups. However, there are specific factors for knowledge intensive governmental organisations that enhance or restrict cooperation with a single stakeholder group, as described in Table 11.

The stakeholder termed ‘science community’ may act as a co-operation partner to produce knowledge products and services for consumers and citizens. In another context, it may act as a competitor for scarce research funds. The stakeholder termed ‘company’ may act as a research financier, but also plays the role of genuine ‘customer’ once the research has been accomplished and the results can be applied in the company’s production processes. The stakeholder termed ‘public research financier’, such as the MAF, has a role of owner through governmental budgeting procedures, but plays the role of a customer, too, through assigning funding for single research schemes. The stakeholder termed ‘knowledge workers’ has not been dealt with in the stakeholder literature, only stakeholder ‘personnel’.

As it is a question of a relationship, there may be wishes or at least some qualifications concerning the stakeholders, too. Stakeholder theory may appear too one-sided in emphasising the duties of an organisation in its cooperation with its stakeholder groups. High expertise – though it is the basis of the

cooperation and elicits trust – does not alone seem to guarantee success in the relationship. As to the science community as a stakeholder group, it is essential that the parties are in balance in terms of know-how, albeit in different areas and potentially completing each others' know-how. Cooperation with companies is most successful if they are willing to participate in the national challenge carried out by the knowledge intensive governmental organisation. This is often the case, if the company also has its own research function, and personnel with a scientific education. The key success issue concerning cooperation with public research financiers is the scientific knowledge workers' possibilities (high expertise combined with the skills to make it explicit) to affect the research guidelines of the public research financiers.

6.1.2 Complexity of management

Two different 'Stakeholder management' processes

The core of the stakeholder management is that stakeholders must be involved in interactive processes with the firm's management. This is relevant also to the knowledge intensive governmental organisation, but interactive processes differ from those of business firms. In addition, different stakeholder management processes may occur within one organisation. *Two kinds of stakeholder management process were identified. 'Knowledge based (national) production management' (A) means that the case organisation's research is conducted with a tight connection to Finnish agricultural and horticultural production (Figure 12). 'Traditional knowledge production' (B) means the common production of research knowledge without a concrete connection to the national production processes (Figure 13). This finding challenges the prevailing stakeholder theory in the following respect: in the stakeholder management process 'Knowledge based (national) production management' (A) the stakeholder approach has been developed to its ultimate extent, i.e. the knowledge production of the knowledge intensive organisation has been linked to the production processes of the stakeholder group. Thus, knowledge has become one factor of production of the stakeholder group. Moreover, in that kind of stakeholder management process, a basic principle of the stakeholder theory has been fully applied, namely that of *interaction with the stakeholders and integrating the issues of multiple stakeholders.**

The management processes between the case organisation and its stakeholder groups were identified, examined and linked to the system of concepts. The difference between the two management processes based on the intensity of cooperation with stakeholder groups was identified. These

processes are composed of phases, some of which can also be seen as individual processes with their own management.

A typical feature of the stakeholder management process ‘Knowledge based (national) production management’ (A) is that it is very tightly intertwined with current agricultural and horticultural production processes and thus with the stakeholders (even online) in Finland. The transfer of research outcomes is taking place simultaneously during the research process, and, on the other hand, problems concerning production practices can also be dealt with without delay. The management mode is proactive and knowledge-based opinion leading, which results in real changes and progress in the practices of the industries in question.

The other type of management process, ‘Traditional knowledge production’ (B), includes the same phases as the first mentioned, but the contents of some of the phases vary in comparison. The latter is conducted further from practical agricultural and horticultural production processes or from food industry processes. The management mode can be characterised as traditional research management. It is active, but mostly its starting points originate from only traditional sources. The monitoring of forces of change builds on the knowledge workers’ own previous knowledge or what has been studied abroad (based on publications and conference proceedings). The outcome will be new knowledge, new or improved production methods or production systems, which are reported in scientific or consultative publications.

Following the completion of a research project, the research results are released in publications, seminars and at press conferences, and thus provided for utilisation. This concerns especially new knowledge, and new or improved production methods. Innovations may be offered to companies or SMEs for manufacturing or service production. The negative outcome in the ‘traditional knowledge production’ management process is that it is impossible to clarify how widely the new knowledge has been disseminated and what its actual impacts were. The evaluation can only concern how the research plan has been fulfilled and how the research has been conducted. It is worth noting that the traditional process does not automatically produce the transfer of knowledge and innovations. It is mainly a question of the dissemination of results, which refers to the transfer of the results to entities not participating in the research or development project (Silvennoinen 1996, 39).

Rogers (1995, 5) uses the term ‘diffusion’ and defines it as the process by which an innovation is communicated through certain channels over time among the members of a social system. Davenport & Prusak (1998, 101) speak about knowledge transfer and define it as transmission plus absorption and use. Transmission is sending or presenting knowledge to a potential recipient. If knowledge is not absorbed, it has not been transferred. Merely making knowledge available is not yet transferring it. Access is necessary but

not sufficient to ensure that knowledge will be used. The goal of knowledge transfer is to improve a stakeholder organisation's ability to carry out its activities successfully, and increase value for it. Even transmission and absorption together have no useful value if the new knowledge does not lead to some change in behaviour. Silvennoinen (1996, 129) recommends using various forms of cooperation between research organisations and firms, and formal and informal mechanisms of technology transfer in achieving strategic goals.

The proposals of the earlier stakeholder management research and the findings of this study are shown in Table 13.

Table 13: The proposals of the earlier stakeholder management research and the major findings of this study.

Core concept	Earlier research	This study
Firm (goals)	Goals are those of stakeholders. Working for stakeholders' goals results in long term survival for the firm.	Goals are: High quality of knowledge, responsiveness & social responsibility (societal impact). Survival is the consequence of success in goals.
Stakeholders	Stakeholders, for which the firm has financial, legal, ethical & philanthropical responsibility.	Most important single stakeholder groups – science community, companies, and public research financiers – have versatile roles.
Stakeholder management	Interactive processes between firm & stakeholders. Integrating issues & stakeholders.	There are stakeholder management processes of two kinds in the case organisation: Research is intertwined with the production processes of the national food business sector (knowledge based national production management, A) New knowledge produced is reported in publications (traditional knowledge production, B)

Balancing conflict

The complexity of the stakeholder management as a consequence of different demands and expectations of stakeholder groups was studied, an objective of which was to discover what these demands were and how the different demands of the stakeholder groups were taken into account.

The stakeholder group 'science community' emphasises a thorough, profound and qualified orientation to agrifood research, which means that achieving research results is time demanding. The stakeholder group 'companies' need short run research results in order to be able to utilise them in their production processes and marketing as soon as possible. Conflicting problems due to the different stakeholder demands are solved case by case as they are faced.

The basic conflict due to different goals lies between the science community and the companies. Scientific goals aim to explain the causes and consequences of phenomena in order to gain long term national and global benefits. Companies' interests, on the other hand, most often lay in short term benefits.

The way to balance the conflict is to provide, strengthen, maintain and possess profound expertise in the selected areas. Combined with the scientific knowledge worker's assertiveness and skills of argumentation, expertise confers the power to make the society's long run needs apparent to customers and will link the customer's point of view to the whole. Both the profound expertise and skills of interaction also constitute the base from which to expand the research coalition, making it possible for it to comprise more than one customer stakeholder (company stakeholder). Thus, the research organisation operates as a change force, and as an actor of change and real development in the society.

The internal stakeholder group 'knowledge workers' are independent and self-managing. A growing proportion of the knowledge workers begin to transform themselves from traditional governmental officials to knowledge workers like internal entrepreneurs.

The change in the basis of governmental research financing is breaking the traditional autonomy of the knowledge workers, which may mean that managing knowledge workers in these organisations becomes easier.

Despite successful cases in the governance of conflicting demands of different stakeholder groups and improved manageability of knowledge workers, the impacts were not visible in the overall stakeholder satisfaction surveys.

6.2 Framework for the stakeholder management in the knowledge intensive governmental organisation

6.2.1 Framework based on the present organisational structure

This study produces a framework for stakeholder management in the knowledge intensive governmental organisation (Figure 14). The framework is the product of studying the knowledge intensive governmental case organisation in the light of the core concepts of the stakeholder theory based on the existing literature, through which the relevance of and the relationships between these concepts were described. The framework summarises how different stakeholder groups are managed in this kind of context.

The engine that keeps the activities of the governmental research organisation running is scientific knowledge or scientific expertise. It will be nurtured by the international and national science community. The values of the agricultural and food sector are shared nationally and even internationally. The focus is on rural vitality, the competitiveness of the food sector, good quality food for consumers, and environmental issues. Thus, the science community as a stakeholder group is exceptional, in the sense that it is *a research partner*, together with which the value added is produced for the sector in question. The process of producing knowledge has its starting point in that. Knowledge workers possessing exceptional expertise have the ability to identify and interpret the world in terms of their knowledge. They are expected to provide an idea of what is “around the corner”. This basic knowledge, *the intellectual capital of the knowledge workers*, is the driving force behind the current knowledge producing process.

The public research financiers are the buyers of the research outcomes. They are the *customers* for the research and make the decision whether to buy or not to buy. As an exception to the normal buying process, the public research financiers allow the science community to have an influence on the formation of the areas of priority through different hearings. This *interaction* linking the knowledge workers’ and financiers’ knowledge and experience is important, though the final financing decisions are made from competing research applications. The public research financiers have taken on the role of formulating integrative issues, around which

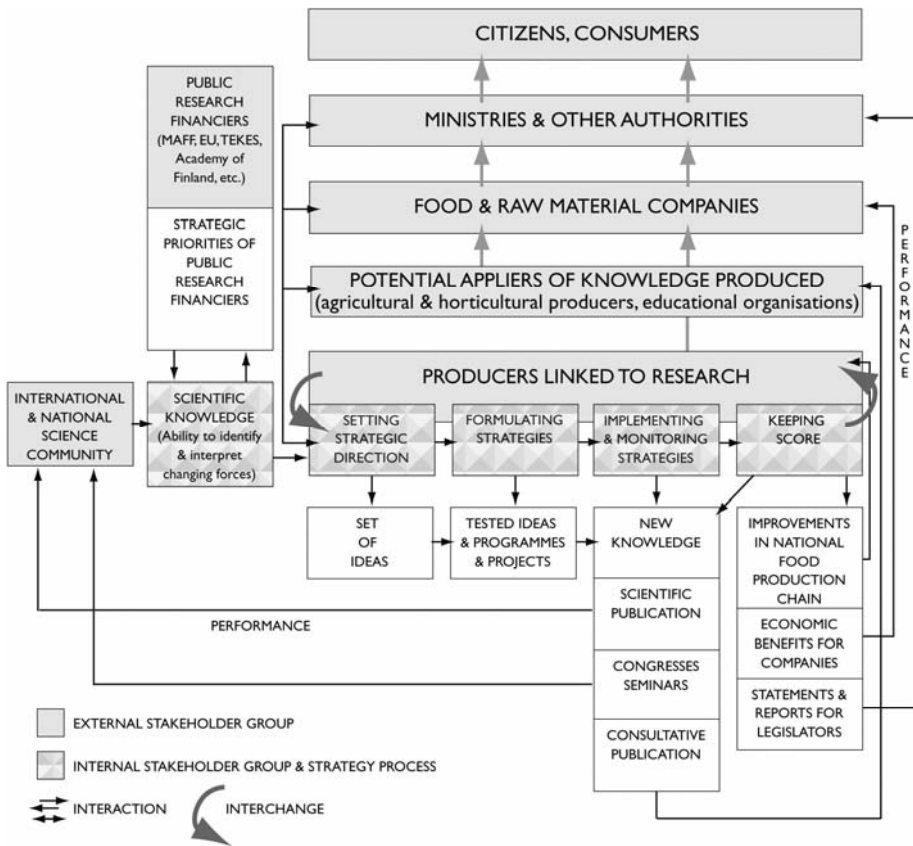


Figure 14: The framework of stakeholder management in the knowledge intensive governmental organisation.

different kinds of actor (research organisations, companies) are able to build joint research programmes. As to the ministries maintaining the research organisations, they are also their *owners*, providing the basic financing capital in addition to project and programme based joint venture financing.

The agrifood knowledge producing process may be *traditional*, which is to say that the research process produces knowledge through experiments, and the results are made available in scientific publications for the science community and consultative publications for the potential appliers in practice. So the mode of operation is *first publication, then application*. Another way to conduct the research is to link the research institute and the current agricultural and horticultural production processes with each other – even on an online basis. Then the research serves *as national production management*. The typical pattern for this mode of operation is that *first an application arrives, then a publication*.

In the latter mode, there is continuous exchange between the organisation and the stakeholder group. Instead of the concept ‘interaction’, which according to Freeman (1984) is the key mode of action in stakeholder management, this study launches the concept ‘interchange’. It represents the deepest form of the stakeholder relationship, where the organisation and its stakeholder group have ‘melted together’, nevertheless preserving their independent character.

In addition to the ‘first front utilisers’ or ‘early adopters’ linked to the knowledge producing process, there is *interaction* between the research organisation and the other stakeholder groups i.e. potential utilisers of knowledge (agricultural & horticultural producers, educational organisations, companies, and ministries and other authorities). This interaction takes place at least in the starting and concluding phases of the knowledge producing process, and often in the duration of the research project, too, in the form of steering group meetings. Companies have a dualistic role; besides being the *utilisirs* of knowledge produced, they are financiers, hence *customers* justified in expecting economic value added from their investment in the research. This study implies that there may be companies that participate in financing even the basic research – participating in the national task – with the anticipation of the realisation of benefits in the long term.

As shown in Figure 14, the agrifood knowledge production process produces outcomes in every process phase. Once the strategies have been implemented and monitored, the score has to be looked at. Has the research organisation provided outcomes or performance for every stakeholder group, evidencing successful stakeholder management? As mentioned above, the science community has been enriched with scientific publications and potential utilisers of knowledge have been offered consultative publications. The knowledge in those is the basis for expert statements and reports that knowledge workers give to administrative authorities who enact laws and regulations.

As a performance outcome of the agrifood knowledge production process, new knowledge improves the national food production chain. It does so immediately if the current food production chain is linked into the research process, or with a delay, if the application comes about through publications and seminar presentations made by knowledge workers. Ultimate performance is the quality of the environment, safe and healthy food, and all the public good filtrated through the actors in the space of stakeholder management to the welfare of citizens and consumers.

6.2.2 Framework of the reformulated organisational structure

The discussion about the role of Finnish governmental research organisations emerged in the last half of the 1980s. As in other European countries, the initiative came from national research authorities (in Finland, the State Council for Science and Technology) and ministries. The traditional operating mode of the research organisations – research based on scientific premises alone – was challenged; the research should have a real utiliser, too. The change in the financing structure, decreasing direct governmental budget financing and increasing financing from diversified sources, caused confusion in research management. “Who in fact are the customers of the research?” is a question often asked.

The knowledge intensive governmental organisation has one of the most interesting and challenging management tasks. It has to be able to manage the stakeholder map, which includes stakeholder groups with opposite and yet still legitimate objectives. Stakeholder groups are in continuous competition for the focal organisation’s resources, but an undesirable situation occurs when an urgent or assertive stakeholder group makes itself heard above others and is therefore seen as more legitimate or powerful than less assertive stakeholder groups (Mattingly 2004, 101; Rowley & Moldoveanu 2003, 207; Friedman & Miles 2002, 15-16; Scott & Lane 2000). Every group should be offered services without creating a disbenefit for another group.

This study showed that there are single cases where the management of the conflicting demands of different stakeholder groups was successful. Yet many of the directors and managers consider the prospects stemming from the current mode of action to be alarming. In a market push environment, the risk is that basic research into biological phenomena will be allocated too few resources. This creates a negative loop – if scientific expertise and an understanding of the basics decline, the fewer possibilities overall will exist to serve the society in the future with new products and ideas for new business. As a stakeholder group, companies have a different perception of MTT’s organisational identity – it should be there to respond to their current problems.

With regard to the practical management of a knowledge intensive governmental organisation, this study implies *the necessity of managing different stakeholder groups from their specific premises. The different – even opposite – demands and expectations of stakeholder groups cannot be satisfied with the present science based organisational structure. The organisational logics have to be changed to become stakeholder group based.*

MTT’s current organisational premise is a *resource based strategy*. The organisational structure is built on the specific expertises of human capital i.e. in the sciences of animal husbandry, crop production, etc. The criteria behind

the structure are the same as when MTT was established in 1898 (Figures 8 and 9), and do not seem to be relevant in the 2000s as examined in terms of the satisfaction of stakeholder groups, directors and key experts. Neither did working with the Research Programme Areas for two years have an effect on overall satisfaction among stakeholders.

A science based organisational structure was justifiable when there were few stakeholder groups i.e. farmers and the science community. The broad diversity of the stakeholder groups in a governmental context must be factored in and put at the heart of the strategy: different stakeholder groups must be served with the diversified services or products relevant to their needs. That practice is best located in the organisational structure supporting the strategy and implies diversifying into new markets or new lines of activity. The view that the strategy is the starting point of the organisational structure is also supported in the literature (Chandler 1987, 3; Mintzberg, Ahlstrand & Lampel 1998, 35, 317-318; Noda & Bower 1996). Organisational structure has to follow strategy. The development of strategy and the design of structure both support the organisation as well as each other.

The rationale for the restructuring is that different stakeholder groups require different modes of action – *the interface between the knowledge intensive governmental organisation and each stakeholder group is different*. Efforts to succeed in serving different stakeholder groups using a uniform model cause internal confusion and friction, which decreases the overall performance. The proposed organisation structure of three operational units, the comparable stakeholder groups and the performance is shown in Figure 15.

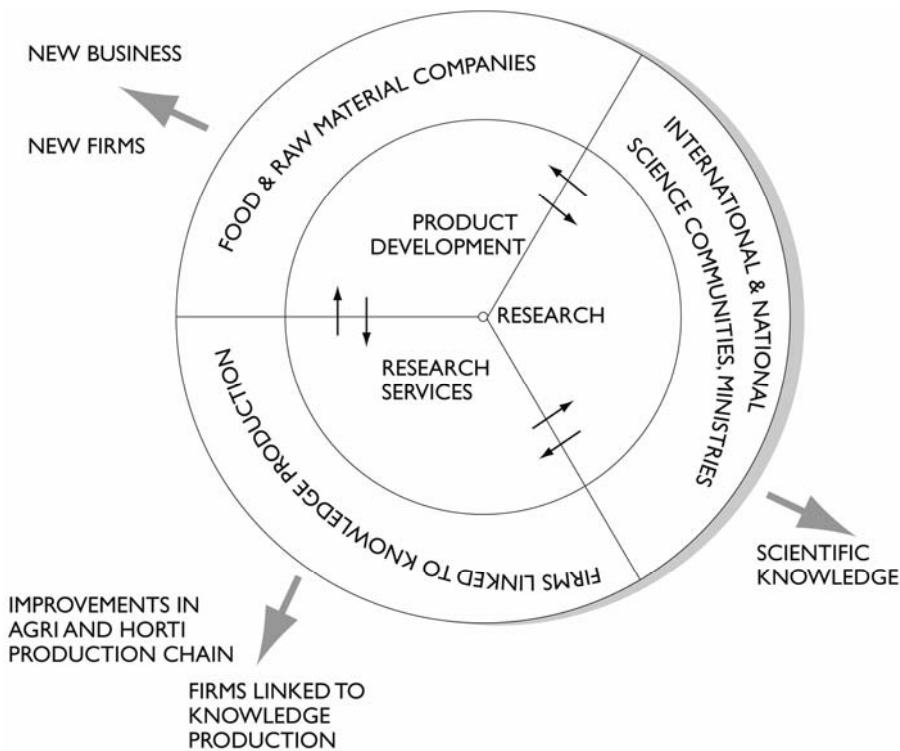


Figure 15: The structure of the knowledge intensive organisation implied by the study.

The organisational unit 'Research' has 'Science Community and Ministries' as its stakeholder groups and the performance produced is 'Scientific Knowledge'. Ministries and other authorities utilise it i.e. in legislation. The organisational unit 'Research Services' has the stakeholder groups 'Firms Linked to Knowledge Production'. The performance produced is better agripractices, 'Improvements in Food Production Chains'. The organisational unit 'Product Development' serves 'Food and Raw Material Companies'. Product development produces 'New Business' for prevailing companies, probably 'New Firms'.

The organisational unit 'Research' is multidisciplinary with the characteristic of perseverance where profound research is conducted and movement to new and unfamiliar research areas takes place. Knowledge workers strive together with other knowledge workers in multidisciplinary research groups, mainly on an international basis. Results are published and the impact of the publications in the international scientific community constitutes the performance of a single knowledge worker.

Two other organisational units base their work on that of 'Research', combining insights and results from different disciplines. Here the knowledge workers' performance combines the practical applications of research, patents, the use of new techniques, transfer of knowledge, etc.

In order to function, the organisational structure requires its premise: *the flow of knowledge and information between the organisational units*. This must involve the systematic circulation of the experts between the different organisational units, and this circulation is one way of learning. It increases understanding of the work of another research unit, and of creativity. This is justified with Senge's (1992, 40-42) arguments of 'prisoners of the system and prisoners of our own thinking'. He argues that different people in the same structure tend to produce similar results. Leverage often comes from new ways of thinking.

In the prevailing organisation structure, the working atmosphere was negatively influenced or sometimes even disturbed by the different financing bases of employees. Persons financed by external, short period project and customer funds felt themselves to be 'second class personnel' when compared with employees with permanent, budget funded governmental posts. Their posts were often temporary, but they felt – because they worked at the customer interface – that MTT's most important results were their merit. The organisation structure presented here is supposed to strengthen also the personnel's view, namely that different working orientations – scientific and customer oriented – are expected and accepted. This should result for all the employees in the same status being attached to their post. Another thing is that the performance to be produced will determine in general how the working possibilities develop.

6.3 Theoretical contribution

6.3.1 Contribution to the stakeholder theory

The stakeholder theory has been developed for implementation in business firms. The lesson of the theory is to take into account other stakeholders than only the shareholders, because of their justified rights towards the firm. The stakeholder theory has a conceptualisation of its own, which in this study was applied in the public, non-profit governmental context. Consistent with Flak & Dertz (2005), it can be stated that applying stakeholder theory in the public sector has practical value because of its ability to handle the complex settings

and environments that most often characterise public sector organisations. The theoretical contributions produced in this study to the stakeholder theory are:

- 1 *New knowledge about the relevance of the core concepts of the stakeholder theory in a special type of organisation, namely a knowledge intensive governmental organisation.*
- 2 *Identification of ‘a black box’ in the stakeholder management process of the stakeholder theory: In addition to ‘interaction’ also ‘interchange’ between an organisation and its stakeholder groups is possible.*
- 3 *Identification of ‘a black box’ that in its ultimate form means the organisational structure has to be changed according to stakeholder groups, in order successfully to serve the different, even opposite, demands of stakeholder groups.*

It can be concluded that stakeholder theory and stakeholder management are not relevant in public organisations *in the sense* that the profit maximisation goals required by shareholders do not exist. In fact, the public sector way of organising activities now includes the basic features of stakeholder management that point up the need to serve stakeholders. The difference lies in the fact that service users are the primary stakeholders, as the ‘owner’ stakeholder does not expect to see a profit. The owner expects high quality services for every member of the society in need of service (Carr & Pihlanto 1997, 14). There is a tendency in the society for leading business firms to adopt the service attitudes of public organisations (the normative aspect of the stakeholder theory), while public organisations are adopting a market-orientation like business organisations (new public management).

As the stakeholder management responds comprehensively to the issues of the organisation’s strategic management, the relevance exists to apply it in the governmental context. The core concepts of the stakeholder theory, ‘firm’, ‘stakeholders’ and ‘stakeholder management,’ are relevant in the knowledge intensive governmental context, too. Yet there are some differences compared with the business context. According to the principles of the stakeholder management, the goal of the firm is survival, which is gained through responding to stakeholders’ needs and expectations. In the knowledge intensive governmental organisation the goal is not unambiguously *survival*, but to maintain and increase high expertise, *scientific knowledge*, from which *responsiveness* and *social responsibility*, here referred to together as *societal impact*, are generated. Thus, merely responding is not enough. The knowledge

intensive governmental organisation has to 'see around the corner'. If it succeeds in producing societal impact, it will survive.

The true practice of stakeholder management, such as linking the stakeholders' production processes with the organisation's own processes, exceeds Freeman's vision of the optimal management of stakeholder relationships. Simultaneously, the boundary between the organisation and the stakeholder has become vaguer and organisations have in a sense unified, while at the same time preserving their basic character.

6.3.2 Contribution to the knowledge intensive perspective in organisation theory

The knowledge intensive perspective in organisation theory points out the specific features that appear in organisations which produce knowledge products and services using the knowledge workers' knowledge as the factor of production. This study contributed to the knowledge intensive perspective in organisation theory in the following way:

- 1 *It was identified in which kind of processes knowledge products and services are produced in a special type of knowledge intensive organisation, namely a knowledge intensive governmental organisation.*
- 2 *New evidence was produced about the independence of knowledge workers in a knowledge intensive governmental organisation.*
- 3 *It was identified that the traditional autonomy of knowledge workers is being broken down by the changes in the financial basis of knowledge intensive governmental organisations.*

The key actors in knowledge intensive organisations are knowledge workers. In an optimal situation, the high expertise of knowledge workers complies with the needs and demands of stakeholders. In a governmental context, their scientific knowledge and expertise is the ability to identify and interpret changing forces. That confers power potential, which legitimises the position of knowledge workers to act as change agents in the society. Simultaneously, and due to acting as governmental officials, high expertise may increase knowledge workers' autonomy.

Hatch (1997, 102-103) defines 'fit' as a successful strategy that brings what the organisation can do into alignment with the needs and demands of its environment. In knowledge intensive organisations, this 'fit' is often decided

by knowledge workers, because of the intertwining of strategic and operative management (Mintzberg 1983b, Nurmi 1998, Kirjavainen 1997; 281,286). Shared and consistent strategy is hard to formulate, because the strategies are often the sum of the individual strategies of autonomous knowledge workers. This study exposed the issue that among the knowledge workers, the shared strategies are longed for in order to safeguard the buying of research projects of public research financiers.

It has been shown earlier (Troberg 1999, 209) that the basic feature, knowledge workers' autonomy, can be broken by management models such as joint ownership. This has a link with the finding of this study – conducting knowledge work in the manner of an entrepreneur decreases autonomy.

This study integrated the stakeholder theory with the knowledge intensive perspective in organisation theory in a governmental context. It presented a re-structured organisation model for the knowledge intensive organisation based on the principles of the stakeholder theory.

6.3.3 Summary of the theoretical contribution

The starting point of this study was the conceptual framework formulated about the basics of the stakeholder theory and the knowledge intensive perspective of the organisation theory, and the structural and stakeholder context of the case organisation (Figure 16). Figure 17 summarises the theoretical contribution of the study.

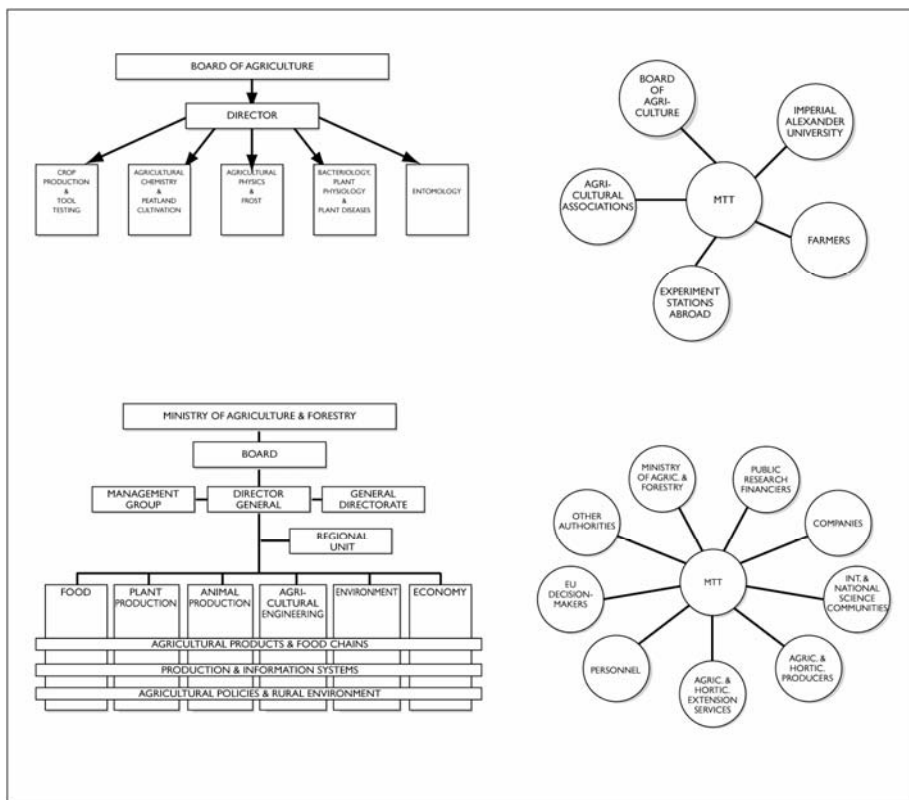


Figure 16: The structural and stakeholder context of the case organisation.

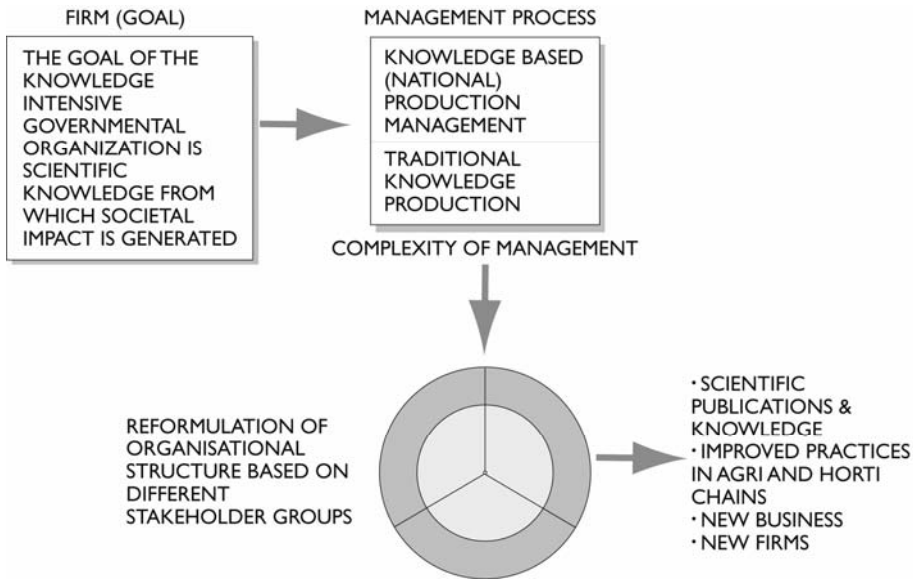


Figure 17: Summary of stakeholder management in a knowledge intensive governmental organisation.

Instead of the goals of growth and survival represented in the stakeholder theory, the goal of the knowledge intensive governmental organisation is scientific knowledge. This is the foundation on which the societal impact will be built.

Intraorganisational conflict due to the diverseness of the stakeholder map makes the management process complicated. Two different orientations towards the stakeholder management exist. The organisational structure modified according to the primary stakeholder groups seemed to bring clarity to the management and performance perceivable for different stakeholder groups.

6.4 Evaluation of the study

In qualitative research, a study is valid if it truly examines the topic which it claims to have examined (King 1994, 31). As the criteria for judging the quality of the research the construct validity, external validity and reliability of the study are assessed (Yin 1984, 40-45).

Construct validity

The issue of validity concerns the whole research process – how the conceptual, methodological and empirical elements have been brought

together. Qualitative studies are criticised for a lack of scientific orientation. Operational measures and data collection are argued to be based overly on subjective judgments.

However, there are means by which to increase validity in qualitative research. Construct validity can be improved by using multiple sources of evidence, a form of *triangulation* that was implemented in this study (Chapter 4.5). The most important source of evidence was *interviews* conducted with 29 key persons in the case organisation. *Documentation material*, the stakeholder satisfaction surveys, personnel surveys and the international evaluation, were employed in this study as sources of confirmatory data.

Weber stated in 1949 that all research is influenced to some extent by the researcher's values. The researcher's *participant observation* – working for and being an actor in the case organisation from 1981 to 2003 (Appendix 6) – has lent perspectives and views, the pre-understanding, which has influenced the decisions and choices concerning the utilisation of the abundance of the data. Miles and Huberman (1984, 233) warn about 'the researcher effects' when conducting case studies: the effects of the researcher on the site and the effects on the site on the researcher. In order to avoid biases, they recommend that the researcher e.g. stay on site as long as possible. The risk of researcher effects has been eliminated in this study by the natural intervention in normal working situations in the case organisation.

Moreover, *the chain of evidence* was kept complete. The existing pre-understanding of the phenomenon as the object of interest led to the utilisation of existing theoretical starting points, stakeholder theory and the knowledge intensive perspective in organisation theory (Table 7). The questions for the interviews were formulated consistently from the conceptual framework (Figure 2). First, the interview material was transcribed and stored in a database management system (Yin 1984, 98 -102 and Appendix 7). Then the interview material was reduced to main categories, those of the characteristics of firm, stakeholders and stakeholder management. Classification was achieved by listing the opinions of the interviewees according to the themes discussed. After that, within a category, similarities and differences were sought, classified and organised, and the preliminary interpretation of the data could be made (Figure 12, Table 11, Figures 13 and 14).

The preliminary interpretation adduced from MTT's internal sources was complemented by the external stakeholders' opinions collected in stakeholder satisfaction surveys. Once the findings of the study had become obvious, a seminar for the key informants or interviewees of the study was organised in May, 2003. The draft of the study report from the theoretical starting points to the outcomes was presented to the audience, after which an active discussion arose. Complementary notes were given to the researcher, but the researcher's observations and interpretations of the case organisation's reality were

accepted. Thus, the seminar served as a kind of trial or test bed. After that, the final conclusions were drawn (Figures 15 and 16).

The link between the evidence and theory was achieved by comparing the findings of the study to the proposals made in the stakeholder theory and in the knowledge intensive perspective of organisation theory. This dialogue between the conceptual framework and the empirical findings was continuous throughout the research process.

In the final phase of the study, *MTT's present Director General* reviewed the draft of the study report. The reviewing and the common seminar were regarded an adequate overall review of key informants.

External validity

External validity deals with the problem of whether a study's results are generalisable. There is an implicit assumption that it is desirable to make generalisations. Where quantitative studies try to answer the questions 'how much', 'how often' and 'how many', qualitative studies seek to find mechanisms that one suspects will also exist in other organisations (Gummesson 1991, 78). It is stated that single case studies cannot be generalised. Yin (1984; 21, 43) points out that it is a question of *analytical generalisation* when we are dealing with the issue in qualitative research. That means striving to generalise particular findings to theoretical propositions or even a broader theory.

In this study, there was one case organisation, but in practice there were several cases within the 900 person organisation. There were nine organisational units, but in the units themselves there were several teams with different ways of working. Thus, in fact, there were in effect 27 cases (three of the 29 interviewees represented central administration). This provided the study with rather comprehensive views regarding the stakeholder management in a knowledge intensive governmental setting.

This study produced new theoretical knowledge and proposals, which could no doubt have wider importance in management practices, too. This could be described as *the stakeholder theory of the knowledge intensive governmental organisation*.

Reliability

Reliability deals with data collection. If another researcher were to follow exactly the same research procedures with *the same case* described by an earlier researcher, and conducted that same case study again, the later researcher should achieve the same findings and conclusions. The study should be conducted in such a way that the reader could draw his/her own

conclusions (Yin 1984, 45; Gummesson 1991, 80). The goal of reliability is to minimise the errors and biases in a study.

The process of knowledge formation in the study is presented in Figure 3. The choice of the methodological approach and case organisation are presented and justified. The documentation of all evidence used has been attached to the report (Appendices 3–7).

The question of reliability is also one of whether the research data have been sufficient and whether the merging of the data from different sources has been successful. The perspective of this study was that of the management, and the interviews of directors and managers served as the central data source. These reflected ‘the management’s pain’ which was consistent with ‘the pain’ of certain stakeholder groups as they experienced not having been served by MTT. The 29 interviews were carried out comprehensively throughout the organisation, but no doubt yet more evidence would have been gathered if the number of interviews had been larger. A source of risk to reliability could occur in that the external stakeholder groups were not interviewed specifically in connection with this study. However, it was considered that the stakeholder satisfaction surveys’ reports – consisting also of interviews with the representatives of the key stakeholder groups – timed both before and after the year’s of the management’s interviews, would provide the relevant insight into their opinions.

Despite the strict adherence to the principles of qualitative research, there is a risk that this special case of the researcher’s long period of work in the case organisation, and possibly also the researcher’s recruitment thereafter to another organisation, influences the reliability of the study. With regard to the researcher working at MTT, its positive effect on reliability was that she had complete access to the key information concerning the purpose of the study. One cannot avoid the fact that exposure to informal information during the period may have influenced the researcher’s attitudes and interpretations. For instance, comments made by MTT’s directors and employees in different settings – when queuing for lunch at the staff restaurant, or over lunch, during breaks in strategy and development seminars, etc. – have surely strengthened the researcher’s views. Moreover, the researcher was among those personnel preparing decisions and producing information in developing strategies, annual planning, budgeting, performance measurement and reporting. Thus, the researcher was also an object of the stakeholders’ criticism and dissatisfaction, which they showed in stakeholder satisfaction surveys.

Finishing working at MTT and getting distance from it had a consequence in that the entirety of the phenomenon seemed to gain still more clarification. The release from thinking about and explaining problematic matters always to MTT’s best advantage, generated a sound value-free orientation to the research phenomenon. At any rate, it did not offend the lesson learned in the

course of research methodology that “the researcher must always love his/her research object”.

6.5 Suggestions for the future research

The suggestions for future research arise from the ‘black boxes’ in the stakeholder theory, questions about which remain unanswered after the findings of this study and await further research.

The focus of this study was the knowledge intensive governmental organisation and its *dyadic relationships with its stakeholder groups*. The findings extended the stakeholder theory of the business firm to the non-profit organisation. *Multiple, interdependent stakeholder relationships* were not under investigation. It is known (Rowley 1997, 888) that often the stakeholders form social networks with each other that may have a special impact on the focal organisation.

The balancing problem, the conflict caused by the different demands and expectations of stakeholder groups, has been and is a current issue in the life of a knowledge intensive governmental organisation. As a part of the stakeholder management of business organisations, Freeman (1984, 193-209) has dealt with the conflicts in the light of corporate governance and corporate democracy. Conflicts appear within the Board of Directors, within the ownership group, and also external attacks on the Board of Directors are possible. Corporate governance is a wide area of research in its own right (e.g. Leatherwood & O’Neil 1997, Clarke 1998, Hung 1998). It would be reasonable *to clarify with social network analysis the stakeholder relationships between the focal organisation and its stakeholder groups*. The research could be directed at searching out whether such relationships exist, and if so, how they affect the focal organisation and how it responds to them.

The second new research topic could be directed at the organisation’s stakeholders, in the sense that according to the stakeholder theory, the organisation’s goal is to help its stakeholders achieve their goals. *How have the stakeholder organisations of an organisation succeeded when cooperating with an organisation that carries out the stakeholder management?* Presumably some effects could be seen in their performance, if it were possible to inspect separately the effects of different factors.

The stakeholder theory points out the necessity ‘to keep score with stakeholders’. With regard to knowledge intensive governmental organisations, the problematics of measurement is a current topic and still unresolved, though research has been conducted. The third research topic could be: *How to measure the knowledge intensive governmental organisation’s performance produced for different stakeholder groups*. The

stakeholder surveys and international evaluations carried out in the case organisation present one possibility for studying performance (Appendix 2); but could the set of performance measures be expanded? Antila and Niskanen (2001) studied the impact of VTT's (Technical Research Centre of Finland) R&D activities using an enquiry methodology. An approach resembling the 'keeping score with stakeholders' procedure is presented by Spaapen and Wamelink (1999). They developed a method to measure the performance of agricultural research, producing performance profiles for each agricultural research sector. OECD (1994) has proposed standard practices for surveys of research and experimental development. In the US, the United States General Accounting Office has also clarified issues concerning research indicators (GAO, 1997).

The fourth object of study would be to clear up how the organisational restructuring which takes into account the different stakeholder groups' specific characters is to be carried out in practice. The research approach would be constructive in the sense that the final practical outcome should be working, and this should be tested during the research process (Kasanen, Lukka & Siitonen 1993, 244). The issue should be studied in all possible domains of management, addressing e.g. how the directorships, financing, financial administration, recruitment of present and new employees, learning and training, premises and equipment are to be implemented. Moreover, the study should concern the locations.

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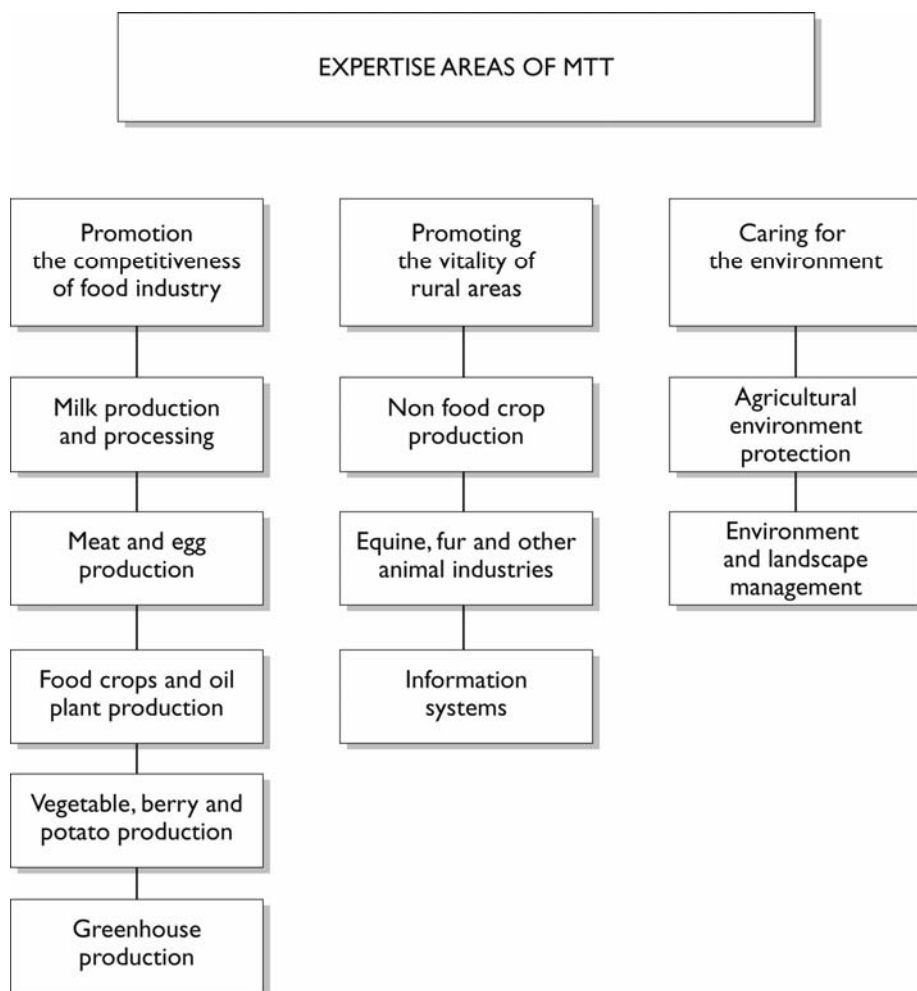
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APPENDIX 1. THE LOCAL CENTRES OF MTT IN 2003.



APPENDIX 2. EXPERTISE AREAS



APPENDIX 3. INTERVIEWS

Interviews

- Esko Poutiainen, Professor, Director General (22.12.1999)
Erkki Kemppainen, Professor, Research Director (28.9.1999)
Pirjo Kupila, M.Sc., Communication Manager (24.8.1999)
Maj-Lis Aaltonen, M.Sc., Librarian (12.10.1999)
Heikki Hakkola, M. Sc., Director of Regional Research Unit (10.2.1999)
Hannu Korhonen, Professor, Director of Food Research (25.2.1999)
Aarne Kurppa, Professor, Director of Plant Production Research (16.2.1999)
Sirpa Kurppa, Professor, Director of Environmental Research (17.2.1999)
Asko Mäki-Tanila, Professor, Director of Animal Production Research (1.3.1999)
Markus Pyykkönen, Professor, Director of Research of Agricultural Engineering (7.4.1999)
Martti Esala, Professor, Plant Production Research (9.4.1999)
Risto Tahvonen, Professor, Plant Production Research (9.3.1999)
Kari Tiilikkala, Professor, Plant Production Research (8.4.1999)
Matti Puolimatka, Ph.D., Principal Scientist, Plant Production Research (2.3.1999)
Tuomo Varvikko, Professor, Animal Production Research (19.3.1999)
Erkki Aura, Ph.D., Principal Scientist, Plant Production Research (8.6.1999)
Hannu Haapala, Ph.D., Principal Scientist, Research of Agricultural Engineering (12.2.1999)
Kaija Hakala, Ph. D., Principal Scientist, Plant Production Research (26.2.1999)
Pekka Huhtanen, Research Professor, Animal Production Research (11.2.1999)
Sirkka Immonen, Ph.D., Principal Scientist, Plant Production Research (9.2.1999)
Saila Karhu, Ph.D., Senior Scientist, Plant Production Research (9.3.1999)
Hannele Khalili, Ph.D., Principal Scientist, Animal Production Research (24.2.1999)
Esa Mäntysaari, Ph.D., Principal Scientist, Animal Production Research (19.2.1999)
Eeva-Liisa Ryhänen, Ph.D., Principal Scientist, Food Research (17.3.1999)
Jukka Salonen, Ph.D., Principal Scientist, Plant Production Research (25.3.1999)
Aila Vanhatalo, Ph.D., Principal Scientist, Animal Production Research (23.2.1999)
Markku Yli-Halla, Ph.D., Principal Scientist, Environmental Research (28.2.1999)

Oiva Nissinen, Ph.D., Director of Research Station (2.3.1999)

Oiva Niemeläinen, Ph.D. Research Scientist, Plant Production Research
(17.2.1999)

APPENDIX 4. INTERVIEW DISCUSSION THEMES

1. Introducing the study and the purpose of the study
2. MTT's goals (Stakeholder theory: What is the firm? What are the goals of the firm?)
3. Stakeholders of the research unit or the research team (Stakeholder theory: Stakeholder map)
4. Values of MTT and those of stakeholders (Stakeholder theory: Consistency of values)
5. Importance of the stakeholders and the exchange between MTT and the stakeholders (Stakeholder theory: Prioritizing of stakeholders, transactions)
6. Retention of stakeholders (Stakeholder theory: Retention of relationships)
7. Strategy process in the research unit; the general process and discussion of the research topics in the unit (Stakeholder theory: Stakeholder management processes. Theory of knowledge intensive firms: Autonomous strategies of knowledge workers)
8. Decision making concerning research topics (Theory of knowledge intensive firms: Autonomous strategies of knowledge workers)
9. Monitoring of the progress of the research, evaluating the results (Stakeholder theory: Measuring performance. Theory of knowledge intensive firms: Individual performance)
10. MTT's dependence on its know-how (Theory of knowledge intensive firms: Expertise, human capital)
11. Role of research management in achieving and maintaining a consistent strategy (Stakeholder theory: Consistency. Theory of knowledge intensive firms: Loose coupling)
12. Balancing the conflicting needs and desires of stakeholder groups (Stakeholder theory: Balancing conflicting expectations. Theory of knowledge intensive firms: Expertise)

APPENDIX 5. BACKGROUND DOCUMENTATION FOR THE STUDY

1. Documents of the Ministry of Agriculture and Forestry of Finland

Maataloustutkimus 2000. Maataloustutkimuksen tavoiteohjelma. Maa- ja metsätalousministeriö. Maataloustutkimuksen neuvottelukunta. Työryhmämuistio MMM 1987:10. (Agricultural Research 2000. The Strategy Programme of Agricultural Research. Ministry of Agriculture and Forestry. Advisory Committee of Agricultural Research. Memoranda of Working Groups MMM 1987: 10, written by Maritta Ylärinta)

Maataloudellisen tutkimuksen linjat 1995-2000. Maa- ja metsätalousministeriö, Maataloustutkimuksen neuvottelukunta. (The Priority Areas for Agricultural Research Policy in Finland for 1995-2000. Ministry of Agriculture. Advisory Committee of Agricultural Research).

Evaluation of the Agricultural Research Centre of Finland. Report of the Evaluation Panel. Ministry of Agriculture and Forestry. Department of Agriculture. MMM:n julkaisuja 5:1996. (Publications of MAF 5: 1996, written by Phillip Thomas, Gerard Goma, Arent Josefsen and Frank Raymond)

Maataloudellisen tutkimuksen tuloksellisuuden mittaaminen. Maa- ja metsätalousministeriö. Työryhmämuistio 4/1998. (The Measuring of the Performance of the Agricultural Research. Memoranda of Working Groups 4/1998, written by Maritta Ylärinta and Juhani Tauriainen).

2. MTT's internal documents

2.1 Strategy documents

Kohti uutta vuosisataa. MTT:n strateginen suunnitelma 19.3.1997, toimittanut Maritta Ylärinta. (Summary: Towards the New Century ed. by Maritta Ylärinta. 1997)

MTT:n tutkimuksen painoalat vuoteen 2010. 13.6.2001. (The Priority Areas of MTT's Research until 2010. 13.6.2001, written by Pentti Aspila and Ilkka P. Laurila)

2.2 Stakeholder surveys

Hans Mäntylä: Ulkoinen yrityskuva. Kesäkuu 1992. Helsingin Kauppakorkeakoulu. Yrityshallinto. 5.4.1993 (Hans Mäntylä: Organisational Image. June 1992. Helsinki School of Economics and Business Administration. 5.4.1993).

Elintarvikkeiden tutkimuslaitoksen asiakasprosessi. Tutkimus asiakastyytyväisyydestä. Helmi-maaliskuu 1995. SEDECON OY. (The Customer Process in the Food Research Institute. A Study on Customer Satisfaction. February to March 1995. SEDECON OY).

Tutkimus sidosryhmäsuhteiden kehittämistä. Raportti 10.12.1996. SEDECON OY. (Study on the Development of the Stakeholder Relationships. Report 10.12.1996. SEDECON OY).

Tutkimus sidosryhmäsuhteiden kehittämistä. Raportti 5.6.1998. Sedecon Consulting. (Study on the Development of the Stakeholder Relationships. Report 5.6.1998. Sedecon Consulting).

Sidosryhmätutkimus. Syksy 2000. Sedecon Consulting. (Stakeholder Study. Autumn 2000. Sedecon Consulting).

Maa- ja elintarviketalouden tutkimuskeskus. Sidosryhmätutkimus. Joulukuu 2002. Raportti 7.1.2003. Eera Finland Oy. (MTT Agrifood Research Finland. Stakeholder Study. December 2002. Report 7.1.2003. Eera Finland Oy).

2.3 Stakeholder surveys (number of persons answered to inquiry and number of interviewees)

Stakeholder group	Year							
	1985	1992	1995	1996	1998	2000	2002	Total
Farmers	14	166		-	-	-	-	180
Extension services	2	141		17	11	34	37	242
Companies	43			75	55	88	77	338
Science communities	90			44	46	42	65	287
Governmental Organisations	28			57	40	38	41	204
TOTAL	177	307		193	152	202	220	1251
In-depth Interviews		40 *)	33 *)	14 *)	24 *)	20 *)	16 **)	147

*) Persons from food and raw materials companies, extension services, farmers' unions, science community and ministries.

**) Influential persons in the society, e.g. Members of Parliament

2.4 Personnel surveys

Maatalouden tutkimuskeskus. Ilmapiiritutkimus. Marraskuu 1996. PA Consulting Group. (MTT Agrifood Research Finland. Study on Working Atmosphere. PA Consulting Group).

MTT. Ilmapiiritutkimus. Marraskuu 1999. PA Consulting Group. (MTT Agrifood Research Finland. Study on Working Atmosphere. PA Consulting Group).

2.5 Other documentation material

Pehkonen, A. – Poutiainen, E. – Sirén, J. – Tauriainen, J. Miten tutkimus voi hyödyttää maataloutta ja maatalouselinkeinoja. Suomen Maataloustieteellisen Seuran tiedote no 17. Helsinki 2000. ('How Research can Benefit Agriculture and Agribusiness'. The Scientific Agricultural Society of Finland. Helsinki 2000.)

Koelypsy. The Customer Magazine of MTT Agrifood Research Finland. March 2004.

Result Agreements between MTT and MAF, 1993–2003.

Four-year plans 1990–2003 (Toiminta- ja taloussuunnitelmat)

Annual Action Plans 1981c2003

Annual Reports 1981–2003

Protocols of the meetings of MTT's Board of Directors

Memos of the meetings of MTT's Management Group

Documents produced in the projects of Process Development (1994–1996,
2002–2003)

Personal notes in the meetings of MTT's Board of Directors and Management
Group

APPENDIX 6. MARITTA YLÄRANTA'S JOB DESCRIPTIONS AT
MTT AGRIFOOD RESEARCH FINLAND FROM 1981
TO 2003.

<i>Function</i>	<i>Description of responsibility area</i>	<i>Date</i>
<i>Administrative Director.</i> Member of Executives, Member of the Management Group	Strategic management, performance management, human resource management incl. collective bargaining	From January 1 st 1997 to May 31 st 2003
<i>Director of Administrative Unit.</i> Member of Executives, Member of the Management Group	Development of MTT's management and leadership (especially strategic management and its processes), collective bargaining, leadership and management of the unit.	From March 1 st 1995 to December 31 st 1996
<i>Manager of Administrative Office</i>	Management of unit. MTT's budgeting and economic planning, human resource management including collective bargaining, development of management and leadership.	From January 1 st 1987, to February 28 th 1995
<i>Researcher</i> (Assignment of the Ministry of Agriculture and Forestry)	Strategic plan for Finnish agricultural research	From April 1 st 1985 to December 31 st 1986
<i>Specialist</i> in Administrative Office	Coordination and development of MTT's research planning and personnel training. Editor of annual action plans and reports.	From 5 th July 1981 to March 31 st 1985

APPENDIX 7. CONTENTS OF THE CASE STUDY DATABASE

1. Plan for the case study

Purpose of the research and research questions

Conceptual framework

Design of the process of knowledge formation

Case study questions

Plan for data analysis

Research schedule

2. Materials concerning data collection

List of interview discussions (Appendix 1)

List of background documents (Appendix 2)

List of interview themes (Appendix 3)

Documentation from interview situations

Interview transcripts on electronic media and paper

Lists of MTT's stakeholders

3. Materials concerning data analysis

Lists of citations of interview transcripts coded by the management level

Lists of citations of interview transcripts coded by the core concepts

Charts of similarities and contradictions within each domain under investigation

**TURUN KAUPPAKORKEAKOULUN JULKAISUSARJASSA A OVAT
VUODESTA 2005 LÄHTIEN ILMESTYNEET SEURAAVAT JULKAISUT**

- A-1:2005 Satu Rintanen
The Establishment and Development Directions of Corporate Environmental Management – Case Studies in Italian and Finnish Meat Processing Sector
- A-2:2005 Seppo Määttä
Strategian ja strategisen informaation tulkintahorisontteja. Case Valtiovarainministeriö
- A-3:2005 Olli Järvinen
Privacy Management of e-Health. Content Analysis of 39 U.S. Health Providers' Privacy Policies
- A-4:2005 Markus Orava
Internationalisation Strategies of Knowledge-Intensive Professional Service Firms in the Life Sciences
- A-5:2005 Birgitta Sandberg
The Hidden Market – Even for those who create it? Customer-Related Proactiveness in Developing Radical Innovations
- A-6:2005 Lotta Häkkinen
Operations Integration and Value Creation in Horizontal Cross-Border Acquisitions
- A-1:2006 Anne Vihakara
Patience and Understanding. A Narrative Approach to Managerial Communication in a Sino-Finnish Joint Venture
- A-2:2006 Pekka Mustonen
Postmodern Tourism – Alternative Approaches
- A-3:2006 Päivi Jokela
Creating Value in Strategic R&D Networks. A Multi-actor Perspective on Network Management in ICT Cluster Cases
- A-4:2006 Katri Koistinen
Vähittäiskaupan suuryksikön sijoittumissuunnittelu
Tapaustutkimus kauppakeskus Myllyn sijoittumisesta Raision Haunisiin
- A-5:2006 Ulla Hakala: Adam in Ads: A Thirty-year Look at Mediated Masculinities in Advertising in Finland and the US
- A-6:2006 Erkki Vuorenmaa: Trust, Control and International Corporate Integration

A-7:2006 Maritta Ylärinta: Between Two Worlds – Stakeholder Management in a Knowledge Intensive Governmental Organisation

Kaikkia edellä mainittuja sekä muita Turun kauppakorkeakoulun julkaisusarjoissa ilmestyneitä julkaisuja voi tilata osoitteella:

KY-Dealing Oy
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