



Agility and Organizational Infrastructure in an Institutional Context

Master Thesis Human Resources Studies

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Abstract

The concept of organizational agility is a relatively new topic in scientific management research. Organizational agility is predicted by three competences: a scalable workforce, fast organization knowledge creation and a highly adaptable organizational infrastructure. This study focuses on the last one: a highly adaptable organizational infrastructure. Firm similarities and differences with regard to the organizational infrastructure for agile organizations are compared.

Previous research has mainly focused on the process within organizations in relation to organizational agility. By studying the effects of differences in market pressure and institutional pressure, this study tries to take into account of the environment as well.

In total, five case studies are presented by an inductive, case- oriented process that is appropriate to function as a starting point for further research on this relatively new topic.

Keywords: Organizational Agility, Organizational Infrastructure, Institutional Context, Case study

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1. Introduction

The song from Keane (frame 1) describes the negative feelings that could have been caused by constant environmental changes. The song illustrates how hard it is to adapt or even change oneself regarding all these constant changes coming from the world that people are living in.

Organizations nowadays face the same sorts of problems and difficulties caused by highly dynamic environments with which they must cope. In order to survive and flourish over the long run, organizations have to find a way to deal with these dynamics. For that reason, the question how to survive in such dynamic environments has become a recurring theme in organizational literature.

A relatively new topic related to this theme is *organizational agility* (Goldman, Nagel & Preiss, 1995). Organization agility can be defined as the ability of an organization to rapidly change in order to realign (Nembhard & Qin, 2010; Botanni, 2009). The idea behind organizational agility is that if an organization want to survive in a highly dynamic environment, an organization need to develop a built-in capacity to shift, flex and adjust, either alone or with alliance partners as circumstances change (Morgan, 1997).

By following the logic that organizations need to be agile to survive in a highly dynamic environment (Nembhard & Qin, 2010), organizations need to find a way to achieve such organizational agility. In this perspective, Teece, Pisano & Shuen (1997) argue that “learning”, “coordination and integration” and “reconfiguration and transformation” are the keywords for a successful organizational and managerial process to become and stay agile. These keywords however, are rather abstract. In order to make it more concrete, the keywords can be translated into three different competences for organizational agility, namely 1) a scalable workforce, 2) fast organizational knowledge creation and 3) a highly adaptable organizational infrastructure (Teece et al., 1997; Nijssen & Paauwe, 2010).

The first competence as a requirement for organizations operating in a dynamic environment is “a scalable workforce”. This competence is based upon the keywords “integration and coordination”. Dyer & Ericksen (2006) describe it as the organization’s capacity to get the right numbers of the right types of people to the right places at the right times.

However, having a scalable workforce can also lead to a disconnection in the social infrastructure which is important and necessary for knowledge creation. For that reason, the second competence that is needed in order to survive in a dynamic environment is “fast organizational knowledge creation”. Organizations need to actively stimulate the sharing of information and

Frame 1

KEANE

So little time

*Try to understand that I'm
trying to make a move just to
stay in the game*

*I try to stay awake and
remember my name*

*But everybody's changing
and I don't feel the same*

knowledge through the organization, as well as with its partners and collaborators (Dyer & Shafer, 2003).

Besides the scalable workforce, Dyer and Ericksen (2006) mention in their article the importance of a highly adaptable organizational infrastructure. Dyer & Ericksen (2006) state that an adaptable organizational infrastructure is a prerequisite for successful workforce scalability. The paper by Nijssen & Paauwe (2010) goes even further, by posing that 'a highly adaptable organizational infrastructure' should be seen as a competence in itself.

For the present study the ideas of Nijssen & Paauwe (2010) are followed stating that a highly adaptable organizational infrastructure should be seen as the third competence. But although Nijssen & Paauwe (2010) found some confirmation in literature (Mintzberg, 1992; Volberda, 1998; Dyer and Shafer, 1998) about organizational infrastructure in relation to organization agility, the question on how to interpret the term 'highly adaptable organizational infrastructure' is still a bit unclear. For that reason the purpose of the present study is to further investigate the concept of a highly adaptable organizational infrastructure. More research on this concept is needed, particularly since there are only a few studies done and existing studies done on this specific topic show several theoretical and methodological weaknesses.

Theoretically, organizational infrastructure as a topic itself is a much longer studied topic compared to organizational agility. As a result many definitions of organizational infrastructure can be found in literature (Volberda, 1998; Mintzberg, 1979; Mintzberg, 2002). Despite the centrality of the concept 'organizational infrastructure' in organizational research, only limited research has been done on 'a highly adaptable organizational infrastructure'. More insight is needed in what specific characteristics of highly adaptable organizational infrastructure can be linked to organizational agility and how to interpret them.

Furthermore, most of past research has focused on the processes within an organization, such as the above mentioned competences in relation to organizational agility (Teece, Pisano & Shuen, 1997; Dyer and Ericksen, 2006). Although this focus is not wrong, the problem is that it is incomplete, because the dynamics in an environment and the behavior of organizations are also influenced by changes coming from 1) market pressures, such as the change in customers' demand and 2) institutional pressures, such as the rules and law for labor set by the government (DiMaggio & Powell, 1983; Paauwe, 2004). The differences in market pressures and institutional pressures for organizations might influence the way an organization is structured. Therefore a more comprehensive understanding is required on how firms deal with pressures from dynamic environments instead of only focusing on the organizations' inside processes. This paper tries to

address to the dynamic environment, by taking market pressures and institutional pressures into account as well.

Next to the theoretical problems, methodologically the research topic has not yet reached maturity since there are not a substantial number of empirical studies conducted. By doing more research the concept could eventually reach maturity. The present study will add to the process of inducing theory by using case studies. Given the strengths of this theory- building approach and its independence from prior literature or past empirical observations, case studies are particularly well-suited to relatively new research areas (Eisenhardt, 1989).

Finally, existing literature about organizational agility has been developed and tested mostly by cases within the manufacturing field (Nembhard & Qin, 2010). However it is important to do a study that captures more organizational fields than solely the manufacturing industry. Therefore, in the present study three different organizational fields are used: broad cast industry, engineering industry and high- tech industry (where the last one can be seen as a manufacturing business).

To summarize, the purpose of this paper is to come to a better understanding of the concept of a highly adaptable organizational infrastructure. In order to do so, the aim of the present study is to find out which characteristics of organizational infrastructure can be linked to organizational agility. Moreover, the market and institutional pressures will be considered as possible determinants for organizational infrastructure. In order to do so, the present study construes findings based upon five case studies. The cases that will be used concern organizations operating in different industries facing different institutional pressures and market pressures.

By doing so, this paper will add to the richness of organizational agility and organizational structure research which is currently very limited as far as organizational agility is concerned (Nijssen & Paauwe, 2010). Furthermore by linking specific characteristics to the concept of a highly adaptable organizational infrastructure this research could help organizations to create a highly adaptable organizational infrastructure in order to become or stay agile by using the characteristics as a guideline to design or refine their infrastructure.

Based on this thought, ideas and theories mentioned above, it will lead to the following research question:

1.1 Research Question

“Which organizational practices (characteristics) determine a highly adaptable organizational infrastructure for agile organizations?”

This overall question can be seen as the basis for this study. Besides the main question, two more specific sub questions are used as a starting point for this study.

Sub questions:

-What are firm similarities or differences in characteristics that determine a highly adaptable infrastructure for agile organizations?

-In what way does institutional pressure and market pressure have an influence on organizational infrastructure aimed at establishing or strengthening agility?

Overview Paper

The structure of the paper is as follows. In the next chapter (chapter two) a review of the literature on organizational agility, organizational infrastructure and market and institutional pressures will be given to serve as the basis for a heuristic framework and the formulation of three propositions. In chapter three the study methods are described, including all methodological aspects of the present study. In chapter four the findings are presented and in chapter five the conclusion and discussion will be given. The final section offers the limitations of the research and draws implications and suggestions for further research in chapter six. The main conclusions with the implications of the present study for practice can be found in chapter seven. At the end of the paper the appendix and reference list will be presented.

2. Theoretical Framework

2.1 A Highly Dynamic Environment

As competition intensifies and the pace of change accelerates, firms are increasingly confronted with environments that require flexible and quick responses (Volberda, 1998). In such dynamic environments, many organizations have troubles and sometimes even fail, because of the rate of change in their market places outpaces their organizational capacity to follow and keep up (Foster & Kaplan, 2001). For that reason, various literature streams have contributed to the development of knowledge about organizations operating in a dynamic environment.

Dynamics in an environment are caused by changes resulting from market pressures and institutional pressures. The first one, market pressures refers to the changes in the environment coming from *changes in the market* (Eisenhardt & Martin, 2000), for example a high unexpected shift in customers' demand. Such pressures result from a situation where market boundaries are unclear and good business models are hard to identify because there are different players: suppliers, buyers and competitors within the market (Eisenhardt, 1989). The second one refers to the changes in the environment coming from *institutional pressures* (Williamson, 2000), for example a collective bargaining agreement where all rules are set by labor law. A combination of these two pressures is used in the present research to explain the causes of dynamism. This is based upon the assumption that the first one (market) does not exclude the second one (institution) and that it is therefore better to use a combination of both views to define the whole concept of "dynamic environment" (Eisenhardt & Brown, 1998).

In literature, many scholars have attempt to address the level of dynamism in terms of various variables. Some examples are: the capacity that an organization has to grow or remain stable in the market, the degree of turbulence and stability of the environment, the complexity of environment and the rapidity with which the events evolve (Duncan, 1972; Ansoff & Sullivan, 1993; Dess & Beard, 1984). According to Nijssen & Paauwe (2010), the findings of all former authors can be captured by the following three characteristics of dynamism: the degree of change that is hard to predict, with a high rate and with significant impact that heightens perceived uncertainty for key organizational members. For the present study this definition is used to conceptualize environmental dynamism. Concretely, this means that the three variables: High rate of change (1), A high level of unpredictability (2) and a High impact (3) are used to describe the level of environmental dynamism for the different cases used in this study.

Beside the characteristics of a dynamic environment, the importance of how employees perceive the level of dynamism is also something that must be taken into account (Boyd, Dess &

Rasheed, 1993: Duncan, 1972). According to Boyd, Dess and Rasheed (1993) the perceived level of dynamism, determines how employees react in terms of actions they make regarding organizational structures and processes. For that reason, the focus for this study is on perceived environmental dynamism. This means that although the actual level of dynamism in the environment might be low, when an actor perceives the level of dynamism as high these perceived perceptions are leading, since it is assumed that the perceived perceptions will determine how employees act and what practices they choose.

2.2 The Agile Organization

In literature focused upon organizations operating in a highly dynamic environment, there is a growing attention for a relatively new topic called: Organizational Agility. The simple idea of organizational agility is that if an organization wants to survive in a highly dynamic environment, it needs to be agile (Nembhard & Qin, 2010). An organization can be seen as agile when the organization strives to develop a built-in capacity to shift, flex and adjust, either alone or with alliance partners as circumstances change (Morgan, 1997). Agile organizations are constantly trying to optimize their adaptability and efficiency (Meilich, 1997).

Furthermore, Teece et al. (1997) say in their research that “coordination and integration”, “learning” and “reconfiguration and transformation” are the most important capabilities to create a successful organizational and managerial process in a dynamic environment. The concepts from Teece et al. (1997) can be seen as the basis to distinguish three different competencies for organizational agility (Teece et al., 1997; Nijssen & Paauwe, 2010) already mentioned in chapter 1: “a scalable workforce” (Dyer & Ericson, 2006), “fast organizational knowledge creation” (Dyer and Shafer, 2003) and a “Highly adaptable organizational infrastructure” (Dyer and Ericson, 2006; Nijssen & Paauwe, 2010). The focus of this study is on the last one: ‘a highly adaptable organizational infrastructure’ since literature about organizational agility and organizational structure is currently very limited (Nijssen & Paauwe, 2010). The aim of this paper, already mentioned in the introduction part, is to come to a better understanding of the concept of a highly adaptable infrastructure by searching for specific infrastructure characteristics for agile organizations. For that reason, the next paragraph is focused upon organizational infrastructure characteristics in relation to organizational agility.

2.3 Organizational Agility and A Highly adaptable Infrastructure

An overview of organizational infrastructure frameworks and characteristics that can be applicable for agile organizations is given in the next section. At the end of this section, based upon the

discussed theory, a summary of all relevant infrastructure characteristics is presented. This summary eventually results in the formulation of the first proposition for this research.

2.3.1 Mintzberg (1979 & 2002)

Mintzberg (1979) can be seen as one of the founders for conceptualizing organizational structure. In 1979, Mintzberg wrote a book on organizational structure and the coordination mechanisms that are linked to these structures. He divided five different structures: (1) simple structure, (2) machine bureaucracy, (3) professional bureaucracy, (4) divisional form and (5) adhocracy. The differences between these five structures are based upon the primary coordination mechanism, the most important part of the organization, the most important design parameters and situational factors. Mintzberg's five structures with their characteristics are presented in Figure 1.

Table 1: Five Structure, Henry Mintzberg (1992)

<p><u>Simple structure</u></p> <p>primary coordination mechanism: direct supervision</p> <p>the most important part of the organization: strategic top</p> <p>the most important design parameter: centralization, organic structure</p> <p>situational factors: young, small, not high technical system, dynamic environment, not sensitive for market trends</p>
<p><u>Machine bureaucracy</u></p> <p>primary coordination mechanism: standardization of work</p> <p>the most important part of the organization: techno structure</p> <p>the most important design parameter: formalization of behaviors, vertical and horizontal specialization of task, grouping by function, vertical centralization and limited horizontal decentralization, action planning</p> <p>situational factors: old, big, regulated, non-automated technical system, simple, stable environment, external control, not sensitive for market trends</p>
<p><u>Professional bureaucracy</u></p> <p>primary coordination mechanism: standardization of competencies (vaardigheden)</p> <p>the most important part of the organization: executive core</p> <p>the most important design parameter: training, horizontal specialization of tasks, vertical and horizontal decentralization</p> <p>situational factors: complex, stable environment, non-regulated, not high technical system, sensitive for market trends</p>

Divisional form

primary coordination mechanism: standardization of output

the most important part of the organization: Midsection

the most important design parameter: grouping by market, systems for control of output, limited vertical decentralization

situational factors: diversified markets, old, big, sensitive for market trends

Adhocracy

primary coordination mechanism: mutual adjustment

the most important part of the organization: supportive services and operational core

the most important design parameter: organic and flat structure, selective decentralization and horizontal specialization of tasks, combined grouping by market and function, Standardization of work processes/work outputs/work skills

situational factors: complex, dynamic environment, (often) young, advanced and automated technology, sensitive for market trends

Mintzberg (2002) argues that the design parameter by which the coordinating mechanism of direct supervision is built into the structure is determined by “grouping”. Grouping can be described as the way an organization chooses to divide all work among different elements within the organization. Or in other words, the structure of an organization can be defined as the total ways by which all elements in the organizations are grouped.

To put all above findings together, in a later study Mintzberg (1992) describes typologies for the environment of an organization. Using these results, for the present study the best organizational form that fits an agile organization is “adhocracy”. The situational factors like “complex” and “dynamic environment” that Mintzberg (1992) describes for this form are most matching with the characteristics and environment of an agile organization, as described in the introduction of this article. According to Mintzberg (1992), in an environment that is very dynamic with intensive forces, organizations are sort of forced to selectively decentralize work units, or in other words become an adhocracy. For that reason, in the following paragraph, the adhocracy form and the linkages with agile organizations will be discussed in more detail.

As table 1 already depicts, the most important coordination mechanism for an adhocracy is: mutual adjustment and the most important design parameters are: organic and flat structure, selective decentralization and horizontal specialization of tasks and Standardization of work processes/work outputs/work skills. These concepts will be briefly explained in the following subparagraphs.

Coordination Mechanism: Mutual adjustment

Mutual adjustment can be seen as a way to coordinate and regulate processes for organizational units. Mintzberg (2002) defines two different ways of mutual adjustment: “liaison devices” and “horizontal decentralization”.

Liaison devices can be seen as formal mechanisms that are meant to enhance and stimulate informal relationships. Liaison devices, such as task forces, teams and inter-functional committees, are used to break down functional barriers in order to make an organization more responsive and increase its problem-solving capabilities by encouraging informal lateral and vertical communication (Abernethy & Lillis, 1995). However implementing formal mechanisms for informal relationships also means that the organization is structuring extra aspects of the organization. By doing so, the chance exists that more structuring will limit organizations to adapt quickly in changing environments. For agile organizations a quick response when change occurs is highly needed to defeat troubles with the rate of change and the capacity to follow up (Foster & Kaplan, 2001). For that reason, it is assumable that agile organizations should use as little formal liaison devices as possible.

Instead of formal liaison, agile organizations should focus on trying to get a high degree of horizontal decentralization, which can enhance quick responses and faster organizational change. If there is a high degree of horizontal decentralization in an organization, it means the business units, project teams or employees working in such an organization are largely able to perform the work or the project they do independently of others (Mintzberg, 1979) and that they have a large amount of autonomy.

In sum, it can be assumed that agile organizations should try to limit liaison devices while they should try to generate a high degree of horizontal decentralization. In order to get a more comprehensive understanding of the above described general ideas of Mintzberg (2002), the design parameters for an adhocracy that Mintzberg (2002) proposes are discussed in more detail in the following paragraph. By using practical examples to link the parameters with agile organization characteristics at the end of each parameter, it is tried to make the parameters less abstract.

Organic & flat structure

According to Mintzberg an adhocracy is characterized by a very organic structure with limited formalization of behaviors. Furthermore, a distinction can be made between tall and flat structures. Mintzberg (2002) defines a tall structure as a structure with a long chain of authority and small groups per level. In contradiction, flat structures have fewer levels and larger workgroups per level (Mintzberg, 2002). Mintzberg (2002) stated that when an environment is highly dynamic,

organizations will tend to use a flat structure. In a highly dynamic environment, an organization will more easily change if the structure of the organization is flat and organic. Therefore, the organic and flat structure is also applicable for agile organizations. For example when a change in market demands occurs and the organization needs to change its production process as soon as possible, it is assumed that a flat organic structure will help the organization to change the production process more quickly, since there are only a few layers that need to be informed, approved and execute the change. In comparison, in a more tall structure with bureaucracy, more layers are involved which makes the authorization of a change more time consuming and not as quick in contrast to a flat organic structure.

Standardization of work processes/work outputs/work skills:

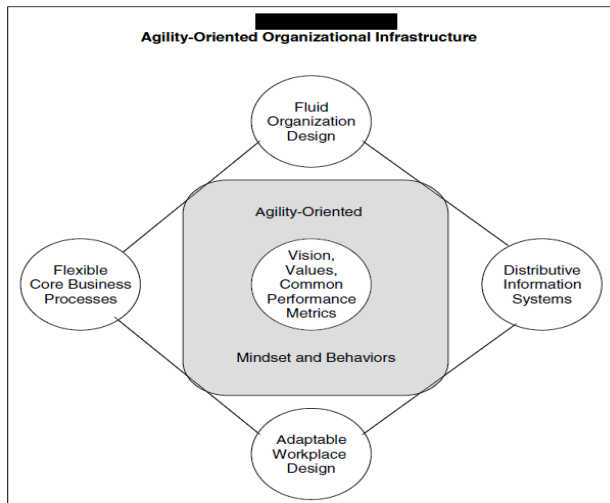
Standardization is a way of how work processes, work outputs and work skills are performed continuously in the same way. If an organization has a high degree of standardization, it can enhance the development of specialized routines. For example when an employee performs highly repetitive work, the same routine is constantly repeated and the likelihood to do this as efficient as possible becomes higher, since it is assumed that an employee will become better by constantly repeating the same tasks. But it also reduces the creation of dynamic capabilities since it limits the creativity and self-control of employees (Mintzberg, 1979).

In order to be innovative an organization cannot use a form of standardization as a coordination tool (Mintzberg, 2002). If a work process is standardized, it becomes more difficult to change the process or to think of new ideas to improve a process. Therefore, agile organizations should try to minimize the level of standardization.

2.3.2 Dyer and Shafer (2003)

In a later study more specifically focused upon the infrastructure for agile organizations, Dyer and Shafer (2003) argue that the structure of agile organizations is not really fixed. They state that the structure of an agile organization must be rapidly reconfigurable and for that reason structure must be seen on a temporary base. But in order to rapidly reconfigure for new structures, there are some general elements of structure for agility-oriented organizations that have to be present in order to be able to reconfigure and change. The former authors developed a figure (see figure 1) to illustrate that an agility-oriented organizational infrastructure consists of a stable inner core and a reconfigurable outer ring that contains four elements with certain common design principles.

Figure 1: Agility- Oriented Organizational Infrastructure (Dyer and Shafer, 2003)



The theory is that an agility- oriented organisation should have a fluid organization design, a flexible core business process, distributive information systems and an adaptable workplace design.

The first element, “a fluid organization design”, is characterized as a design that is flat (but not without some hierarchy), minimal formal authority, boundarylessness and teambased. These characteristics are build upon previous studies who argue that those are positive characteristics in order to adapt quickly in changing environments (Ashkenas, Ulrich, Jick & Kerr, 1995; Dove, 2001;Morgan, 1997; Youngblood, 1997). Instead of using very fixed structures, these characteristics allow fluidity; for example using temporary teams is easier accomplished in a design that is flat, boundarylessness, teambased and with minimal formal authority.

The second element is a flexible core business process. In order to strive for a flexible core business process an organization should only use routine in situations or tasks where it is absolutely necessary, otherwise they should have faith in employees” common sense and safety (Foster & Kaplan, 2001). By doing so, it is easier to change when necessary as there are no “standard processes” that need to be changed.

The third element refers to distributive information systems. Organizations should try to distribute the information that everybody should know in such a way that it is easily and painlessly to access (Dove, 2001). By providing information to all employees it will help to achieve agility as everybody is aware of the environment and possible changes.

The last element is an adaptable workplace design, which refers to an integrated portfolio strategy to deliver just the right amount and type of space, when and where it is needed, for only as long as it is needed. For example an organization should work with flexible meeting rooms, which can be used by all employees. An adaptable workplace requires equally adaptable and non- confining work places designs that help an organization to be more fluid (Dyer & Shafer, 2003).

Especially the principles for fluid organization design and flexible core business processes provide characteristics that are useful in the search for characteristics of a highly adaptable organizational infrastructure.

2.3.3 Volberda (1998)

Another important study to discuss is the study done by Volberda in 1998. Volberda (1998) developed a framework in order to explain what characteristics an organization must have to become a 'flexible organization'. At first sight, the framework does not seek to identify important practices for making organizations agile because it starts off from a perspective to make organizations flexible. But since the present study assumes that organizational agility is partly based upon creating flexibility, the framework is certainly relevant. The assumption that organizational agility is partly based upon flexibility is supported by the findings of a research from Nagel & Dove (1991). Nagel & Dove (1991) state in their research that flexibility (in manufacturing) goes hand in hand with creating the concept of agility. Therefore the present paper assumes that the concepts "flexible organization" and "agile organization" are related to each other which makes the information and findings from Volberda (1998) important for this study.

Volberda (1998) defines organizational structure as a broad concept that includes not only the actual distribution of responsibilities and authority among employees, but also the way an organization has structured its control and planning systems and the process regulations of decision-making. For his framework, Volberda (1998) made a list of general elements that according to him determine the infrastructure of an organization. He build his ideas upon the earlier studies done by Mintzberg (1979; 2002). The general elements that he used can be divided in three main categories: 1) the basic organizational form and distribution of responsibilities and authority, 2) The way planning and control systems are adopted in the company and 3) the process regulations. In order to make a distinction between a flexible and non- flexible organizational infrastructure, he specified all general organizational characteristics in the degree of presence for the respectively low flexibility potential structure (mechanistic) and the respectively high flexibility potential structure(organic). The results of his findings are depicted in figure 2.

Figure 2: Organizational structure (Volberda, 1998)

Actual structure	mechanistic (low flexibility potential)		organic (high flexibility potential)
	functional	divisional	matrix
Basic organisational form	function	product/service	target market
Grouping	many (tall structure)		few (flat structure)
Hierarchical levels	high		low
Functionalization of mgt.			
Planning and control systems	elaborate		rudimentary
Process regulations	high		low
Task specialization	high		low
• scope of task	narrow		broad
• depth of task	simple		complex
• interchangeability	low		high
Direct or indirect programming			
• standardization	high		low
• formalization	high		low
• training and education	low		high
Mutual adjustment	(routine)	(professional)	(craft)
• liaison devices	high		low
• horizontal decentralization	low		high
Regulation of decision making			
• delegation	low		high
• participation	low		high

As shown in figure 2, the right side of the table illustrates all the characteristics for an organic structure that organizations have to adopt in order to be flexible (Volberda, 1998).

The findings related to the first category, the basic form of the organization and the way responsibilities and authority are distributed, reveal that Volberda (1998) describes a flexible organization as being a flat organization with only a few hierarchical levels. This means that when having a flat structure, it becomes easier for a company to be more flexible. The idea behind this is that when for example a sudden change in the environment is noticed by an employee, it is easier in a flat company with only a few levels of hierarchy to reach all employees (including management) to make them aware of the sudden change and to take action. The description of a flexible organization as being ‘flat’ is also in line with the previous study presented above (Dyer & Shafer, 2003; Mintzberg, 1979/2002).

The second category, planning and control systems, refers to the way a flexible organization should manage their employees to make sure that everyone is doing their tasks. If an organization has strict schedules and operating plans, it means that all the work processes for employees are predetermined. For that reason, the planning and control systems for a flexible organization should be rudimentary according to the findings of Volberda (1998). By having only a rough system with regard to planning and control, the organization is able to leave some room to be more flexible when necessary.

The findings about the last category, the process of regulations, show that low standardization and low formalization will help an organization to be more flexible. The reason behind this, is that when standardization and formalization are high, it is difficult to “think out of the

box” and be flexible because the way of working is set by rules and standard forms. Furthermore, with regards to the regulation of decision making an organization should foster high participation in decision- making. By doing so, employees should be able to make own decisions in their daily work activities. This in agreement with Mintzberg who argued in his study that employees should be able to work on a project independently of others with a large amount of autonomy. Finally, the results from Volberda (1998) on mutual adjustment (also see theory part about Mintzberg) show that the scores are in line with the ideas from Mintzberg (2002): low on liaison devices and high on horizontal decentralization.

2.3.4. Donk & Molloy (2008) & Keegan & Rodney Turner (2000)

Another research topic that is important to mention in the search for infrastructure characteristics is research done on ‘project based team work’. Changes in work have encouraged the alignment of various functions with the strategy of the company and the elimination of layers of management. This evolution have led to the development of another new characteristic within organizations called: multifunctional teams (Gordon, 2002). In literature, there are different definitions that can be found to describe a team. For this study, it is important to define the term “team”, because otherwise one could have different ideas referring to the term “team”.

The following definition is used: A team is a formal group of people who work together on specific tasks or projects for a company. This is in contrast with an informal group, which arises spontaneously and may form around friendships or shared interests with colleagues in different formal groups (Gordon, 2002).

Donk & Molloy (2008) wrote an article around this topic with the title: “From organizing as projects to projects as organization”. They try to contribute to the theory of project based organizing as they argue that this topic is very under- explored. The idea of Donk & Molloy (2008) builds on the theory of temporary organizations. This theory states that projects can be defined as temporary organizations.

Using this theory as a starting point one could argue that a project-based structure can be seen as a structure where organizations works with multiple “small organization structures” at the same time. Donk & Molloy (2008) consider projects as organizations by using the work from Mintzberg (1979) as starting point to describe different types of projects: simple project, machine project, professional project, divisional project and adhocracy project. Time, task, team and transition are the four variables that explain the differences across projects (Donk & Molloy, 2008). According to Donk & Molloy (2008), the project management literature and organization design literature connect most obviously in an adhocracy project. Mintzberg (2002) included in his

description on adhocracy design projects as being examples of adhocracies. Furthermore, Keegan & Rodney Turner (2000) argue in their research that project-based working can help organization to be more flexible, they state that projects can help organizations to be more flexible for example with innovative activities. As it was already assumed that flexibility goes hand in hand with creating the concept of agility (see Nagel & Dove, 199) the findings from Keegan & Rodney Turner (2000) suggests that project-based working can help organization to become more agile.

Since only limited research is done on a project-based structure, it is hard to base assumptions since only a few studies can support these assumptions. But as the concept is also mentioned by Mintzberg (2002) for an adhocracy design and it was already assumed that an adhocracy is most suitable for agile organizations and the ideas of Keegan & Rodney Turner that team-based working makes an organization more flexible, the present study will include project-based organizing as one of the expected infrastructure characteristics for agile organization. In the next paragraph, an overview of all expected infrastructure characteristics is presented.

2.3.5 Characteristics Infrastructure for Agile organizations

Based on the above mentioned literature the most important infrastructure characteristics for agile organizations can be assumed as follows:

- Flat structure
- High degree of decision-making autonomy and minimal formal authority
- Minimal level of routines and standardization
- Low coordination
- Project- Based team work

Table 2: characteristics of Infrastructure for Agile organizations

	Flat Structure	High degree of decision making autonomy & Min. Formal authority	Minimal level of routines & standardization	Low coordination	Project- Based Team work
Mintzberg (1979;20002)	Organic, Flat	Distribution of power between managers and non-managers, both have influence on decision making	Minimize the level of standardization	Mutual adjustment: High horizontal decentralization Low liaison devices	Project- based is an example of an adhocracy (expected form for agile org)
Dyer & Shafer (2003)	Flat, but with some hierarchy	Faith in employees' common sense Min. formal authority	Routine, only when absolutely necessary	Not specifically mentioned	Team- work, although projects not specifically mentioned
Volberda (1998)	Organic, Flat	High degree of decision making autonomy Functionalization of management is low	Low process regulation and standardization	Mutual adjustment: High horizontal decentralization Low liaison devices	--
Donk & Molloy (2008) Keegan & Rodney Turner (2000)	--	--	--	--	Project- Based working Multiple projects

A summary of the characteristics can be found in table 2. The first proposition will be based on these assumptions.

PROPOSITION 1: *In an agile organization, the general characteristic of organizational infrastructure expected are as followed: flat structure, High degree of decision-making autonomy and minimal formal authority, minimal level of routines & standardization and low coordination and project- based team work.*

2.4 Institutional Context

The present study believes that it is important to focus not only on the organization, but also to pay attention to the environment. Tolbert & Zucker (1996) conclude their article with the following quote: “By highlighting the role of normative influences in organizational decision-making processes, institutional theory offers an important and distinctive extension to our repertoire of perspectives and approaches to explaining organizational structure”. By following this quote, in the present study the environment is taken into account by looking at the level of institutionalization that an organization have to deal with.

For this study the cases are selected based upon a variation in institutional context that an organization has to deal with (for more details about the selection of the cases see chapter 3 method, paragraph ‘sampling strategy’). The differences in institutional context are important as previous research state that many formal organizational structures are a result of institutional rules (Meyer & Rowan, 1977). Institutions in itself are comprised of regulative, normative and cultural-cognitive elements that together with associated activities and resources, provide stability and meaning to social life (Scott, 2008). The findings from Scott (2001) indicate that the level of institutionalization will have an influence on how the organizational structure is shaped. For the present study it is expected that a relatively low level of institutionalization leads to an organization with more infrastructural characteristics- (from an agile organization) and a high level of institutionalization leads to an organization with less infrastructural characteristics from an agile organization perspective. An example to illustrate the relationship; suppose you have an organization with a high degree of institutionalization, for example in the pharmacy industry, one can expect that the level of routines and standardization (infrastructure characteristic) is relatively high. Those organizations need to follow very specific strict rules when producing medicine. For that reason the level of routines and standardization will automatically be higher. If you take this example, the reasoning is that if the institutional pressure is relative high, one can expect less characteristics of an adaptable infrastructure.

The expectations as mentioned above are based upon very limited literature and more research is highly needed. That is also the reason why institutional context is chosen as a subject to focus on in the second proposition of the present study.

PROPOSITION 2a: *If you are operating in a highly dynamic environment with a relatively low level of institutionalization, one can expect more features of an adaptable infrastructure (since you have less restrictions from institutions) compared to a highly dynamic environment with a relatively high level of institutionalization.*

Furthermore, besides the variation in level of institutionalization the cases are also selected based upon differences main causes of dynamism, either by institutional pressures or by market pressures (Eisenhardt & Brown, 1998) (for more details about the selection of the cases see chapter 3 method paragraph 'sampling strategy'). Both concepts are already discussed in the literature part about a dynamic environment. It is expected that there are differences in cases that are both operating in a context with relatively high institutionalization, while the main causes of dynamics differ. In order to see whether there are indeed differences proposition 2b is formulated:

Proposition 2b: *The influence of the level of institutionalization on the presence of highly adaptable organizational infrastructure characteristics depends on what determines the main causes of dynamism (market pressures or institutional pressures).*

Institutions also have an impact on an organization and its behavior . DiMaggio and Powell (1983) argue that organizations have the tendency to resemble other organizations because most organizations show signs of institutional isomorphism. Institutional isomorphism can be seen as pressures that an organization perceive from the environment. Scott (2001) noted that institutional pressures vary with respect to their source. By sources he means, the mechanisms by which they are transmitted e.g. norms, laws and their power to shape organizational structure. This is dependent upon who caused the pressure; the government, the entire society e.g. In order to distinguish between these variety, DiMaggio & Powell (1983) state that institutional pressure can be categorized in coercive, normative and mimetic pressures.

Coercive pressure can be described as the pressure that a given organization perceive from other organizations on which impact the given organization. Cultural values, expectations and norms of the society are factor that can explain why organizations have an impact on each other (DiMaggio & Powell, 1983). An example of a coercive pressures are the collective bargaining agreements from other organizations that might influence a given organization.

Normative pressures are pressures that come from professional institutions (DiMaggio & Powell, 1983). Normative mechanism refer to the relationship between management policies and the background of employees in terms of education level, job experience and networks of professional identification (Paauwe & Boselie, 2003). It is build upon the idea that people have the tendency to listen to professional institutions above the organizational institutions. For example the network that an employee has with teachers and professors from his former university.

Mimetic pressure is the pressure that arise from a situation where a firm is facing uncertainty. In such a situation an organization makes his choice based upon what other organizations do with the idea that if another organization does it that way, it must be good. An example is the idea of implementing a reward system that other organizations also use without knowing the effect of implementing it.

Organizations do not necessarily adapt and comply with all institutional pressures they perceive. According to Oliver (1991) every organization has a certain degree of choice in responding to this pressure. Oliver (1991) calls this degree of the choice, the “strategic choice” an organization has. When an organization uses a certain strategy as response they can deal with institutional demands on three different ways: “conform”, “defy” and “innovative” (Boon et al., 2009). Conformist (Paauwe, 2004) behavior refers to a passive or neutral response. Deviant behavior refers to active resistance, or in other words, not complying with rules and regulations and not following normative and mimetic pressures. The last type of response refers to being innovative in coping with the institutional context by active development of this context. The choice of response depends on the perception of risk and the focus of attentions (Boon et al., 2009). In this research therefore the assumption is made, that the strategic response to institutional pressure (conform, defy, innovative) of an organization will have an effect on the relationship between Institutional context and organizational infrastructure.

Proposition 2c: *The influence of the institutional pressures on the presence of highly adaptable organizational infrastructure characteristics depends on the response the organization chooses towards these institutional pressures (comply, defy or innovate).*

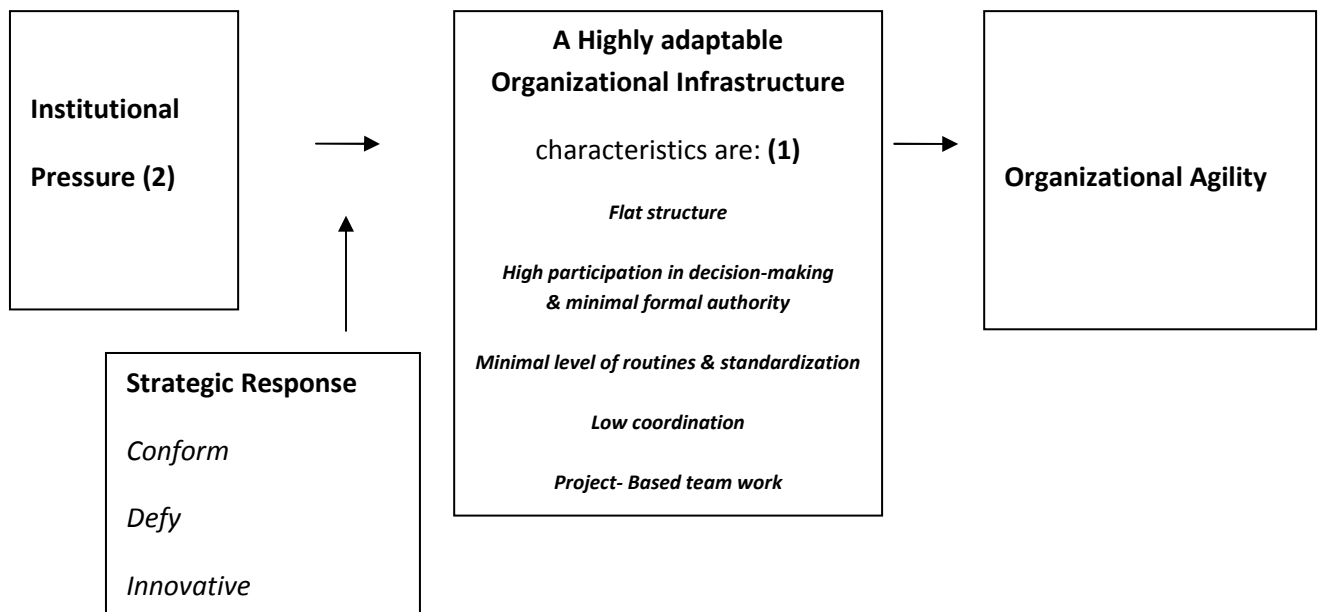
Building upon these theories, the heuristic framework will be given in the next paragraph

2.5 Heuristic Framework

Existing literature assumes that in order to become and stay agile, three organizational practices can be seen as determinants: 1) a scalable workforce, 2) fast organizational knowledge creation and 3) a highly adaptable organizational infrastructure (Nijssen & Paauwe, 2010). This assumption is used for the heuristic conceptual framework depicted in figure 2 to illustrate the research question and propositions for this study. Since the present study focuses only upon one of the proposed organizational practice: a highly adaptable organizational Infrastructure, only this practice is illustrated in the figure. It is important to note that this does not mean that the other two practices are not or less important. Proposition 1 and 2, presented in the last chapter, are illustrated in the

model as (1) and (2) . Furthermore the institutional mechanisms are included in the model as well. As mentioned in the last chapter, it can be assumed that the institutional environment consisting of normative, coercive and mimetic mechanisms (Scott, 2001) have an impact upon the organizational practices of organizational infrastructure. The institutional context and its pressure can differ in strength, or in other words the institutional environment can be perceived as high or low. According to Boon et al. (2009) it can be assumed that organizations have a degree of strategic choice on how to deal with institutional pressure. On the same wavelength is the research from Paauwe (2004) who argues that each firm has a degree of strategic choice, it can conform to the institutional pressures, defy them, or react with innovative solutions. These three different strategic responses are also presented in the heuristic framework.

Figure 3: Heuristic Framework



3. Methodology

The aim of this research is to study the proposed heuristic framework for five firms (cases). In this section, the approach that is used in order to provide an answer to the research question will be described.

3.1 Research set-up

This research is using the set-up from a larger study which explores the following three concepts:

- 1) A scalable workforce
- 2) Fast organizational knowledge creation
- 3) A highly adaptable organizational infrastructure

These three competences are used to determine the degree of organizational agility. The present study focuses upon the third variable: a highly adaptable organizational infrastructure in relation to organizational agility.

Given the explorative nature of the phenomenon ‘a highly adaptable organizational infrastructure’ for agile organizations, a qualitative research is conducted. This means that the study follows the process of inducing theory by using case studies. Since the topic for this study is a relatively new topic, the use of case studies is especially appropriate (Eisenhardt, 1989). In this study, there are five different firms (cases). The five cases are used in the present study to investigate which organizational practices determine a highly adaptable organizational infrastructure in order to achieve agility. Furthermore, the paper tries to address to the dynamic environment, by taking market pressures and institutional pressures into account as well.

Since case studies are very specific, the aim of this study is not to generalize the outcomes, but to get a better understanding of the concept through the explorative nature of case studies (Dyer & Shafer, 2003). The nature of this research makes it possible to go in-depth and explore concepts and theory. In line with this, is that the present study builds upon the ideas of grounded theory. The two basic concepts of grounded theory are: constant comparison (refers to the process whereby data is collected and analyzed simultaneously) and theoretical sampling (refers to the process in which decisions are being made on what data to collect next based on the emergent ideas) (Glaser & Strauss, 1967). In this study these concepts are used in practice by using different cases to compare and by doing different new cases over time where we include new emergent ideas by asking the participants added questions during the interviews about these new emergent topics.

3.2 Sampling Strategy

For this study, the data collected by Nijssen and others (2009-2010) among four different organizations is used. This data consists of two public broadcasting organizations and two engineering organizations. Furthermore, for the present study also new data at a high-tech organization was collected. This means that in total, data from five different cases are used. Given the fact that the relationship between organizational infrastructure and organizational agility is a relatively new research topic, Swanborn (2010) states that in new research fields, it is recommendable to select cases homogeneous on the dependent variable. For this study it means to select cases upon the dependent variable: organizational agility.

As mentioned above, some of the data was already collected (Nijssen and others 2009-2010) since this study is part of an overall larger study on organizational agility. That means that for the research methodology, the emphasis will be on the new data collected at a high-tech organization.

In order to select cases based upon the presence of organizational agility, the first selection criterion is that the cases need to be organizations who are successfully operating in a dynamic context. By picking organizations that are able to successfully operate and survive in a dynamic environment, it can be expected that those organizations need to be agile (or at least to some extent). This means that by using the selection criterion "operating in a dynamic environment" will help to select cases that will potentially contribute to the results.

Besides the fact that all organizations are selected based upon whether they operate in a dynamic environment, there is another selection criterion used. The second selection criterion is to select cases that differ in the degree of institutionalization and to pick organizations that differ with regard to the causes of dynamism: either by institutional pressures or market pressures. By selecting cases upon differences in institutional pressures and market pressures the possible role of the institutional and market context can be analyzed (proposition 2). Selections have been made to choose two organizations with a relatively high level of institutional pressure where dynamics are mainly caused by institutional pressures and two organizations with a relatively low level of institutional pressure where dynamics are mainly caused by market pressures. Furthermore, there is a fifth organization selected with high institutionalization where the dynamics are mainly caused by market pressures. This fifth organization makes it possible to make a distinction between firms where dynamics are mainly caused by business environment (market pressures) and where dynamics are mainly caused by institutional environment (institutional pressures) while in both situations they are operating in an environment with high institutionalization.

Based upon these criteria the following industries and cases are selected:

<p>Five cases -> All operating in a dynamic environment (see paragraph 3.2.1)</p>
<p><i>High institutionalization</i> <i>Dynamics are mainly caused by institutional pressures</i> <i>Expected in : Public Broadcasting Industry -> 2 firms</i></p>
<p><i>Low institutionalization</i> <i>Dynamics are mainly caused by market pressures</i> <i>Expected in: Engineering Industry-> 2 firms</i></p>
<p><i>High institutionalization</i> <i>Dynamics are mainly caused by market pressures</i> <i>Expected in: High-tech Industry-> 1 firm</i></p>

To check whether all organizations are indeed operating in a dynamic environment, questions about the level of dynamism (Dess & Beard, 1984) were asked by using the following three criteria: 1) a high rate of change; 2) a high level of unpredictability and 3) a high impact. Furthermore, questions about the institutional and market pressures were asked in order to check whether the five selected cases indeed confirm different main causes of dynamism. The results for both; the level of dynamism and different main causes of dynamism, are based upon the perceptions of the key informants about environmental dynamism. As already mentioned in the literature part, the idea of using perceptions is based upon previous studies done by various researchers who argue that employees' perceptions of their environment are most important determinants for what action they make with regards to the organizational practices such as the organizational infrastructure (Boyd, Dess & Rasheed, 1993; Leifer & Huber; 1977).

In the next two sub paragraphs the analysis for the level of dynamism and the different main causes of dynamism are given.

3.2.1 Level of Dynamism for every Industry

The first selection criterion for the present study is to select organizations who are operating in a dynamic environment. This selection criterion is based upon the assumption made in this study that all organizations operating in a dynamic environment, will have a certain present degree of organizational agility in order to survive. By making this assumption, the present research tries to describe how the infrastructure of the firms looks like and which practices are relevant in order to give a possible explanation for the relationship between organizational infrastructure and agility.

During the interviews all respondents were asked about whether they perceive environmental dynamism. These questions are based upon the ideas of Dess & Beard (1984) to determine the level of dynamism by using the following three variables: 1) high rate of change; 2) high level of unpredictability and 3) high impact. They are presented for every industry separately: the public broadcasting industry (2 firms), the engineering industry (2 firms) and the high-tech industry (1 firm).

3.2.1 a) High rate of change

Presence of high rate of change for every industry separately:

Public Broadcasting Industry

The perceived dynamics are both presented at the public broadcast firms. They feel a high rate of change constantly, mainly caused by pressures from the government, so institutional pressures as one of the respondents from organization B explained:

Ja, je voelt dynamiek heel erg in, wat ik net al aanstipte, bij de instrumenten en die komt wel vaak vanuit de politiek, maar die komt ook vanuit de NPO en in het begin waren we 100% natuurlijke partner van de NPO, dus al hun eh.. streven om te reguleren en bestuurbaar te maken steunden we onverkort, maar we merken dat echt de laatste jaren met onderzoeken verantwoordingsmechanismen dat.. doorslaat wat ons betreft, of wat mij betreft.

The respondents of organization A also perceive these institutional pressures but most of them highlighted that the pressure is not always in a high rate. There is often enough time to make changes and adapt to new situations:

Oh, ik denk wel een half jaar van tevoren dat je dat meestal weet en.. dus dat is voldoende tijd om je maatregelen te nemen. Aan de andere kant gebeurt het ook wel eens zo dat we plotseling ruimte in het schema krijgen, of iets. Dan is het leuk als we daar dingen voor hebben staan, dus daar moeten we even extra gas geven, maar dat doet iedereen hier met vol enthousiasme en dan is iedereen heel flexibel, je werkt even bij, even 's avonds is geen enkel probleem eigenlijk.

Furthermore, the changes in customers preferences for “new media” such as internet is only in a slow pace, so no high rate of change for dynamics caused by customers, as explained by one of the employees of organization A:

Nieuwe media, ja. Hoewel, nog steeds de praktijk is dat televisie het primaire medium is. Ondanks heel veel opwinding en geloof in de ontwikkeling van nieuwe media, zie je in de praktijk dat heeft ook te maken met traagheid van organisaties, zoals waar wij in zitten, maar ook traagheid van politieke besluitvorming, maar ook traagheid van.. van verandering in patronen, mediaconsumptie, dat verandert toch een stuk minder snel zeker binnen de doelgroepen die wij bedienen. Dus wij zitten.. naarmate eh, de leeftijd stijgt, stijgt ook de positie van de publieke omroep, die veel sterker in 50+ dan in 20-49. Tot een jaar of 24 is die positie sterk, dan neemt ie.. dan neemt ie af, dan zit er wel ietsje stijging in, even heel ruwweg, 30+, maar dat gaat heel langzaam en pas bij 50 heb je weer een dominante positie.

Engineering Industry

The challenge for the engineering Industry is to manage all external dynamics to maintain continuity.

As one of the managers from organization C explained:

We moeten heel erg, op dit moment op onze hoede zijn om continuïteit te houden voor organisatie zoals het nu is. Je houdt er wel rekening mee dat je dus zeg maar het verloop van opdrachten veel grilliger is..... Dus nou ja, wij kunnen daar, als ingenieurs, vrij weinig invloed op uitoefenen. Wij kunnen er alleen op anticiperen.

And a quote to confirm the high rate of change permanently:

Nou we hebben toch wel heel veel dingen. Kijk de buitenwereld is heel dynamisch, laat ik het dan zo zeggen, wat de buitenwereld van ons wil, wat de opdrachtgevers van ons willen, dat wisselt wel permanent, daar moet je wel aanvoelen en daar moet je wel op reageren.

Also a confirmation from a quote for one of the managers from organization D:

Ja dat zou je haast verwachten, ware het niet dat.. dat vind ik tenminste, dat er niks zo dynamisch is al de luchtvaart, want die wijzigt continue.

High-tech Industry

For the High-tech Industry, the changes that are of high rate are first of all due to constant demands for new development and improvement and changes.

As one quote from the manager from organization E describes:

Ik denk dat er zeer veel dynamiek is ja. Ik heb zelden een.... In een fabriek gewerkt waar de dynamiek groter was. Ondanks dat de aantallen heel klein zijn, is de dynamiek toch groot. Omdat er door die lage aantallen producten worden geïntroduceerd die gewoon niet volledig uitontwikkeld zijn.

3.2.1)b High level of unpredictability

Presence of high level of unpredictability for every industry separately:

Public Broadcasting Industry

The degree of unpredictable changes for the public broadcasting system can be mostly found in the unpredictable program time and list for the long term. There is an uncertainty in the existence of programs on the long run, for example as a respondent from organization B explained the dynamic characteristics of broadcast channel "X":

Channel X is een ander verhaal: dat is een "experimentele jongeren zender". En dat zou heel raar zijn, als je een half jaar van tevoren weet wat jij wilt gaan experimenteren op Channel X. Dus dat botst ook met elkaar dus dat, door het karakter van de zender, ja duurt het gewoon langer. Dus als je als omroep heel veel op Channel Y en Z zit dan heb je weinig stress, want dan weet je september 2011, 's avonds om 11 uur is er programma A op tv [...] Bijvoorbeeld programma X dat werd een paar weken geleden.... Ging de kogel door de kerk dat, dat er aan kwam en dan moet je dus als een idioot je planning om vergooien en programma X er doorheen gooien".

And a quote from organization A, to illustrate that both firms have unpredictable changes in the program time but for organization this less compared to organization B. One of the respondents explained that organization A is more predictable compared to others, since there are producing more "standard programs" that are always on television, but when these "standard programs decline the rate of uncertainty will raise:

Nou bij organisatie A is de voorspelbaarheids graad wat hoger door die programma's waarvan we weten, die willen ze toch altijd hebben naarmate dat afneemt en dat zal gaan gebeuren omdat het geld weer opnieuw verdeeld wordt, krijg je dus een groter aantal nieuwe programma's of korter lopende programma's en dan daalt de graad van voorspelbaarheid.

It is striking that despite all this unpredictability, the respondents from broadcasting industry also talk about certain predictability. Because ones the government and management has made a decision about the program line and "air time" they are safe and have security for a certain period. For example, sometime a program gets rights and the budget to for the next five years. And furthermore, there are some programs that are almost certain to continue, as one of the member from organization B explained:

Ja, je kunt er donder op zeggen dat bepaalde titels echt wel echt wel door gaan zegmaar. Dus je hebt een beetje, een paar zekerheden, waar je natuurlijk dan grote plannen omheen gaat maken, omdat je toch zeker weet, die titels gaan er komen.

Engineering Industry

In the engineering industry the macro level of market dynamics is difficult to predict with regards to the unpredictable demands for new project and continue changes in already existing projects. On micro level this results in unpredictability in duration of projects and also money, time and risk are often unpredictable.

An example about the risk and unpredictability in duration of projects from case C:

Ja op dit moment zeker. Wat je op dit moment ziet is dat veel projecten problemen hebben om hun financiering rond te krijgen. Dus dan heb je. in feite is het team dan geformeerd, vaak is al een basisontwerp neergelegd. In die tussentijd is de opdrachtgever bezig met het uitzoeken van zijn financiering en die loopt tegen het probleem aan van ik krijg geen lening van de bank voor mijn project, die krijgt zijn businesscase niet rond, nou dan wordt het project stilgelegd en dan denken wij van goh we hebben een prachtig project, als dat wordt stilgelegd hebben wij geen project meer. Dan heb je 10% gedaan van je opdracht en die 90% blijft achterwege en dat is een beetje het grote risico op dit moment voor ons. Als wij nu naar onze werkvoorraad kijken nu, dan ziet ie er nog best gezond uit, alleen als een paar projecten stilvallen, hebben we echt een probleem. En dat weten we dus niet.

The unpredictability in project duration mentioned above is also often unknown in organization D. One of the respondents from organization D stated that even if a project has a kick-off start planed it is difficult to know the actual start and duration, because this can also change:

De kick-off voor het nieuwe project voor company X is voor volgende week gepland. Dus we weten nu alweer wat gaat komen. Nou dat weten we al meer dan een half jaar, dat het komt, alleen wanneer het komt, dat is onzeker en dat wordt dan steeds weer uitgesteld.

High-tech Industry

A dynamic that is mentioned by more than one of the respondents from organization E is the amount of reparation orders. This very hard to predict on forehand and can variance a lot overtime:

Technische problemen of wijzigingen die met spoed doorheen moeten die net niet goed uit geengineerd zijn. Dus, het is echt heel moeilijk om grip te hebben op waar zit iemand echt krap in zijn werk. Dat is heel... een stuk is gewoon niet te plannen.

And another colleague expressed the reparation pressure in the following statement:

...Alles wat wij maken heeft een groot probleem: als je het in mekaar zet dan moet je het morgen fixen.

But, although all these factors are hard to predict, there is also a predictable production cycle. This means that a peak is expected in some periods, while other are always characterized with low demands. Based on the production cycle, as a predictable factor to a certain degree, firm E works with a year plan:

Wat wij in principe hebben dat wij het jaarplan, dan hebben we die sales and operations planning. [...] En wat wij hier dan doen is zeg maar, oké hoe ziet de markt eruit, nou dat zijn.. er zijn mensen die met de markt spreken, daar krijg je een plan uit en vervolgens ligt er dan een vraag en dan kijken we dus bij de leverancier van nou oké kunnen de leveranciers dat en vervolgens.. qua tools.. hebben we voldoende tools? Meestal is dat wel zo.. En hebben we voldoende getrainde mensen.

3.2.1)c High impact

Presence of high level of impact for every industry separately:

Public Broadcasting Industry

One of the challenges that both firms, A and B, perceive is how to manage dynamics in programming. Television and programs needs to be in line with the daily news and unexpected big events and therefore changing fast is needed. But on the other hand, the unpredictable programming has also an effect on the staffing planning. Since most programs have an unpredictable time planning, it is sometimes difficult to determine how many people are needed in future periods. A clear statement from one of the respondents from organization B about the pros en cons of unpredictable programming highlights this:

Als je zoals channel Y al 1,5 jaar vooruit kijkt en nu al weet wat je in december 2011 gaat uitzenden, dat getuigt niet echt van enige dynamiek, zeg maar. En dat heeft channel X wel. Dat heeft voor en nadelen. Het voordeel is dat je dus wel dynamisch kan zijn, en zoals wij nu voor elkaar hebben gekregen om een programma als (VOORBEELD) er binnen 3 weken erin te fietsen, het kabinet viel en binnen 3 weken hadden wij het programmavoorstel al daar liggen natuurlijk en dat programma komt vanaf volgende week op de buis. Nadeel is dat je, je noemde het net even dat je het personeel wat je eigenlijk aan je wilt blijven binden, heel lang in onzekerheid moet houden, want je kan niet zeggen tegen het personeel wat er in. na juni van dit jaar nog op de programmering komt te staan.

And another quote to highlight the impact that dynamic environment has on organization B:

Nou de presentatoren zijn belangrijk voor ons gezicht en voor onze programma's en ook voor de toon en de, de uitstraling van onze programma's, dus voor wat we maken voor op de televisie en voor wat de kijker ziet, zijn natuurlijk de presentatoren het belangrijkste. aan de makers kant, ja aan de makers kant hebben we dan ook nog jonge mensen die huren we vaak in, die hebben kort lopende contracten, of zitten wel wat langer bij ons maar

over het algemeen, dat is een heel dynamisch geheel, daar gaan veel mensen in en uit en dat hangt gewoon van de programmering af die wij naar binnen weten te slepen.

Organization A also describes the impact that the dynamic environment has on the organization. For example they cannot offer employees a fixed contract:

Je maakt personeelsplannen en we hebben nu bezig met personeelsplannen, dat je.. ja luister eens, dat is.. en je gaat kijken of je mensen toch op.. op tijdelijke contracten kan binnenhalen. Dat je zegt, "ja luister eens, het kan zo zijn dat..".. Nou jonge mensen hebben daar minder problemen mee dan oudere mensen, begrijpelijkerwijs. Maar je kan niet van iemand vragen die nu hier in dienst is ergens, om dat vaste dienstverband in deze tijd.. die tijd helpt natuurlijk niet mee, om in deze tijd te zeggen "nou, weet je wat, ik zeg mijn contract op".. dat doet natuurlijk niet iedereen.

Engineering Industry

For the engineering industry the dynamic environment and its impact on the organization mainly causes high challenges in the planning of projects. As one of the respondents from organization C stated:

En projecten die verlopen nooit volgens de planning, om het maar zo te zeggen, dat is eigenlijk een gegeven. Dus waar we nu, ik bedoel een offerte verschuift in op een bepaalde opdracht en dan hangt er al meteen een planning aan, over het algemeen vrij ambitieus, prima, op dat moment wordt er gekeken 'nou, dat zou die of die kunnen doen. En na die fase komt het even stil te liggen, 4 maanden. Ja op dat moment staat het alweer op losse schroeven dat diezelfde persoon daar nog aan doorkan, want die kan niet 4 maanden gaan wachten totdat er weer eens wat werk loskomt, en misschien wordt het wel 6 maanden, of misschien wordt het wel een maand weer. Dus in die zin wordt de inzet van mensen over het algemeen met name gedictieerd door wie is er beschikbaar inderdaad.

A respondent of Organization D complement that for the engineering industry, the dynamic environment also has an impact on the workload. Organization D works with a flexible outer shell:

Zelfs in deze tijd. Dus je hebt niet zomaar vaste krachten. Dus vaak wordt dat gedreven door de workload en projecten die je hebt, die je gaat krijgen. Kan je grotendeels in schatten, maar dat kan je dus zeg maar tot een percentage van 30% niet in schatten en dat dicteert dan eigenlijk ook dat je eigenlijk..nou in een normale situatie, tussen de 10 en 30% aan flexibele krachten altijd wel hebt rondlopen.

Another challenge for the engineering industry is how to deal with the "risk factor". There is a trend at the moment that the risk of a project is more and more for the external parties instead of the engineering industry. So this means that the client, who asks the firm to work on a certain project, needs to accept all risks. The problem that could arise here eventually is that on the one hand one

could argue that the engineering industry has the most benefits when a project has zero risk, but if external parties are not willing to take all risk and because of that no longer start with new projects, the industry has a real big problem:

Maar dat is een blijvende verandering in de opdrachtverstrekking waarbij de risico's van het project steeds meer bij externe partijen wordt gelegd en die op een gegeven moment dat niet zelf blijft nemen dat risico, dat verwachten wij wel ja. En dat is iets waar je je vinger aan de pols houdt, hoe dat zich ontwikkelt.

High-tech Industry

One of the biggest challenges that organization E needs to deal with, is how to arrange employees and job in the most flexible way. The impact of dynamics is high, in a way that organization E needs to work with a large amount of flex workers, to increase their workforce in busy periods and to decrease if the demand is low.

The high-tech industry needs to select en recruit people according to this strategy. Like a recruiter from organization E explains that the demand from a client and the demand for hiring new people are close related to each other:

In een omgeving als deze is het natuurlijk wel heel erg afhankelijk van de vraag, dus dat zie je hier wel terugkomen.

3.2.2 Degree of institutionalization & Main causes of Dynamism

The second selection criterion made in advance, is the presence of differences in institutional context and differences between the main cause of dynamism between the cases. This study selected three different organizational fields. The organizational fields are assumed to differ in the degree of institutionalization, respectively: a high degree of institutionalization or a low degree of institutionalization and the main causes of dynamism: either by the market or the institutional context.

Five cases -> All operating in a dynamic environment (see paragraph 3.2.1)
<p><i>High institutionalization</i></p> <p><i>Dynamics are mainly caused by institutional pressures</i></p> <p><i>Expected in : Public Broadcasting Industry -> 2 firms</i></p>
<p><i>Low institutionalization</i></p> <p><i>Dynamics are mainly caused by market pressures</i></p> <p><i>Expected in: High-tech Industry-> 2 firms</i></p>
<p><i>High institutionalization</i></p> <p><i>Dynamics are mainly caused by market pressures</i></p> <p><i>Expected in: Engineering Industry-> 1 firm</i></p>

During the interviews all respondents were asked about the degree of institutionalization in order to confirm the grouping of the cases as described above. Furthermore, questions were asked about what they saw as the most important causes of dynamism (either market pressures or institutional pressures) .

3.2.2a Degree of institutionalization

The analysis of the data showed that *a high degree of institutionalization* for the public broadcasting industry and the high-tech industry can be confirmed by the fact that respondents from both industries provided *a lot of examples* about institutions that they have to deal with. Furthermore, the analysis of the data shows a wide range of variety in examples of institutions, including *examples of institutions that are industry specific*. Two quotes are given below in order to illustrate two examples of industry specific institutions.

The public broadcasting firms confirmed that they are operating in a highly institutionalized context. For the public broadcasting firms an example is mentioned about the political environment that impose the industry with a demand list of what the broadcast channels need to do. As one of the key informants from organization A says:

Er zijn twee soorten taken: de wettelijke taken en de aanvullende taken (hier niet verder toegelicht). De wettelijke taken zoals in de wet genoemd: nieuwsvoorziening, daar is later sport bijgekomen, cultuur, minderheden en educatie een beetje.

The government provides rules and legislation that can be of influence on development and production for the high-tech industry. Especially the “health care branch” where organization E is operating has a large list of quality demands and rules. So since Organization E is operating in medical field, they need to deal with a lot of rules around the quality demands of their products:

Wij zijn een Medical Device Industry dus we hebben ook met allerlei wet- en regelgeving te maken die ons verplicht om dingen te documenteren en aan te leveren dat dingen goed zijn.

If you compare this range of variety in examples with the engineering industry, the *number of examples is much lower*. For that reason it can be confirmed that *the degree of institutionalization is lower* for the engineering industry. Although, there are some illustrations of the way in which the two engineering organizations perceive institutional pressure. An example of the influences from the political environment is mentioned by the director from organization C who argued that labor law has an influence on working with flex workers:

Nou, dat is onze flexibele schil, daar kun je mee, zeg maar ademen, maar de rest, ja door de Nederlandse wetgeving zit die behoorlijk vast. Iemand ontslaan die al een paar jaar werkt, dat is duurder dan hem een jaar op de bank te laten zitten, laten we maar zeggen. Dus dat, ja dat is moeilijk.

But although the above quote illustrates an example of an institution, the example in itself with regards to the content is a more *general example* of an institution. An example as labor law, is an institution that (almost) every industry have to deal with and therefore it cannot be seen as industry specific.

In sum, based upon the total number of examples (a relatively low vs. a relatively high degree of institutionalization) and the content of the examples of institutions (only general vs. also industry specific institutions) it can be confirmed that the engineering industry is operating in an environment that has a relatively low degree of institutionalized and the public broadcasting industry and the high-tech industry are both operating in an environment that has a relatively high degree of institutionalized.

3.2.2b Causes of dynamics

To determine the main cause of dynamism a distinction was made in forehand to distinguish between firms where dynamism is mainly caused by market pressures and firms where dynamism is mainly caused by institutional pressures. The causes of environmental dynamism of the three different industries will now be discussed, and they will be illustrated with quotes.

Public Broadcasting Industry

For the public broadcasting industry, the key players for both firms are: employees, Dutch Public Broadcasting institution (NPO), consumers, members of broadcast firm, political institutions (ministry education, culture & science), work councils, societal institutions and committees (for culture & media). Both organizations perceive institutional pressure from some of these key players.

The dynamics that they perceive are mainly coming from *institutional pressures*. This is due to the fact that in this sector the Dutch legislation: labor law, CAO and Specific laws like for example the Media Law & “richtlijnen van de code goed bestuur” play an important role. This influence is high because the government provides money and time to broadcast. The public broadcast channels are highly depending on this support. For this reason the total viewers are also important, as one of the key informants said in a statement about the influence of the government:

Binnen het publieke bestel, spelen toch ook kijkcijfers een belangrijke rol om twee redenen. De eerste reden is dat men vindt dat er toch een aardig bereik moet zijn, want anders is het een verspilling van belastinggeld, als er niemand naar kijkt zal ik maar zeggen. En de andere reden is dat ook de publieke omroep afhankelijk is van sterinkomsten voor een groot deel, ongeveer een derde deel en ook dat maakt het een beetje een hybride organisatie.

The Engineering Industry

Since the engineering industry is commercial, they face a relatively low degree of institutionalization from rules set by the government compared to the broadcast channels because the industry is not directly dependent on the government in terms of income and existence:

... We zijn natuurlijk een onderneming, we krijgen geen subsidies we moesten zelf ons geld verdienen.

For the engineering industry the key players are: employees clients, partners, competitors, work council and ministries/government. Which key player is most important is depending on the project itself and can be varying. The engineering industry is mostly influenced by *market pressures* coming from their external partners. Contracts are the main cause of dynamics and have therefore a high impact on the engineering industry. This goes for both the firms. One of the informants from organization C states:

En misschien wel goed om aan te geven dat veel, wij met name te maken hebben met aannemers ook. Dus enerzijds hebben wij te maken met de reguleren werken zoals dat bijvoorbeeld bij de afdeling constructies bij ons is, we werken ook heel veel voor aannemers dat betekent als je praat over dynamiek dat je dan eigenlijk meteen al aan de uitvoeringskant zit, zegmaar waar de planning heel hard is. En waar dus ook heel dynamisch gewerkt wordt.

High- tech Industry

For the last industry field, the high industry, the following key players can be designated: employees, clients, suppliers (partners), work council and the ministry of health.

It is difficult for the high-tech industry to follow all the rules and legislation set by the government.

One of the respondents from organization E describes the pressure from government demands and the challenge that it brings as followed:

Het product wordt gemaakt en geleverd binnen de kaders van de wetgeving mogen. En er zijn speciale vrijgave protocollen voor om goed te keuren wat we hebben afgeweken van wat normaal was, dus ja er gebeurt echt heel veel binnen de techniek.

But although the industry sometimes face troubles when dealing with institutional pressures, the main cause of dynamism is not coming from institutional pressures. Most of the respondents highlighted that environmental dynamism is coming from market pressures. One of the respondent illustrated this by stating that there are four different variables that are difficult to predict: employee capacity (not enough people when demand rises), orders are too limited (not enough work when demand drops), technical problems with new products and problems with suppliers:

Al je kijkt naar storingen in het plan dat we hebben, dan zit het in onze mensen, we hebben hier te weinig mensen/ te weinig capaciteit, we hebben te weinig orders of we hebben: "New product introductie" waardoor we technische problemen hebben of we hebben.. leveranciersproblemen omdat we 90% inkopen heeft dat ook een impact" Dat zijn in principe de vier knoppen waaraan je kunt draaien.

3.2.2c Industry differences in degree of institutionalization and main causes of dynamics

Based on the findings presented in paragraph 3.2 the two criteria made for selecting the cases are met. To summarize these results, the following distinction per industry (table3) can be made:

Table 3: Industry differences in dynamics and institutional pressure

<p>Public Broadcasting Industry (org. A & B)</p> <p>High institutionalization</p> <p>Dynamics are mainly caused by institutional pressures (government)</p>
<p>Engineering Industry (org. C & D)</p> <p>Low institutionalization</p> <p>Dynamics are mainly caused by market pressures (projects)</p>
<p>High-tech Industry (org. E)</p> <p>High institutionalization</p> <p>Dynamics are mainly caused by market pressures (demand of new products & repairs)</p>

3.3 Description of test subjects

The organizations also differ from each other regarding the time that the data was collected, year of foundation of the company, number of employees, FTEs, core process and institutional pressure.

Table 1 gives an overview of these data.

Table 2: The characteristics of the five organizations

Organization A	Organization B	Organization C	Organization D	Organization E
<ul style="list-style-type: none"> • 2009 • Since 1994 • 396 employees end 2008 • 285 FTE • Public broadcasting • Designing and producing shows and media for TV, radio and i-net 	<ul style="list-style-type: none"> • 2009 • Since 1998 • 120 employees begin 2010 • 112.32 FTE • Public broadcasting • Designing and producing shows and media for TV, radio and i-net (young people) 	<ul style="list-style-type: none"> • 2010 • Since 1928 • 342 employees end 2009 • 322.8 FTE • Engineering designs and develops installations for large public and office buildings. Market leader in installation engineering. 	<ul style="list-style-type: none"> • 2010 • Since 1953 • 210 employees end 2010 • 710 FTE • Engineering offering consultancy services in the field of structural, architectural and civil engineering, construction management and installations. 	<ul style="list-style-type: none"> • 2011 • Since 2010 • 398 employees half 2011 • 387.25 FTE • Manufacturing. Producing medical systems: MRI scans eg.

3.4 Instruments

Some of the data was already collected (Nijssen and others 2009-2010), since this study is part of an overall larger study on organizational agility. This applies for the data of the two public television organizations (A and B) and also for the two engineering organizations (C and D). That means that for this study the new data was collected by one high-tech organization and that for the research methodology, the emphasis will be on the high-tech industry.

For every organization multiple individuals (HR- manager, department manager, CEO, board of directors member e.g.) were interviewed, to collect all the necessary data. The unit of analysis is the level of the organization, whereby the individuals are the key informants who represent the firm. The focus is not on the person individually. Besides the key informants, the unit of observation consist also documentation from the organization.

To prepare for the interviews, background information about the high-tech organization was collected. This background information contained annual reports, press releases, future plans and also desk research was done to check the cases and the environments. After this was done, a topic list was made to use during the interviews. The interviews were held with two researchers and took about 1.5 hours. The interviews techniques that were used, like the use of follow-up questions, were based upon the ideas of Swanborn (2010). In appendix A, the structure of the interviews can be found.

When using the instruments, it is important to take into account the construct validity and the reliability of the research. To guarantee construct validity, this study used data triangulation by using multiple information sources and research triangulation by having three different researchers who analyzed and discussed the data (Bryman, 2004). However, the study was limited by the relatively small and non-random sample size (5 cases). Therefore it is important when interpreting the results, to see the outcomes as explorative findings and a starting point for further research. The reliability for the present study is guaranteed by an extensive description of the research process and the methods that are used for the study (for more details see Appendix A). This makes it possible to reproduce the study under a similar methodology and for that reason the research instrument can be considered as reliable (Joppe, 2000).

3.5 Procedure & Analysis

To collect the necessary data for one new case, interviews were held among multiple individuals (HR- manager, department manager, CEO, board of directors member e.g.) in the organization. The interviews were all in Dutch and contained questions about the core businesses of the firm, the dynamic environment, organizational practices and institutional pressure of the

organization. For the present study the focus was on the variables: dynamic environment, a highly adaptable organizational infrastructure to achieve agility and institutional & market pressures. The first variable: dynamic environment was important to check, to make sure that the organization indeed operated in a dynamic environment and thus need to be agile. An example of a question to check this: “To what extent is it possible to predict upcoming changes in the environment?” or “How important are you competitors (high competence or not)?” The second variable “a highly adaptable organizational infrastructure” was measured by asking question about the characteristic of the organizational structure. For example the question: “Is there more a hierarchical structure or a flat structure in the organization?” or “Do you work in teams and is there some sort of “team- feeling?”” The last variable was the extent to which the organization experience institutional pressures and market pressures. One of the questions for this variable is for example: “From which institutions does the organization experience institutional pressure?”

After the interviews were finished, the case studies were analyzed by using systematic coding. Important to note is that during the whole process of systematic coding, the data was compared within-case and cross- cases.

The first step when analyzing the data was initial open coding, to divide the data into different smaller parts. By dividing the data into smaller parts, it became easier to check the data. The coded parts were discussed and compared after the coding by three researchers, who performed the open coding independently from each other which was positive for more validity (Swanborn, 2010). After all the three researchers agreed upon the outcomes of the open coding, the so called “focused coding” started. In this next coding phase the data was sorted in a smaller amount of higher- order categories. The focused coding was performed separately by the three researchers and after coding, again a discussion of the findings was done. During the comparison and discussion everything was recorded and documented to create one overall coding document for the data.

At the end, a cross-case analyze was done, following the method by Eisenhardt (1989). All data derived from the coding was put into one big contrast matrix. After this was done, the data was divided into smaller matrices for every proposition of the present study. These smaller matrices were analyzed to get the key information. Every time a proposition was completed, it was necessary to went back through the cases and confirm or adjust the findings. After this was done, the findings were compared with existing literature in the search for similarity or difference. This eventually led to new propositions that are presented in the results section.

4. Findings

4.1 Propositions

As mentioned at the beginning of the paragraph, the most important findings for the propositions are presented in this paragraph. But first to interpret the findings as good as possible, a more specific description of the data analysis and findings will be given.

The results of the data analysis demonstrate that some of the findings are directly relevant for the propositions, while some other findings are not directly relevant for the pre-set propositions but according to the researcher also relevant for the study.

The researcher determined the importance and relevance of the finding based upon the following criteria. The findings are based on similarities that can be found in the data in organization practices for organizational infrastructure for every industry (3 in total). Only those findings that showed enough support, this means that most informants mentioned the same aspects, were used.

An important notion here before we discuss the findings in more detail, is that all findings are based upon the data coming from the informants and can be seen as perceptions. For example, for the topic “flat structure”, this means that the informants perceive the structure of their organization as flat. This important to keep in mind, because it is quite arguable in some of the cases whether the “structure on paper” can be seen as flat. Still, it is very interesting to look at the perceived findings since this study agrees upon the statement that the perceived level of employees should be taken into account in research because it might determine actions of employees (Boyd, Dess & Rasheed, 1993).

Furthermore, the emerging findings presented after the three propositions are selected based upon whether the researcher thought the findings where relevant for the topics Organizational Agility and infrastructure. They are only selected and presented if there was enough data provided in the cases to discuss the emergent finding.

Proposition 1

PROPOSITION 1: In an agile organization, the general characteristic of organizational infrastructure expected are as followed: flat structure (1a), high degree of decision making autonomy and minimal formal authority (1b), minimal level of routines & standardization (1c), low coordination (1d) and project- based team work(1e).

For the first proposition some general characteristics of organizational infrastructure were proposed. In total five characteristics (see proposition 1) are checked: flat structure, high degree of decision-making autonomy and minimal formal authority, minimal level of routines & standardization and low coordination.

1a. Flat structure

For this item, the findings are purely based upon the perceptions about the organizational structure.

Public Broadcasting Industry

For the public broadcasting industry, there is a difference in the findings about the perceived structure for the two studied organizations. For organization A, respondents mention a more hierarchical structure instead of a flat structure. Also, one respondent says that more operations are delegated to certain people, which create more hierarchy and less participation of all members of the organization:

Ik heb het idee dat het hier een beetje over is, stafvergaderingen worden eigenlijk steeds minder belangrijk zijn geworden, dat er eigenlijk hiërarchischer wordt bestuurd, of je zou kunnen zeggen dat wat meer gedelegeerd wordt naar de mensen die er verantwoordelijk voor zijn en dat er niet meer allemaal iedereen overal over zit te praten.

For the other public broadcasting industry, organization B, the perceived structure is in contrast with organization A, since the findings here suggest that organization B has a flat structure. As one quote from a manager from organization B illustrates:

Ik heb het idee dat we laagdrempelig zijn, niet een heel hiërarchische structuur, dat is volgens mij ook heel behulpzaam bij het waarborgen dat, dat soort ideeën (nieuwe ideeën introductie) worden overgebracht worden. Want als jij niet bij je baas durft binnen te stappen, dan komt dat idee er ook niet.

Engineering Industry

For the engineering industry, case C and D perceive the organizational structure both as flat. The informants from both organizations mentioned multiple reason too high light the flat structure. For organization C, an “open door” policy by the higher management is an example to high light the flat structure:

Dat hangt natuurlijk heel erg van de persoon af, ik bedoel als jij openstaat voor samenwerken, dan loop je naar diegene toe, zeg van “dat is voor ons helemaal niet handig. Kun je dat niet anders regelen, wat kunnen we erin betekenen, hoe kunnen we er samen uitkomen?”. En je hebt mensen die zeggen van “ik doe mijn ding en als die ander het anders wil doen dan staat dat hem vrij, maar ik, dat gaat ie maar zelf regelen”. Dus het ligt ook wel heel erg in de persoon zelf besloten zeg maar hoe die daar mee omgaat. Over het algemeen vind ik dat bij ABT de deuren altijd openstaan en de lijnen kort zijn zeg maar. Nee het is eigenlijk een hele platte organisatie, het is niet echt een heel hiërarchische organisatie. Ja, je kunt ook heel makkelijk bij iedereen binnen lopen.

Another respondent also agrees upon the flat structure, by adding that the culture of the company determines for a large part the perceived structure:

Ik denk dat heel veel heeft te maken met cultuur en cultuur ja dat kweek je het dus dat daar heb je langer de tijd voor nodig dus ik zeg dat dat gegroeid is dus dat ja zegmaar, ook weer door die structuur van organisatie van sectordirecteuren die hun enthousiasme voor het vak en voor de markt afstralen, zowel naar binnen als naar buiten toe dat andere mensen dat weer oppakken en zo’n zelfde houding aannemen.

For all divisions there is a physical separation, but because of all different projects organization C has there is some mixing:

Nou helemaal door elkaar husselen, dat hebben we, daar denken wij eigenlijk niet aan, omdat dat natuurlijk ook weer bloedgroepsoortgenoten bij elkaar om die kennis te blijven, kunnen, te ontwikkelen. Maar wat we wel doen, is wat ik net zei, projectkamers maken en wat je dan ook ziet is dat mensen hebben altijd meer dan 1 project, dus voor dat project komen ze in die kamer, dus dat is 2-4 dagen per week en de andere 2 dagen gaan ze dan toch op hun eigen werkplek zitten. Om de andere projecten die ze hebben, af te werken.

For organization D, only a few layers in the structure to underpin the flat structure:

Ja, wie zou niet zeggen.. heel plat (lacht) iedereen zegt dat... (...). Ja nou Deerns heeft een directie van 6 personen momenteel, we hebben een laag managers, hebben we het net over gehad, die vormen dus ook samen met de directie het MT en dat is eigenlijk de enige hiërarchie die we hebben.

The following quote also confirmed the perceived flat structure for organization D:

Vergis je niet in organisatie D, het is een enorm platte organisatie. De deur staat bij iedereen open. Dat is.. wat wij meer hebben is de reacties van mensen die net niet over die drempel durven stappen, maar er is hier niks wat je let om bij de allerhoogste binnen te stappen. Het is een geweldig open, open club wat dat betreft. Dus het is niet een.. hunnie en zullie, niet wij zij, dat gaat kriskras door elkaar heen.

High- tech Industry

In the high- tech industry, the perceived structure is also “flat”. The management uses an “open door” policy and problems very easily shared with higher management:

Wij hier binnen organisatie E en dat roep ik keihard, wij hebben hier natuurlijk heeft iedereen zijn verantwoordelijkheden, maar status en hiërarchische structuur hebben wij nooit gehad.

One of the respondents explained that the structure of organization E was specifically picked to make the organization more flat:

We hebben een model gekozen om goede redenen toen der tijd. We wilde een organisatie die plat is en een organisatie die weinig communicatie schrijven geeft.

1b. High degree of decision-making autonomy and Minimal formal authority

As mentioned above, the flat structure was based upon the perceived structure from informants. The same applies for the next topic “minimal formal authority”, the findings here are based upon the perceived formal authority and the perceived level of decision-making autonomy.

Public Broadcasting Industry

Case A and B, operating within the public broadcasting industry, both face formal authority when it comes to decision making. When decisions are made, it is clear on forehand who is responsible and has the authority to make the decision.. An example from organization A, where a respondent elaborate upon the head editor as being final decision maker to pitch a program:

De hoofdredacteur die dat in feite heeft.. doet, en die hoofdredacteur die heeft eigen overlegorganen met de aangesloten eindredacteuren en die bepaald natuurlijk wat hij wel en niet gaan pitchen.

In line with this is the role of head editor, as being an important key player for the performance:

Nou ja, ik vind.. altijd zijn dat, altijd inhoudelijke mensen, dus dat zijn in principe de eindredacteurs. Dat is je core business, maar het is in wat wij hier doen, is.. zijn de mensen.. dat is bijna in elke organisatie zo, maar het is hier zeker zo, extreem belangrijk, want die eindredacteur moet het goed aansturen, maar als het verkeerd wordt uitgevoerd door de mensen die daar onder vallen, dan gaat het nog niet goed. Maar die eindredacteur is wel heel bepalend ja,

And an example from organization B, to illustrate formal authority is related to specific topics, where big topics are always discussed:

Vaak waar het gaat om inderdaad dingen die geld kosten, of zaken die niet zo lekker lopen, dat ze een nieuwslezer hebben die ze niet willen hebben of dat tv komt met een verzoek wat ze eigenlijk niet willen honoreren maar wat ze moeilijk vinden om nee tegen te zeggen. Dat zeker als het gaat om format wijzigingen, nieuw dingen, nieuwe ideeën dat wordt allemaal besproken ja”.

Although the formal authority is high, there is also some room for own initiative but employees cannot take decisions with approval from the management, as illustrated in an example from the chief editor of organization A:

Ik ben erg voor eigen initiatief, maar ik zeg wel altijd: “Jongens, ik moet het weten’, want ik ben over alles eindverantwoordelijk en als ik het niet weet kan ik niet verantwoordelijk zijn. Dus dat is wel, wat ik steeds heel duidelijk zeg.

Engineering Industry

There is a difference in the findings for both cases from the engineering industry. For Organization C, none of the key informants elaborated on formal authority specifically. But some of the informants, describes the management form as a “top-down “management. Since a top-down approach suggest authority, we assume that for organization C the formal authority is not minimal:

Nou ja, nee, ik denk dat het stiekem toch wel een top- down organisatie is. Alleen er is wel ruimte voor dingen, in de praktijk het meeste top- down komt zeg maar, maar als je een keer wat hebt, en je bent pro- actief, je wilt er wat mee, dan is daar ruimte voor is. Nou ja, je hebt natuurlijk het overkoepelende organisatieplan zeg maar, dat komt helemaal vanaf boven in 1x ingevlogen om het zo maar te zeggen

The above mentioned statement does not support the minimal formal authority. A remark from another respondent from organization C implies that if you have an idea the formal authority is

subordinate to the idea if it helps improve the functional work process. But there is still formal authority who makes the end decision and perceived level of decision-making autonomy is low:

Het is echt zegmaar functioneel ingericht en niet hiërarchisch, natuurlijk op een gegeven moment heb je een structuur van leidinggevend en algemene direct voor heel de organisatie maar uiteindelijk heeft die natuurlijk wel het laatste woord, maar het is niet zo dat als jij iets wil dat je dan eerst al die figuren af moet om daar uiteindelijk gelijk te krijgen.

In comparison with organization C, the perceived autonomy in decision-making in organization D is different. For organization D most informants describes the organization as one with a lot of freedom in making own decisions. Only when it is a real big decisions the management can take over, but this is not the standard way:

Ja nou, je zoekt daar dus een goede middenweg tussen, tussen de vrijheid voor ondernemerschap, en toch ja, de 'one firm principles'. Ja dat doe je bijvoorbeeld door veel kennisuitwisseling, door mensen te laten rouleren, of op die manier kennis te laten maken met andere dingen, managers vaak met elkaar te laten samenkomen, praten, informatie uitwisselen. Ik moet zeggen, ja, dat we een redelijke balans daarin hebben. En af en toe stuur je wat bij, en af en toe leg iets op, van 'en nu gaan we dat zo doen en geen geouwehoer meer' Ja dat gebeurt, maar dat moet je niet met alles doen.

High- tech Industry

Organization E, the high-tech industry, the climate is characterized as low level of decision-making autonomy for people working at the manufactory. Although, problems can be discussed with the management at all times:

Ik denk dat we het verdelen van taken etc. netjes via de hiërarchische as doen, maar als iemand problemen heeft of weet ik wat dan staat bij de baas de deur echt wel open.

The managers and engineers perceive a higher level of autonomy in decision-making compared to the other employees. As an example, one of the unit managers said that he did have an influence on decision made by the board:

En ja als je kijkt naar de unit waarvoor ik verantwoordelijk ben, daar hebben ook wel weer een aantal dingen voor teruggedraaid (die door hoger management werden opgelegd). [...] Ja dat is het voordeel als je unitmanager bent.

1c. minimal level of routines & standardization

Public broadcasting Industry

For organization A and B the level of routines and standardization is relatively high. There are strict rules set by the government about the programs and broadcast time. For that reason, both organizations have a high routine in daily programs. An example from organization A:

Ja dat is natuurlijk. In essentie kan dat hier in Nederland niet. De publieke omroep heeft gewoon een taak om programma's te maken voor het algemene publiek. En ik kan niet zeggen...ik geloof dat er wel een soort normering ligt, dat je nee ook dat zelfs, we kunnen niet zomaar als nevenactiviteit, het mag zelfs niet. We mogen niet zomaar zeggen, 'wij gaan nu een programma produceren voor de overheid.

Engineering Industry

For the engineering industry the level of routines and standardization is minimal for both organization C and D. An example from organization C, to confirm that work is not standardized and low in routines mostly, although it is a mix of special projects with more standard projects:

Nou dat hangt ook een beetje van je portefeuille af, natuurlijk. Ik bedoel als 5% van de projecten het verschil met maken, dan is 50% misschien wel heel veel, daar hangt het natuurlijk ook mee samen, dus dat is ook ingewikkeld. Hoewel iedereen die voelt ook natuurlijk, niemand haalt z'n neus op voor projecten van "hier heb ik geen zin in, want dat is niet uitdagend genoeg". Zo werkt het natuurlijk ook niet. En ja, al je bagage en ervaring en skills die je hebt om ingewikkelde projecten op te lossen, die kun je ook toepassen op de wat meer gestandaardiseerde projecten.

And from organization D, to validate that there are no standard forms of working:

En kijk, wat je natuurlijk hebt, ik ben natuurlijk projectmanager ik heb een x aantal projecten onder me, en ja, "joh, jij moet maar tot een positief eindresultaat zie te.. te halen". En hoe je dat doet, daar is geen standaardhandleiding voor. Dat kan je.. laatst is er een basiscursus projectleider.. project.. nou ja projectleiders cursus geweest, ja .. leuk maar.. daar zetten we niet de basislijnen uit, kan ook niet, iedereen is een individu. En elk project is ook weer heel erg anders. Dus je kan niet standaard zeggen in die vorm gaan we werken".

The reason for working with relatively low standardization and routines is according to one of the managers from organization D due to the strong focus of the organization on the demands of

customers. By providing all customers unique advice the organization can make a difference compared to other companies:

Wat we daar in boven proberen is.. van oudsher zijn we natuurlijk degene die de kachel en de koeling ontwerpt, je krijgt steeds meer die randgebieden eromheen en dan bedoel ik niet de technische randgebieden van je kan energie in de bodem opslaan. Natuurlijk, dat weten we allemaal, we zijn heel erg bewust bezig als organisatie bij elk ontwerp dat we maken.. ga daar nou eens even een stapje terug doen en denk, zijn we nou ethisch om te beginnen ethisch gezien goed bezig. De klant vraagt specifiek van 'je moet daar en daar en daar een stopcontact hebben om zware apparaten op aan te sluiten', laten we vooral proberen om even mee te denken, om even te bemoeien daar tegenaan zeggen van 'je moet die apparaten überhaupt niet willen'. Wij kunnen wel heel handig een goed stopcontact ernaartoe brengen, maar als je daarnaast een rotapparaat erop gaat aansluiten, probeer je invloed ook in je ontwerp en.. je raadgeving niet te beperken tot je eigen stopcontact, maar til het naar een hoger niveau.

But Organization D sees the duration and stability of a team in a project as one of the determinants for a success or failure of a new project. This means that therefore they try to maintain the composition of a team once a project is launched. This could be interpreted as a form of routines for a project:

Ja je probeert zoveel mogelijk mensen op hetzelfde project te houden, wisseling van mensen in een team, dat vind de opdracht gever vaak niet leuk en je ziet ook dat intern, met overdracht en verlies van gegevens, noem maar op, dat het vaak gewoon geld kost voor organisatie D, dus dat probeer je te vermijden. Verlieslopende projecten zie je vaak dat er heel veel wisselingen zijn geweest. Het is gewoon een kenmerk van een verlieslopend project bijna.

High- tech Industry

For organization E, operating in the high- tech industry, the daily work task can be seen as standard and with high routines. When it comes to new products, the standardization and routines needs to be developed over time. But one could argue that there is overall mostly routines and standardization within the company, as a process manager says:

Ik ben verantwoordelijk voor het team, met name om het proces te bewaken en ook "one-way for" te garanderen.. Ja dat gewoon een werkwijze te garanderen, zodat iedereen op dezelfde manier alles invult en werkwijzen heeft. Maar ook om nieuwe werkwijzen te implementeren of bepaalde afspraken te maken.

Another key informant points out that the organization has become more formal due to institutions compared to a few years ago. In the last few years, the organization has become a part of an overall big organization instead of being a small organization on its own. Due to this change of becoming part of the large organization, more formalities were needed what resulted in more standardized processes:

Je bent nu onderdeel van een hele grote organisatie, ja met als voordeel dat je je werkwijzen kan standaardiseren en daar weer ook echt specialisten kan inzetten op bepaalde onderdelen, wat in die kleine organisatie niet kon.

1d. Low coordination

Low coordination is the last characteristic that was proposed in this present study. Low coordination is applicable for some the cases, but it is important to note that it depends on the job function someone has. The general finding is that for lower functions in an organization, the coordination is much higher.

Public broadcasting Industry

For the findings for the public broadcasting industry, both informants from organization A and B perceive low coordination when looking at the function “editor”. The editors have a large own responsibility and freedom. The manager of organization A says:

Het zijn bijna allemaal academisch geschoolde mensen, of daar inde buurt komend dus dat.. en die moeten dat, ook redacteurs moeten zoveel eigen verantwoordelijkheid nemen in gesprekken, in dingen die ze doen, dus dan, dat zou het wel erg raar zijn als ik ze als kleine kinderen zou behandelen.

And for organization B:

Je heel soms zit er een zender manager in het proces die graag een bepaald programma of een bepaalde dj wil, dus dat is, dat zijn je bouwstenen maar we houden het verdere werk helemaal zelf doen ja.

For people working at one show, the perceived coordination is probably higher, but overall both companies fit the profile of “low coordination”.

Engineering Industry

The two engineering firms are also both work with some structural coordination mechanisms. But a lot of the tasks can be performed with relatively low coordination. Therefore, the level of coordination in general is relatively low. An example from organization C about quick direct informal coordination:

Nee daar hoeft je de sectordirecteur niet tussen te hebben zitten, jij kan rechtstreeks dan naar de persoon waarvan je weet dat die dat doet en dat weten de meesten van elkaar heel goed, die kun je er even op attenderen van goh je moet die en die even bellen want er ligt een kans voor jullie.

But there are also some structure coordination meetings, for example a weekly meeting to oversee and divided tasks at organization D:

Wij hebben een wekelijkse coördinatie overleg voor heel.. zeg maar voor alle onderdelen binnen organisatie D, in Nederland. Dat noemen we een coördinatieoverleg. Daar zitten dus alle managers van de vestigingen en van de groepen in Rijswijk bij en daar wordt wekelijks.. op wekelijkse basis gekeken, waar is een vraag naar personeel en waar is een overschot. Dat wordt zo goed mogelijk zeg maar verdeeld, ondersteund.. elkaar ondersteund, ja.

High- tech Industry

For the last case, the high-tech industry, the firm tries to provide room for own independent actions, but in practices most tasks are more or less coordinated from higher level management. A unit manager from organization E suggests that the weakness of firm is determined by the unit managers and his or her straight to have a certain influence to coordinate actions:

Je moet aan de ene kant richting geven, ruimte bieden binnen in die richting om daar die optimalisatie in te vinden""Dat is 100% afhankelijk van de sterkte van de productiemanager. Dus, wat je ziet is, als je nu aan mij vraagt wat de key- rollen in deze organisatie zijn, dan is dat voor mij de unit manager.

The organization works with standardized work meetings with the department once a week to discuss and when necessary improve the coordination of task. A unit manager explained the content of such a group meeting:

Iedere week heb ik een GWO, dat staat voor groepsworkoverleg en ja dat is dan met heel de unit, inclusief de indirecte support. Dus de engineer is er en logistiek. En ja dat is een half uurtje per week en ja dan zitten er een paar standaardonderwerpen die dan terugkomen plus randzaken die dan op basis, ja de revue passeren. Nou een van de dingen die er altijd opstaat, is de productiestatus: dus hoe

staan we ervoor ten opzichte van het plan en hoe is het met de intake, hoeveel orders zijn binnengekomen en wat gaan we komende week qua productieplan op ons af krijgen. En als er dan bepaalde krapte is of juist dan zal er ook een melding zijn van “Jantje, is om uitwisseling naar afdeling A of Pietjes is vanuit afdeling A even bij ons aan het meehelpen” Dat soort dingen zitten daar ook aangekoppeld.

There are also meetings with the unit managers and engineers across departments, this is usually bi-weekly as a engineering explained:

Om de week een half uur. Met de meeste wel een maandelijks vast routine maar we komen elkaar ook regelmatig tegen en dan stemmen we even de “day –to -day” zaken af. Maar gemiddeld zal dat om de week zijn dat we echt heel bewust wat afstemmen.

To conclude organization E does not fit the proposition of low coordination.

1e. Project- Based team work

In all five cases, data derived from the interviews showed that all organization structures were build among multiple dimensions and some of the organizations accomplish this with project-based team work .

Public Broadcasting Industry

When specifying for each sector, the first two cases for the sector “public broadcasting” had different dimensions in the organization such as program, theme and function. For both case A and B, there is a functional team for every program separately. For case A, a respondent describes a the structure per program: an end editor, editorial team and production team:

Kijk je hebt.. productie, redactie en productie zoals we het hier doen is de eindredacteur verantwoordelijk, dus die stuurt zowel het redactie- als het productieteam aan.

And for organization B, the structure is described as a separation of three different platforms: radio, television and internet, with one overall director and adjunct director.

Natuurlijk hebben we wel een organogram. Maar dat is zeg maar directeur, adjunct directeur, tv en radiodirecteur, hoofden van de afdelingen en dan hangen daar afdelingen onder.

For organization B, the structure is also team based. Every show has its own self-directed teams:

Programma X, Ja dat is een redelijk zelfstandig team, ze worden wel aangestuurd door mij, nu. Maar niet op dagelijkse basis. Ze gaan gewoon hun gang.

Engineering Industry

For the two cases from the engineering firm dimensions such as product, function, geographical area and area of expertise were made. They worked project-based (proposition 2 b). As one of the respondents describes the structure of organization C as followed:

De organisatiestructuur van organisatie C kent zegmaar een algemene directie, een sectordirectie en daaronder een laag van raadgevende ingenieurs, binnen elke sector hebben we 1 of meerdere raadgevende ingenieurs, en daaronder hebben we dan zeg maar projectleiders de technici de tekenaars en alles wat daarvoor nodig is om zeg maar onze business te bedrijven.

This means that for organization C the structure and control is project- based.

Ja dat zijn verschillende lagen, eigenlijk moet je het zo zien, onder de algemene directie de sectordirecteuren, daaronder de raadgevende ingenieurs, daaronder de projectleiders. Dus de raadgevende ingenieurs hebben een leidinggevende rol, in de lijn naar de mensen toe, terwijl de projectleiders veel meer een projectorganisatorische functie hebben, dus die hebben mensen binnen hun project die ze aansturen op de projectinhoud maar niet direct aanspreken over hun competenties en vaardigheden.

Organization D is also working on a project-based way. An informant from organization D explains how a project is managed:

Op projecten is dat natuurlijk anders. Dus je hebt een hiërarchische lijn, iedereen heeft hier een baas, en weet direct wie zijn baas is en daar heeft ie ook regelmatig contact mee. Als personeelsbaas, zeg ik dan even. Iets anders is het in projecten, want in projecten heb je een projectleider, een project manager, die de baas is in dat project. Dus ja op die manier heb je wel een heel andere methodiek.

In order to create such stabile teams Organization D, tries to make mixed teams in forehand when starting up a new projects.

Dat is een mix van.. een mix van expertise, een mix van persoonlijkheden, ervaren mensen en de net afgestudeerden. Ja, dus je zoekt wel naar een goede mix in zo'n team".

The manager from organization D highlighted on the negative side effects that working on project-based way can have. Since generals managers can have different interested, then project managers:

Nou, een projectmanager heeft een project wat ie.. een manager van een vestiging of afdeling heeft meerder plannen dan alleen maar geld te verdienen met 1 project. Want die heeft ook te schakelen tussen veel projecten. En die moet ook zorgen dat al die projecten rendabel zijn. Dus die ene

projectmanager wil alleen maar de beste mensen voor zijn project, maar ja.. dat hoort ook zo, dat hoort een gezonde strijd te zijn.

High- tech Industry

The last case from the high tech sector has built their dimensions in the organization among the engineers, whereby different managers were responsible for different aspects of the results.

Organization E calls the structure that they use a “matrix structure”:

Nou, ja het is voornamelijk een matrix organisatie dus vanuit de functie creëren wij capaciteiten aan de verschillende units [...] En de unitmanager die heeft gewoon de aansturing om.. Wij bepalen vanuit de functie veel meer van dat zijn de procedures, op deze manier doen we dat, je zit in die unit ja de functionele zaken vanuit de unit manager komt dan meer van: ik wil dat je eerst dit uitvoert en dat je nu dit doet.

Organization E does not work with project based teams, although the different units working on different aspects are build upon the same ideas as having different projects. By having all units linked together in a matrix structure the organization is organized upon multiple dimensions. Some of the respondents are negative about the structure:

Dat model is gekozen, dat is wel aardig want ik ben daar dus een tegenstander van, ik vind dat geen goed model. Dat model is gekozen omdat een aantal functies zeg maar je hebt de operatie en je hebt de functionele as. En als je meer op de operatie gaat sturen, dus als je dat allemaal onder de unit hangt, dan zit al het regelvermogen onder die operatie en dan kan de operatie vooruit. Alleen moet je dan wel zorgen dat ze functioneel inhoudelijk een medewerker een bepaalde discipline vertegenwoordiger ook wel ja, professioneel bezig zijn.

While, others also pointing on the positive sides of the structure:

Dus het model, ja het matrix model heeft een aantal voordelen; met name professionaliteit. En dat is ook wel gebleken in die verschillende gebieden. Ook veel harmonisering binnen de functie. Maar voor die shopfloor controller bijvoorbeeld die zou ik bijvoorbeeld gewoon in de unit zetten.

























Ook om een stukje onafhankelijkheid te krijgen, bijvoorbeeld in de kwaliteit. En daar zie ik wel dat ze nu meer aan het harmoniseren zijn en standaardisatie hebt.

Summary proposition 1

Overall, the proposed characteristics are presented in the cases across the five organizations, but not all characteristics are presented at each case individually.

A short summary of the findings for proposition 1 for every organization is given in table 4.

Table 4: Characteristics of infrastructure

	Flat structure	High degree of decision-making autonomy Min. formal authority	Min. level of routines & standardization	Low coordination	Project- Based Team work
CASE A	 More hierarchical structure, although some room to give own input. Nothing mentioned about “open-door” culture.	 Sometimes employees have decision-making autonomy, but most important decisions are always made by management. High formal authority, all decisions in the end are made by end editor.	 The amount of changes in job tasks are limited, since all programs are relatively long-term programs . More standardization in work process.	 All editors have a large own responsibility and freedom. All other employees perceive a bit more coordination around tasks.	 Functional team for every program.
CASE B	 All respondents perceive the organization as flat.	 High autonomy in decision-making. Clear authority, when it comes to decision- making, this is not in line with perceived flat structure.	 The routines is relatively low compared to organization A, but still there is overall a high level of standardization & routines	 A high own responsibility and room for making own choices.	 Functional team for every program.
CASE C	 “Open- door” culture and higher management is easy to approach. The structure is perceived as flat.	 Not specific mentioned by key informants, but top-down management multiple times mentioned in the interviews.	 Salient, mentioned by all informants that the level of routines/ standardization is low, mostly due to constantly changing projects with different goals.	 There is a high focus on self responsibility.	 There is a higher level management team with project leaders.
CASE D	 The structure is perceived as flat, there are only limited layers in structure.	 A lot of freedom in making own decisions, only when real important decisions have to be made, there is hierarchical authority.	 Routines/standardization is low, mostly due to constantly changing projects with different goals.	 Handling own responsibilities is very important.	 The use of different projects for every client.
Case E	 The structure is perceived as flat and also management with “open door” policy .	 For the team leaders and engineers the decision- making autonomy is relatively high. They can make their own decisions about project- related issues.	 People have to perform almost the same job tasks and routines constantly, only the frequency and amount of work can fluctuate. High standardization of process.	 Trying to provide room to be independent, but in practice most tasks are coordinated.	 The have a matrix structure with different units.

In sum, the findings (as depicted in table 4) suggest that some of the proposed infrastructure characteristics for agile organization are indeed found at the five different organizations. However, the red crosses in the table also indicate that not all proposed characteristics for an agile infrastructure from proposition 1 were applicable for all cases.

Three characteristics fit the criteria of being suitable for at least four out of the five cases. These three characteristics are: Flat structure (1a), low coordination (1d) and project-based team work (1e). It is too simple to suggest that based upon the findings only these three characteristics are important. But since the other two characteristics: Minimal formal authority and minimal level of routines and standardization are not suitable for at least four cases of the study they might be less important compared to the other three.

Proposition 2

In order to understand the findings related to the second proposition (2a, 2b & 2c), it is necessary to use the findings from the first proposition, the presence of highly adaptable organization infrastructure characteristics per industry, to see whether there are differences between the three industries. The differences between industries are presented, as well as the differences that are found between two companies operating in the same industry. Followed by quotes, that could explain the differences in the presence or absence of organizational infrastructure characteristics by looking at the influence of the institutional context and the strategic response.

PROPOSITION 2a: If you are operating in a highly dynamic environment with a relatively low level of institutionalization, one can expect more features of an adaptable infrastructure (since you have less restrictions from institutions) compared to a highly dynamic environment with a relatively high level of institutionalization.

Differences between the three Industries

Public Broadcasting Industry vs. Engineering Industry

First of all, the findings from the public broadcasting industry are compared with the findings of the Engineering Industry. As already discussed in the paragraph about the presence of institutional pressure, for the public broadcasting industry (2 firms) the dynamics are caused by: the institutional setting (mainly from the government) and the context can be defined as highly institutionalized.

For the engineering industry (2 firms) the dynamics are mainly caused by their own business environment: working with projects. The industry can be seen as one with low institutionalization.

In the following table, the presence or absence from the five different highly adaptable infrastructure characteristics for the public broadcasting industry and the engineering Industry (proposition 1) are depicted.

Table1 a: Findings *Public Broadcasting Industry*





















	Flat structure	High degree of decision-making autonomy Min. formal authority	Min. level of routines & standardization	Low coordination	Project- Based Team work
Case A					
Case B					

Table 1b: Findings Engineering Industry

	Flat structure	High degree of decision-making autonomy Min. formal authority	Min. level of routines & standardization	Low coordination	Project- Based Team work
Case C					
Case D					

If you compare the results for the public broadcast industry with the results from the Engineering Industry, the two cases operating in the Engineering Industry show *overall more characteristics* of a highly adaptable organizational infrastructure than the cases from the public broadcast industry. These findings suggest that the proposition that if the level of institutionalization for an organization is “low” (the engineering industry), the infrastructure characteristics for an agile organization are

expected to be more present than compared to an organization with 'high' level of institutionalization (the public broadcasting industry) is correct.

As already said, the public broadcasting industry operates in a context with high institutionalization, mainly caused by rules and regulations set by the government. This pressure makes the industry less flexible in making choices of their own about products and development because there are strict quality demands set by the government. The room the manoeuvre is smaller and this means that by institutional pressure the level of routines on what needs to be done will be higher. Or in other words: the infrastructure characteristic "minimal level of routines" is less likely to appear when the institutional pressure is high. A quote to support the findings from organization A:

Ja dat is natuurlijk. In essentie kan dat hier in Nederland niet. De publieke omroep heeft gewoon een taak om programma's te maken voor het algemene publiek. En ik kan niet zeggen...ik geloof dat er wel een soort normering ligt, dat je nee ook dat zelfs, we kunnen niet zomaar als nevenactiviteit, het mag zelfs niet. We mogen niet zomaar zeggen, 'wij gaan nu een programma produceren voor de overheid.

There are some rules that also apply for the Engineering Industry, like labor law. An example from Organization C:

En soms heb je mensen die ziek zijn en je vind dat ze heel slecht functioneren of ze zijn er zo weinig en je kan geen grip krijgen, dat zijn van die ziektes waar je niet zoveel mee kan. Dan denk je, donder op. Dan denk je, we zouden het zonder jou ook kunnen proberen. En dan voel je je belemmerd door wet- en regelgeving.

But since labor law is an institutional pressure that applies for every industry, in this research we do not recognize the presence of these kind of institutional pressure as a specific characteristic of an environment with high institutionalization. As already stated before the Engineering industry can be seen as an industry with a relatively low degree of institutionalization.

Proposition 2b: The influence of the level of institutionalization on the presence of highly adaptable organizational infrastructure characteristics depends on what determines the main causes of dynamism (market pressures or institutional pressures).







Public Broadcasting Industry vs. High-tech Industry

For the high-tech industry (1 firm) the dynamics are mainly caused by the demand of new products and repairs. This is interesting because although the dynamics are primarily caused by the business environment, the level of institutionalization for this industry can be seen as high. For that reason,











this last case makes it possible to make a distinction between firms where dynamics are mainly caused by business market pressures (= high-tech industry) and where dynamics are mainly caused by institutional pressures (= public broadcasting industry) while in both situations they are operating in an environment with high institutionalization.

In the following table, the presence or absence from the four different highly adaptable infrastructure characteristics for the high- tech Industry (proposition 1) are depict. Furthermore, the findings from the public broad casting industry are presented again in order to compare both.

2a Findings High-tech Industry

	Flat structure	High degree of decision-making autonomy Min. formal authority	Min. level of routines & standardization	Low coordination	Project- Based Team work
Case E		 			

2b Findings Public Broadcasting Industry

	Flat structure	High degree of decision-making autonomy Min. formal authority	Min. level of routines & standardization	Low coordination	Project- Based Team work
Case A					
Case B					

If you compare the results for the public broadcast industry with the results from the high-tech Industry, the differences in the presence of highly adaptable infrastructure characteristics are just tiny differences. The two cases operating in the public broad casting industry have two or three of

the proposed infrastructure characteristics for an agile organization and the high-tech organization has two characteristics.

Proposition 2c: The influence of the institutional pressures on the presence of highly adaptable organizational infrastructure characteristics depends on the response the organization chooses towards these institutional pressures (comply, defy or innovate).

Differences between companies operating in the same industry

If you look at the findings for the public broadcasting industry, an interesting finding is that the respondents from organization B perceive a lower level of standardization and routines compared to the respondents from organization A. To illustrate this, an example of internal reshuffling for the program called "Program X":

Dat gaat deels ten koste van een switch die je moet plegen, maar dat is onder druk wordt alles vloeibaar. Twee hostesses of the show) moeten worden vrij gemaakt, maar waar een wil is, is een weg en anders worden ze vrijgemaakt.

The differences in perceived level of routines and standardization might be depending on the strategy (defy, conform, innovate) that an organization chooses on how to deal with institutional pressures (Boon et al., 2009). Organization B can be described as being a more innovative, young channel compared to organization A, as a much more traditional channel. For that reason the strategy of organization B can be seen as "innovative" while the strategy of organization A is more "conform". A remark here is that some of the respondents from organization B are also saying that the organization is changing and that they have the feeling that in the future more routines and standardization will take place in the organization.

Summary proposition 2a, 2b and 2c

The findings related to proposition 2a suggest that an industry with a relatively low level of institutionalization (engineering industry) show overall more characteristics of a highly adaptable infrastructure compared to an industry with a relatively high level of institutionalization (public broadcasting industry). These results support proposition 2a that if the extent of institutionalization for an organization is "low" the infrastructure characteristics for an agile organization are more present than compared to an organization with a "high" level of institutionalization.

Furthermore, there is a small tendency in the findings concerning proposition 2b that suggest that if you compare an industry where dynamism is mainly caused by market pressures with an industry where dynamism is mainly caused by institutional pressures, while both are operating in a highly institutionalized context, organizations with dynamism mainly caused by institutional pressures show more characteristics for a highly adaptable organizational infrastructure. This means that proposition 2b is supported since it seems to be the fact that what determines the main causes of dynamism (market pressures or institutional pressures) for an organization, has an influence on the presence of highly adaptable organizational infrastructure characteristics. But as this support is only based upon a gradually difference, more research is highly recommended.

Finally, the findings related to proposition 2c suggest that the respondents from organization B perceive a lower level of standardization and routines compared to the respondents from organization A, while they both operate in the same industry (public broadcasting industry). The differences in perceived level of routines and standardization might be caused by the differences in an organizations' strategy on how to deal with institutional pressures; defy, conform or innovate (Boon et al., 2009).

4.2 Emergent Findings

Long term employment

In some of the cases the concept of long term employment showed up as a typical characteristic of the organization. The characteristic "long term employment" can give resistance among employees when it comes to changes (Strebel, 1996). If an organization wants to change its infrastructure and implement infrastructure characteristics for agile organizations, it could be harder to establish. In the discussion a more detailed story of the effects of long term employment can be found. Below, some quotes are mentioned to illustrate the presence of long term employment at some of the cases.

A respondent from organization C points out that hiring new people is not that difficult and most employees stay for a longer period:

Over het algemeen kost het ons niet zo veel moeite en hebben wij heel veel open sollicitaties ook. Dus mensen die zelf aangeven dat ze graag hier willen komen werken. En we hebben ook weinig verloop, dat is ook iets heel bijzonders aan dit bureau. [...] Ja , dan blijft men toch vrij lang hier zitten. En we hebben ook veel mensen die hier al meer dan 30 jaar zitten, waaronder ikzelf.

And:

Nee, nee of je bent hier binnen een paar jaar weg, of je blijft tot aan je pensioen heb ik het idee, dus het is een vrij hechte club, je ja verblijft hier vrij lang, als je zeg maar dit jou aanspreekt .

Long term employment is also a characteristic for organization D:

De knip ligt zo'n beetje bij de.. dat hebben we het afgelopen jaar ook gemerkt, als de tijden wat onzekerder worden.., 6,7 jaar is wel zo'n beetje de fase waarop mensen gaan zeggen van "ja, maar ik heb dit nu 6,7 jaar gedaan en ik zie niet dat ik daar... dat ik kan doorgroeien naar een andere.. een andere rol, omdat dat niet bij mij past of omdat Deerns gewoon niet.. biedt. Maar het merendeel zit hier toch wel wat langer. Toevallig gisteravond nog even op het intranet zitten kijken naar wat er in 2001 allemaal voor vestigingsuitjes zijn geweest en wat foto's bekeken, kom ik toch heel veel koppen tegen die er nu nog zitten, dus op zich is het een redelijk vaste club mensen.

Also for organization E long term employment is a often occurring event even with the flex workers, as a recruiter from organization E stated:

Dus het verloop is hier minimaal geweest. En dat zit ook een beetje in de genen. Het verloop is echt gering. Waarbij het ook opvallend is dat er een hoog aantal uitzendkrachten werkzaam is. "Unit-managers zien uitzendkrachten ook zo, die zijn voor hun langer termijn mensen want ook de meeste units relatief lang zijn, hoogstens een paar weken minimaal.

Communication

In some of the cases the importance of communication was mentioned, as another important factor that determines whether an organization can successfully survive in a dynamic environment. For that reason, the present study believes that "communication" should be included as an additional variable in further research about organizational agility. An example of quote from a key respondent from organization D, to highlight the importance of communication:

Ja, een keten is zo sterk als de zwakste schakel. Dus als het ontwerp hier slecht gedaan wordt dan hebben ze hier en daar (wijst naar een document) een probleem. Dus het is wel belangrijk dat die hele organisatie goed en duidelijk met elkaar communiceert.

Many respondents mentioned that it is important to keep all employees informed, especially when the job security is low due to the dynamic environment. An example of a quote for a respondent from organization C:

Soms is er niet genoeg werk meer. Maar dan is er al wel langere tijd een signaal afgegeven dat er een periode aankomt. Het wordt wel ingemasseerd, om het zo te zeggen, we hebben het wel ingeleid en gecommuniceerd, en dat, daardoor is er wel veel begrip voor denk ik.

And an example from organization D, what to do when job security is low:

Nou door extra gesprekken, de verantwoordelijk directeur besteed er extra aandacht aan, samen met personeelszaken en de manager, ja. Dus ja, meer gesprekken met mensen, van hoe gaat het nou, meer informatie over ja dat soort dingen, want ja, je krijgt dan toch in de wandelgangen vaak verhalen, zo van we verwachten dat jullie de vestiging gaan sluiten. Nou, dat moet je heel snel ontzenuwen, dat absoluut niet zo is en ja, daar moet je zeker aandacht aan besteden.

Communication is not only important to inform people about a possible leave, but also to inform people about the most important new items and the main issues that are important for the organization at a certain time. Organization E organizes so called “townhall meeting” to inform all employees about the past year and to present the ideas of next year:

Townhall meeting- Ik denk dat gecommuniceerd wordt, in het algemeen even, in een toelichting zeg maar. Dan wordt er een keer een middag wordt er even 2 uur uitgetrokken, dan wordt het jaar doorgenomen, hoe is het gegaan zeg maar en waar gaan we accent leggen voor volgend jaar.

A respondent from organization C also points out that the annual or monthly meetings can create cross-binding and to help each other if possible:

In april hebben we voor het hele bureau die presentatie laten zien. Dat is heel bewust gedaan om even aandacht te vragen voor die cross-binding. En we hebben ook tijdens, half april de presentatie van de jaarcijfers van het afgelopen jaar. We hebben dan in december de jaarbijeenkoms, waarin we vooral vooruitblijkt en in april kijken we vooral terug op dat afgelopen jaar. Heel bewust hebben we nu een item opgenomen in die presentatie waarin we alle 5 adviesgroepen in het bureau de mogelijkheid geboden om even te laten zien waar zijn we allemaal mee bezig. Zodat iedereen even op het netvlies heeft, van die groep is met die en die onderwerpen bezig en dat is het met name om die cross-stelling te verstrekken, dat heeft ook iedereen meegekregen als hand-out en dat heeft iedereen als het goed is in z'n la liggen, om er af en toe op kijken. We doen natuurlijk heel veel en je komt altijd dingen tegen. Bijvoorbeeld als een club bij een nieuw project betrokken is en het is een bestaand gebouw waar iets moet gebeuren, dan kunnen ze op z'n minst vragen “is er al een conditiemeting gedaan?” Dus paar simpele vragen die je kan stellen die gelijk werk genereren voor een aantal mensen binnen dit bureau. Nou, dat, daar hebben we even op willen wijzen op die mogelijkheid om elkaar te helpen.

According to a manager from organization E, the structure of an organization can positively stimulate better communication. Plus communication can also have a positive effect for the engagement of employees to the company:

Dus we hebben toen bewust gekozen van die laag gaat eruit. Die snijden we er bewust uit en we gaan een plat model waarbij iemand ook echt van de roet en de rand weet, die gaat het dan zijn mannen uitleggen en dan gaat het zo goed mogelijk. Nou dat heeft de voordelen gebracht die we hoopte. Dus de communicatie is vee helderder, we merken dat de engagement is verbeterd dus mensen voelen zich best betrokken en zien,, worden meegesleurd in het bedrijf.

Summary Emergent findings

In table 5 a summary of the emergent findings is depict, all subjects will be discussed in discussion section of this paper. For some of the emergent findings, new proposition are presented in the discussion section for future research.

Table 5: Summary of emergent findings

<u>Emerging findings</u>	<p>Long term employment</p> <p>Communication is an important determinant to survive in a dynamic environment</p>
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5. Conclusion & Discussion

The aim of this paper was to answer the following research question: “Which organizational practices (characteristics) determine the organizational infrastructure for agile organizations?”. This overall question can be seen as the basis for the study. Besides the main question, two more specific sub questions are used as a starting point for this study:

- What are the differences between infrastructure characteristics (or similarities) for agile organizations?
- In what way do market pressures, institutional pressures and the strategic response on this institutional pressure have an influence on organizational infrastructure?

The data used in this study derived from five different firms in the Netherlands, within three different industry sectors. Data was collected among different key informants from different companies.

Based upon previous literature, the research used two propositions as a starting point to analyze the data. In the next paragraph the conclusions with regard to those two propositions will be presented. After that, the conclusion with regards to the emergent findings are given. Finally, the discussion part gives a more in-depth analysis of the findings. Based upon these findings some recommendations can be given. These recommendations can be used as a starting point for further research

5.1 Conclusion Propositions

Theoretically, this study overcomes a weaknesses observed in prior research on how to interpret the relationship between organizational infrastructure and organizational agility by focusing on specific infrastructure characteristics as being general characteristics for the infrastructure of an agile organization (proposition 1). For the five firms from the present study, it can be said that the findings are partly in line with the infrastructure characteristics proposed. Not all the characteristics for an agile infrastructure from proposition 1 were applicable for all cases.

Going back to the findings, three characteristics fit the criteria of being suitable for at least four out of the five cases. These three characteristics are: Flat structure (1a), low coordination (1d) and project- based team work(1e). Proposition 1 is dealing with the overall general infrastructure characteristics, but it is too simple suggesting that based upon the findings only the three characteristics, flat structure, low coordination and project- based team work are important. However, since the other two characteristics: Minimal formal authority and minimal level of routines and standardization are not suitable for at least four cases of the study they might be less important compared to the other three.

For proposition 2a, the findings suggest that if you compare the results from an industry with a relatively low level of institutionalization(engineering industry) with the results from an industry

with a relatively high level of institutionalization (public broadcasting industry), the industry operating in a relatively low institutionalized context show overall more characteristics of a highly adaptable organizational infrastructure. These results support proposition 2a that if the extent of institutionalization for an organization is “low” the infrastructure characteristics for an agile organization are more present then compared to an organization with a “high” level of institutionalization.

Furthermore, in order to say something about the causes of dynamism, two cases that differ in main causes of dynamism while both operating in high institutionalized context are compared (proposition 2b). The findings suggest that for industries that both have to deal with a relatively high level of institutionalization, an industry with dynamism caused by institutional pressures (public broadcasting industry) has more characteristics for a highly adaptable organizational infrastructure than an industry with dynamism caused by market pressures (high- tech industry). But since this suggestion is only based upon a relatively small difference, more research is highly recommended.

For proposition 2c an interesting finding between the companies in the public broadcasting industry is that while operating in the same industry, the respondents from organization B perceive a lower level of standardization and routines compared to the respondents from organization A. The differences in perceived level of routines and standardization might be due to the strategy (defy, conform, innovate) that an organization chooses on how to deal with institutional pressures. Organization B can be described as being a more innovative, young channel compared to organization A, as a much more traditional channel. For that reason the strategy of organization B can be seen as “innovative” while the strategy of organization A is more “confirmative”.

5.2 Discussion

Proposition 1

The findings related to the first proposition show that most of the cases have the following proposed highly adaptable organizational infrastructure characteristics: flat structure (1a), low coordination (1d) and project- based team work (1e). These findings will be discussed in more detail now. In order to do so, the previous literature related to these three characteristics is considered again and compared with the findings of this study.

The characteristic flat structure was present in four out of the five cases. Respondents from the four companies, describe their structure as a ‘flat structure’. For example a lot of the respondents highlight that the organization has only a few levels. This is in line with Mintzberg (2002) who defines a flat structure as a structure with only a few levels and larger workgroups per level compared to more hierarchical structures. A flat structure is useful, for example when a change in

market demands occur and the organization is forced to change its production process as soon as possible. It can be assumed that a flat organic structure will help the organization to change the production process more quickly, since there are only a few layers that need to be informed, approved and subsequently executing the change. An organizational structure that is flat, has a positive effect when an organization needs to adapt quickly in changing environments (Dyer & Shafer, 2003). These theoretical ideas are in line with the overall findings derived from the data from the five cases. The presence of a flat organizational structure and the presence of a constantly changing environment are both confirmed by different key informants from four out of the five cases. Only organization A shows a more hierarchical structure. This might be due to the fact that organization A has a relatively traditional way of organizing, every single operation is delegated to a few people which create more hierarchy, as it creates a lot of layers in the organizations. However, the general ideas of a flat structure are adopted by most of the cases and organization A seems to be only a random exception.

The second characteristic: 'low coordination' is also mentioned by four out of the five cases. For example in the public broadcasting industry all editors perceive a relatively low degree of coordination. According to Mintzberg (1979) and Volberda (1998) agile organizations should focus on trying to get a low degree of coordination because it can enhance quick responses and faster organizational change. A low degree of coordination means that the business unit or project teams in such an organization are largely able to perform the work or the project they do independently of others and that they have a large amount of autonomy. Mintzberg refers to this as 'horizontal decentralization'. This is in line with the findings from both the public broadcasting firms and the engineering firms. Especially the respondents from the engineering firms confirm the ideas from Mintzberg, as both firms extremely highlight the importance of low coordination by means of a high degree decentralization in combination with project-based working.

The characteristic 'project-based team work' was also found at four out of the five cases. The findings reveal that the choice to work in projects benefit the organization in such a way, that within the same firm people are able to have different ways of work based upon what is best for every single project. The study of Keegan & Rodney Turner (2000) already revealed that project-based working can help organizations to be more flexible and that is exactly what the respondents described during the interviews. Where many companies have an "one-size fits all" approach to the use of teams, the results here suggest that applying different teams for different types of projects and different organizational structures benefit the organization.

Overall, it can be stated that the characteristics: flat structure, low coordination and project-based team work are presented in most of the cases and most respondents explain the positive

effect that it has on the organization in order to survive in a highly dynamic environment. This is in line with previous literature, as Mintzberg (1979), Dyer & Shafer (2003), Volberda (1998) and Keegan & Rodney Turner (2000) e.g., already stressed the importance of a flat structure and low coordination and/ or project- based teamwork. In sum, this means that future research should test the following hypothesis:

In an agile organization, the expected general characteristics of the organizational infrastructure are: flat structure (1a), low coordination by means of a high degree of decentralization (1d) and project- based team work (1e).

For the second characteristic “low coordination” it is important to make an additional comment: Most of the findings reveal that indeed coordination on operational tasks is relatively low. However, there are also some areas that can be defined as highly coordinated, especially in terms of how to use resources. For example, how to divide all employees across different projects is highly coordinated for both the engineering firms. Organization D, coordinates this by having a weekly meeting to divided working among all employees. Neither Mintzberg (2002) or Volberda (1998) specified the characteristic “low coordination” as being different depending on what source the coordination is about. Further research will be needed to specify “low coordination” in more details and based upon the findings from this study, a starting hypothesis for future research in addition to the above mentioned hypothesis is:

The expected general infrastructure characteristic “low coordination” for an agile organization means that coordination on operational tasks is low, while the coordination in terms of how to use resources on the other hand is expected to be high.

Proposition 2

Another theoretical advance of this study is that the institutional context is included in the study. The result of this research showed that there are differences for the industry sectors in terms of infrastructure characteristics for agile organizations. The institutional context can be seen as one of the variables that might help explain the differences in the findings.

Methodologically, the present study also makes a contribution since its focus is upon more than one industry. The next paragraph tries to explain the differences in presence of the infrastructure characteristics between the firms in more details based upon the differences per industry and also within the industry. The most remarkable findings are presented in the next paragraph. Some of findings will also lead to propositions for future research.

Proposition 2a, saying that if you are operating in a highly dynamic environment with a relatively low level of institutionalization, one can expect more features of an adaptable infrastructure (since you have less restrictions from institutions) compared to a highly dynamic environment with a relatively high level of institutionalization, is confirmed by comparing the result from the public broadcasting industry (case A+B) with the results from the engineering industry (case C+D).

Most of the proposed characteristics for an agile infrastructure are present at the two firms from the engineering industry. For case C, four out of five characteristics are present and for case D even five out of five. For the public broadcasting industry only two out of five for case A and three out of five for case B. The differences in how much characteristics are present for each case could be explained by the differences in institutional context, as proposed in this research (proposition 2a). The engineering industry was divided into the category of “a relatively low degree of institutionalization” while the public broadcasting industry was divided into the category of a “relatively high degree of institutionalization”. So in line with proposition 2a, based upon the findings it can be stated that: if the level of institutionalization for an organizations is “low”, the infrastructure characteristics are expected to be more present. For that reason a recommendation from this study is to test in follow-up research the following hypothesis:

If the level of institutionalization for an organization is “low”, the infrastructure characteristics for an agile organization are expected to be more present then compared to an organization with a “high” level of institutionalization.

In this study we have looked at the institutional context as a possible explanation for the differences in infrastructure for agile organizations. An important assumption made in the present study is that institutions are put in place and then exert their effects and that they are not subject to further change. Scott (2002) however argues that this assumption might not be correct. He stated that in the last two decades studies also suggested arguments and situations involving institutional change where existing forms are replaced by new arrangements. This is called the process of deinstitutionalization (Scott, 2002). In practice this means that an organization can lobby legislative frameworks and this can also be seen as a way of dealing with institutional pressure. In a new study the process of deinstitutionalization should be included as well, because if for example one of the organizations is following the process of deinstitutionalization and the other organization not, the deinstitutionalization process could be a reason for different results. Therefore the following hypothesis needs to be tested:



If the process of deinstitutionalization occurs, the perceived institutional pressure in such situation will be lower, compared to a situation where the process of deinstitutionalization does not occur.

In addition, maybe the process of deinstitutionalization as described by Scott (2002) can be seen as just another term to describe “strategic response”, which is already included in this study. This study has used the ideas of Boon et al. (2009) that an organization uses a certain strategy as response on how to deal with institutional demands. An organization can “conform”, “defy” and “innovative” (Boon et al., 2009). The strategic response “innovative” (= being innovative in coping with the institutional context by active development of this context) might be seen as the response that can be interpret as a different term to describe the process of deinstitutionalization.

The findings related to proposition 2b suggest that the influence of the level of institutionalization on the presence of highly adaptable organizational infrastructure characteristics depends on what determines the main causes of dynamism (market pressures or institutional pressures). This can be assumed based upon the differences in the total amount of highly adaptable organizational infrastructure characteristics between the public broadcasting industry (case A+B) and the high-tech industry (case E). But since the differences are only tiny differences, more research is needed to support or reject these ideas. By logical reasoning, the explanation of the differences might be due to the fact that although the main cause of dynamism for the high-tech industry are market pressures, the institutional pressures are also very high. Organization E has to deal with rules and regulations that are set by the government an especially since they operate in the medical field. Organization E develops medical system and since those systems are used to treat patients (humans), there are many strict rules set by the government for building such systems. This means that for the high-tech industry there are two strong pressures, while the public broadcasting industry ‘only’ has to deal with one main pressure: the institutional context. But again, it needs to be stressed that the differences between the cases are only very limited and for that reason more research is needed before one can formulate a proper hypothesis.

For proposition 2c an interesting finding between the companies in the public broadcasting industry is that they respondents perceive a lower level of standardization and routines compared to the respondents from organization A.

Case A & B: Public Broadcast Industry

	Min. level of routines & standardization
Case A	
Case B	

For organization A the characteristic “minimal level of routines & standardization” was not present, as the results showed that there was a high level of routines and standardization. Some quotes suggest that the high level of routines and standardization can be due to the high rules and regulations that are set by the government for broadcast firms. Organization A perceives these rules as high pressure and obey to the rules. As a result, they have a higher need for a standard form and way of working. This can be seen as a strategic choice of the organization. When an organization uses a certain strategy as response they can deal with institutional demands on three different ways: “conform”, “defy” and “innovative” (Boon et al., 2009). In this case organization A choice is to “conform”, they use a passive or neutral response by executing the rules.

In comparison, organization B is in the same industry (so they have the same set of rules) but their strategic response is different. The strategic response from organization B is much more “innovative”. They try to balance on the line of the rules, by doing things “their own way” instead of exactly obey to the set rules. These findings suggest that the strategic choice (comply, defy or innovative) of an organization to deal with institutional demands can have an influence on the presence of agile infrastructure characteristics, in this case for the level of routines & standardization of both firms. Future research is highly needed to support or reject the ideas based upon proposition 2c, therefore the following hypothesis is made:

If an organization follows the strategic choice of being “innovative” in order to deal with institutional demands, the extent of perceived level of routines & standardization will be lower, compared to an organization that follows the strategic choice of being “confirmative”.

Emergent Findings

To continue with the other findings, based upon the emergent findings, “communication” and “long term employment”, some recommendations and remarks can also be made.

To start with the topic “communication”, one of the efficiency problems that Mintzberg (2002) acknowledge for an adhocracy is that those organizations might have communication problems. In the present research the characteristics of an adhocracy are used as a reference point for characteristics of agile organizations. Therefore, the problems occurring in an adhocracy described by Mintzberg (2002) are most likely similar in agile organizations. Mintzberg (2002) stated that the adhocracy structure is ideal for unique products, but for regular normal daily tasks not very useful. The adhocracy is developed for extraordinary tasks and if the tasks are not that unique efficiency problems occur. One of the efficiency problems that Mintzberg (2002) describes is communication problems. The problem is that in an adhocracy the cost from constant communication are very high and mostly not efficient. In an adhocracy people need to talk to each other constantly, because there is no one from a higher level that gives the order to do something. Everyone will have the room to say their opinion and the time to come to a decision is therefore relative long.

As the findings show, in most cases the communication goes by informal networks. This can be seen as a reaction to solve the problems with communication. But communication problems still occur when people are not informed about upcoming changes or when they do not understand the reason behind certain decisions. Meetings can be organized, like for example a “town hall meeting” in organization E, to inform employees better. Most of the organizations studied in this research already use such tools to inform their employees, but since “communication” was not take into account in the proposition of the present study it is interesting for further research to study it more in-depth in order to see which tools are often used and which not. Such findings can be useful for companies in becoming even better communicators. In contradiction, Simons & Mechant (1986) argues that for complex organizations “communication” can be seen as a coordination mechanism. From this point of view, the emergent finding “communication” is no longer an emergent finding but part of a characteristic already used as being a characteristics of an agile organization, namely: “low coordination”. Mintzberg (2002) says that communication problems occur due to the characteristics of the infrastructure of an agile organization. An organization will use different methods to cope with this problem. If you combine this argumentation with the statement from Simons & Mechant (1986) that communication is a coordination mechanism, the emergent finding is no longer a real emergent finding but just an add to the infrastructure characteristic “low coordination” for an agile organization that is missing in this study. It should have been included in the research in forehand and therefore for future research we suggest that “communication” as being a coordination mechanism should get more attention. To summarize, the following proposition can be made:

It is expected that communication, as being a coordination mechanism on how to use resources, is more important for agile organizations compared to organizations that do not need to be agile.

Another recommendation for further research that is not directly related to the propositions of this study, is based upon the emergent finding: “long term employment”. In case C and E a few respondents talked about the old existing culture of their company in combination with long life employment. These characteristics are almost a guarantee for a lot of resistance when it comes to changes (Strebel, 1996). For that reason it might be the case that there are less infrastructure characteristics for agile organizations present at firms with high long term employment, due to the fact that it is more difficult to implement change. For example, it could be the case that an organizations tries to create a more flat structure, as they believe that it will help them in order to survive in a dynamic context and to become more agile. But creating a flat structure, is not easy to establish when all employees of an organization have always worked in a high hierarchal structure. To change the structure in such case can be difficult and the chance that the organization does not succeed in creating a more flat structure is relatively high. By using this argumentation, it might be the case that there is a relationship between the presence of long term employment and the presences of organizational infrastructure characteristics. Since this research did not taken focus upon long term employment, it is one of the recommendations for further research to take into account as an expansion of the explainable variables for the presence of infrastructure characteristics of organizational agility. The hypothesis that can be used to test this is:

If the organization has a culture of “long term employment”, the infrastructure characteristics for an agile organization are expected to be less present then compared to an organization with a culture that is not characterized by “long term employment”.

5.3 Summary of hypotheses

In the discussion part the findings from the present study lead to the formulation of a number of hypotheses which can be tested by future research. In this paragraph an overview of all these hypotheses is presented.

Hypotheses based upon the findings related to proposition 1

- In an agile organization, the expected general characteristics of the organizational infrastructure are: flat structure (1a), low coordination by means of a high degree of decentralization (1d) and project- based team work (1e).

- The expected general infrastructure 'low coordination' for an agile organization means that coordination on operational tasks is low, while the coordination in terms of how to use resources on the other hand is expected to be high.

Hypotheses based upon the findings related to proposition 2a,2b,2c

- If the level of institutionalization for an organization is "low", the infrastructure characteristics for an agile organization are expected to be more present than compared to an organization with a "high" level of institutionalization.
- If the process of deinstitutionalization occurs, the perceived institutional pressure in such situation will be lower, compared to a situation where the process of deinstitutionalization does not occur.
- If an organization follows the strategic choice of being "innovative" in order to deal with institutional demands, the extent of perceived level of routines & standardization will be lower, compared to an organization that follows the strategic choice of being "confirmative".

Hypotheses based upon the findings related to the emerging findings

- It is expected that communication, as being a coordination mechanism on how to use resources, is more important for agile organizations compared to organizations that do not need to be agile.
- If the organization has a culture of "long term employment", the infrastructure characteristics for an agile organization are expected to be less present than compared to an organization with a culture that is not characterized by "long term employment".

6. Limitations & Suggestions for future research

6.1 Limitations

The findings of this study should be interpreted bearing the limitations in mind. Therefore some limitations will be presented now, where some limitation can be seen as possible avenues for extensions. It is always possible that future research may cast doubt on the suggested hypotheses from this study. The suggested hypotheses may be at the basis of future research and can be seen as suggestions to include other variables as well.

A first limitation of this study was the nature of the data itself. The data was sometimes difficult to interpret and sometimes there was a lack of information for the new added topics in the present study. Furthermore, by doing case studies thoughts and views of some persons are mapped, but it is unknown how others might think about the topics. On the other hand the nature of case studies helps to provide new insights on topics that are relatively new, which was the purpose of this research.

It would be most difficult to ensure that the perceptions of executives or outside experts about the domain of the industry would be congruent. Also, in the present research context, the unit of analysis, operational measures, and available data sources would make further assessments of convergent and discriminant validity very difficult. The reliability is not that strong, that one can easily replicate the study. But during the study all description of the process and methods are registered and a case study protocol with memo's and interview transcripts is made.

As a final remark, based upon the findings from the present study one could argue that the importance of organizational infrastructure should be definitely taken into account. The question whether it can be seen as the third competence is still questionable, since the study did not compare the strength of the relationship with the other two competences. Further research could help address to this issue.

6.2 Implications for future research

It is really important for further research to test all new hypotheses and to get a higher insight in the infrastructure of agile organizations. The first step is to build a strong conceptual model for explaining organizational agility. As discussed in the method section, there is no concrete instrument available to measure organizational agility.. The present study therefore used a rather indirect measure of organizational agility: how to survive in a dynamic environment.

By building a strong model around the concept of agility, it could contribute to the question on how to measure agility which can be very useful for future research. After this is done, the next step will

be to find more support for what the competences are for an agile organization (and which are most important) by doing more research, including organizational infrastructure as an option. The last step will be to look for possible context effects, like institutional pressure.

The present research can be seen as a starting point to fulfill these steps. All implications for the future, the proposed hypotheses, show that there are still many questions and further research is highly needed. This will all contribute to the development of a more agile organization.

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Appendix A: Interview structure/Topic List

Organizational Agility in an institutional context

- 1. Inleiding**
- 2. Kernprocessen**
- 3. Dynamische omgeving**
- 4. Organizational practices**
- 5. Institutionele mechanismen**

1. Inleiding

Organisaties worden geconfronteerd met continue verandering veranderen?. Deze veranderingen doen zich voor in zowel de markt als in de institutionele omgeving. Om hiermee om te gaan dient de organisatie wendbaar te zijn: in staat om voortdurend en zonder problemen te transformeren van configuratie naar configuratie. Hiervoor maken organisaties gebruik van specifieke praktijken. Deze praktijken dragen bij aan de ontwikkeling van competenties gericht op flexibiliteit van het werknemersbestand, aanpasbaarheid van de organisatiestructuur en het kennisabsorberend vermogen van de organisatie. Deze drie competenties dragen samen bij aan de wendbaarheid van de organisatie.

De genoemde praktijken worden door organisaties geïmplementeerd in de bewegingsruimte die organisaties hebben. Deze bewegingsruimte wordt bepaald door de relevante institutionele krachten in de omgeving van de organisatie. De organisatie heeft verschillende mogelijkheden om met deze institutionele krachten om te gaan.

De centrale vraagstelling is:

1. Welke praktijken zijn belangrijke determinanten van de wendbaarheid van de organisatie?
2. Op welke manier worden organisaties gefaciliteerd of gehinderd door de institutionele mechanismen in het realiseren van wendbaarheid?

In dit onderzoek maken we gebruik van een case study benadering. Dit biedt de mogelijkheid om een breed scala van variabelen te onderzoeken en komt tegemoet aan de exploratieve aard van het onderzoek. In totaal worden zes case studies uitgevoerd, in drie verschillende sectoren. Deze sectoren variëren op basis van het niveau van institutionalisering en de aard van de dynamiek. In de case studies maken we gebruik van zowel documentstudie als interviews over zowel de organisatie als de sector.

Aandachtspunten:

☒ Alle interviews worden opgenomen en uitgeschreven

☒ De interviews zijn semigestructureerd en exploratief

☒ Vraag voorbeelden!

☒ De focus ligt op de afgelopen 4 tot 5 jaar

☒ De vragen worden gesteld aan verschillende typen informanten. De codering achter de vragen geeft aan welke vragen aan wie worden gesteld:

HR = HR professionals

LG = Leidinggevenden

OR = Afvaardiging OR

AD = Algemeen Directeur

OD = Ondersteunende Diensten

Openingsvragen:

1. Wat is de kern van uw organisatie?
2. Hoe ziet de omgeving van uw organisatie eruit?

2. Kernprocessen

Het creëren van een blijvend concurrentievoordeel en succes is gericht op een effectieve strategie implementatie. Strategie implementatie is gericht op de kernprocessen van de organisatie. Hiermee bedoelen we de processen die de klantwaarde realiseren in de producten of diensten van de organisatie.

We zien wendbaarheid als een dynamische capaciteit en verwachten dat deze uitsluitend relevant is in kernprocessen van de organisatie. Verder richten we ons ook uitsluitend op de medewerkgroepen die in de kernprocessen actief zijn. Deze medewerkers kunnen op verschillende type dienstverbanden worden ingezet. Hierbij maken we het onderscheid op basis van een lange / korte termijn focus en de aanwezigheid van organisatiespecifieke of generieke kennis.

Vragen

Wat zijn de kernprocessen in de organisatie? Op welke wijze worden in deze processen de toegevoegde waarde gecreëerd? Welke groepen medewerkers zijn relevant in deze kernprocessen?

Concurrentievoordeel: (HR/LG/OR/AD/OD)

- a. Wat is de toegevoegde waarde van uw organisatie voor haar klanten?
- b. Wat is de missie van uw organisatie?
- c. Op welke factoren concurreert uw organisatie met uw concurrenten?

Kernprocessen: (HR/LG/OR/AD/OD)

- a. Welke processen zijn het belangrijkste voor het creëren van toegevoegde waarde?
- b. Hoe dragen deze processen bij aan de toegevoegde waarde?
- c. Welke processen ondersteunen de kernprocessen?

Human resources: (HR/LG/OR/AD/OD)

- a. Welke groepen van medewerkers zijn met name actief in de kernprocessen?
- b. Hoe kunnen deze groepen worden gedefinieerd met betrekking tot:

Lange / korte termijn

☒ Strategische waarde / richtingbepalend vermogen

☒ Organisatiespecifieke / generieke kennis

3. Dynamische omgeving

De omgeving omvat zowel de markt omgeving als de institutionele omgeving. Hiermee bedoelen we de instanties welke eveneens een invloed hebben op de organisatie (zoals regelgevende instanties).

De markt omgeving bestaat uit de instanties die in directe uitwisseling (klanten en leveranciers) en concurrentie (zowel klanten als resources) met de organisatie zijn. Beide, markt en institutionele omgeving, kunnen invloed hebben op een organisatie.

De dynamiek in de omgeving is gericht op verandering die (1) moeilijk te voorspellen is, (2) regelmatig voorkomt en met (3) een significante impact op de organisatie. Deze dynamiek vergroot de ondervonden onzekerheid voor de sleutelspelers in de organisatie. *We hebben het hier niet over de complexiteit van de verandering of omgeving!*

Vragen

Hoe ziet de omgeving van de organisatie eruit? Hoe dynamisch is deze omgeving?

Markt: (HR/LG/OR/AD/OD)

- a. Wie zijn de belangrijkste concurrenten?
- b. Hoe zou je deze concurrenten omschrijven?
- c. Hoe invloedrijk zijn deze concurrenten?
- d. Hoe veranderlijk is de bedrijfstak?
- e. In welke mate zijn deze veranderingen te voorspellen?
- f. In hoeverre hebben deze veranderingen een impact op de organisatie?

VOORBEELDEN?

Institutionele omgeving: (HR/LG/OR/AD/OD)

- a. Welke instanties zijn het meest relevant?
- b. Hoe invloedrijk zijn deze instanties?
- c. Hoe veranderlijk is de institutionele omgeving?
- d. In welke mate zijn deze veranderingen te voorspellen?
- e. In hoeverre hebben deze veranderingen een impact op de organisatie?

4. Organizational practices

We veronderstellen dat de competenties van een wendbare organisatie zijn: flexibel werknemersbestand, aanpasbare organisatiestructuur en kennisabsorberend vermogen.

Een flexibel werknemersbestand betekent dat de organisatie haar human resources altijd in lijn heeft met de strategie zonder onnodige kosten. Het werknemersbestand kan worden gedefinieerd in aantallen, competenties, inzetbaarheid en bijdrage. Deze dimensies dienen te worden gemanaged op basis van aansluiting bij de strategie en het gemak waarmee de human resources kunnen verschuiven.

De aanpasbare organisatiestructuur is organisch en wordt gedreven door onderlinge aanpassing, met minimale formele hiërarchie, grenzeloos en team- based. Daarnaast geldt zo min mogelijk vastlegging en standaardisatie van processen.

Het kennisabsorberend vermogen heeft betrekking op het creëren, aanpassen, verspreiden en toepassen van kennis in de organisatie. Behalve de reeds aanwezige kennis speelt hier ook de organisatiestructuur en het vermogen om kennis te delen een belangrijke rol (zowel formeel als informeel).

Vragen

Zijn de competenties flexibel werknemersbestand, aanpasbare organisatiestructuur en kennisabsorberend vermogen aanwezig? Welke praktijken worden ingezet om deze competenties vorm te geven?

Aanwezigheid van competenties: (HR/LG/OR/AD/OD)

- a. Is er (in relatie tot de kernprocessen) sprake van een flexibel werknemersbestand?
- b. Werkt de organisatiestructuur faciliterend of belemmerend in het opereren van de organisatie in een dynamische omgeving?
- c. In welke mate wordt kennis in de organisatie verkregen en gedeeld?

VOORBEELDEN?

Praktijken flexibel personeelsbestand: (HR/LG/OR/AD/OD)

- a. Welke praktijken past u toe om het werknemersbestand te laten aansluiten bij uw strategie?
- b. Welke praktijken past u toe om numerieke flexibiliteit te creëren?

- c. Welke praktijken past u toe om functionele flexibiliteit te creëren?
- d. Differentieert u naar personeelscategorie bij de toepassing van de practices?

Praktijken aanpasbare organisatiestructuur: (HR/LG/OR/AD/OD)

- a. Welke knelpunten bestaan er in uw organisatiestructuur?
- b. Welke praktijken past u toe om een vloeiend organisatieontwerp te realiseren?
- c. In welke mate zijn interne processen gestandaardiseerd?
- d. In welke mate is relevante informatie (realtime) beschikbaar voor uw medewerkers?
- e. Belemmert of faciliteert de werkplekinrichting de wendbaarheid van de organisatie?
- f. Differentieert u naar personeelscategorie bij de toepassing van de practices?
- g. Als u uw organisatie zou moeten beschrijven als hiërarchisch of plat, wat zou dan het beste u organisatie beschrijven? (waarom?)
- h. In welke mate is uw organisatie gericht op "team based" werken?
- i. Hoe is de sfeer binnen uw organisatie tussen personeel en management, is deze meer formeel of informeel? En is het gezag van management autoritair te noemen of juist niet?
- j. Hoe is de organisatiestructuur opgebouwd binnen u organisatie: zijn er verschillende divisies/afdelingen en levels? Zo ja, welke zijn dit en hoe staan zij onderling in contact met elkaar?

Praktijken kennisabsorberend vermogen: (HR/LG/OR/AD/OD)

- a. Hoe wordt nieuwe kennis door de organisatie verkregen?
- b. Hoe wordt het delen van kennis gefaciliteerd of belemmerd (zowel formeel als informeel)?
- c. Waar is de verantwoordelijkheid belegd voor het creëren en delen van kennis?
- d. Wordt kennis gedeeld binnen de organisatie en buiten de organisatie?
- e. Differentieert u naar personeelscategorie bij de toepassing van de practices?

5. Institutionele mechanismen

Organisaties acteren in een complexe omgeving. Organisaties moeten voldoen aan institutionele normen. We zijn hier specifiek geïnteresseerd in institutionele mechanismen die gerelateerd zijn aan de praktijken gericht op wendbaarheid. Organisaties kunnen zelf kiezen hoe ze met deze institutionele druk omgaan. Deze keuze wordt bepaald door interne factoren. De mogelijke manieren zijn: conformeren, innoveren of verzetten.

Vragen

Welke institutionele mechanismen zijn relevant voor de besproken praktijken? Hoe gaat de organisatie om met deze institutionele druk?

Institutionele druk: (HR/LG/OR/AD/OD)

- a. Welke institutionele mechanismen zijn gerelateerd aan de genoemde praktijken?
- b. In welke mate werken deze mechanismen belemmerend of faciliterend?
- c. Welke instanties spelen een belangrijke rol bij deze institutionele mechanismen?

Respons van organisatie (related to discussed organizational practices): (HR/LG/OR/AD/OD)

- a. Waar is de verantwoordelijkheid belegd voor het omgaan met deze institutionele mechanismen?
- b. Welke strategie kiest de organisatie om om te gaan met deze institutionele mechanismen?

VOORBEELDEN?

Appendix B: Cross-Case Analysis: Details

TABLE SIMILARITY IN FINDINGS

Mentioned by informants from all firms (4 out of 5): PROP

Flat structure	1
Low coordination	1
Project- Based team work	1

TABLE INDUSTRY DIFFERENCES CAUSED BY INST. PRESSURE

Prop. 2A: low level of institutionalization vs. high level of institutionalization Characteristics

Case A	2
Case B	3
Case C	4
Case D	5

Prop. 2b. Influences: causes of dynamism at high level of institutionalization Characteristics

Case A	2
Case B	3
Case E	2

Prop. 2c. Influence response towards institutional pressure on level routines & Standard. Aanwezig

Case A	<i>Nee</i>
Case B	<i>Ja</i>

RELEVANT FINDINGS WHICH EMERGED FROM DATA

Communication
Long-term employment

Appendix C: Number of informants per function per organization

Function	Org. A	Org. B	Org. C	Org. D	Org. E
Board of Management	2	2	2	2	0
HR Manager	1	0	1	1	1
Line Manager	3	5	1	2	6
Project Manager	0	1	2	2	1
Coordinator	0	0	0	0	1
Educations					
Workers Council	1	0	1	1	1
Total	7	8	7	8	10