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Renewal Towards Strategic Agility in a Public Organization
Case Tekes

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ABSTRACT
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Master's Thesis
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RENEWAL TOWARDS STRATEGIC AGILITY IN A PUBLIC ORGANIZATION: CASE TEKES

Objectives

The objective of this study is to examine how a public innovation funding organization Tekes renews itself. More specifically how it is able to renew itself same pace or even faster than its customers in pursuance of creating positive impact to the Finnish business life, which is going through disruptive changes. Interest was also focused if the organization is able to benefit from its position as a public sector organization but near customer interface, which consists of innovative, growing companies, research institutions and other public organizations. Additionally was examined if Tekes as a public organization is able to use practices from private sector companies to its own benefit in renewal.

Methods

Research represented a single qualitative case study. Main data collection method was interviews. Altogether 16 interviews were conducted. of which twelve (12) inside Tekes, two customers of Tekes and two partners of Tekes. Other sources were documents of the organization and observations. Empirical data was collected with inductive approach as exploratory study. Data and theory were revised alternating deriving the final analysis and conclusions to the study. Through the interplay between empirical data and theories was found a framework of strategic agility, which was used to elaborate the empirical data.

Findings

To renew itself, Tekes is using its unique position between companies and public administration as well as the practices of e.g. strategic agility from the private companies in high-velocity industries. In addition to these, the whole top management has taken the strategic agility goal to themselves and open-mindedly take forward experiments, practices to support agility and act as examples of the culture they want to create in the organization. Especially decentralized decision making has had huge impact on for example the dynamics of top management, speed of actions, ability to take responsibility and start experiments. Also some practices related to the top management concerning strategic agility has been implemented through the organization. In this way Tekes is building capabilities across organization, which help to prepare for the future needs and keep Tekes in the cutting edge knowledge.

Key Words: public organization management, strategic agility, dynamic capabilities, continuous renewal

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JULKISEN ORGANISAATION UUDISTUMINEN KOHTI STRATEGISTA KETTERYYTTÄ: TAPAUS TEKES

Tutkimuksen tavoitteet

Tutkielman tavoite on tutkia miten julkinen innovaatiorahoitusorganisaatio Tekes uudistuu. Erityisen kiinnostuksen kohteena on miten organisaatio pystyy uudistumaan samaa tahtia tai nopeammin kuin yritysasiakkaansa tehtävänään luoda positiivinen vaikutus murroksessa olevaan suomalaiseen liike-elämään. Tarkastelussa on lisäksi miten organisaatio mahdollisesti hyötyy julkisen organisaation asemastaan, mutta ollessaan samalla lähellä asiakasrajapintaa eli innovatiivisia, kasvavia yrityksiä., tutkimusorganisaatiota ja muita julkisia organisaatioita. Lisäksi tarkasteltiin pystyykö Tekes julkisena organisaationa hyödyntämään yritysten käytänteitä uudistumisessaan.

Tutkimusmenetelmät

Tämä tutkimus edustaa kvalitatiivista yhden tapauksen tutkimusta. Pääasiallinen tietojenkeruu suoritettiin haastatteluin, joita oli yhteensä 16 kpl: 12 sisäistä, kaksi asiakasta ja kaksi yhteistyökumppania. Muita tietolähteitä olivat organisaation asiakirjat ja havainnot. Empiirinen aineisto kerättiin induktiivisella lähestymistavalla. Aineistoa ja teoriaa käsiteltiin limittäin, jonka avulla päästiin lopulliseen analyysiin ja johtopäätöksiin. Tällä toimintatavalla päädyttiin strategisen ketteryyden kehykseen, jota käytettiin empiirisen aineiston yksityiskohtaisempaan havainnollistamiseen.

Tutkimustulokset

Uudistuakseen Tekes hyödyntää asemaansa julkisen hallinnon ja yritysten välillä. Organisaatio mm. soveltaa ketteryyden käytäntöjä nopeatempoisten toimialojen yrityksiltä. Organisaation johto on sitoutunut strategisen ketteryyden tavoitteeseen. He edesauttavat kokeilukulttuurin syntymistä, luovat ketteryyttä edistäviä käytäntöjä ja toimivat esimerkkeinä strategisen ketteryyden kulttuurille. Erityisesti hajautettu päätöksen teko on vaikuttanut huomattavasti johdon dynamiikkaan, nopeuteen, vastuunottokykyyn ja kokeiluiden aloittamiseen. Lisäksi tyypillisesti johtoon liitettyjä ketteryyden kyvykkyyksiä on otettu käyttöön läpi organisaation, mikä tarkoittaa kyvykkyyksien rakentamista organisaation laajuisesti ja auttaa valmistautumaan tulevaisuuden muutostarpeisiin pitäen Tekesin innovaatiotoimialan huipulla.

Avainsanat: julkinen organisaatio, strateginen ketteryys, dynaamiset kyvykkyydet, jatkuva uusiutuminen

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I would also like to thank everyone around me who have participated to the journey. Journey itself has been inspiring, refreshing, sometimes frustrating, but always enjoyable. I have learned so much and keep on learning through the enhanced capabilities attained during the two academic years.

Finally, but most importantly I would like to thank my husband for the patience, support and care through studies and especially the Master's thesis project. You have enabled me to follow my long-term educational dream and achieve my goal.

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1. INTRODUCTION

1.1 Background of the study

The study in this thesis started with the interest in how organizations renew themselves to be able to compete in the fast changing environment almost every industry has already. Especially important this topic had become after few declining economic years in Finland, which was accompanied with major structural changes in different industries, before success stories for Finland. On the other hand new industries were rising, which might have global competitiveness and become the next export industries. For these industries to flourish, many countries have their own national innovation system with funding agencies promoting growth companies, innovations and renewal of companies. These funding agencies may have a huge role and impact to the growth of different industries. This is the case also in Finland. Case organization Tekes is the most important publicly funded expert organization. It finances research, development and innovation in Finland.

1.2 Objective of the study

Given the impact Tekes is able to make, it seemed to be imperative for the organization to stay in the front line of development, trends and innovations in different industries to be able to guide their customers forward and create positive impact to the Finnish business life. It also meant that the organization needed to have practices in place in order to renew itself and its offerings to match the change impulses. This creates the research question of **how a public innovation funding organization renews itself same pace or faster than its customers.** Although public organizations in general need to renew themselves, the pressure is very high with an organization working with companies and especially helping them develop further.

Being a public organization there were a question which kind of practices would suit this kind on organization. This brought to the subquestion **if Tekes as a public organization is able to and uses practices from private sector companies to ensure its own renewal and what kind of practices they would be**. Related to this is the question **whether Tekes is able to benefit in its own renewal from its unique position and role** as a public organization inside innovation system, but close to the private sector. What would be the benefits and what would be the restrictions.

When examining the organization more closely it came clear that Tekes has had the ability to renew its offerings with good results for already decades. It meant good strategic insight, working processes and interactive culture. What became relevant and important to the current state was the speed and agility of the organization to be able to respond the impulses from the fast-changing environment. This more closely brought to the topic of strategic agility as the future key to renewal and keeping the position in the front line of innovations.

1.3 Methodology

This study is a single-case study, with abductive approach. Main data collection method was interviews. Altogether 16 interviews were conducted, of which 12 inside Tekes, 2 customers of Tekes and 2 partners of Tekes. Other sources were documents of the organization and observations.

Empirical data was collected with inductive approach as exploratory study. Data and theory were revised alternating deriving the final analysis and conclusions to the study. Through the interplay between empirical data and theories was found Doz & Kosonen (2008) framework of strategic agility, which was used to elaborate the empirical data. Quotes from the interviews are used to richen the understanding of reader and illustrate the analysis. More detailed information on methodology can be found in a separate methodology section.

1.4 Structure of the thesis

In the introduction the background of the thesis and reasoning leading to the objective of the study and research questions is explained. Brief section of methodology completes the introduction.

Second chapter includes literature view to strategic agility and its backgrounds. Concerning these theories, perspective of public organizations is examined in connection to the case organization.

Third chapter introduces the case. It reviews the Finnish innovation landscape, innovation system and funding as well as gives the insight to the case organization Tekes. Some empirical data is included to illustrate how people in Tekes perceive the organization.

Fourth chapter explains the research problem and presents the research question and subquestions.

In fifth chapter the methodology is explained more detailed with data collection, analysis and evaluations of credibility of the study and limitation.

Sixth chapter elaborates empirical data through the headlines from framework of Doz & Kosonen (2008) on strategic agility. However, the key points from the empirical evidence are presented with respect to the capabilities and practices found in the organization. Also additional points are made, which are critical to the organization. Every main theme ends with the summary. Additional analysis is created from levers to maintain agility and challenges.

Thesis will end to discussion comparing theory and empirical findings. Finally there are conclusions and revising the research questions. Also implications for further studies are presented.

2. LITERATURE REVIEW

The purpose of the literature review is to give a background to the study and to illustrate the journey to the framework of strategic agility in the empirical section. First is presented a short summary of strategy theories and their connection to the organizations' environment. Secondly notions on strategic renewal and dynamic capabilities are illustrated. Thirdly we go deeper in strategic agility. We examine the definition and content of strategic agility and impacts to the organization. Role of managers and organizational structure are addressed as key factors contributing to the strategic agility. Also resources, decision making and tension are examined related to strategic agility. Next section concerns studies on these perspectives in public organizations as an operational environment in accordance to the case organization. Last section introduces strategic agility framework from Doz & Kosonen (2008).

2.1 Strategy theories and changing environment

Strategy theories have reflected the needs of the companies in the era in question. Competitive forces framework from Michael Porter (1980) set the first frame where companies positioned themselves in the market better than their competitors through certain attributes. In the second frame work of resource-based view the eye turned to internal resources and VRIN (valuable, rare, in-imitable, non-substitutable) resources of the company effected directly to performance and brought the competitive advantage. These both theories reflect the position or resources on a certain point of time.

Strategic management theories rooted in stability started to get more criticism and they were deemed vague, tautological and inadequate. (e.g. Volberda, 1994; Mintzberg 1994; Weber & Tarba, 2014). Strategic planning involved long and thorough rigid processes with the goal to find long-term strategic commitments (Kortelainen & Lättilä, 2013). Strategic plans were seen to be based on yesterday's actions, concepts, and tools and the plans seldom happened as such (Weber & Tarba, 2014). Mintzberg & Waters (1985) already introduced the concepts of unrealized and emergent strategies. Excessive and massive strategic planning also raised the danger of inertia and plans were actually preventing organizations to adapt and response to the changes in the environment (Weber & Tarba, 2014; Lewis & Smith, 2014).

The environment where organizations exist has changed constantly more high-velocity and complex. Moving towards global markets, fast developing and disruptive technology and massive real time information flow create new pressures for organizations to be able to succeed. A former president of Nokia stated: "Five to ten years ago, you would set your vision and strategy and then start following it. That does not work any more. Now you have to be alert every day, week, and month to renew your strategy" (Doz & Kosonen, 2008). In this high-velocity environment many companies fail because they stick too long to their strategies and former competitive advantages and become rigid in structure and practices when searching for predictability, stability and efficiency (Doz & Kosonen, 2010).

This meant that earlier inflexible approach would not be functioning in the rapidly changing business environment. Mintzberg (1994) highlighted that there were several external and internal reasons why strategic planning should be discarded as it had been. World is changing too much to be predictable enough, top management might not be aware of the organizational capabilities or environment and formal procedures are not able to comprehend and take in everything happening in the environment. Instead of strategic planning he promoted for example strategic thinking, broader visions instead of plans and adapting to changing environment.

The problem of how organizations can successfully deal with unpredictable, dynamic, and constantly changing environments has been a prevailing topic both in industry and academia for a few decades and there has been many different solutions proposed (Sherehiy et al., 2007). There has emerged a need to transform strategy, business models, practices and resources more rapidly,

frequently and more far-reachingly than in the past (Doz & Kosonen, 2010).
More recently strategy theories have been emphasizing the ability to respond to the environmental changes and even be proactive towards changes. Strategic renewal, dynamic capabilities, flexibility and strategic agility has been examined as a response to the current needs of organizations. These topics will be elaborated in following sections. Transforming the business model of a successful company is never easy, as inertia from many sources defends the status quo. Strategic agility is most obviously a keystone to having the ability to transform and re-new business models and this is the focus also in the literature review.

2.2 Strategic Renewal

Agarwal and Helfat (2009) define strategic renewal to include "process, content, and outcome of refreshment or replacement of attributes of an organization that have the potential to substantially affect its long-term prospects." (p. 282) They recognize two type of strategic renewal: discontinuous strategic transformations and incremental renewal. Discontinuous transformations involve major changes usually in the strategy or organization. Incremental strategic renewal on the other hand may, when proactively executed, help organizations to respond to the external changes and prepare for future without the need for larger change processes. Organization and strategy may look different in the end also through this renewal method. Both methods of renewal are used with good results in organizations and both methods are seen necessary. Agarwal and Helfat also state that in both these two methods processes and content of strategy are intertwined.

Strategic renewal becomes important for the growth of economy when considering that most of the companies are incumbent and many of them have existed decades. They create most of the economic growth, and some of it through renewal (Agarwal & Helfat, 2009). Top management responsibility has been and is to make organization adaptable to changes in the environment to prolong existence and make organization succeed. Besides their own performance and existence, these global big companies may even set the industry direction through their renewal and innovation and create growth in a larger scale. On the other hand start-ups and small companies need also start to build their capabilities to renew themselves already at the early stage to keep up in the competition where big companies have economies of scale and small companies need to be agile, innovative and connected.

Strategic inertia may cause organizations to hold on to a strategy so long that it actually becomes a loosing strategy, when they should be changing a good strategy even a better one continuously, while the environment around the organization is changing and new strategies would suit the current situation better (Pryor et al., 2007). To do this Pryor et al. (2007) start from understanding the external environment and stakeholder needs. They warn about being arrogant and discarding the external impulses. They go forward in suggesting learning by experimenting and refocusing strategies.

Hopkins et al. (2013) propose that strategic renewal (or inertia) is influenced by top management mindset, middle manager empowerment and commitment. Competitive external environment with top management embracing entrepreneurial culture will enhance the middle managers' perception of empowerment and increase commitment through which strategic renewal can be successful.

Binns et al. (2013) distress the need to proactively renew organization. They suggest that strategy, experimentation and execution should be part of the organizations DNA. Selecting growth aspiration that connect with people emotionally, treating strategy as a dialog as opposed to ritualistic, having document-based planning process, using experiments to explore future possibilities, engaging a leadership community in the work of renewal and applying execution disciplines to the effort would be the key ingredients for strategic renewal.

Agarwal and Helfat (2009) summarize that on organizational level internal social and political context, organizational identity and cognition, organizational structure and set of dynamic capabilities impact strategic renewal. Accordingly organizations would have different methods and sets of dynamic capabilities for strategic renewal.

2.3 Dynamic capabilities

Dynamic capabilities have been defined in many different ways and sometimes the concept itself might be hard to grasp as a whole. In general dynamic capabilities definition includes the capacity of an organization to purposefully build, extend, integrate and reconfigure its resource base and assets (tangible and intangible) and operating capabilities. Dynamic capabilities are directed toward strategic adaptation and renewal and they have been shown to improve performance when mediating with resources and routines. Resources and competencies may succeed in short-term, but dynamic capabilities enable long-term ability to respond to changes in the environment. In this context concerning renewal top management is responsible for creating the needed dynamic capabilities in the organization. (Harreld et al., 2007; Agarwal & Helfat, 2009; Teece, 2009; Helfat et al., 2007; Lin & Wu, 2014)

Dynamic capabilities have encountered also criticism, especially concerning the definition of the concept. According to Piening (2013) they have been criticized for being tautological, conceptually vague and not sufficiently empirically grounded. Largest confusion is the lack of clarity on the definition of dynamic capabilities. One definition not being tautological is Zollo's and Winter's (2002) distinction between dynamic capabilities and their effects. They define dynamic capabilities as "learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness" (p. 340). The other criticism has been between dynamic capabilities and competitive advantage. Dynamic capabilities themselves are not the ones affecting the competitiveness of organization like in many definitions, but instead, "they indirectly affect the performance of organizations as they enable them to renew their operational capabilities, or more precisely, the routines that underpin these capabilities" (Piening, 2013, p. 216).

Many researchers have stressed especially organizational processes by which organization synthesizes and applies current and acquired knowledge resources to create something new. Dynamic learning capability seems to be essential to competitiveness and enhances organization's performance, especially when combined with VRIN resources of organization. Learning is also key feature in creating strategic agility in an organization. Organization needs to have capabilities to consistently identify and take in new knowledge and use it efficiently. Current capabilities affect on how the company is able to learn. (Roth, 1996; Kogut & Zander, 2003; Kogut & Zander, 1992; Lin & Wu, 2014)

Having only learning capabilities is not enough for an organization to be able to renew itself. It needs also capabilities through which it takes the learning into action. Top management has three major roles: they must create capabilities through which they are able to 1) sense the changes in the external environment, 2) seize the detected opportunities and act on them with reconfiguration of resources, competencies and organizational structure as well as 3) manage perceived threats. Managers are seen as entrepreneurial asset orchestrators responding to the environment dynamics. They need to have both strategic insight and strategic execution. (e.g. Harreld et al., 2007; Teece, 2009)

Teece (2009) sums up foundations of dynamic capabilities into these three categories of sensing, seizing and managing threats / transforming. Sensing is about creating systems to learn, sense, filter, shape and calibrate opportunities. Seizing involves structures, procedures, designs and incentives to seize those opportunities. Some microfoundations related to this are decision making protocols and building loyalty and commitment. Lastly managing threats and transforming includes the continuous reconfiguration of assets. Here microfoundations contain e.g. decentralization and decomposability as well as knowledge management.

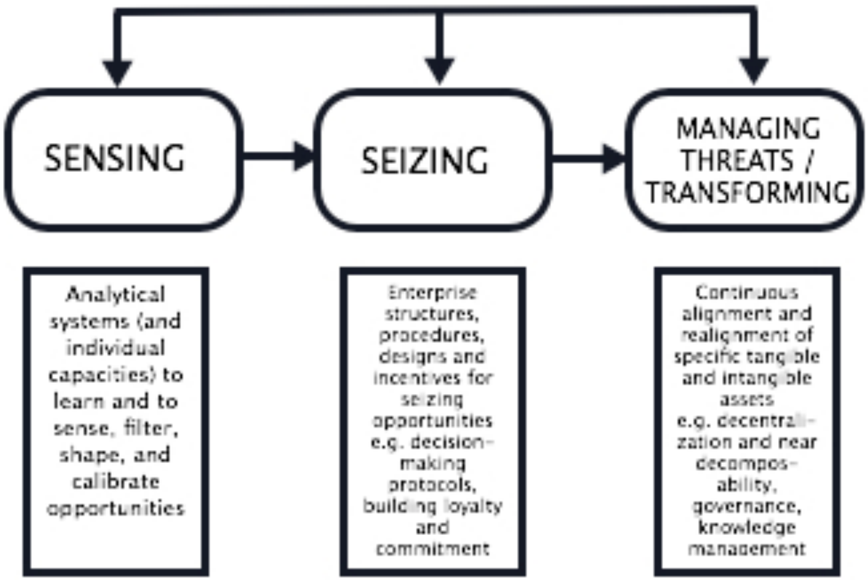


Figure 1. Foundations of dynamic capabilities and business performance (Teece, 2009, adaption)

When dynamic capabilities are broke down more closely, it is a set of concrete mechanisms that help operationalize renewal and sustainable advantage through sensing environment and seizing the changes through dynamic organizational realignment (Harreld et al., 2007). Organizational routines are the mechanisms by which they are put into use (Teece, 2007). The complexity of dynamic capabilities comes from the need of several interconnected routines together with resources such as knowledge (Piening, 2013). Helfat et al. (2007) suggest that different dynamic capabilities are supported by different sets of organizational routines. Routines identified as microfoundations for dynamic capabilities include e.g. decision making, communication, sensing, seizing and knowledge codification (Piening, 2013).

Dynamic capabilities have been assumed to be path dependent, namely dependent on the history of the organization. More precisely path dependency shapes the underlying routines of dynamic capabilities. Three main factors, namely the historical development of an organization, learning barriers and micropolitics explain why these routines are path-dependent. The development of routines is based on experimental learning (learning-by-doing) and therefore requires the repeated execution of similar tasks through which they become routines. Routines form around existing resources and therefore limit the scope of future actions. Learning barrier becomes from cumulative learning around existing routines narrowing the insight. Micropolitics refer to power and interest competition between individuals and groups which tends to promote self-preservance of collectively agreed routines. (Teece, 2007; Zollo & Winter, 2002; Piening, 2013)

It has been assumed that dynamic capabilities are more beneficial in the dynamic environments than stable environments. When the environment becomes fast-changing, there needs to be also capabilities to seize the opportunities in an accelerating pace. In these markets industry structure is ambiguous, boundaries are blurred, there are fluid business models, ambiguous and shifting players and nonlinear and unpredictable change. Organization's dynamic capabilities determine how quickly they can formulate and implement actions. They are needed for quick organizational adaptation in fast-changing environments. They enable the organization to quickly reconfigure its organizational routines. The flexibility may not be the only central factor, but the speed with which dynamic capabilities enable management to redesign and reconfigure organizational structure and routines necessary for change. In more detailed perspective, organizations need to have simple, experimental routines that rely on newly created knowledge specific to the situation. When situation itself is not stable, execution needs to be iterative and yet the outcomes still are unpredictable. Organizations that possess dynamic capabilities and flexible structure can quickly reconfigure other capabilities and organizational routines and thus implement strategic change quickly. In other words, dynamic capabilities facilitate the speed with which firms can implement strategic change. How the organization is able to reconfigure the resources using its dynamic capabilities and how fast it does it compared to others creates the competitive advantage. Keeping the organization in a constant change, keeps up competitive advantage through renewal of the organization. On the other hand organization should be able to control also the speed of change in order to learn from the experiences and gained knowledge. This is not possible in too high pace of renewal. (Yi et al., 2015; Eisenhardt & Martin, 2000; Kogut & Zander, 2003; Kogut & Zander, 1992; Piening, 2013)

2.4 Strategic agility

In disruptive environment where confronted with challenges of dynamic environment, globalization and accelerating rate of innovation one of the primary determinants of an organization's success is strategic agility, the ability to remain flexible in facing new developments, to continuously adjust the company's strategic direction, and to develop innovative ways to create value (Weber & Tarba, 2014).

The idea of organization adapting to the changes in the environment originates from contingency approach in organizational research. There is no universal way to manage an organization, but it depends on the situation and the environment of the organization. In other words the organization needs to be interacting with its environment to be successful. It also needs to be changing as the environment changes to fit the external demands set to the organization. Research became first about "adaptivity", i.e. how organization's form, structure and degree of formalization affected to the ability for organization to adapt. Later on it focus moved to flexibility, and environment's effect was more involved. Research on "flexibility" was about organization's capacity to adjust it's structures and processes to the changes in the environment – ability to adapt and respond to change. In the beginning of the 1990s when the speed of change accelerated, there was a need for a more lean and reactive strategy process to changes in the environment and research turned to the concept of "strategic agility". (Sherehiy et al., 2007)

These three concepts of adaptive, flexible and agile organization are most predominant in the literature. At the same time there are many definitions for all of them and many components said to be included in them. For others these concepts are synonyms for each other and to others there is a big difference between them. In general they all have been considered as including the ability to adjust and respond to change. Agility comprises both characteristics of adaptability and flexibility as will be described shortly. Agility might be considered as the new evolutionary phase of the same idea combining all the important notions from the earlier concepts. Similarly the term strategic agility has not been clearly defined and operationalized and there has still been ambiguities with the concept of agility. Further studies on the subject, origins and practices are called. (Sherehiy et al., 2007)

According to Weber & Tarba (2014) there are two major capabilities connected to strategic agility: 1) leadership, i.e. sensing the direction for needed change and reconfiguring resources for strategy execution and 2) organizational design with structural adaptation and mechanism to implement the new course of action. Sensing includes both threats and opportunities as well as anticipating the surprises. These two capabilities are intertwined and are not sufficient alone. Therefore its crucial that these two capabilities complement each other in order to enable sustainable strategic agility.

Doz & Kosonen (2008) take three each other complementing aspects according to their findings in agile global companies: strategic sensitivity, leadership unity and resource fluidity with multiple subcapabilities included in them starting with strategic insight, active internal dialog and experimental culture to dependencies in top management, modularity and multidimensional organization.

Shereiy et al. (2007) summarize global characteristics of agility, which can be applied to all aspects of organization: flexibility and adaptability, responsiveness, speed, culture of change, integration and low complexity, high quality and customized products, and mobilization of core competencies.

Sull's (2009) checklist on agility includes scouting the environment, understanding own situation, limited amount of clear objectives, entrepreneurial managers, sense of urgency, timely abandoning of unsuccessful initiatives, reallocation of capital and talent, risk taking ability, seizing opportunities. On the other hand he emphasizes that there needs also to be absorption capabilities (resilience) in the organization and the best mix is created balancing the two.

Although the definitions and content are many, there are though some common factors. First common factor is the disruptive environment where the organization operates, characterized by rapid and unpredictable change. Agile organizations are the ones which successfully adapt to these environments. The changes these organizations make are specified as continuous, systematic variations in organization's products, processes, services and structures. They are not regular, or routine types of change. The intensity and variety of these changes are high, thus agile organizations are those that demonstrate high flexibility. Also speed is needed to be able to sense the change in the environment early enough to respond to them adequately and timely. This might require organization to have slack in its resources to be able to respond to the rapidly occurring opportunities and threats. Speed and flexibility are the most used components, then comes response to changes and uncertainty as well as exploiting and taking advantage of changes. Agility has also been connected to high quality and highly customized products. (Weber & Tarba, 2014; Sherehiy et al., 2007)

These examples show that strategic agility is not about one particular change that organization makes, but rather implies to constant ability to effectively change the course of action to sustain competitive. Agile organizations have the ability to initiate continuous renewal that includes adapting existing competencies to an ever-changing environment and simultaneously reconfiguring themselves in order to survive and thrive for the long term. The capabilities organization possess provide the slack and flexibility to adjust the competencies and facilitate fast strategic changes. (Weber & Tarba, 2014; Yi et al., 2015)

Hence, strategic agility has mostly been seen as a set of balanced dynamic capabilities (e.g. Doz & Kosonen, 2008). Fourné et al. (2014) define it as a "meta-capability" under which the importance and therefore the emphasis of different capabilities can change through different times and context responding to the current needs. Through this more dynamic perspective organization is able to stay flexible and efficient over time.

2.4.1 Impacts of strategic agility

Ren et al. (2003) studied the effect of characteristics related to agility to the competitiveness. Speed, proactivity and flexibility had the largest impact. They also showed relationship pairs with impact to each other: (1) strategic relationship with customers and speed, (2) quality over product life and costs, (3) product with value addition and quality, (4) first-time right decision and innovation, (5) enterprise integration and flexibility, and (6) rapid partnership formation and proactivity. Weber & Tarba (2014) relate high flexibility as an increasingly valuable core competence of interorganizational partnerships in particular.

Also Kortelainen & Lättilä (2013) found evidence with their simulation to support strategic agility. If organization is able to increase its strategic agility, it correlates positively with profitability. They concluded that especially faster decision cycle, aggressiveness and easily developed technology increase profits. Agile organization is able to react to change more rapidly than competitors increasing profits e.g. in new markets. Also recognition and correcting wrong decisions become faster, which decreases costs of wrong decisions. Interestingly related to previous accuracy of estimations need not to be perfect, when corrective measures can be taken quickly. Aggressiveness in investments in technology, which is easy and low cost / low risk to develop also leads to more profits.

Yi et al. (2015) bring out also the question if speed in strategic changes brings always good results. Their findings from Chinese companies illustrate that while faster implementation of strategic change has a positive effect on performance, if its carried out too fast, the effect turns to negative. Organizations need to have matching capabilities to correspond the change, which enable the speed. They suggest that managers need to understand capabilities needed to carry out the change and use them purposefully as well as control the speed of change to suit the capabilities. Also risk taking ability of managers was seen to moderate with the fast strategic change.

2.4.2 Role of managers and organizational structure

Volberda (1998) defined flexibility of an organization as a new strategic challenge at the time, which originated from competitive changes in environment of many organizations and from changes in how management and organization were perceived. He thought flexibility as a strategic factor for success, especially in high-velocity, complex environments. Flexible organizations are creative, innovative and fast while they also maintain coordination, focus and control. According to Volberda (1997; 1998) flexibility consisted of two factors: the capabilities of managers and potential for flexibility in the organizational structure. Both of these are influenced by the technology, structure and culture.

Managers are able to create operational, structural and strategic flexibility to the organization (Volberda, 1998). They should be able to recognize where there is a need for creating more flexibility and where more formal structures. Routines should be in formalized structure and non-routines unstructured for higher performance (Baum & Wally, 2003). Managers should also be able to address two usually incompatible aims or processes equally well, when they run an organization balancing between existing operations and exploring new possibilities. Future opportunities can't be sought on today's operations' expense, but stagnating to current operations will create a failure trap. It is easier for leaders to address one side of trade-offs instead of both of them and requires awareness of the both sides and how to leverage them both individually and together. Managers must also be able to allocate resources between these different focus areas and they may encounter political issues creating conflicts. (Weber & Tarba, 2014; Lewis et al., 2014)

From the leadership point of view to boost the strategic agility mindset in the organization in uncertain environments managers need to create clarity to the common purpose of the organization and its people. Several studies link it to the customer and markets. It is also important to cherish the both/and vision of current and future operations. Purpose should be linked to individual goals, roles, tasks and accountabilities. In the organization managers should also try to create an organic organizational form. They should simplify and distribute decision making as well as lower levels of formal regulation in tasks, schedules and overall organizational policies. They should seek to have fewer power differential (lean organization, fewer levels of hierarchy), informal and changing lines of authority and open and informal communication. Strategically agile organizations rely on teams, have loose boundaries among function and units with fluid role definitions. The organization associated with continuous change has authority tied to tasks rather than positions, shifts in authority as tasks shift, systems that are self-organizing rather than fixed, and ongoing redefinition of job descriptions. From the emotional side leaders should avoid traps of anxiety and defensiveness and on the other be able to use the emotional tensions in the organization. (Miranda & Thiel, 2007; Sherehiy et al., 2007; Weick and Quinn, 1999; Doz & Kosonen , 2008)

The other factor is an organizational design related with the mission to reduce barriers of flexibility (Volberda, 1998). Organizational design can reduce cost and difficulty in adaptive coordination, which increases the strategic agility (Weber & Tarba, 2014). The concept of fit is also central to modern organizational design. The core idea is that the design of an organization needs to fit its strategy and other contingency factors (Donaldson & Joffe, 2014).

Modularity has been presented (Doz & Kosonen, 2008; Weber & Tarba, 2014) as one enabler of strategic agility concerning the structure and products of organization. Modular architecture minimizes interdependencies between modules. Modularity replaces tight coupling of structures with loose strings between modules. This way it decreases the cost and difficulty of coordination and reconfiguration. Modules are easier to reconfigure and modularity allows a greater variety and better reallocation possibility. For example a certain process module is able to be used again or be copied to some other solution. Sanches & Mahoney (1996) argue that at the same time when building modularity, organization creates information structures, which hold the module strings attached. It creates learning processes on different levels modular knowledge architecture and affects what kind of knowledge assets the organization will be building. "Effective management of modular knowledge architectures enables greater clarity in identifying an organization's current knowledge assets and greater precision in targeting strategically useful organizational learning" (Sanches, 2000). Modularity would not only help reconfiguration, but also create learning systems and knowledge assets to the organization.

Related to knowledge creation in organization Volberda (1997; 1998) introduces metaflexibility, which matches the above mentioned factors together and includes for example supporting, monitoring or learning system. It involves capabilities that help continuously reconfigure organization to respond to environment changes as well as to increase flexibility. A subject to which module architecture could be the practical implementation (Sanches & Mahoney, 1996).

2.4.3 Resources

Especially in resource-based view organizational resources have been related to strategic changes and performance of the organization. They can function as enablers or restraining factors for strategic agility.

Organizations with valuable historical resources are less likely to engage in adaptive strategic change to environment changes. On the other hand these organizations might keep their performance level acceptable. This can happen for example when the organization is not affected by the changes in the environment due to richness of the resources, which create “buffers” (e.g. financial, organizational) for the organization (Kraatz & Zajac, 2001; Sull, 2009). In this sense scarcity of resources might function as a source of willingness to strategic change although it might present itself also as a obstacle if there aren’t enough resources to create the needed slack. (Doz & Kosonen, 2008)

Resources can be seen as barriers to learning. Especially if earlier competencies have created a success-trap where organization due to its earlier success is unable to notice the changes in the environment. These changes can make their competencies dated or worthless in the new situation. This might also make the earlier mentioned “buffers” to disappear. (Kraatz & Zajac, 2001; Doz & Kosonen, 2008)

Related to the success-trap the organization might be otherwise committed to certain resources. For example exceptional competence might be this kind of resource and organization makes strategic decisions considering this competence (Kraatz & Zajac, 2001). On the other hand the organization may be committed to a certain customer or partners, which also might cause rigidity and restrain or delay renewal (Doz & Kosonen, 2008).

More positive perspective is to see resources as facilitators, which promote change (Kraatz & Zajac, 2001). Richness in resources may enable change, when considering for example financial, R&D, managerial resources. They make possible for the organization to respond to the challenges set by the environment. Sometimes they may even be drivers for change coming from within the organization. When the resources are scarce or limited, flexibility and fluidity of resources become more important.

Strategic agility usually entails some tradeoffs and contradiction between the use of resources in current routine processes and new upcoming processes or projects, exploitation and exploratory side of the organization. Resources need to be able to be assigned to both domains. This is one of the leadership challenges in strategic agility. Top management needs to take responsibility of making scarce resources enabler of the both sides rather than letting them to be a object of “turf battles”. Resource allocation should therefore be kept separate from operations in order to prevent hoarding of resources and allow them to be allocated the most productive way concerning the whole organization (Fourné et al., 2014; Doz & Kosonen, 2008; Weber & Tarba, 2014).

2.4.4 Fast decision making

Miranda & Thiel (2007) survey on executives revealed that the top barrier for speed and agility was perceived to be "overly centralized, slow, and complex decision making". The other of two organizational elements that contribute most to speed and agility, executives chose the delegation of decision making authority as far down the organization as possible.

Eisenhardt (1989) concluded in her study that fast decision makers use more information than slow decision makers. In addition they also consider more alternatives. This insight has been challenged by Rae et al. (2014). According to them there is a tradeoff of speed and accuracy. Fast decisions are made with less evidence and lower quality of information. This means managers are taking more risks in their decision making when they are emphasizing speed. On the other hand Judge & Miller (1991) found that fast decisions was positively associated with simultaneous consideration of multiple alternatives. It would suggest for top management to find as many possibilities as possible and covering them simultaneously. This could indicate also more information to be used and accuracy to be better. Fast strategic decisions with multiple alternatives also enable top management to learn fast and therefore exploit the rising opportunities. Possible false decisions can be reversed more quickly when the organization has follow-up practices in place, is agile and makes also fast abandoning decisions (Kortelainen & Lättilä, 2013).

Baum & Wally (2003) found that centralized decision making with decentralized operational decision making brings higher firm performance. Eisenhardt (1989) found that centralized decision making is not necessarily fast in itself, but use of experts to support decision making makes it faster. These experts may be internal or external. Top management get more confidence to act quickly. She on the other hand stated that integration of strategic and operational decision making speeds decision making as it alleviates risk-taking anxiety, which is slightly contradictory with Baum & Wally finding.

Eisenhardt (1989) found that fast decision making enables higher change pace and strong performance in high-velocity environments. Also Judge & Miller (1991) concluded that faster decision making benefits vary in different contexts and bring higher performance specifically in high-velocity environments. On the other hand Baum & Wally (2003) found this to be exact in multiple different environments depending on environmental and organizational characteristics, but also they emphasized dynamic environment.

Concerning decision making top management has also the risk of making the right decisions. Shimizu & Hitt (2004) address the vicious cycle of rigidity, to which managers may become unconsciously trapped. They examine the barriers that may block the capabilities to maintain attention, assess alternatives and take action. Attention can be blocked with insensitivity to negative feedback, i.e. managers often ignore early signs of strategic mistakes. Earlier success mindset and decision rules become self-reinforcing and block the awareness of managers, especially when they are often shared in the top management. This could also be called success-trap (Doz & Kosonen, 2008). Although the first barriers could be overcome assessment phase brings the next barrier: self-serving interpretation of negative feedback. Managers are reluctant admit the made a mistake, especially if the culture don't allow mistakes. They may prolong the decision of abandoning of initiative in the hope it would make a turnaround or ignore the negative signs of failure as an outcome. Objective assessment becomes hard, initiative becomes more risky and finally may lead to increase of costs. The culture should enable approving mistakes when it leads to more objective assessment and timely abandoning of the initiatives. Third barrier connects to the decisions of taking action. Uncertainty of potential outcomes may restrain managers to make decisions. Uncertainty also creates resistance because of the familiarity of current situation would need to be changed to the unknown. “People prefer the status quo because change disrupts the established routines and creates uncertainty, thereby involving risks.” (p. 48). Also managers try to maintain this status quo. The uncertainty of external environment may be one inhibiter of reversing poor decisions. Underlying figure summarizes the barriers influencing decision making and therefore hindering strategic agility.

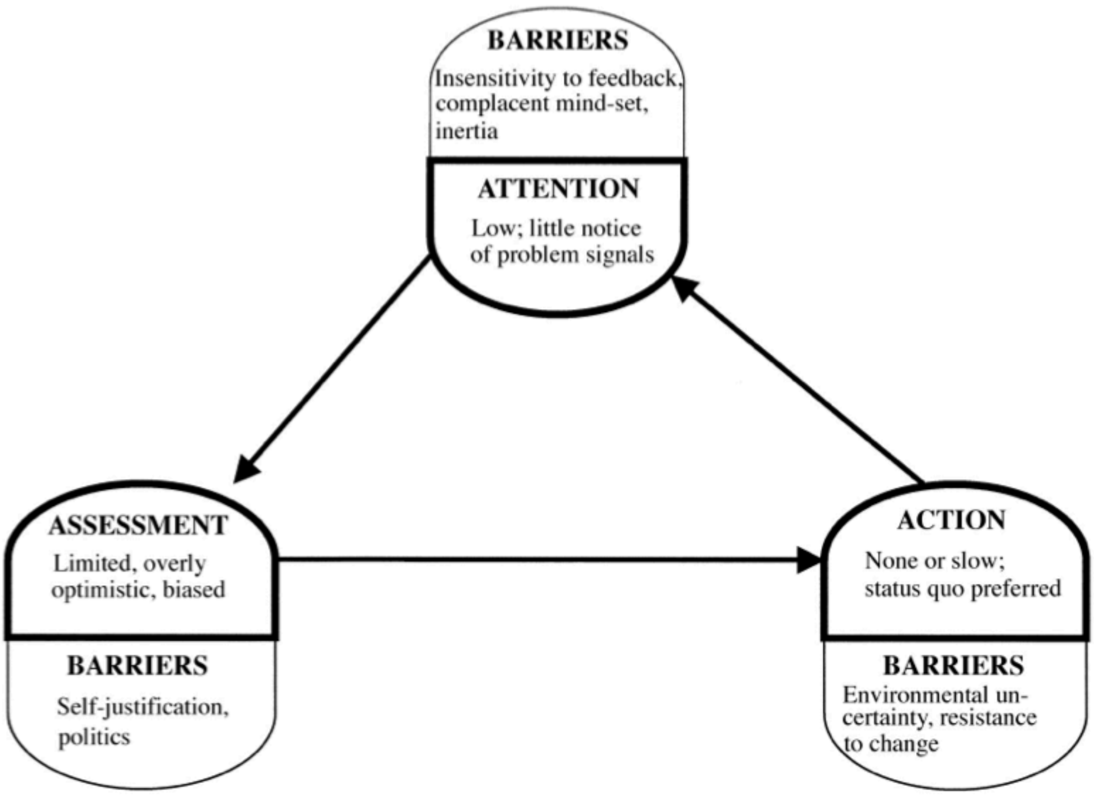


Figure 2. Vicious cycle of strategic rigidness (Shimizu & Hitt, 2004)

Shimizu & Hitt (2004) propose based on their study that organizations should 1) measure and monitor decision outcomes, 2) stimulate decision making processes with assigning a role to question assumptions and alternatives presented, 3) create dynamic mechanisms to gain new ideas and perspectives from outside the organization before problems appear with e.g. limiting the tenure of top executives, routinely appoint new outside directors, rotate managers in key positions and exploit alliance with other firms as a way to incorporate new ideas, 4) recognize the limitations of static governance systems and incorporating a more dynamic view of board membership and processes, 5) consider decision portfolios with broader view to alternatives and 6) analyze and measure learning that can be used in the next step.

2.4.5 Tension of strategic agility

Several studies (Doz & Kosonen, 2008; Lewis et al., 2014; Fourné et al., 2014) mention tensions and contradictions in connection with strategic agility or related topics. Mission, strategy and vision bind resources to building core competencies and base for learning and adapting. On the other hand, agility demands strategic flexibility, quick and innovative responses to the dynamic competitive landscape. “Moreover, achieving strategic agility often means attending to multiple, often contradictory demands—innovation and efficiency, global demands and local markets, and social missions and financial outcomes” (Lewis et al., 2014, p. 60). There might even be tensions between the capabilities that enable strategic agility.

Paradoxical approach to strategic agility (Lewis et al., 2014) focuses to find a both/and approach that seeks the benefits of balancing the factors causing the tension. Goal is to leverage both factors and their synergy. For example exploration and exploitation in organization have contradictory demands. Exploitation focuses on efficient processes with continuous, incremental improvements and innovations. Goal is to enhance the current knowledge and capabilities. On the other hand exploration focuses on finding radical innovations through experiments and new knowledge. Exploitative and exploratory businesses require very different strategies, structures, processes and cultures, which leads to ambidextrous leadership. (Lewis et al., 2014; O’Reilly & Tushman, 2004).

Doz & Kosonen (2008) suggest that tension is actually the force to restore or retain strategic agility in organization. There should be tension maintained from cognitive, political, organizational and emotional perspectives in order to keep the organization aware and alert preventing strategic inertia. Tensions should even be proactively raised. The view gets support from several other studies (e.g. Lewis et al., 2014).

However, creating tensions is not an end itself, but they also need to be managed for an effective end result for strategic agility. Lewis et al. (2014) recognize leadership as a central to managing tensions of strategic agility. In order for top management to be agile, flexible and succeed in long-term, it needs to have capabilities to recognize, constructively handle and leverage these tensions. Top management needs to figure out creative solutions to pursue contradictory goals. For example formal processes enable disciplined resource commitments, while fast-paced and decisive efforts help leaders to anticipate change. Both of these are needed (see also Volberda, 1998) as only applying one may be harmful to the organization creating rigidness or chaos. Renewal and continuous change is needed in the organization, but on the other hand, focusing only on change can frustrate the development of core capabilities that provide the foundation for adaptation and learning. Top management needs to effectively handle all these competing demands.

Fourné et al. (2014) propose modular organizational systems as one way to manage tensions and contradictions. Modularity gives flexibility, enables different compilations and may include contradictory parts for different tasks. For effective integration and mutual learning the organization may have standardized interfaces for the modules. They may be e.g. encounterings, formal or informal networks, applications. Standard interfaces enables more structured internal dialog and connection between modules.

Another way to manage tensions are HRM practices. Through team composition, empowerment and dynamics can be achieved tensions but also manage them. Empowered cross-functional teams, diverse background of team members together with openness and constructive discussion in teams can create new opportunities and help manage tensions. (Fourné et al., 2014)

2.5 Renewal of public sector organization

The case organization Tekes is a public organization and it is needed to review also public sector organizations and possible connections to strategic agility and its precursors as above. Public organizations are government owned and under governmental guidance. They are mainly funded through taxes. They may not compete as such in markets with companies, but they may have counterparts in private sector (e.g. public and private healthcare). They mostly are not seeking for profit but to fulfill their mission in the society given by the government or other public actor. This also affects their vision and strategy. These differences in between private and public sector may cause a question if same theories and practices are applicable in both environments. The drivers for changes in the environment are the same, social systems share common features and organizational innovations are often brought from private to public sector (Hämäläinen et al., 2012). However it has been argued that their applicability is limited because public managers have less control over strategy formulation and implementation than their private-sector counterparts due to democratic decision making process, which also brings the need for active lobbying of own cause (Piening, 2013; Hämäläinen et al., 2012). Also resources-based theories usefulness to public sector have been questioned, but it is argued, that for example dynamic capability approach is applicable also to the public sector (Piening, 2013).

However, as private sector organizations, also public organizations are assumed to operate in a complex environment. They have multiple stakeholders, political superiors, possible conflicting goals with trade-offs, distributed power and authority as well as public accountability. They usually need to serve different types of individuals and organizations without choosing their preferred customer group unless it is connected to their mission. Due to their role and multiple stakeholders they are subject to criticism by politics, media and citizens. They also have challenge of attracting competent people with limited salaries with currently loosing also secureness of jobs when public administration has been diminished. Strongest attraction might be the purpose of work and the impact to the society. (van der Voet et al., 2015; Hämäläinen et al., 2012)

Public sector face increasing number and complexity of problems in the current high-speed and transformational environment. They work with reduced resources with pressure of efficiency and effectiveness. At the same time they face emerging issues that require resources and often in fast pace. They are encountering new demands of customer relationships and quality coupled with demands for greater accountability and efficiency. Organizations work in highly political environment with even conflicting expectations from different stakeholders. Many organizations in the public sector have been argued to face even more environmental changes than private sector firms (e.g. due to frequent policy changes). (Winter, 2012; McHugh et al., 2001; Piening, 2013; Pablo et al., 2007)

The changing environment is shaking public sector organizations and especially their traditional bureaucratic organization forms and practices. Bureaucracy generates narrowly defined and highly specialized jobs, low-risk decisions and lack of accountability. It constrains and slows working processes and makes organization unresponsive to environmental changes. These are part of the reasons why public organizations have started to look for new structural solutions. Organizations move towards growing work place democracy, decentralization, task orientation and autonomous units. Especially for managers this may represent itself as a threat. On the other hand at the same time public managers are supposed to adapt practices and innovations from the private sector in order to improve organizational performance. (McHugh et al., 2001; Piening, 2013)

Another perspective in bureaucracy is that it might be coming from external sources. It may serve a purpose of guaranteeing uniformity, which requires roles, rules and procedures. This may include for example issuing a passport, granting funding. On the other hand how they are perceived and are they as restrictive as they are perceived to be can be either unconscious (assuming, not knowing) or conscious (hiding behind rules) choice of top management or the individual in the public sector organization. There is also the question of where the binding rules truly affect. (e.g. Landau, 1993)

While there seems to be need for also public sector organizations to engage in strategic agility to respond to fast-changing environment with complexity brought by the public status, there has not been that much research on strategic agility and its precursors in public sectors and how public sector organizations actually adapt to changing conditions (Piening, 2013). Some case studies elaborate specific aspects to renewal and changes in public organization. Most cases are about dynamic capabilities of public sector organizations. Special interest has been in learning capability of public organization. Others concern adapting and responding to changes in environment on a governmental level. Also the results of these few studies are various with the case either defending or rejecting the idea of strategic agility.

Because of the complex environment and lack of empirical work there hasn't been consensus if changes in public sector should be planned or if the environment makes it difficult to even plan rigidly. In a recent study on organizational change in a complex public sector environment van der Voet et al. (2015) combine the change management in public organizations and the literature on specific features of public organizations, special emphasis on the complex environment of public organizations. They argue on the basis of a case study that public managers respond to a high degree of environmental complexity by adopting a planned, top-down approach to change. At the same time the environment itself is limiting and/or hindering the effectiveness of the top-down conducted change. Dependencies and contradicting goals from external stakeholders make it difficult to operationalize a planned change, which may result in unstructured and lengthy change process. They also argue that typical internal change leadership activities are not sufficient to implement change in a complex environment. Public managers must engage themselves also in more externally oriented leadership activities. Managers need both transformational leadership internally and network leadership externally to execute changes.

A specific character concerning strategic agility challenges with the public sector organizations is the wider network and wider impact they may have regarding their social goals compared to private sector actors. Hence their actions may influence also the strategic agility of the private and third sector actors and the society at large. Therefore you might presume the strategic agility to be even more important in the public sector organizations. (Hämäläinen et al., 2012)

Regarding dynamic capabilities in public sector organizations, Piening (2013) made an extensive literature view from the existing studies. Although the approach has received little attention, public sector dynamic capabilities have been studied in different countries. The findings show that on a microfoundation level public organizations benefit from having reshaping, knowledge sharing, absorptive and managerial capabilities. Furthermore, effective routines for the coordination of activities (e.g. cross- functional teams), communication, and learning (e.g. knowledge codification or employee training) are important ingredients of successful change activities in public organizations. Building of dynamic capabilities may happen through learning by experimenting, enabling experimentation processes in the organization and balancing the tension between exploitative and explorative operational capabilities in all which public managers have an important role in implementing dynamic capabilities (Pablo et al., 2007). Essential is to identify and build capabilities that produce the greatest public value for key stakeholders at a reasonable cost. After building the capabilities they need to be continuously renewed through dynamic capabilities or they are not able to respond effectively to the changes in the environment.

Path dependency has been recognized also in public organizations. Public organizations are suggested to be even more incremental than radical in nature. There is negative influence of micropolitics detected, but learning barriers, e.g. competence traps, are the biggest cause in lack of innovativeness or failure to respond to the changes in the environment. Improvements initiate more from performance declines and external pressure as the incentives in success are usually missing, which may be a cause for implementation failures. Low performance influences also organizational slack, which may affect the organization's likelihood to innovate and experiment in the future. On the other hand there are studies which demonstrate how resources scarcity is the source of process, structural and strategic adjustments, mainly improvements in the organization. Existing resources such as financial, personnel and structural resources shape the way public organizations use dynamic capabilities in planned organizational change. (Piening, 2013)

Although the mechanisms may be unclear, there is evidence of impact for relationship between different dynamic capabilities and various performance measures in public organizations, e.g. improvisation capabilities are positively related to the introduction of service or product innovations in municipalities. One the other hand, research indicates that dynamic capabilities extend, modify or create the organizations' operational capabilities, which in turn rises the performance. Specifically dynamic capabilities guide the learning processes that underlie capability building. (Piening, 2013)

Piening (2011) also addresses innovations in public sector organizations and argues that innovations have become critical capability also to public sector in order to enhance their performance. "In particular, the adoption of innovations has been advocated as a means for public sector providers to transform themselves into flexible, more responsive units that work more efficiently and serve the needs of their various stakeholders more effectively" (p. 128). However the success of implementing of innovations vary and it is a dynamic capability needed to benefit from the innovations and relates to the routines the organization has. They need to be built internally and help to adapt to changing worlds. Particularly, three learning mechanisms, namely experience accumulation, knowledge articulation, and knowledge codification foster the development of dynamic capabilities (Zollo & Winter, 2002). Study follows the results from the private sector.

The above mentioned evidence lead to the Piening (2013) model and he proposes following factors to demonstrate dynamic capabilities in public organization. When sufficient resources are available, dissatisfaction with existing operational capabilities increases the likelihood that public organizations develop and deploy dynamic capabilities. The higher the degree of publicity, the less likely are public organizations to develop and deploy dynamic capabilities. The deployment of dynamic capabilities is likely to be positively related to the evolutionary and technical fitness of public organizations via operational capability building. The higher the environmental turbulence, the higher the likelihood that public organizations (a) invest in dynamic capabilities and (b) benefit from having dynamic capabilities.

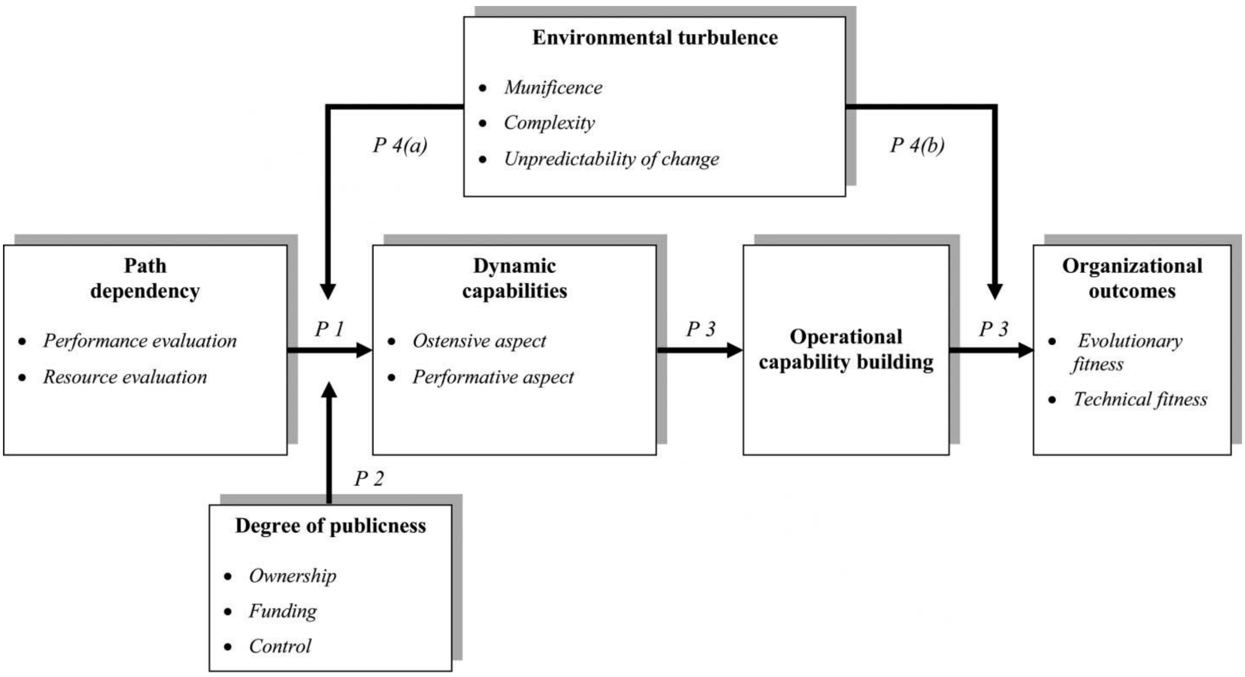


Figure 3. Dynamic capabilities in public organizations (Piening, 2013)

Considering the practices and routines underlying dynamic capabilities leading to flexibility, agility and innovativeness of public organizations, the evidence is scattered and more unclear. McHugh et al. (2001) studied transforming public organization to team-based structure, which is perceived to be attractive alternative for public organization as it facilitates necessary levels of flexibility, innovation and responsiveness. They argue that in these kind of changes in the organization culture change is central to structural change. They encountered that the transformation was not comprehensive and there was no fit between some old and new practices, for example although introduced to team culture, practices still promoted individual management and performance. Also the commitment to the change by managers was missing. This would indicate that the top management as a driver needs to ensure even more strongly the alignment and commitment of the organization and assure the supporting practices and systems to the new approach.

To increase agility Winter (2012) proposes for public sector organizations to work over boarders (inside & outside organization), consider the impact they make, create experimental culture with agile teams that are able to move, act and learn fast and finally keep in constant transition.

Hawkesworth & Klepsvik (2013) address flexible resource allocation in the public sector through the use of budgetary tools. Public sector budgets are usually made with incremental changes which doesn’t allow the needed flexibility. Governments have tried to address this issue and budget process has been decentralized, decision making on budgets has been decentralized. Although this has enabled ministries to manage their budgets better, it has blocked the visibility to the whole entity and ability to make reallocations between the sectors and ministries and therefore may have even reduces strategic agility. Authors call for balancing budget discipline with information, incentives and flexibility. These challenges and solutions reflect the earlier studies from private sector and notions on resource allocation to be kept separate from the operational functions.

2.6 Strategic agility framework

Literature review started with a glance to the changing environment, which is getting more high-velocity through years and how strategy theories responded to it. Strategic renewal, dynamic capabilities and strategic agility were reviewed as some answers. Public sector organizations were considered as actors with increasingly the same needs with fast changing environment as private organizations, maybe even more. Dynamic capabilities concept was applied to this set of organizations. Finally we arrived to the strategic agility of public sector organizations, which is the frame used to elaborate empirical findings of this study.

This section illustrates Doz & Kosonen (2008) framework of strategic agility more closely. As the framework is about to be used later on to elaborate the empirical results, it is approached in a more pragmatic way of what kind of dynamic capabilities and practices organizations should have rather than what have been the results of the study. Especially it keeps the framework more clear for later use when the context where the framework is used in this study differs from the original, which was global big companies. Framework illustrates the similarities in public funding organization's practices to private sector practices concerning strategic agility.

Doz & Kosonen (2008) model of strategic agility has been adapted to public administration and government later on in their next research together with Hämäläinen (Hämäläinen et al., 2012) as it addresses the challenges and gives a framework through which to assess strategic agility in a public management. Traditional public administration with bureaucracy, rigid strategic planning and budgeting has worked earlier in more stable environment. Also public administration is in a need of strategic agility as the environment is going through structural changes and decision making becomes more unpredictable and complex. Needed tools become closer to the ones private companies are using.

Doz & Kosonen (2008) framework is first elaborated for understanding of the model. Afterwards Hämäläinen et al. (2012) adaptation to public administration and government is reviewed.

Doz & Kosonen (2008) view strategic agility as an ability to think and act in a fresh way. Foresight should be complemented with insight. Change should be initiated not through crisis, but it should be a natural state of organization – how the organization operates and where it feels comfortable. Strategic agility is needed especially when the speed of change in the environment is fast and the nature of change is complex. Doz & Kosonen did their initial research in ICT industry with big Global companies facing the environment just described.

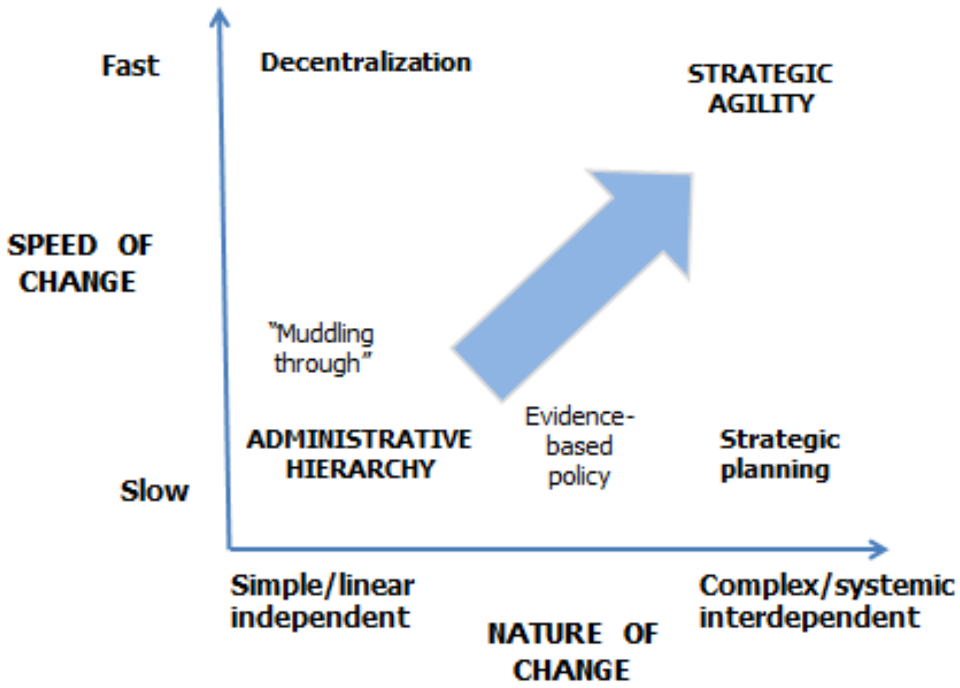


Figure 4. The need for strategic agility (Hämäläinen et al., 2012)

With strategic agility these organizations are able to benefit from the changes and turning points in the operating environment. Continuous innovation and development of new capabilities become the source of competitive advantage. Business takes shape gradually when its been executed. Organizations need to take care they don't fall into traps leading to possible inertia, e.g. too much focus on efficiency or blinding success. On the other hand also growth and specialization may be restraining agility. (Doz & Kosonen, 2008)

Organizations have their existing people, processes, values and goals. Doz & Kosonen (2008) suggest there is combination of three dynamic capabilities that should be added to the equation to enable strategic agility: strategic sensitivity, leadership unity (or collective commitment) and resource fluidity.

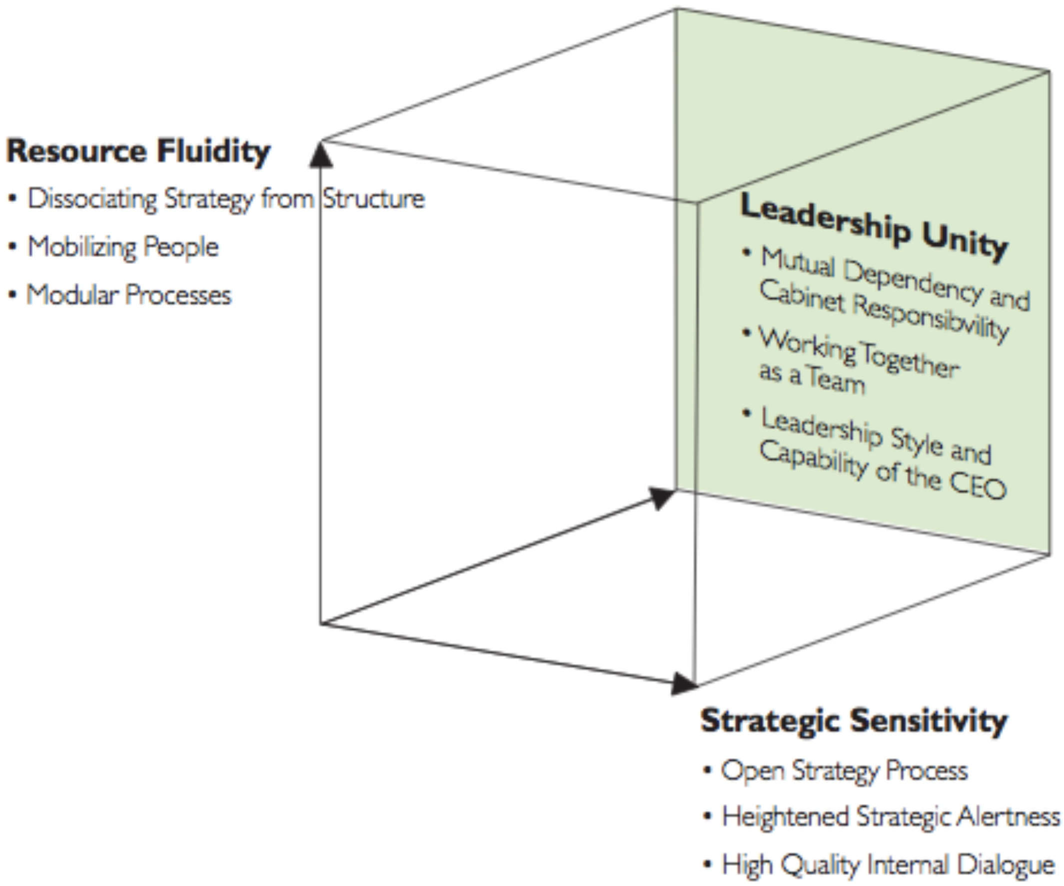


Figure 5. The key dimensions of strategic agility in Doz & Kosonen (2008) framework.

2.6.1 Strategic sensitivity

First dimension of the strategic agility is strategic sensitivity. Doz & Kosonen (2008) state that it is still important to have foresight: to recognize key trends, upcoming disruptions, identify key technology. It is important to understand why and with what kind of mechanisms these are important and what "hot spots" are rising. One important impact of these might be to the rhythm of strategy work ,which may need to change suddenly and rapidly. However, in addition to strategic foresight, organization needs also ability to have insight. It includes ability to discover, analyze and interpret correctly and finally take advantage of the complex strategic situations when they appear. They may be discovered through lucky correspondences and similarities or through systematic search.

Strategic agility also depends on the quality of strategy process. A great significance is in opening strategy processes to external influences and maximizing knowledge transfer between organization and external sources. Connections should be built and maintained to different and even unusual sources of knowledge. For the strategy process Doz & Kosonen (2008) also long for it to feel right and have the right consequence of action. Logical reasoning, credible questioning and consideration of multiple alternatives are the key to good decisions. Also quality of top management team and how it works as a team are essential conditions for the quality of the process.

When the strategic awareness with open strategy process is not enough to produce needed impulses for renewal, Doz & Kosonen (2008) suggest that the understanding may arise from explorative actions. They propose "scouting" to different directions with experimentations, which may be conducted almost randomly. Trying to get action and more information through experimenting although without yet having the whole picture of the situation. Results may be better than if the organization would be late in launching renewal or has interpreted the situation wrong when not having enough information to begin with.

Finally, there needs to be also high quality internal dialog. People should be engaged to systematic, organized, purposeful and open dialog. There should be permission and even promoted for divergent opinions and perspectives. People should also be guided to disengage from their own role in the organization and to see the organization as a whole, take the helicopter view. This approach is the key to helping the whole organization to develop instead of only smaller parts of it gaining from change. Especially important this is in top management team. (Doz & Kosonen, 2008)

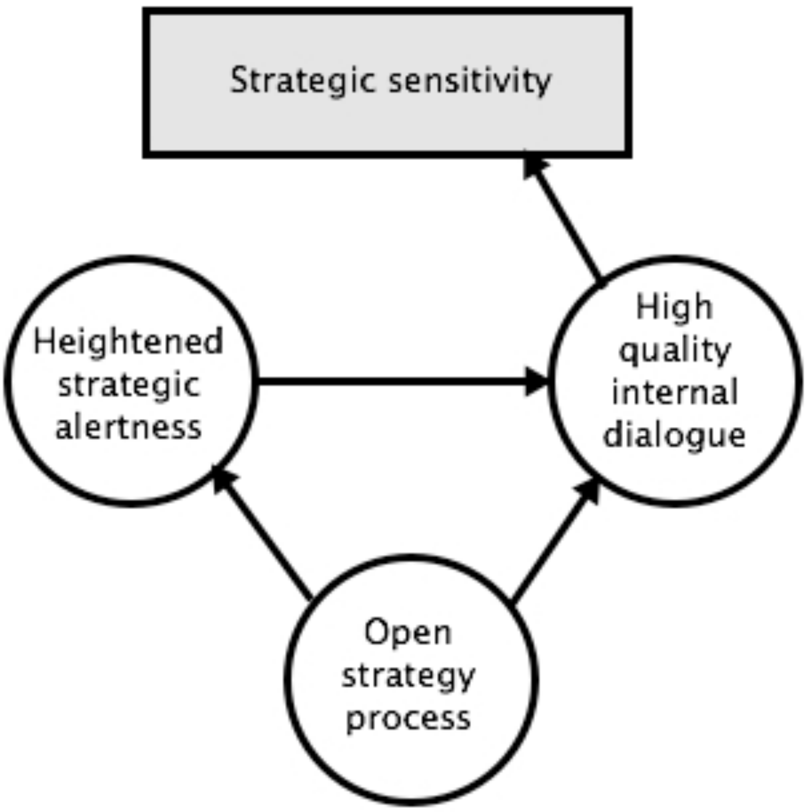


Figure 6. Dependencies in strategic sensitivity (Doz & Kosonen, 2008)

2.6.2 Leadership unity

Top management faces difficult decisions constantly. The fear towards disruptions may make decision making even more difficult. Top management needs to have tolerance towards risks and know how to approach the different levels of uncertainty. Decisions they make are mutually dependent and complex. They need to consider multiple levels that will be impacted by the decisions. For this to happen, they need to involve managers from different organizational levels and units. Units themselves need to be strong in their operations, but they need to function together with the other units, which is enhanced by involving them to joint decisions. (Doz & Kosonen, 2008)

Committing to building a strategically agile organization needs a new mindset from top management. Fast, profound decision making including uncertainty and mutual dependence. Top management team must work as a team to succeed. Prior bilateral relationships need to be replaced by multilateral network in the top management team. This means more dependencies between the top management members. They need to mobilize their energy to achieving common goals, which can only be done through leadership unity. This requires the top management team members to set aside their operational roles when discussing the organizational issues. (Doz & Kosonen, 2008)

Top management team needs to find new practices for renewing their own team. They need to enhance the quality of decision, bring different perspectives and ways of thinking to their shared table. They need to engage from trying to keep up status quo, but also hold on to accountability. They commit to the decision personally, but bear the responsibility also as a team. They need to find ways to create value together and constantly reinvent the value. In all this the organization's CEO is in a great role to renew the practices. Doz & Kosonen (2008) also suggest that job and task rotation as well as people replacement practices should be incorporated to the top management team practices to ensure high quality cooperation and renewal of the team.

Figure 7. Dependencies in collective commitment (Doz & Kosonen, 2008)

2.6.3 Resource fluidity

Fast decision making requires flexible resources. There are several reasons why resources may be inflexible. Usually resources support the current operations and they are hard to move. Capital is assigned to the safe and sound options, when profit making and investments are not separated. Established customer and partner relationships may be hindering the reallocation of resources to new uncertain opportunities in fear of loosing earlier profit. Units may also hoard resources for their own use preventing them to be fluently reallocated. On the other hand there may not be slack in resources for other reasons. (Doz & Kosonen, 2008)

There are different kind of resources in organization. They differ in their mobility, scarcity, “stickiness” and ability to be increased. Critical dimensions of resources concerning agility are 1) if they are able to be shared or does it need to be allocated somewhere and 2) how tightly they are bound to their environment, in other words how “sticky” or easily movable they are. (Doz & Kosonen, 2008)

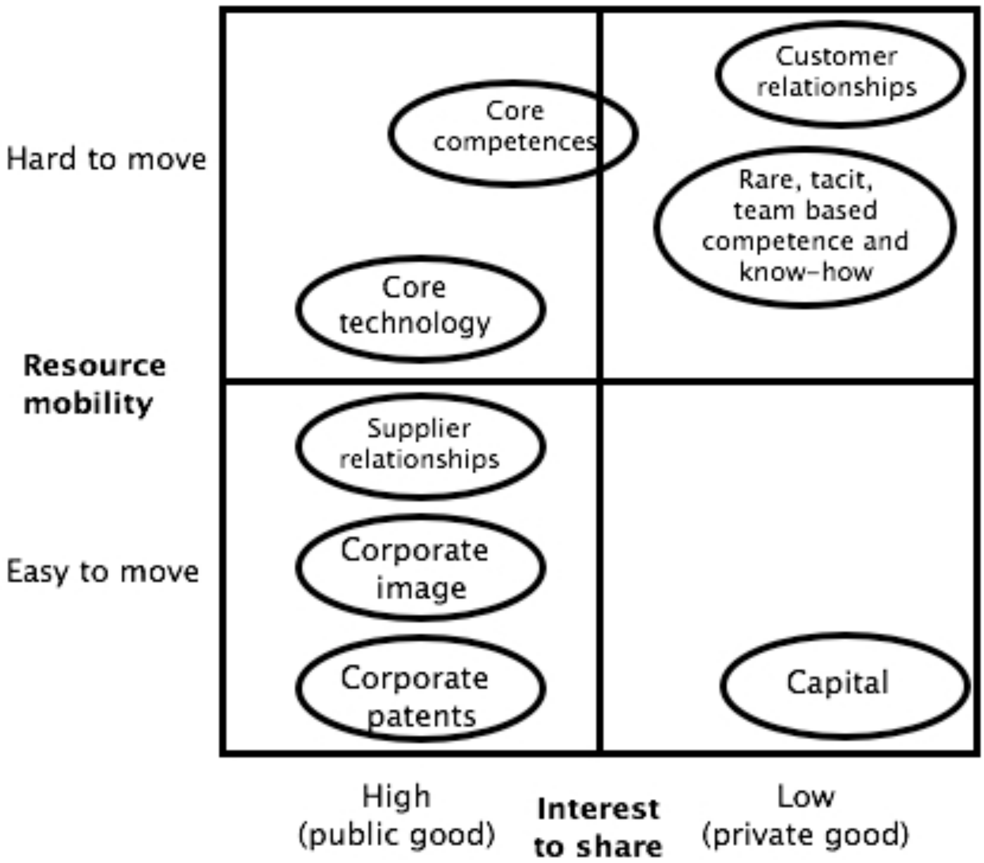


Figure 8. Different resources in organization from the agility perspective (Doz & Kosonen, 2008)

Doz & Kosonen (2008) suggest that the decisions on resource allocation on strategic level should be made separately from the operational side of the organizations. This requires the earlier mentions ability of top management to separate themselves from their roles as operative directors and become the top management team for the whole organization. This perspective takes the resource allocation as far away as possible.

Also strategy and structure should be kept separate in the decision making. Doz & Kosonen (2008) present that a multidimensional structure, which combines different functions will make resources more fluid from silos. It also makes the needed separation of strategic management and profits from the resource ownership. Also modularity is seen as beneficial to resource allocation. Modules are easy to reconfigure and combine in a purposeful way in different context and needs.

From the people mobility point of view Doz & Kosonen (2008) give multiple practices to support agility. For example job rotation, regular performance evaluations of people in key roles, internally open job availability and career possibilities, flexible movement of individuals and teams are seen as a components to the mobility of people and creates a promoting mindset of changing roles and tasks in the organization.

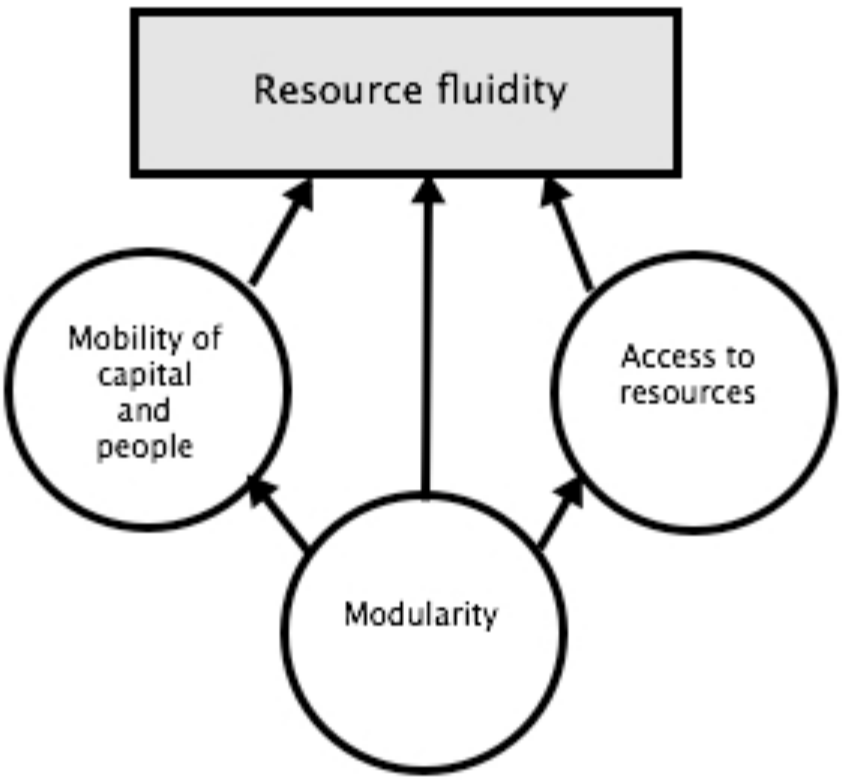


Figure 9. Dependencies in resource fluidity (Doz & Kosonen, 2008)

2.6.4 Levers for restoring (or maintaining) strategic agility

When organization has been established for a long time it can loose its agility for example in the growth phase when it needs to set more rigid routines in practice in order to control the growth. To these cases Doz & Kosonen (2008) propose a use of certain levers: cognitive, emotional, organizational and political. Although Doz & Kosonen mostly use this to demonstrate how to get organization again strategically agile, these might also be seen as tools to prevent organization slipping into strategic inertia. To make the levers work as suggested, top management needs to create purposeful tensions in these areas to be able to boost strategic sensitivity, leadership unity and resource fluidity.

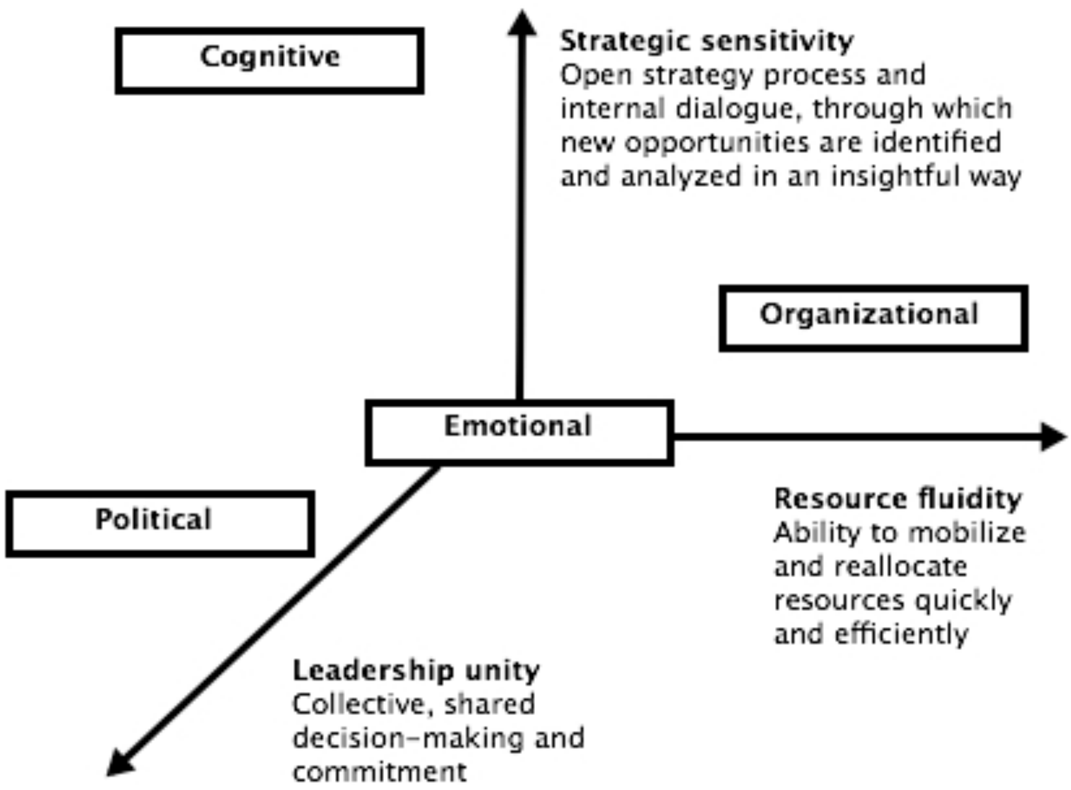


Figure 10. Levers for restoring strategic agility in the organization (Doz & Kosonen, 2008)

Cognitive lever addresses the risk of becoming blind to the changes in the environment. Organization needs to have a broad perspective to recognize the opportunities and threats. Strategic sensitivity is dependent on what organization observes, where they focus their attention, how they interpret impulses and what is their insight of the issue. Practical applications of cognitive levers may be e.g. using crisis as triggers, questioning culture, modeling experiments, providing opportunities to learn and experiment, loosening control. There should be created cognitive contradictions and cognitive tension that motivate reframing. (Doz & Kosonen, 2008)

Emotional lever is based on what individuals feel, let others to acknowledge and share with others concerning their feelings. Feelings can be a powerful driver in the organization, but also work the other way around and cause passive resistance, which can be detrimental to strategic agility. First steps are to acknowledge and embrace the fact that feelings are part of organization. Top management should use the tensions between positive and negative feelings to create a base for constructive energy. This requires trust and approval of management actions and top management as a team. Methods for creating positive feelings can be awakening of proudness, showing caring or appealing to the important social goals of the organization. Collective commitment and values are in an important role. (Doz & Kosonen, 2008)

Organizational and political powers are more identifiable in the organization. Organizational structure enables or inhibits activity and initiatives in the organization. How organization has been structured has impact on how people perceive it and what is their cognitive awareness. It starts with the perception of own task, responsibilities and limitations as well as how it interacts with other tasks in the organization. Measurement and incentives have also an affect. However organizational lever should not be used as a constant practice of massive organizational changes, but primarily more agile small changes. If a bigger restructuring is needed, it should also cause real action and value. Decision practices, leading from the frontline, guiding with values and principles and modification of dependencies are seen as some methods. Special emphasis is in creating a multidimensional organization. (Doz & Kosonen, 2008)

Political lever concerns preventing internal individual or unit specific attempts to get benefits or power over others, resources etc. They may be harmful from the organizational entity point of view. Especially if this concerns top management team. The other side of political lever is a well working, unite top management, which energizes the whole organization to reach for the common goal. Political lever can be applied through continuous change of dynamics in top management team through task, people and responsibility rotation as well as simultaneously creating dependencies in the top management team. (Doz & Kosonen, 2008)

2.6.5 Strategic agility in public management – adaptation of framework

Doz and Kosonen have adapted their framework together with Hämäläinen (Hämäläinen et al., 2012) to public administrations and governments. Hämäläinen et al. (2012) working paper is next reviewed when applicable, in other words suitable for either public organization level or gives understanding on government level, which influences public organizations. Effort is made not being tautological with the earlier framework and therefore the core of the frame work is not repeated as such.

Governments tend to approach policies incrementally and often exclude long-term issues, although it shouldn't need to. Governments tend to look for evidence that confirms established beliefs and to ignore information that challenges them. This approach doesn't produce the broader, more positive vision, which is needed to coordinate and energize the decentralized change efforts of several public actors under the government. "The new public sector governance arrangements should ideally be able to solve many of the problems that confront hierarchical and incremental policy-making approaches in the new socio-economic environment." (Hämäläinen et al., 2012, p. 7) Doz & Kosonen (2008) framework is presented as a new governance framework. Authors address the same issue as this study touches on, namely if framework from private sector may work in public sector.

From framework Hämäläinen et al. (2012) highlight three dimensions of organizational inertia concerning public sector organizations: strategic atrophy, diverging commitments and resources imprisonment. Strategic atrophy may be caused by decrease of strategic sensitivity of public sector leaders. Tunnel vision can narrow their mental framework, involvement of governmental politics may create short-sightedness or lack of instant feedback may result on complacency and lead to stagnation. Diverging commitments are due to diverging management groups driving their own causes, leaders with considerable power, leaders with emotional apathy, divergent stakeholders with varying goals and different policy tools. Commitment of all key stakeholders is difficult to achieve. Finally public organizations may be also imprisoned by their resources due to conventional budgeting, long-lasting relationships, social ties and competence gaps. "Competence gaps lead to a mismatch between the strategic goals of the organization and their feasibility: the strategy may reflect the changed environment, while the implementation plan is built on the organization's existing competences." (p. 16)

To create or maintain **strategic sensitivity** in public sector organization Hämäläinen et al. (2012) suggest the same methods as to private organizations including increase of cognitive contradictions, sufficient cognitive diversity and intensive communication. Especially they point out that in established public hierarchies functional goals, occupational roles, personal responsibilities and authority relationships tend to be fairly clear. Additionally careers are long with strong commitment and identification with a particular cognitive frame and organizational culture. Cross-functional or cross-sector interaction is limited, which delays or even prevents the formation of multidimensional organization. Public organizations could benefit from creating these skills through job rotation and informal social events. These also increase collective commitment. Job rotation is natural in the government level as a result of democratic process, but rarely in public organizations or even between organizations.

Regarding experimentation public sector organizations rarely have the culture to support them as they are more risk avoiding. The development of a more experimental public sector will require new incentives and strong leadership support. To otherwise broaden strategic awareness there are three specific policy areas public organizations may be able to influence: research, media and communication and culture policies. "In each of these areas, policy makers can support either *progressive activities*, which put new issues on the public agenda or take new perspectives on old issues, or *conservative activities*, which focus on old issues from traditional perspectives.". (p. 20) For example more radical long-term research projects can be provided more support. In strategy work could be used more communication technologies and social media to involve broader mass of stakeholders to the strategy process. On final notion of strategic sensitivity governments should create slack in daily operational tasks to enable analysis and discussion on complex strategic issues. (Hämäläinen et al., 2012)

Building **collective commitment** in public sector organizations can be executed through various organizational mechanisms also used in private sector, e.g. common agenda, high-quality dialog. Also "Shared visions and strategies allow the various decision makers and organizations in the system to make decentralized decisions with their inside knowledge of local circumstances, while at the same time knowing where the rest of the system is heading." (p. 25) For this is needed an open process with participants from all groups that will be affected by the upcoming changes. Participation and contribution creates necessary acceptance for the vision and strategy as well as the changes to come. (Hämäläinen et al., 2012)

For **resource fluidity** public sector organizations need ability to reallocate resources. However the performance measurement is not developed enough to be used in this causing the shared vision and clear strategic goals to be in an important role in public sector resource allocation. On the other hand freeing resources for new uses is not easy as systems are used for optimization, not dynamic reallocation of resources and resources are tightly hold on to by different actors as the budgets are tight and additional funding hard to get. Concerning public organizations flexible resource allocations are therefore tightly linked to budgeting. Flexible budgeting could be supported by separating it as its own unit to government level. (Hämäläinen et al., 2012)

On the other hand there are for example resources that could be shared, but the question remains if the possibility has been efficiently operationalized. Public sector organizations can also be made partly dependent on external resources, which make them more accountable for results than for resource ownership and expenditure. They may even be needed for addressing new challenges. (Hämäläinen et al., 2012)

From the people mobility point of view public organizations could be the source of common resource pool regarding to the competences of the people. It could provide e.g. a flexible source of managerial talent for new organizational needs as well as support shared understanding and collaboration among managers. Other people mobility enhancing methods from private sector can be used also in public organizations. Also modularity in structure could be applied in public sector. (Hämäläinen et al., 2012)

Finally, strategic agility should be a permanent goal where the organization is driving to consciously and continuously achieve. Three key factors and four levers identified by Doz & Kosonen (2008) are applicable tools for this. Their framework is used to elaborate empirical data in this study because it combines many of the aspects discussed in the literature view and may be extended with the issues rising from the empirical evidence of the case study, which represents public sector organization. This study confirms through the empirical case the use of the framework on the public organization level, which complements Hämäläinen et al. (2012) work on governmental level with empirical experience from Finland, Scotland and several other countries' governments.

3. CASE EXAMPLE OF STRATEGIC AGILITY IN A PUBLIC ORGANIZATION

The range of public organizations is wide and includes everything from ministries to health care and educational organizations. Finding a public organization that has a genuine need to renew itself in a fast pace however can be most likely to be found in those organizations working with Finnish business life and companies. They are most likely to have an external pressure in renewing their practices and have flexible future-oriented organization. Taking this into account, Finnish innovation system provides a good object to examination.

3.1 Finnish innovation landscape and public funding

According to the Global Innovation Index (2014) Finland scores fourth in country rankings. Similarly, Innovation Union Scoreboard (European Commission, 2014) considers Finland as one of the innovation leaders among EU member states. From the different aspects of criteria Finland is positioned in top three in finance and support as well as in firms investing in innovation activities. Alarming is that during last eight years all innovation leaders' performance, including Finland's, lead has declined. This is not due to poor innovation performance, but because the growth in performance has not been as high as in less innovative countries, which means that other member states are bridging the gap.

From the different aspects of criteria in Innovation Union Scoreboard (European Commission, 2014) Finland is positioned in top three in finance and support as well as in firms investing in innovation activities. These might well complement each other as empirical evidence and recent research shows that getting financial support from public sector doesn't necessarily decrease the investments firms are using in R&D, rather even increase it (e.g. Ali-Yrkkö, 2004; Almus & Czarnitzki, 2003; Lööf & Heshmati, 2005; Görg & Strobl, 2005; Jaklič et al., 2013).

Need for public funding for R&D is seen to be based on market failure (e.g. Arrow, 1962; Hall, 2002) and system failure (e.g. Bleda & del Río, 2013). In Finland public funding for private firms for R&D is 3% of their own investments, when average in OECD countries is 7% (OECD, 2013). Also public funding compared to GDP is modest in Finland. This means that the funding needs to be correctly directed to provide the maximum outcome and impact for Finland to stay innovation leader also in the future.

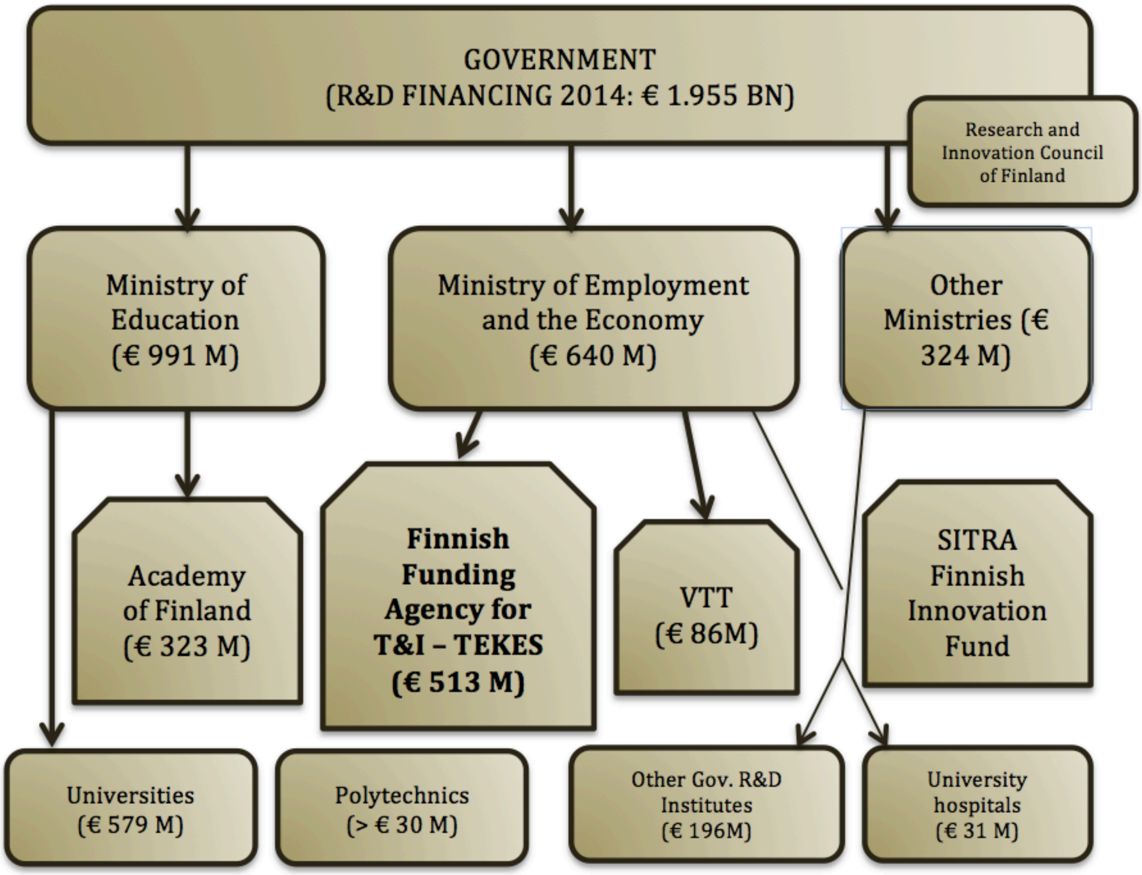


Figure 11. Structure of Public R&I System in Finland (Husso, 2014)

Public support system for innovations in Finland includes several actors and agencies. They fund e.g. firms, research institutions and universities. System might be quite complex to users and for example 52% of Tekes customers are aware of available support services in Finland and only 39% understand the roles of different service providers (Tekes, 2012). However when taking a closer look at the different actors, they all have their distinctive roles in the support system and only some overlapping (Taloustieto, 2014; Tekes, 2012).

3.2 Case organization: Tekes - the Finnish funding agency for innovation

One of the funding agencies in Finland is Tekes. It has a substantial role in funding R&D and innovation in Finland. It has been funding 65% of commonly recognized innovations in Finland years 1985-2009 (Tekes, 2013). Tekes funds projects, which yearly produce over 1000 new or replacing products, services or processes (1260 in 2012; Tekes, 2013). Also 47 of the 50 fastest growing companies in the technology field are customers of Tekes (Tekes, 2013). Due to its role in Finnish innovation system and supporter of renewal of business life, Tekes as an organization needs to be on the edge of development and innovations with ability to be proactive and reactive to the changing business environment in Finland and globally. This means strategically agile organization enabling quick responses and continuous proactive development of the organization and its offerings.

In its early years Tekes was focused on technology and R&D. Since then came the challenge of business knowledge and better commercialization skills, which brought along business knowledge programs, then service knowledge. Through those programs also organization began to develop. Later on there was a need to enhance work life development. International network grew, which was the result of globalization trend. Then the trends were realized to be something going across boarders and not attached to a certain industry, which brought Tekes to its current structure. The sight has also evolved to include closer cooperation with networks and partners with whom Tekes is working to serve companies and create greater impact with the resources it has.

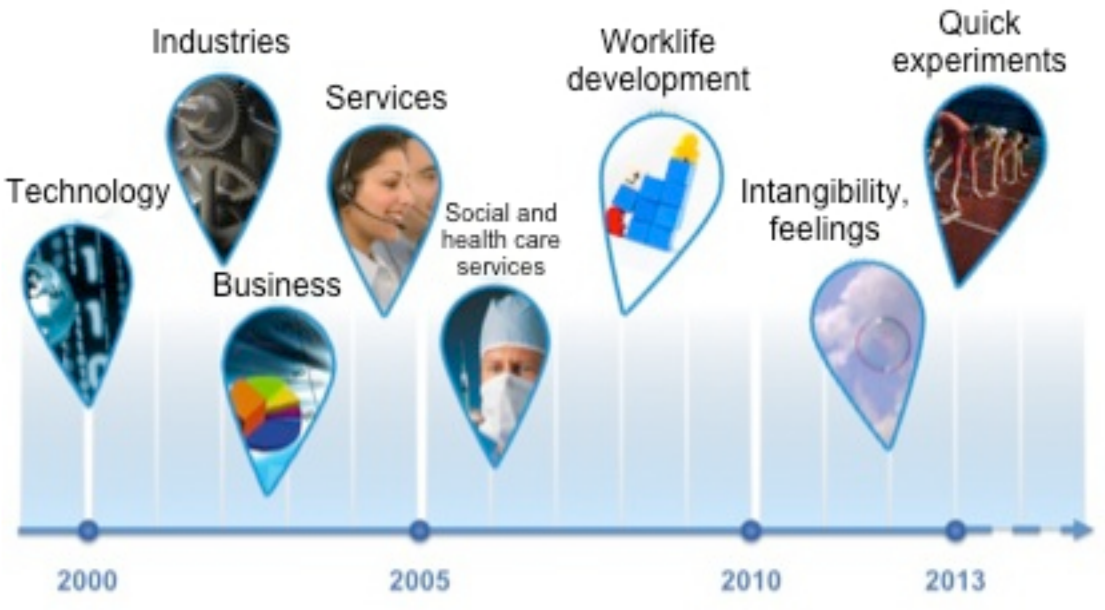


Figure 12. Tekes evolving over the years (Tekes, 2013)

Tekes is an expert organization and its core is project funding. In the organization structure change in 2013 funding function was divided in three segments according to the customer size as they all have their own similar problems and challenges regardless of their field and industry. These segments are 1) start-up companies, 2) small and medium sized companies growing internationally and 3) large companies and research organizations. Experts specialize on the specific problems in the segment and bring their field and industry expertise along as and when needed. In short, funding process includes project groups, who deal with projects, which includes one project responsible, 1-2 experts and possibly company finance expert. This team evaluates the company, their project, project goals and how Tekes would be able to fund it. Project responsible makes the presentation, project group comments it and decision maker makes decision. This might be called more of reactive side, but which is seeking to be more proactive also.

The naturally more proactive side of Tekes are the programs which have been divided thematically. Under the themes there are programs started, where seminars and networking events are organized to stimulate companies. Different kind of actors are invited to connect over industry boarders and encouraged to learn new from each other.

In addition to these two sides in Tekes there are important support functions, e.g. marketing and communications and HR.

Customer relationships are in projects mostly handled by one person who takes care of the customer from the first contact to the last finishing touches of the project. On the other hand if the customer is dealing with Tekes in many different issues, then there might be more than just one person dealing with these different perspectives, e.g. project, program participation.

Tekes has practiced its new organization model for 1,5 years. There has been a challenge to understand what new divisions and moving from industry based to customer based organization means in practice and what is involved with every group. The competence and the ideology of the new structure didn't meet right away, which was widely recognized gap. This gap has been tried to be filled and in most parts people understand their new role.

In organizational life cycle Tekes was experimental and took new things to handle in its earliest times. Then came a phase to build structure and function systematically when personnel had grown and there had been a need for common instructions and practices. Now Tekes is in a phase where environment is changing so quickly that rigid structures may even need to be taken down and create more agile practices, which still support Tekes' mission.

There has been especially efforts in making structure more agile compared to earlier and also resources to be more mobile in order to be able to respond in work load changes. There shouldn't be tight silos or boarders to inhibit for example how movable people are between different units. Work is still ongoing.

3.3 Tekes described by its people

During the interviews for empirical data (see 5.2 Data collection), twelve interviewees from different functions and roles in Tekes were in the beginning of the interview asked with an open question to describe how they saw Tekes as an organization.

Tekes is seen to be the most agile, customer oriented, close to customer interface and fast of government offices. It is the closest of the offices to function like a company, which has been a conscious choice. Tekes has put efforts in being able to understand business and to produce value to customers through funding and services. Tekes is quite dynamic and the environment is uniquely dynamic at the moment. There are big structural changes happening in different industries, which through customers reflects to Tekes and what is expected from it. The organization has developed to answer the changes in the environment and demands by being innovative, inspiring and forward looking organization. Tekes has a strong hold of global trends, networks and foresight functions.

Tekes has two sided role in this environment: on the other hand keep up with the industry leaders and on the other hand drive innovation and development. This means that Tekes needs to become even more proactive than before, stimulate customers, which changes the way Tekes needs to act and serve its customers. This also means more than ever the transition to co-operate with other players in the field and under the ministries, which entails a larger change at this point than just incremental modifications. This needs to be seen both in practice and in the organizational culture. Thirdly this means that Tekes itself needs to be also in the top organizations to be able to be credible in evaluating other organizations and their practices.

Tekes functions effectively when considering the amount of customers Tekes has combined with the complexity of the projects. The hard core is project funding and other functions (programs, activation measures) are connected to this and represent more widely the thematic entity around it.

Tekes is first and foremost expert organization with all the characteristics. Half of people are experts and the work is done with their work in the front. Tekes is also highly respected by its workers. Its described as being very open, knowledge transfer between colleagues has been exceptionally good. Colleagues, group of individuals, respect each other. They all have a strong background in their substance. Even if people are scattered around the country and further, there is still a strong feeling of togetherness, which is astonishing.

4. RESEARCH PROBLEM AND RESEARCH QUESTIONS

In the global markets organizations need to renew themselves continuously to be competitive as markets are becoming even more high-velocity in their nature or the industries are going through a structural change. This can also be examined on the country's economy basis with countries' rivalry of the innovativeness of their economy compared to others (e.g. Global Innovation Index and Innovation Union Scoreboard). In this innovation system the funding agencies play a crucial role and have great impact on the innovativeness of the companies. To be able to provide the support, correctly directed funding and groundbreaking programs to its customers, these agencies need to be able to stay on top of the latest knowledge and trends, renew themselves continuously and be able to respond quickly to the changing situations.

Public innovation funding agencies have customers from companies, research organizations and other public organizations. They are from different industries, from different phases (start-up, growth, mature), from different market positions and from different innovativeness level. Public innovation funding agency needs to renew its offerings at least the same pace the most innovative companies in their industries or the most pioneering research does to be able to provide funding and support to those companies. This way they are usually renewing faster pace than the rest of the customer companies and organizations they will be supporting. In order to renew the offerings, the public funding organization needs to agilely be able to renew its organization and practices as well.

This study aims to reveal how a public funding agency responsible for generating growth and innovations to the economy through funding the renewal of companies transforms its own practices and culture from traditional reactive into proactive and agile organization. Its significance is in the organization's impact to the whole economy of the country. Study aims to give in-depth and holistic view into one organization, which is going through a change process and building its own ability to renew itself and analyzes the journey with its successes, challenges and losses. Organization was chosen because of the complex nature of its environment and role, already established practices and culture before the change, limited resources and the need to impact the economy for the country's industries to be able to compete in global markets. Special emphasis will be in practices and culture contributing to renewal of the organization and agility of the organization.

Research question is **how a public innovation funding organization renews itself same pace or faster than its customers?** Special interests of analysis (sub questions) are

- How can the public funding organization benefit from its unique position and role in its own renewal?
- Is a public funding organization able to use practices from private companies to its renewal?

Study will have impacts on organizational level, public funding agencies and possibly to other actors in innovation systems in national level. It will extend the existing theory with adding a new layer of analysis into the existing theory by providing a case example of a public organization part of a national innovation system. At this point mainly companies' renewal and agility have been studied, although also studies in public organizations can be found. However Sherehiy et al. (2007) state that most agility related studies however focused on theory and frameworks of agility rather than empirical research. Since their study also some empirical studies have been conducted. There are also studies on how public funding impacts on innovations and innovativeness in companies. However there has not yet been case studies on renewal and agility of a public funding organization itself, although their impact in the innovation system and to the country's industries renewal is significant.

5. METHODOLOGY

This study is exploratory in its nature. The aim is to understand a phenomenon in which the goal and reasons to continuous renewal are clear, but the ways reaching the goal may differ greatly between organizations. This study is not used for theory-testing purpose, but to possibly refine or develop theory, which often has been related to exploratory research (Piekkari et al, 2009). There has been studies and articles on renewal, flexibility and agility of organizations (e.g. Doz & Kosonen, 2008; Volberda, 1998; Weber & Tarba, 2014) and also some from public organizations (e.g. Hämäläinen et al., 2012; Winter, 2012; Piening 2013). However the number of studies made in public organizations concerning strategic agility are not numerous. Tekes' background as public funding organization overseeing innovative projects, role in Finnish innovation system and impacts to the economy's competitiveness creates whole new perspective and possibilities to view renewal of one organization and can therefore reveal new aspects to theories. It can possibly also broaden the understanding of other public and private organizations on possibilities of renewal and responding as an organization to the fast-changing environment.

Studying a phenomenon of renewal in organization affects people and organization in many different layers. In addition to the changes that can be recorded from the decision making documents and reports, people observe and experience the possibilities and renewal in different ways according to their role and tasks in the organization and have different perspectives to it regarding their position. In this sense there is no single reality to be discovered. To be able to get a holistic view of the change, all these different realities need to be considered in the study. This leads to the relativistic approach (Easterby-Smith et al, 2013) in this study.

As the aim of the study is to increase general understanding of a complex phenomenon in a certain context, it requires the gathering of rich data and stories, viewing multiple stakeholder perspectives and making deep descriptions of the phenomenon to land on as close holistic view as possible (Dyer & Wilkins, 1991). These principles must also guide the study instead of following a strict predesigned structure (suggested by e.g. Eisenhardt, 1989). This leads to the emergent nature of the study as the reality, causalities and serendipity affects are constructed along the way through the actions of people who perceive situations differently and these different perspectives richen the understanding of them. This implies that constructivist / interpretivist approach with "emergent logic" (Piekkari et al, 2009) is suitable for this type of approach that is not able to provide generalizable theory (only context bound), is emergent in nature, starts rather with questions than propositions and observes relationships and linkages in the certain context (Easterby-Smith et al, 2013; Healy & Perry, 2000).

Case study was chosen for method because the study is concerning a contemporary and temporary phenomenon (Yin, 2003) of renewal in a certain context. Impulses for renewal, practices and culture are organization bound and can be found in different forms and with different content in different organizations. This leads to the need of choosing a specific organizational context (Yin, 2003), where the change has been occurring. Ability to renewal and the agility of organization may vary widely in organizations depending on the history and context of the organization, which leads to the need of choosing a case, which allows to understand the phenomenon holistically (Ghauri, 2004), take the context into consideration and provide an in-depth analysis on the process. Case study enables also the longitudinal approach (Ghauri, 2004), which is needed to understand the whole phenomenon and its affects, as cross-sectional study disregarding the history of the organization would be insufficient. This focus on in-depth and holistic approach of single-case study lets us use various data sources (Piekkari et al, 2009) in its context and provide rich data from multiple perspectives. Emphasis is on qualities of the data, not quantities (Denzin & Lincoln, 2000) as it is not purposeful for the goal of deep understanding of phenomenon for the change to be measured numerically.

Case study method also affects the role of researcher in this study. To get rich data and to be able to interpret the data, researcher is not able to be a total outsider. In this study researcher's role varies according to methods from being a data analyst (analyzing documents) to participant observer, for example when using internal events as data collection method as well as observing organizational members onsite (Evered & Louis, 1981). Mainly however the objective is to become more insider to the organization than to stay as an outsider. Researcher in this case is not totally objective but also her interpretations, past experiences on the organization and relationships with the organizational members affect the data access and analysis. This role enables researcher to receive data otherwise not given nor able to receive from merely using second hand data. It will contribute to the data richness, but also to the deeper understanding of the data in its context. Possible bias of the role is discussed in data quality section.

5.1 Research Process

The study begins with boundary setting and case selection. In this study there are three recognizable boundaries: the case organization, phenomenon in the organization and time span, of which the two latter are tightly linked to each other. When pursuing to understand deeply a phenomenon, which is valid only a certain period of time, it is purposeful to do longitudinal study and consider also the historical information. Study begins from the decisions made for executing a change and building up new practices for renewal and agility and ends to the present moment. Some results from the renewal may be recorded at this point, but this boundary setting limited to a certain timespan will offer subject to another study of the long time results of the transformation and capability building later on. However, although there are some recognizable boundaries of time span and phenomenon, there are some boundaries inside them that are not able to be set before hand. This relates to the evolving nature of the study, when situations, decisions and actions made during the process and the discovered linkages guide the study further and may define new boundaries to be able to get the holistic view.

The case organization creates one boundary in the study. Single-case study was chosen due to possibility to make the needed in-depth analysis due to smaller amount of cases. It also allows the consideration of context and its affects more deeply. This creates the needed understanding of the phenomenon and diminishes false interpretation of the context. Interpretations will be more accurate when context is taken into account and more tacit aspects are revealed with in-depth analysis. This might reveal some new understanding to the phenomenon and also allow more insightful implications. (Dyer & Wilkins, 1991)

Selecting the case organization requires multiple level choices (based on Fletcher & Plakoyiannaki, 2011).

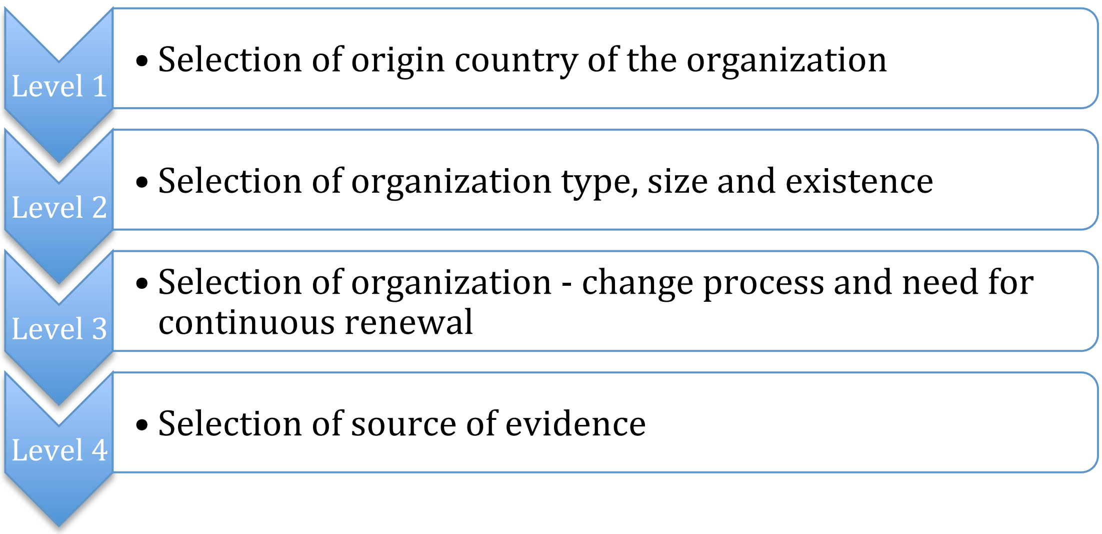


Figure 13. Multiple level choices in the study (based on Fletcher & Plakoyiannaki, 2011).

On first level decision is made where the organization is based on its origin. Finland is chosen as its traditional industries are facing a revolution, which demands them to renew themselves as well as organizations in Finland in broader sense to seek renewal and ways to enhance the growth of other industries to be competitive in global markets.

Second level decision on organization type, size and existence relate to the research question and are also somewhat interlinked to each other.

Organization needs to be internationally oriented in a sense that it needs to consider its competitiveness from a global perspective, not only national. Finland’s organizations are mainly SMEs - 99,8 % of companies according to Tilastokeskus (2014). In order to be able to identify and reveal more affects and impacts of the changes in a complex environment, the organization needs to be at least medium sized, preferably even considered as a large organization. This also entails that the organization has somewhat impact on the competitiveness of Finland in global markets. Complex environment also may lead to revealing new aspects to the phenomenon and implications may be analyzed from multiple perspectives. Medium and large sized organizations also usually have existed longer, which provides the setting needed for the case study of transforming the old culture and practices into new, innovative and agile ones as well as allowing capabilities to be already grown in the organization. This allows examining successes and especially the losses of transformation and capabilities over time and is more revealing compared to organizations that have been established or already in very early stage become dynamic and agile in nature.

Level three decision, selection of the organization, requires sampling of those Finnish medium or large international competitiveness oriented organizations that have acknowledged the need to renew themselves in order to respond to the fast-changing environment and have started a change process earlier on. This ensures that the change process is initiated by the organization itself and not assisted by researcher, in which case the real need to change may not be recognized in the organization and the organization is not fully committed to the change. This presumably narrows down the organization selection, which then is not restricted with focusing on certain industry, but preferably to a organization, which would provide the needed access to the organization's data and persons.

Starting to narrow down the possible case organizations there were some reference points to turn to and start the search, including the organizations funding innovative companies. Focus turned into the actual funding agencies in Finnish innovation system as they have a huge impact on Finnish competitiveness in global markets and in that sense they need to be continuously ahead of the present and to be so in many different fields (complex environment). On the other hand they have a unique interaction with the companies they are working with to be able to stay dynamic through the knowledge they gain from them, on the other hand they have a clear frame work from the governmental point of view and a task which they need to fulfill. Of these funding agencies Tekes is the biggest and fulfilled also the other requirements with concentrating funding on internationally growing companies, having had organizational changes in the last years and seeming to work very company like although being a public organization. Latter feature ensures the access to data as public organizations have lots of public documents and their work needs to be transparent. Tekes' role and context makes the organization highly interesting because of the impacts it has to the innovation system and Finnish competitiveness. In earlier mentioned SMEs of which Finland's company environment mainly consists of, one euro from Tekes has been proved to produce 21 euros of turnover in a year (Tekes, 2013). Therefore it is also beneficial to understand the capabilities for renewal in this organization.

Level four, selection of data sources, is explained in data collection section. Information gathered during the case selection has been evaluated through the purpose of the study and decisions are left open for later redirectioning, if needed.

Empirical unit of analysis in this study is the case organization as the renewal is considered to be organization-wide and case study is made about the certain organization in certain context with certain situation in the renewal process. With the case organization is meant the headquarters and the distant workers of the organization nationwide.

Organization size allows gathering in-depth data broadly throughout the organization, which is needed to fully understand the change in different parts of the organization and how organization's fit is ensured between different units. Considering the decisions made in the case organization it became apparent that also external networks of the organization needed to be examined in some extent. This relates to the transition of innovation processes from closed and internal to open and including external networks. One of the examples of this transition is open innovation paradigm (Chesbrough, 2006), where external actors are raised to the same level as the internal actors. This might influence greatly to the practices and culture in the organization and can't be neglected as one perspective. In this case the interaction with external actors is especially concerning strategic planning, offerings and internal development of the organization.

Theoretical unit of analysis is the renewal of the organization, constituted from the processes, competences and practices of the organization and aiming for the sustained strategic renewal of the organization and its offerings. They will be the actual factor, which is analyzed in its context and constructs through organizational actors' decisions and actions. How structured or unstructured the processes will be is dependent on the case organization and is revealed during the study. The levels in analysis are organizational level, renewal process, practices level and organizational culture. Preceding order may somewhat also represent the assumed order of changes to be seen (causal effects), but may be changed if the empirical evidence points to another direction.

5.2 Data Collection

In data collection multiple data collection methods were used, which ensures rich data sources and enables triangulation (Eisenhardt, 1989).

Data collection began with documents of the organization, especially the earlier evaluations of the organization (Evaluation of Tekes by Van Der Veen et al., 2012; Finnish Quality Reward report by Vaismaa et al., 2012) and the environment. Other documents were e.g. statements of human resources, presentations and results from workshops concerning organizational change, evaluation of Finnish innovation system, strategic competences of Tekes, impacts of Tekes and innovation activities, impacts of innovation funding, annual report and financial documents of Tekes. The full list can be found from appendix 1. Documents were used to get information and understanding on the practices and background for decisions. Also overall organization information were retrieved from the documents.

Open-ended, semi-structured interviews were main source of data. They were used to reveal not only the changes made in the organization, but also underlying organizational culture change and attitudes, which are not able to uncover with mere surveys. Interviews were iterative in nature, meaning that surfacing data from previous interviews was taking into account when entering a new interview. All levels of the organization from the board to employees were interviewed to get different perspectives to organizational capabilities, the change process and its preceding history and affects. There was also a possibility to get deeper in issues, which seemed relevant to the study and find for example losses that had occurred and might not otherwise be recognized. Interviews allowed possible emergent viewpoints, which affect the study, to rise. Interviews were recorded, transcribed and unclear statements rechecked from interviewees. Also multiple rounds and additional interviews were used purposefully with few key actors. Altogether 16 persons were interviewed: 12 internal persons, 2 partner organization representatives, 2 customers. Internal persons include former and present Director General, Executive Directors, Board member, HR personnel and personnel from both reactive and proactive side of the organization's offerings. In the interviewee selection main criteria was to find as versatile group of people as possible. This included people from different levels of organization, from different units and from different roles. External interviewees needed to have contact surface to Tekes in order to be able to answer questions concerning Tekes. External sources were used to crosscheck if the renewal was recognizable also to other stakeholders, which meant also validating the results received from internal interviewees. Interviews took place over by the interviewees, mostly in Tekes main office. They lasted from approx. 40 min to 1 h 15 min and were all recorded with iPad Quickvoice and later on transcripted from the recordings with basic transcript style. Basic transcript style refers here to colloquial language with expletives, repetitions, unfinished syllables and single sounds removed. Meaningful pauses and expletives as well as e.g. joking were included. The style was used to analyze mainly the content, but to capture also some feelings and emphasis. Full list of interviewees and durations of interviews is attached in appendix 2. Frames for interviews are attached in appendix 3.

In the beginning of the interviews there was a short discussion on timetable available and on confidentiality. Interviewees were told that interviews are given anonymous and quotes will be used without reference to information giver. Also was agreed that information the interviewee did not want to be published would not be included in the thesis. This information was only used for the interviewer to gain understanding of the issue. Interviews proceeded in discussion style, with open questions conducted first, followed by more detailed questions. Atmosphere was consciously kept very open and relaxed. Interviews were done in iterative way and more details were added along the way and brought to discussion if not mentioned earlier by the interviewee. Interviewer's task was to ensure not to guide the discussion to any direction for authentic information apart from the arising themes.

Other methods for data collection were observations on sight in events concerning the renewal (e.g. General director's morning coffee event for the whole organization concerning strategy). Spoken information was richened through observations of underlying attitudes, ways of speaking, power roles and other factors, which contributed to the understanding of the phenomenon and the context. Mainly notes were used to record observation to enable returning to certain situations. Eisenhardt (1989) recommends writing down as much observations as possible, as the need for the certain notes may occur later in the study and bring the need to revisit the notes in order to iterate findings and analysis.

5.3 Data Analysis

Data collection, data analysis and theory formation was done simultaneously and alternatingly using systematic combining, an abductive approach (Dubois & Gadde, 2002). With empirical data and theory alternating, data collection and analysis become more flexible and allow gathering of additional data or redirectioning of the study when something substantial emerges (Eisenhardt, 1989).

Literature was used to understand the phenomenon in other contexts and the theories created earlier, but not to restrict the data collection or the direction of the study. It was used first to get acquainted with the literature, but without being limited by any certain framework or theory. Although Healy & Perry (2000) express opinion on grounded theory researchers not to read similar kind of articles and studies beforehand, this understanding helped initiate the collection of first round of empirical data. Literature was revisited iteratively during the data collection and data analysis to be able to compare it to the empirical data and receive new ideas and find new and neglected aspects from the research.

The exploratory nature of this study laid heavily on the inductive approach in empirical data collection and analysis. Data analysis was overlapping the data collection and study was mainly directed to where the data was leading. Theory and framework followed the results with literature revisions. In the first stage so far collected data needed to be understood and analyzed. It was transcripted into a format, which allowed further data analysis. In first phase also "interviewee landscapes" were formed to understand the perspective one interviewee had. After the landscapes started to form similar patterns, data was coded "in vivo" (Ritvala, 2014) and different category possibilities were explored to help analysis. Data was inserted under different categories to see the category entities and how much there were similarities and exceptions. Through the empirical data and documents was also formed a picture of the organization before and after the larger disruptive renewal. It revealed the long term capabilities organization had and still remained after the renewal. It also showed all the changes organization had made to become more agile. After forming a big picture and first model of the findings, it was confirmed with the organization's representative and further data was collected for deeper understanding. Certain repetitive patterns were recognized from the categorized data, exceptions were explored especially through interviewee landscapes and comparison between different data sources was done in order to land on a holistic view.

When revising the theory after forming the general view, a framework of strategic agility from Doz & Kosonen (2008) was found to provide a way to present the findings and it was used. Hämäläinen et al. (2012) have further developed the framework to consider public organizations, but mostly from a broader governmental perspective. This study provides a case example from one unique public organization to elaborate Doz & Kosonen (2008) and later Hämäläinen et al. (2012) framework. The results combined with the framework was discussed with case organization representatives to be able to find possible mismatches and receive a last round of complementing data. Above mentioned categorization, found themes and progress from first round categories to the final figure can be found in appendix 4.

This approach with multiple analysis and iteration according to findings and theory revision was used for the essential findings to emerge. It allowed deep understanding of data before the final framework derived from the analysis through interpretations with the help of categories. It didn't limit the data collection and enabled holistic view, which was the purpose of the study.

5.4 Credibility of the Study

Credibility of this study is insured in numerous ways. Theory is used to elaborate further analysis and coding (systematic combining). Using abductive approach with both empirical data and theoretical background increases external validity. An iterative approach is legitimate when trying to understand a single case in its own context and flexibility is needed in order to spot emerging issues (Eisenhardt, 1989). High contextuality makes the data not generalizable, but as an in-depth single-case study rich data is provided to make context visible in this study. Deep case study diminishes the possibility of false interpretation of the context influence, which comes from the deep understanding of the case and ability to describe the phenomenon more carefully (Dyer & Wilkins, 1991).

Comprehensiveness has been assured with many sources of data, which provides an overall picture and holistic view. It also enables triangulation, which refers to use of more than one approach or source to ensure confidence in findings. Denzin (1970) refers to four types of triangulation: data, investigator, theoretical and methodological triangulation. In data triangulation refers to data being sampled in several occasions and variety of people. This was done through collection of data from different parts of the organization: multiple units, different levels (top management, middle management, employees) and different sources (internal, partners, customers). Data triangulation was the mainly used method to ensure data was accurate. Some comparison was also made between interviews and documents, e.g. alignment of strategic agility and renewal as goals and in practices. Methodological triangulation refers to this kind of use of different method for gathering data, however in this study mainly two different methods could be used. Although theory and empirical evidence was overlapping in analysis, it might not be comparable for the true meaning of theoretical triangulation. However, the abductive approach increases external validity. When emerging new insights are revealed, different explanations are assessed and explored to ensure validity and the right interpretation. "Emergent logic" used in this study can also be seen as a sign of quality (Piekkari et al, 2009).

Transparency is insured in detailed descriptions of used methods in the study as well as in how data is interpreted. This also includes recognizing the role and affects of researcher in this study, which was discussed earlier. Transparency is the key to trustworthiness and authenticity (Patton, 2002) of this study.

5.5 Limitations

Most of the limitations of this study are related to the in-depth single-case study method. When researcher is not an organizational actor in the organization, there might not be access to all data and information needed. This is sought to prevent with multiple data sources, good cooperation with the case organization and reliable and transparent actions of the researcher when in contact with the organization. The public nature of the organization also provides better access to the organizational documents and data compared to private company.

In single-case study describing the possible in-depth sustainable success key of the organization, confidentiality and anonymity are crucial to the case organization. Confidentiality issues were discussed in the beginning of the study for mutual understanding and confidentiality agreement was signed. Confidentiality was discussed also with every interviewee. Most of the data is public and can be presented publicly, but customer information is strictly confidential. Possible interviewees revealing unfavorable information are kept anonymous in the study. Study is provided for the organization before publishing to examine if the agreed confidentiality is fulfilled.

This study being highly context bound and exploratory, it is not generalizable as discussed in the external validity section. The purpose is to create new insights to complement existing theory and present an example of the change process from a public funding organization. Tekes as an organization is quite unique in its context, which implicates that it will be difficult to find any common best practices that would suit everyone, but rather the goal would be to give good examples to reflect on.

The scope of this research is limited in order to be able create an in-depth analysis. The exploratory approach may discover issues of interest in research, but are not able to be included in this study. They can be presented in the implications for further studies.

6. EMPIRICAL STUDY RESULTS

> *"Also Tekes needs to continuously change. There is no stabile state for us."*

Tekes is at a point where it aims at minimizing bureaucracy, unneeded work and focusing more on understanding the customers and aligning the organization according to them. The actions and changes taken drive Tekes even more to proactive direction and to becoming strategically agile. It is not a question of whether Tekes is developing and renewing itself but how fast they are able to do it in the future and how proactive they can become.

> *"Becoming agile and fast in decisions means that Tekes is able to react and renew itself faster than before. It also means that organization may become also somewhat stop-go and seem indecisive, which may awake uncertainty and insecurity on if everything is still under control and managed by someone. Tekes is at the moment trying to find its own balance between these two: which would be agile and fast enough and be still a controlled way to do this."*

Tekes has been able to renew itself and its offerings, but the speed of change has been slow. Big changes were not made in long time, which caused the latest change to start slowly and the change to feel even bigger than it actually was.

> *"The lack of practice was shown in the amount of reactions."*

Cycles of change have become faster. Also the clock speed has changed in the organization.

> *"Change of top management was the turning point with the combination of the demands on speed and tempo set by the environment. World has become faster in tempo, which means that renewal and cycles are faster. Demands grew also for Tekes and environment got critical, which meant also a need to change from that point of view."*

Tekes needed to become strategically agile to succeed in its mission in the fast changing environment.

Doz and Kosonen (2008) framework of strategic agility is used to elaborate the results from empirical study and how Tekes implemented the change towards strategic agility. Three dynamic capabilities of Tekes are featured, which enable strategic agility: strategic sensitivity, leadership unity (or collective commitment) and resource fluidity. However, strategic agility sources may differ in form and detail (e.g. Fourné et al., 2014 on strategic agility in MNEs), which also in these empirical results brings different emphasis on results and contents to the capabilities when they are first divided in three parts according to the framework and then elaborated more carefully through findings.

6.1 Strategic sensitivity

Tekes has been excelling in strategic sensitivity over more than the last decade. It can be seen from the success to launch new programs and funding. This originates to organization's role in innovation funding and the need to stay aligned or ahead of the trends in different industries. Tekes has always had access to the latest trends through their pioneering customers. On the other hand they must have been on the top of global trends and industry trends to be able to predict the future and direct their funding and programs correctly. They also have succeeded in this on many occasions:

> *"One example of being aware of upcoming trends were Tekes taking services to its offerings and programs even before it became a trend in Finland."*

> *"Tekes has always been able to enact on opportunities and trends. Tekes is not passive, but active funding agency."*

Tekes has also made changes towards agile use of external sources to be able to respond current demands:

> *"Earlier information gathering and use of external sources was mainly in context of strategy process and was done in three-four years apart. Nowadays the use of external sources has become more frequent and Tekes is able to react to signals even in few months. The whole Tekes is doing the screening, but especially middle management, because they are filtering and discussing about the things experts see in the customer contacts. They also have connections to stakeholders, partners, entrepreneur organizations, technology industry and other organizations that are seeing the changes happening in the field and are in a position to engage in them. On the other hand this is done also in other personnel groups."*

As seen above, screening the surrounding environment is part of everyone's work, especially in the core functions. It is not actively managed as such, but people themselves are interested, keen to learn new, and this drives them to be active in finding new information. Tekes' role as an organization has been more in providing information services to enable this wanted behavior, which has become a part of their culture.

6.1.1 External dialog: customers

Learning from the customer has been a very strong asset to Tekes along the years. The interaction with customers is seen to be the core of the work in Tekes. There is a lot of knowledge flowing from the customers. They are the experts in their line of work and industry. Customers have been one provider of the substance knowledge and skills to the experts as well as insights to the whole organization.

> *"In programs there are certain networks you are communicating with. Events are organized where 30-100 companies and organizations may be involved and they are given a task to discuss on current or upcoming issues with some experts. They simultaneously provide information to Tekes. Tekes people are then responsible on sharing the information further in the organization. Tekes is receiving a huge amount of information, the question is how to use it in a best possible way."*

The knowledge comes also from reading business plans, project plans and discussing with customers. Experts in Tekes are also looking for leads from customers, which they are able to look into more deeply. Experts are able to combine this knowledge gained from the customers nowadays also from different kind of industries when they see wider spectrum of customers due the segment based organization, opposed to industry based.

Customers are in this sense essential source of renewal and staying aware of the environment in Tekes. Experts and management have their own networks depending on the role they have. People may also be in contact with same organization but in different contexts.

> *"It is also trusted among different stakeholders and other funding agencies that Tekes understands the companies, what they are trying to achieve and understand the industry and market. This means that Tekes needs to hold on to the substance competence as the deterioration of the substance*

> *competence not only effects internally but also externally to other funding agents."*

Besides other funding agencies and stakeholders, especially customer creates pressure: experts need to be aware about the things they are discussing with the customers. This keeps the organization alert on all levels. There are also new challenges occurred after re-organization to segment based units. When working with companies in certain stage of their life cycle, experts are missing the industry perceived from other stages of the life cycle. On the other hand experts need to be aware of many different industries as they are working with e.g. the whole start-up scene. On the other hand this brings new kind of competencies and awareness to experts on issues between different industries. This development, both mental and practical, is still ongoing and the benefits will be seen later on.

Quality of the knowledge gained from customers is going to rise with the latest efforts of enhancing proactiveness in funding process. Even more focus is put to the discussions with customers before funding application and decision. Also follow-up will get more attention with goal of minimal work load in bureaucracy.

Tekes has one uncompromising limitation with learning from the customers and using customer knowledge: obligation to maintain secrecy about customer projects and business.

> *"Trust of the customer may not in any circumstance be broken in any way."*

This limits usage of the knowledge when dealing with other customers and stakeholders. It doesn't however limit the learning of experts and internal knowledge transfer and it can be part of the awareness of the environment.

6.1.2 External dialog: partners, benchmarking, other sources

Tekes has a long history of excelling in external dialog with different stakeholders, which connects to the role it has in the innovation system. Dialog with external stakeholders has been active, systematic and comprehensive.

> *"Tekes has always had a culture of renewal, but also the external impulses push towards it."*

To be able to be proactive and help Finnish industries, Tekes needs to follow the external environment very closely. Tekes needs to renew its programs and offerings according to the signals received from external sources to be able to benefit their customers. Tekes also needs to evaluate if an upcoming trend or event is something which is included in Tekes role and mandate, and they need to react to it. They can't afford to miss any important signal of new business models etc.

External sources include both its customers and the Finnish business life as well as international development and global trends (economical, technological). Third are organizations guiding Tekes, are working with Tekes and political decision makers, which form their own networks.

> *"The scope of different sources needs to be wide as the input for change may come from any direction. The organization needs also to be able to grasp the opportunities, which seems to be able in Tekes."*

In Tekes cooperation with stakeholders and partner organizations has been defined and there has been conscious development to intensify the cooperation in order to be able to react on initiatives coming from these networks. Cooperation with partner network is ongoing in different levels and through multiple personal contacts, which makes it easier to contact and find the right counterpart from the other organization when there is need for dialog or start of execution. Recent addition is more dense communication and dialog with political decision makers to ensure that Tekes role and funding have more impact and benefit to Finnish business and it is known across stakeholders.

Otherwise different external sources are followed connected to people's roles and interests. People from all levels and units in Tekes have been harnessed to follow the environment and impulses from external sources. Awareness begins from the global political situation, economics and trends to industry specific details from USA to China. Several comments also acknowledged that Tekes should not forget Europe as one area to gain information and also as one wider area which is competing globally in innovations and which Finland is part of.

Tekes benchmarks also similar innovation funding agencies. People are working in their guiding groups and following their practices, funding instruments etc.

Very few funding agency have the kind of network Tekes has, which makes it unique and beneficial. Personal involvement is emphasized on keeping up this network.

> *"For these external impulses and sources it is imperative, that the interaction is between people and you know who to turn to with different issues. This makes it easier to start planning some more radical changes than when dealing with unknown people. This makes interaction more relaxed, informal and straight forward."*

Other people and personal input related issue where Tekes is in the receiving end of external impulses is people rotation or personnel turnover. It is included in the yearly personnel report and reveals the need of taking in new people with new competences, especially if the transformation can't be done through internal competence development. On the other hand there should be always people also leaving Tekes as it would indicate that competence in Tekes is on so high level that it is wanted also in other organizations. This practice is not as systematic yet, but might be one source of rising awareness and renewal in Tekes.

> *"One part of external impulses is to have people changing in Tekes, rotation between Tekes and companies, as well as international change. This is not in action yet as it would need a whole new kind of culture and practices also to support it. But it might be a way to get some more external impulses also inhouse."*

There has been expert exchange also between partner organizations and there are clear targets to this function. This includes Swedish sister organization. Otherwise international exchange has been quite low although there is possibility for project natured participation and internationalization learning.

6.1.3 Strategy work

External dialog has been used especially in strategy process. Tekes has long traditions in professional strategy process. Tekes strategy, foresight and program processes focus on what the trends and signals mean to Finland, to Tekes and to Tekes' customers. Tekes has been able to identify trends and signals that will have impact in Finnish business life and start programs proactively to enhance the transformation. One of the successes of the strategy work in the past has been spotting services as the reformer of industry and starting programs to boost services already before it came a trend in Finland. In addition to the success stories, there has been also some signals that have been spotted, but have not been enacted upon, which later has proven to be a mistake. Important aspect in strategy work though is that Tekes mission is quite wide and enables different opportunities to be seized when they are seen important to Finnish economy. After the renewal of strategy work described next, these opportunities can be also revisited more quickly if necessary.

Strategy work went earlier in three year periods. A little later Tekes moved to four year cycle following the political cycle in Finland. Strategy process was a very ambitious process, massive exercise, and there were a lot of information gathering involved in the process. Related to the agility goals also strategy is presently evaluated more often, it is part of top management monthly agenda and external sources are used continuously to renew offering. This might prevent earlier miss of signals and enables faster reaction to changes on strategic level. It also allows top management to follow signals more actively to recognize the direction they are or will be taking.

Latest development in strategy work has been moving from organization strategy to network strategy with sister organizations of Tekes (including Finnvera, Finpro, VTT, Sitra, Academy of Finland). The start to this development was given in Government report on the future with the need to create a strategy for Finnish innovation system (Van Der Veen et al., 2012). This strategy would work as an umbrella to organizational strategies. Closer cooperation in strategic level is in the beginning and requires adjustment from the organizations participating to it. It means new kind of strategy processes, as they differ between organizations at the moment. The new approach is challenging and it includes also a risk of loosing some of strategic sensitivity as it stiffens the strategy process. Organizations may also be in very different level in their strategy, which means that every organization needs to adjust to a common view of strategy and they need to find shared answers. Pioneers will need to find a way to not compromise being ahead but also to adjust to the common strategy work. Tight cooperation sets demands on every participating organization's strategic agility.

One challenge is to make the strategy work in Tekes quicker and more agile with a long term strategy with insight to 3-5 years and even further, but at the same time ability to scout the environment in faster circles and evaluating how signals will affect and how to react to them.

> *"Combining long term direction with agile strategy practices is still work in progress. In this latest network cooperation this might be showing as long term strategy with partners and shorter term strategy development inside Tekes."*

On the other hand the cooperation between the sister organizations has made their mutual roles clearer and enabled flexibility through these roles, joint offerings, cooperation in multiple levels and also risen the effectiveness and impact of invested funding.

Tekes has been an expert oriented organization, which means that experts have always been valued in the organization. Strategy work and development work have always started bottom-top, from customer interface and experts. Now there has been a big change, when focus has turned to building cooperation with different organizations. This kind of approach is hard to build bottom-top in the beginning, which has changed the way how strategy work is done. However, Tekes has not afford to loose its strategic insights gained from around the organization.

> *"There have been and there still are possibilities for experts to influence the strategy. It is welcomed that experts are part of the ideation and discussions. "*

> *"The new strategy work with sister organizations started quite quickly and didn't include the first wider conversation, which caused debate in expert organization."*

In this most recent model working groups were then organized and internal experts in Tekes were used in facilitation of strategy work. They facilitated preparation to the meetings with partner organizations and facilitated also the joint meetings. This enhanced the quality of the strategy discussion.

> *"Our internal group gathered together, we discussed and prepared our perspective to the issues at hand, in a completely organized and planned way. What we think, what are important and how to take things forward. We were prepared and things were systematically thought."*

New strategy was seen foremost as a change in course of action and it needed to be made concrete. Final step for meetings was strategy game in Tekes which was used to get things to implementation phase and show how strategy could be seen in practice. Method was in use for the first time as new approach in strategy was seen to be needing also new kind of methods to support it. Also here 17 experts around the organization were involved in planning the content of the game, guiding the game and they also could have role later on in discussions on strategy. Through the game participants brought their own expertise in use and gave 150 initiatives how to develop the organization, of which 13 was taken to top management, mostly concerning internal and external cooperation. According to feedback the method was successful and created open dialog and deeper understanding of strategy. This method is planned to be used also with partners and guiding ministry to create open dialog and mutual understanding also with these stakeholders.

6.1.4 Experimental culture

Tekes has had a culture of systematically prepare strategy, strategic projects and their offering, e.g. funding programs. This has been time consuming, but on the other hand also successful way of working. External sources and experts' knowledge has been widely and systematically used to provide the best solution and action plan. Since the latest organizational change, it was acknowledged that more speed is needed to the organization and its processes to be able to respond to changing situations more rapidly and timingly. This meant fast decisions, iterative way of working and most of all a culture of experimentation.

> *"If Tekes wants to be an agile and renewing organization, which reacts quickly in global changes and what our customers and stakeholders expect from us, the only way is to have quick experimentation as part of our culture."*

People are lead to experimenting by making it visible goal in strategy, practices, in new organization. These need to be clear to everyone, in order to get the experimentation be related to the mission of Tekes as a public organization, which frames actions in Tekes.

In Tekes experimentation relates to multiple things: quick responses and reaction, continuous development and taking responsibility. They are a way to experiment new things, learn from experimenting and reducing unnecessary hierarchy. Taking these new practices in use is a start of culture change: start to experiment and fix later rather than taking long planning periods and starting only when everything is ready.

> *"First and foremost it has been important to get people understand the experimental way of working and there are experiments executed. This will affect the culture."*

> *"It (experimentation) should not be a separate part, but a part of your work, and it should be concrete and visible to become a culture."*

> *"Experiments are non-bureaucratic way of working. If something is seen important, you are able to experiment it and see the result."*

In order for experimental culture to start forming and the pace to speed up, it requires fast decisions. This on the other hand has required a change in management and decision making. Responsibility and decision making has been decentralized throughout the whole organization.

> *"It (experimental culture) requires for directors and managers to see the employees differently and the change of role from making decisions to enabling employees to function and make decisions. Delegating of decisions changes from bottom-top to top-bottom. This requires management work to change and be a part of the change."*

Experimental culture is also seen to need additional support of the environment, including support from the surrounding team, open way of working and a positive atmosphere.

> *"If the surrounding is positive, you are able to go out of your own comfort zone. Then it feels more like a challenge than an uncomfortable place to be. Your own attitude is different."*

Experimental and iterative way of working as well as faster decisions are seen also in customer offering. Tekes is able to make decisions in parts, where first phase of the project gets funded faster and may start faster than through the usual route. The project is evaluated after the first step and the next steps planned and applied accordingly and the funding proceeds in parts.

Some other aspects noticed in introducing experimental way of working is moving to work in smaller groups and reconsidering the phase a larger audience or group of stakeholders are brought in to evaluate or give their stake. Smaller groups get forward faster and give more fluidity (see resource fluidity 6.3). Experiments might be in a need of quick execution right after the start.

> *"Tekes internal renewal success is due to decision making capability. When there is an opportunity, its taken, and decisions are made how to go forward. To take things forward usually needs some active group to further it, it now makes it easier that changes doesn't need to be run through whole organization at once, but you can make an experiment also. It doesn't have to be right at once, but on the other hand you won't fail twice, but modify the actions."*

Many experimentation has after first evaluation round been ready to be spread across the organization. When it works, it starts to spread quite rapidly, which would have not been possible before decision making was delegated lower in the command chain.

"You should have taken the idea to the board for the permission to start, then made a project, which would have lasted probably long. Then there would have been a group reporting to the board and get permission to take it forward."

Learning about the experiments is an essential part of the culture. One sign of learning is how during the experiment things are already changing according to what has been noticed and learned. This can be seen as forming own insights from the knowledge and information in use. Earlier knowledge is combined with the new information as the experimentation goes forward.

"The end result may differ from the one the experimentation got started with or the experimentation may be exterminated rather quickly. Reflection along the way is important."

Tekes still needs to focus on the follow-up of experiments to be able to fully learn from them as well as set up systematic way to get dialog on successes and especially what can be learned from failures. Another challenge is in ability and timing when to draw conclusions on the success of the experiment. Tekes is still learning the management of experiments, especially target setting, follow-up, extermination decision points and learning from the experiments. Some successful experimentations have not been taken into wider use due to person changes or reverting to old practices. This might be a delaying matter in development that should be tackled in advance or it might just be a sign of an early stage in experimental culture which hasn't been settling yet.

There isn't any specific resources to experimenting in Tekes. The main idea is that the experiments are mainly not out of the ordinary job and tasks, but people try a different practice to the current task. This way they use the same resources that have been already allocated to them. There is possibility to the use of extra resources and to this moment resources have usually been available if needed. Especially when it first concerns a smaller group of people through the experiments and is meant to be spread across the organization later on.

> *"Good ideas go forward independent on any process, but it needs someone to champion it and believe in it."*

There has been seen challenges concerning proceeding speed and amount of experimenting. In proceeding with an experiment, you need to consider all the levels and all the stakeholders involved in order to find the right pace. It needs to be fast, but it shouldn't be overwhelming to operative side. Organization and all the needed people should be able to respond to the effects. Also the amount of experimentation still needs to be found. Too much experimenting might again be overwhelming, but there should be adequate amount of experimentation going on every day. Tekes is measuring what kind of experiments it has.

6.1.5 Internal dialog

Although the impulses, feeds and leads would come from customers and other external sources, it has been acknowledged in Tekes that renewal is about internal cooperation, management and connected to personnel's own personal renewal. Internal dialog is important part of individual and organizational learning.

> *"We have put effort on internal discussion and it has brought results."*

External impulses are handled in internal forums, which is extremely important, because there are experienced strong experts in Tekes and there is a need for a space for discussion on current findings, new directions and needs for development. These forums also provide a platform for knowledge transfer and learning from other experts. These forums are especially team and unit meetings where knowledge is transferred to colleagues and to superiors. Internal dialog in Tekes has been active also as it has been connected formally to processes, for example funding process.

> *"Project groups are forums for discussions on customer knowledge. They have very important role. People learn from each other when talking about certain problems or new things occurred with customers."*

There are also meetings between different units, for example manager forums for middle managers to calibrate their thoughts. At the moment the boundaries are broken also through cross organizational teams. Program teams include people from customer interface in funding and project teams in funding include people from programs. This way knowledge is passed across boundaries and issues are discussed from different perspectives. There are also other measures regarding customer work, which naturally open dialog between different unit members.

> *"Building ecosystems can succeed only with cooperation between people in customer interface and programs. They require participation of different experts from different parts of the organization and involve new kind of cooperation to make the ecosystems work."*

Strategy work has always been a process involving the whole organization. Although the practice has changed, it was made sure that everyone is involved in discussion of the strategy.

People in Tekes describe the open atmosphere for discussions prevailing in Tekes. There seems to be very few subjects that could not be taken into discussions with superior or management. Understanding of expert organization and decentralized decision making seems to have also moved even more challenging issues to be solved among experts. One example was the discussion on roles and competence of certain group of people in the long run, where the group itself were finding the answers through joint discussion and coaching. Discussion and decisions including challenging choices and solutions are dealt jointly in different appropriate forums and groups to form a joint view and decisions. These result in change of thinking or action plan depending on the matter.

There has been seen a shift in participation practices in Tekes aligned with the efforts of making Tekes more agile and fast. Earlier discussions have been part of familiarizing and building change readiness, which has meant that people have been widely involved already in the beginning. Now for the experimental practices there are quicker acting methods where with small, fast, over responsibility areas assembled group puts together quick frame, gets insights unofficially from the needed people and move quickly forward. This involves the relevant persons in the appropriate phases and allows faster proceeding. There is then a shift in the phase where wider group of people are involved. This might not be the planning phase as it has used to be, but the execution phase, which also supports the experimental way of working. Iterative way of working enables the perspectives of the wider group to be included in the next phases or development rounds.

Since the latest developments in organization, debates in project funding meetings have been in some extend removed. The goal is to make the funding process more faster and decisions on funding to be formed quicker. To fill the gap in this discussion as well as to promote the discussions between different industry or substance experts, information exchange has also received new forms and discussions have been moved to unofficial (not direct part of a process) platforms, forums and encounterings. There are for example competence networks for different subject experts, where experts can discuss important matters and increase their expertise through learning from each other. The organization is still learning new ways to keep up the dialog. The challenge is when the dialog is not official part of the job anymore, in other words not included in the process, and there is lack of time, it might be low on the priority list. Some people are able to include it better in their work, but others are struggling with it or it is something they do outside office hours. It might also be a hinder of knowledge becoming organizational and benefit more than one person. This suggests that there should be a way to include also these unofficial methods to people's roles and perception of their work. It also needs resources, mostly time, to be allocated to these functions.

Another change in participation is that there are less appointed memberships in steering groups etc., which in the past were quite numerous. They guaranteed participation according to the memberships as well as information receiving. When communication is changing to more focused and situation or purpose based participation as well as to the use of more informal channels, also these memberships have been mostly terminated. People are learning that the information is given and available in another form and how to access it. This again requires resources, but on the other hand releases resources by pulling down stiffer practices.

> *"Goal has not changed: working in networks over boarders, sharing knowledge over boarders. Just the methods are different and people need to do their share in reaching to the information they need."*

There are concerns on how these transformations to smaller groups and informal knowledge transfer affect to the flow of information in the organization, which is seen a key element in renewal and competence development.

> *"Small units help the knowledge to flow inside them, but does it get outside the smaller circle. Boundaries and boarders inhibit the flow."*

Especially this was seen to be the case between customer interface in funding and proactive measures, i.e. programs. In best case scenario all functions would be linked and knowledge flows harmonically forward in every day work, but at the moment there are still experienced some boundaries.

> *"Everyone has the idea, that they want to cooperate with people across the organization, but they might not know how to do it in practice. There aren't actual boundaries, but we need to make the cooperation concrete."*

Also the practices and tools in knowledge transfer may be different in different parts of organization, which makes it harder to interact with the knowledge from other units and parts of organization. From customer point of view this becomes especially problematic when people are interacting with the same customers and should be aware of what is happening in the other parts of organization.

There is no question how important internal dialog is in Tekes. The transformation in practices concerning this dialog is causing concerns on the strong asset of internal mutual learning which Tekes has had over the years. On the other hand new internal reference groups, people rotation possibility and cross organizational projects and teams may create new possibilities in connecting different substances and innovating new approaches.

Tekes has an advantage in being involved in many different industries. It has also expanded its offerings yet to other industries and fields throughout its history. Every one of them have their own language and Tekes in its unique role is forced to understand every industry as an organization. This means that Tekes has a wider scope in the language than many other organization or company. This allows Tekes to connect different industries and not be limited by any one discourse. Experts in Tekes have formerly had certain substance competence, which might have restricted their language in use. In the new organization individual experts are forced to deal with companies and organizations from different industries, which creates a pressure to widen the discourses they are using. At the moment it has been described to be a gap that is needed to fill. On the other hand it might be a permanent gap, which creates continuous development in experts' competencies by widening their discourses and knowledge on different industries. While the individual expert discourse widens, it also needs to happen in different levels of organization. In the end it might help the discourses to blend in the organization and form a very wide and rich ground for dialog which includes both industry specific language but also generalized or more abstract language to be able to construct more common understanding of different phenomenon.

6.1.6 Maintaining strategic sensitivity

Tekes has a vision to make Finnish business and industry globally competitive and create a top-level innovation environment (Tekes, 2015). Although Tekes as public organization has a mission and frame given from external stakeholders, it still has quite an open goal, which can be pursued in different ways. It also gives a strong meaning to the work people in Tekes do and drives people forward.

> *"Customer also brings the meaning to work. Experiencing that you are able to make a difference and help customers succeed. The work matters, which motivates."*

This makes people in Tekes find new ways to help their customers as well as renewing their own work.

It is also very clear in the organization that the current goal is to make organization more agile, fast and experimenting. Although the landscapes of interviewees were made separately and they included different points of view to the matter, they reflected the current state of the need to become more agile and faster as an organization, which in turn means finding new ways to do things. It is also understood quite widely that Tekes is in the middle of wider change. Tekes has also made some public promises on its goals, offerings and renewal, which have taken the organization forward faster than it would have otherwise done.

Another way of maintaining strategic sensitivity has been the current change of going from substance based division to customer based division according to their phase in life span. This includes also other internal and external transfers. People in Tekes are enforced to broaden their thinking, information seeking and analyzing skills, when they are dealing with wider range of companies or organizations than before. They move across boarders between different industries where the innovations are expected to be born. They also move across boarders inside Tekes. This keeps their strategic sensitivity awaken through their work.

Tekes is creating a multidimensional organization where there are crossing responsibilities on customers, teams across boarders, more and more internally and externally linked offerings in the future, forums for cross boarder encounterings. Although there are still work to be done, Tekes is on its way to establish a network structure inside Tekes, which reflects the goal of creating a multidimensional organization. This also enhances the encountering of people from different fields and roles, which brings together different perspectives and increases the quality of internal discussions.

On the other hand to sustain the strategic sensitivity, especially the top management needs to be able to conduct themselves in to a high quality discussion. In Tekes this has been ensured through renewal of top management team, sharing responsibilities and engaging in experimentations, for example combining HR with organizational development and operational program. They are also engaging people outside top management team actively to conversations.

6.1.7 Strategic sensitivity: summary

Tekes has build its strategic sensitivity over the years through comprehensive external dialog. Customer dialog and learning from the customer has been in the core of Tekes, with wide range of other external sources complementing it. External dialog has been systematic and part of everyone's role in Tekes with people actualizing it naturally. This has made external dialog exceptionally extensive, when the whole organization has been harnessed to collect insights. This gives also top management unusually wide perspective to the environment, when they are able to use all the knowledge the organization has collected.

Knowledge gained from the external sources has been equally important in customer work and in strategy work. The customer work will continue strong and external dialog will continue provide added value to customers. Strategy work has been changing towards two directions: joint strategy work with sister organizations and more agile strategy work practices in Tekes. These two will have both benefits and risks to strategic sensitivity. Partner work might stiffen and narrow strategy work, but on the other hand expands the external links in Tekes' use. More agile internal strategy work on the other hand will bring speed and shorter response time to changes in the environment. This requires a good continuous internal dialog for the impulses to reach the top management as there is not as comprehensive strategy process in use as before.

Internal dialog has been part of the official processes in Tekes. It has been comprehensive involving wide range of people in different contexts. Internal dialog has been recognized as a learning method between experts and between top management and the whole organization. Internal dialog is continuing actively in some crucial formal forums, but at the same time partly changing forms to suit more agile way of working with more informal forums. There is still adjustments to be made in learning how to get informal knowledge transfer methods effective and active. However Tekes is heading to a direction where the whole organization will be able to work across boundaries and have a wider organizational understanding of the surrounding environment over traditional roles.

A new addition to strategic sensitivity has been experimental culture, which has been started in recent years. Experimental culture doesn't born on its own, but needs support, encouragement and permission. Especially it needs fast decisions, that is in this case decentralized decision making practices in Tekes, which enable quick starts to experiments as well as empowers people to accept some risks and take action. Also other changes can be seen to relate experimental culture, e.g. working in smaller groups, championing projects and measures to learn from experiments. There are risks of too fast pace in experimenting or too much experiments going on at the same time. Challenge is also to know when to make the decision on whether to continue or exterminate the experiment. Next steps could be experimenting with the sister organizations or other partners, which would be a logical continuum for joint strategy work. This will require first building the trust and understanding between organizations and the ways of working together.

In every perspective to strategic sensitivity Tekes has involved a wider organization to enhance its abilities to become more agile, more aware of the environment and more responsive to the changes in different industries. They have created practices to support strategic sensitivity, but also dismantled restricting practices to be replaced by more agile ones. Getting the whole organization tuned to the same level of consciousness helps top management in their effort of creating a strategically agile organization.

Tekes keeps strategic sensitivity on a high level by creating a meaning to work through inspiring mission and vision. Organization is engaged in experimenting, which creates tension between existing and new. They are building network and cross boarder structures and take measures to increase the quality level of internal discussions. The culture in Tekes is curious, cooperative and future oriented in nature, which together with suitable practices helps to keep up strategic sensitivity. Nevertheless, also Tekes has risks to loose its strategic sensitivity, which requires it to continuously consider its how to make keep the organization alert, strategy process open and internal discussions versatile and on high quality level.

6.2 Collective commitment

Top management in Tekes is working as a team with the focus of creating an agile organization. The whole top management is committed to the approach and drive it forward not only in their units but with their own example. Backgrounds with experience from multiple units of the organization, temporary positions and practices that require multilateral relationships in top management create mutual dependencies, which decreases the politics and creates active, open and broad discussion on strategic matters.

These practices and perspectives not only concern the top management, but they have been applied around the organization. It creates understanding of the whole organization and everybody's part in the entity. The whole organization is committed to the common goals and the mission of Tekes.

> *"The most significant issue (for renewal) is the willingness of people, how positive they are for renewal. For them to be positive, they need to understand the meaning of renewal. Understanding means more commitment. This can be found in Tekes, but it requires that it is clearly stated to people where we are heading and what we want to accomplish. People in Tekes are individuals, highly educated, which means that they need to understand before they commit."*

6.2.1 Management culture in Tekes

Tekes management culture has been said to look like its Director General. The management culture has been efficiently copied through the whole organization. Accordingly, during the last change of Director General, also the management culture changed.

> *"Pekka Soini has brought really a different management culture to Tekes: company based and shared decision making. He gives responsibility to others – you lead. This was something that needed top level management culture to change."*

All factors in management system have now been pulled to same direction: renewal, experimentation, speed, results, impact both in and out. People are encouraged to take responsibility of their own work and decisions. They are directed to manage themselves and do their best through a common goal and values. This change has been radical and is still ongoing. The goal is to become self-directing, goal and value oriented organization. This demands a new touch from directors and managers and it has been supported by trainings, coaching, change agents, development discussions and collegial benchmarking.

There has been one common feature in the long run. Management culture has been open. Access to any superior or their superior has been easy. Structures of the organization have been challenging for management, but still it has been open and appreciative towards experts.

> *"Open attitude, relaxed but still seriously taking atmosphere, not too formal. A lot of it comes from leaders and leadership practices and situational sensitivity of leaders."*

6.2.2 Building collective commitment

By changing the management culture and top management practices towards decentralized decision making and team work in top management has brought the need for top management to engage more to collective and multi-directional interaction. Bilateral relationships have been needed to replace with multilateral communication, which firstly increases the quality of discussions and secondly helps to form joint decisions. This results in clear and unanimous message to be sent to the whole organization. Interviews with the top management members formed a very similar landscapes compared to each other in the most important aspects, which define the directions of Tekes.

Top management team members have also been appointed from different parts of the organization or they might change the unit they are responsible for when switching into being part of the top management. This creates understanding of the whole entity of organization and eases the interaction between members of top management.

Discussions in top management team are regular, but there is also lot of informal discussions between the top management member, which strengthens the team mentality. Operational issues and leading own unit takes time and often these discussions happen after normal working hours.

> *"On the other hand, we discuss outside top management formal meetings, between 2-3 persons on things that needs to be pondered. This usually happens when we are leaving for home between 17-19 in the evening. We stop at someone's door, start with the subject and discussion begins. Sometimes time is reserved for continuation of conversation."*

Becoming even more integrated as an organization in the future with creation of ecosystems in industries and responding to the growing demands of impacting the Finnish economy as well as making joint decisions inside the top management, focus top management's work in Tekes effectively. They need to consider how to create more value to customers and other stakeholders. A common challenging goal requires top management to work as a team, which they have now started to experience.

> *"Cooperation in top management team has moved from total responsibility of one owns area to genuinely working together as a team although still having responsibility area."*

Hence, the decisions are made as a team and members of top management are then responsible to taking the decisions in action in their own unit and creating environment for the needed cooperation between different levels and units.

6.2.3 Mutual dependencies in organization

Tekes has created mutual dependencies to the organization with its new organizational structure. Heavy matrix structure has been removed and the new structure is based on customer segments through their phase in life span as well as theme based program units alongside them. Same customer can work with different experts in Tekes, for example in programs and start-up funding. This makes the different units slightly dependable to each other. Different units also share same processes, which guides to natural cooperation in development activities or offering development. There are also crossing units that penetrate all the customer and program areas with their functions. All the units are represented in the top management team. The unit directors are also championing different projects and taking responsibilities on certain organization wide or top management team related tasks alongside with their unit responsibility, which also promotes mutual dependencies.

Tekes has also found other ways to make the organization more network-like than general organization would be. Tekes is actively trying to find suitable network constructions inside the organization. It has program and funding teams that consist of people from different units making decisions together on the projects and fundings. Tekes has started measuring what kind of multidiscipline teams it has and what are the impacts to the customer. This directs consideration also towards creating cooperation and dependencies between the units.

Compared to the earlier organization structure experts no longer work solely with the organizations of their expertise area of industry, but with customers in certain phase on their life span regardless their industry. To keep the substance competence in wanted level, Tekes has launched competence networks, which gather together experts around the organization to discuss issues on a certain industry or field of expertise. This part of earlier matrix is now being executed with network model, which enhances the communication between different units when working as intended. Practice is still finding its place in the organization and it hasn’t been trouble-free due to voluntary model, lack of time resources of experts, lack of network leaders or champions. When working effectively, it would provide yet another network inside the organization binding different units and experts together.

Tekes has launched ecosystem thinking and started to build ecosystems with their customers. From the organization point of view this means also building more networks inside Tekes, because the ecosystems will require the support and cooperation of different experts.

> *"They (ecosystems) can't be built only in program areas or in customer funding areas. It takes people from many different programs, funding point of view, project customer point of view, which can be companies related to ecosystem or municipality or some other organization involved in building the ecosystem."*

Tekes is not only building dependencies internally, but also between their sister organizations related to the new joint strategy work. At this stage there are strategic level work as well as program level work, which result from dependencies point of view in joint offerings, shared development and different level cooperation.

6.2.4 Cooperation

In Tekes focus on organization level issues in top management meetings has been first and foremost enabled through delegation of decision making downwards. This means that unit directors are leading their units quite independently, although with cooperation with other units, and making the decisions concerning them. Discussions on issues between units are conducted between unit directors, often outside formal top management meetings. This liberates time in the joint meetings for the organization level issues, strategic conversation and directing the organization. When making organization level decisions, unit directors again have the role to take the decisions to their units for them to realize in action.

Job rotation in Tekes takes many forms and also current top management team members have many been in different parts of Tekes, which helps them to understand the functions more deeply and comprehensively. Being aware of processes, strengths and challenges in different parts of Tekes, raises the quality of discussions between top management members. Members understand each other's perspectives and are able to commit in a constructive dialog. Any of the interviews did not reveal that top management wouldn't be totally behind the decisions they had made. This might indicate an open and constructive dialog in top management, with differences of opinions brought up to the discussion.

For the top management and the whole organization there are several measurements given from external stakeholders. The most mentions in interviews throughout the whole organization received the impact Tekes is able to create with its actions and funding. Common goals like this require the top management team to work together and focus on how to deliver the best possible solutions. Goals are clear in the organization and everyone is driving towards them. Goals genuinely give meaning to the work. Combined with open culture that was described by many interviewee, it means that not only the organization level goals are public and transparent, but it reaches also personal level.

> *"We all have public target cards, that are stored in intranet or document management."*

Practice enhances transparency, feeling of justice and visibility to common goals of team, unit or set of experts. On the strategic level fairness of goals and work load concerning them is enhanced through resource reallocation practices, which is discussed later in resource fluidity. Besides openness, Tekes has had a long term culture of cooperation and helping, which is described to go through the whole organization.

The culture was defined open, cooperative and atmosphere relaxed, although professional, by many interviewees. This promotes also the direct and unofficial dialog of the top management. There seems to be room for discussions, likewise also unofficial encounterings and discussions between top management members authenticate the discussion style of top management. Discussion style, active dialog and decentralized decision making combined with expert organization also results in adaptive management style of which there were proof through examples.

> *"Its not only that superiors think of the management challenges, but you give the problem to be solved to the people (team and experts) in question. They are smart, they are able to suggest solutions. There are also resources we can use to support it."*

6.2.5 Changes in top management

In Tekes there is a new policy of the positions in top management being for fixed periods. On the other hand, Tekes has not restricted this to concern only top management, but the whole organization.

> *"In general, there are no permanent, final posts in Tekes. The idea is that the world changes, organization changes, people's tasks change. Our earlier cycle of organizational renewal, with posts and tasks of people substantially changing, was quite slow. ... With this decision the message is that there is no permanent, stable state, but we see what kind of roles there are for now and at the latest in few years we check what would serve the current state better."*

Otherwise there has been some rotation in management group in last few years, due to development possibilities and changes in roles. This has been renewing the practices of top management and consequently also the practices in the whole organization.

> *"It (top management) gets renewed every time a new person comes to the team. It is first and foremost a synthesis of people's competences from the perspective of group dynamics. It renews itself every time one of its members is renewed. It means that although the agenda stays the same, the way it is grasped suddenly changes."*

Tekes practice on fixed period posts makes it possible for make more changes in tandem, but also enables the historic ties to continue compared to changing the whole top management team at once. New practice also makes director changes natural and shows example to the rest of the organization.

Directors have been selected through the qualities the new organization is wanted to represent. Management and leadership skills have been one criteria.

> *"These people act as examples and models to personnel of what kind of way of working, practices and attitude Tekes wants to represent. They drive networking, forward going, courage to experience and excitement to share."*

Top management team members and managers are appointed over boundaries to other areas if possible – a practice that forces managers to learn new, enables new practices to be taken in action, helps to understand other members and discuss on joint matters. Also balance of qualities of people in different groups is needed to consider to create versatile teams.

Director General is also in a key position to select the team members to top management as well as himself acting the way he expects management culture in the organization to be. According to the interviews, current Director General also takes the doctrine he promotes in action in his own leadership. He has also managed to create at least a start to equal and unite team, which can create larger benefits when the team is not bound to one type of thinking and perspective.

6.2.6 Collective commitment: summary

Management culture in Tekes has been open, cooperative and relaxed. Now there has been added decentralized decision making and changing positions. These together with the new structure and cross boarder practices create mutual dependencies across organization. This means also that the top management needs to be working as a team with a role of leading the whole organization independently from the operational responsibilities.

At the moment Tekes top management seems to work as a team. As the decentralized decision making guides the unit specific and cross unit issues to be handled in other levels, top management is able to concentrate on leading the organization as a whole. Team work and understanding is enhanced through members' back ground experiences in different parts of the organization. Top management engages in unofficial conversations and their common dialog is relaxed with multilateral dimensions between the members.

There are also practices to keep top management renewing itself. No post in Tekes is permanent or final, including top management. This assures the renewal in different levels as well as the ability for organization to respond to the prevailing state with the changes in the tasks, posts and structures. Organization becomes agile and continuous change natural.

Many of the practices top management uses have been taken into action also in other parts of organization. This includes creating dependencies between units, changing posts, creating space for discussion and debates. Management culture reflects through the whole organization.

6.3. Resource fluidity

Tekes is at the moment starting the way for more fluent resource allocation and mobility. Quick decisions and fast strategy need also resource fluidity to be fulfilled in action.

> *"Tekes has been run through resources. They have been allocated to functions. More should be thought on what we are doing and how to do it. You give more funding for renewal and change process than to certain function, because renewal brings productivity. This has been forgotten in public administration. We have also been run through resources, but now*

we are changing. We will have resource-wise totally different possibilities. We don't allocate people or money to something, but think how we serve the purpose, what challenges we face, what kind of internal process we build to be able to serve any customer any time without restrictions in resources."

6.3.1 Capital fluidity

Tekes' capital as a funding organization has been divided in two: operational costs (decreased to approx. 40Meur in 2014, Tekes, 2013) and funding capital (approx. 550 Meur in 2014, including funding and loans, Tekes, 2013). Operational costs include the operations and organization running the programs and funding. Funding capital is allocated to customer organizations and companies as funding or loans. This brings on the other hand restrictions to the operational side as the budget gets tighter every year, but on the other hand makes a clear distinction between the two lines and where the capital resources should be allocated.

In general, Tekes seems to have been able to trim the machinery in funding processes to a good level when comparing the funding applications going through every year. Funding is controlled by law and instructions, involves processes and it-systems, requires responsibility and order. This makes the functions slow and stiff, but Tekes is examining how to make it more flexible e.g. through service design process.

"Now main management doctrine is velocity and agility, which is renewing also the efficiency of funding function. It combines responsible action with flexible service."

Operational capital for changes and experiments inside the organization are not before hand allocated to smaller developments, but they are made as a part of normal work. On the other hand capital is available if needed and the resources can be assigned from the unit management, human resources or other function.

> *"The idea is that the experiments are not separate from your work as such. The same resource is available for the experiment that would be otherwise in use for the work itself. But there are pockets (sources of capital), if experiment needs extra resources. So far everything has been able to be organized."*

On the other hand there are also some views that resources is the restricting point in renewal of Tekes. Operational costs affect for example the work load, leaving little slack, which in turn affects the scope of awareness and possibilities to develop.

> *"Operational costs are preventing us from renewing. There has been lot of reductions in operational costs. One concrete consequence is that we are not able to follow what is happening in the world, do analysis and benchmarking, which would be crucial when we are helping Finnish companies to enter and succeed in international markets."*

> *"What is the actual hinder is the work load. It takes the view from the horizon to only few meters ahead or as far as own desktop, which means that even though there would be willingness and although you spot opportunity, it passes because you have no time or energy to grasp it."*

> *"Also too much development projects for one person enables focus, but 1-2 development projects and they will go forward. Its needed to give people the opportunity to do something on those things that needs to be developed, which means adequate time and resources to do it. If you are under a lot of pressure from your core task, you are not able to develop anything new."*

When there is the pressure of work load, everything else is discarded, which delays many development plans. Slack would be needed to move the sight from immediate tasks to also to the bigger picture and future – development and renewal. There would also be possibilities to take development and experiments further. This would require a mindset change also in public administration and guiding systems in general that affect Tekes.

From the funding capital point of view there are certain frames proposed or given to the use of capital for funding and loans (Tekes, 2013). There is a clear measurement for Tekes to follow in its decisions: impact on the Finnish business life. Although certain allocation of funding capital has been made, the mobility in this framework is quite wide when the measurement is impact. This brings fluidity to the funding capital and enables e.g. quick experimenting and fast strategy changes from the capital point of view.

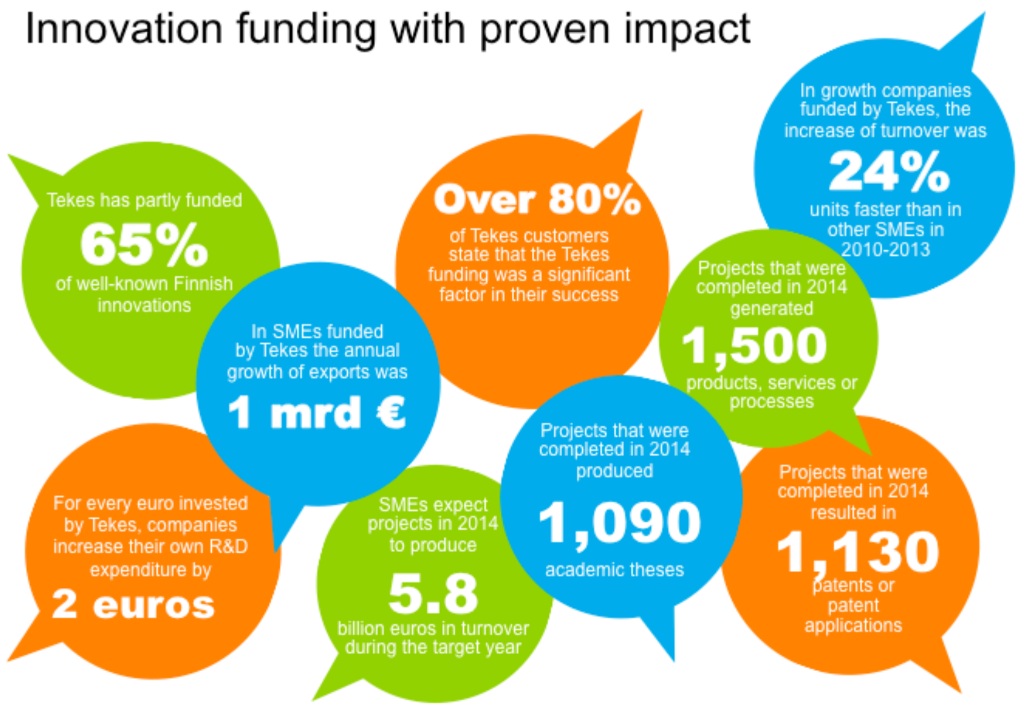


Figure 14. Tekes key figures 2014 concerning made impact (Tekes, 2015)

Tekes' drive for impact not only gives the target, but guides and motivates individual experts in their work. They are able to see their part in the entity. All factors in management system have now been pulled to same direction and everyone is able to relate their work to the measurement of impact and renewal.

6.3.2 Structure and practices enabling fluidity

In Tekes the network model mentioned earlier is one enabler to resource fluidity. It creates an over boundaries crossing teams and actions, resembling a multidimensional organization. This means that although there are people and resources allocated to different units, the internal mobility and joint project and processes make the team and unit boundaries loose. With network structures overlapping official structures, the organization becomes more agile and resources more mobile. There might be some special resources in certain responsibility area, but other resources come from other units or are borrowable from there.

> *"Structurally there is not that much obstacles, its more about time and bothering to do so."*

> *"Some boundaries and dividers were put into place (in the last structural change). How tightly we want to hold on to them to be able to do our job. If we keep the boundaries tightly, we will interrupt and prevent renewal. If we canät move resources over boundaries, we won't be able to handle things smoothle where ever the resources are needed at that time. Its dangerous to take the new boundaries too literally."*

There are views that Tekes should become even more integrated entity, with only one line including both proactive measures like programs and the funding areas. This has been attempted to achieve through network constructions. The work is still ongoing and concerns not only the structures but also how to reform practices to support it.

> *"It is not only about the structures, but how to enable it also otherwise."*

Although there may not be actual boundaries in structures, there might not be ways to function over boundaries, which forms an obstacle itself. There needs to be formal and informal practices to tear imaginary walls down. There are common resources operational units use: marketing and communications, worklife development and HR, strategy and international network and general services. These crossing functions have sight to all operational units and are in use in all of them. Customer funding areas also have a common funding steering and support function. There are also similar processes in different units as well as more specialized, which combined create a mix, which can benchmarked by each other in order to find a functioning model for each of the funding channels and programs.

Tekes has recognized customers as a very essential part of their strategic sensitivity alongside with their mission to create impact to the Finnish business life. Working with the same customers, that have learned to use Tekes funding may limit also Tekes view to the fields and industries. Tekes should drive to include continuously new companies under their funding or program schemes. This would create more impact to the economy and at the same time broaden Tekes scope to companies.

> *"We try to be faster or equally fast than the fastest companies to serve them. On the other hand it is our duty to stimulate the majority of companies that are not yet in growth phase (and not yet Tekes customers). It is a new type of challenge."*

Another is the limits to the offerings originating from the customers.

> *"There is also a limit how much new experiments can be done, especially in offerings to customers. They need to be more carefully examined before launching."*

Customers and their ability to respond to new offerings need to be considered when launching new funding lines and programs. Especially complex offerings with fast timetable need to be considered more carefully from the resources and customer point of view. They need to be easily handled both customer's and Tekes 's side. Tekes has taken a campaign approach to introduce new experiments in offerings. These have been executed with a narrow timeframe, little complexity and without too much extra pressure to the existing organization. Results at this point have been encouraging and new model enables quick launches. This is part of the modularity thinking that can later on be copied as one practice to launch new offerings. Tekes is building modularity to its offerings through these kind of experiments.

In some sense one might argue also that Tekes has lost some of its fluidity along the years by being successful in what it does.

> *"Tekes has expanded widely over the years. If this process continues, there will be a threat of loosing focus. Something should be abandoned and Tekes should work in an area it can provide benefit to Finland. Tekes has been so successful in the past that things are integrated more and more to Tekes and given Tekes to handle. There should be questioned if this is the right instance to take the things in question to handle."*

Tekes' success had created the pressure externally to move more and more instruments concerning industry development for Tekes to handle. This could be connected to the public organization status and how the organization is guided also by public stakeholders. On the other hand Tekes has been consciously proactive also in seizing on opportunities that might be in the area of Tekes mission. At the moment Tekes is building strategic cooperation with sister organizations. The current cooperation with sister organizations might be one answer to this when the roles get clearer and there are joint decisions on which organization will be the acting one in different issues. Also otherwise the cooperation will bring Tekes more flexibility through cooperation in offerings, possible expert rotation and joint projects. On the other hand there is a threat of becoming more stiff in strategy work as well as resources actually being tied into the cooperation and loosing their flexibility. This needs to be considered in the cooperation – not loosing fluidity of resources or strategic agility.

6.3.3 Personnel mobility

Internal people rotation has been first and foremost a method of competence development. Top management, middle management and expert positions have been open internally and the opportunities have been used. The three customer funding functions started their own internal rotation campaign where people could go to another responsibility area for a few months. Six participated at the first round and there were wishes also to attend to another responsibility areas than the offered. Hence, the campaign has been freely applied and the rotations will be carried out.

Nevertheless, although the target has been competence development, the rotation also prepares for mobility inside the organization (or between sister organizations) and therefore promotes flexibility. There has all the time been a possibility to take an exchange period in other functions and it has been used. From the resource allocation point of view there has been active actions taken for a year. Especially between young companies and growth companies responsibility areas there has been transfers, temporary or permanent, to even out the work load in young companies area. Borrowing resources between units makes the operations more flexible. In the future the proactiveness of actions is important to prevent not only resource shortage but also to prevent the feeling of trouble caused by the work load, which may take a longer period to vanish after the actions have been taken.

Moving to customer segment based division has enabled the transfers and flexibility between the responsibility areas in Tekes. There are shared competences which are needed in every area, e.g. business knowledge. These shared competences are being developed more powerfully than before, rising alongside with the industry competences of experts. Dealing with different industry customers removes one boundary created by industry related expertise. The common factor in the responsibility area is the phase of the customer company in its life span, which creates certain common challenges the customers phase. This division makes it easier to transfer between responsibility areas as it is not the industry specific issues you need to know deeply, but the challenges in the certain life span of the organization. Industry specific knowledge can be gained from colleagues, if needed, which in turn promotes the network like structure in the organization.

This transformation to more general competences becoming as strong or even stronger than industry expertise has not come without challenges. It concerns professional identity, customer expectations and industry expertise development. When taken out of your comfort zone, there might be a confusion in professional identity: am I industry expert or business development expert. There is a worry of loosing your professional identity you have been strong in. From another point of view this could be seen as growing your professional identity through new supporting competencies. Customers might also expect a strong industry expert. This means that actually the value creation to customer is also changing in the funding areas. The consultation to customers becomes whole business evaluation than concentrating on some technology, process or product. Change makes competences less sticky combined to the network structure, but at the same time there is adjustments people need to make personally and in customer work. Also development of the former core competence, industry expertise, has been taken new form in competence networks, which is still a practice that has not gained a best working form to support the building of this side of the professional identity further.

Related to rotation, resources, competence and organization development Tekes had a few year experiment where it combined HR function, organizational development and operational programs concerning worklife innovations and development. Experts from customer interface were used to internal organizational development, principals for development borrowed from the program and HR personnel moving closer to the customer interface as well. Although this was experimental, it demonstrated how resources can be used across organization fluently in order to gain from new combinations and arrangements.

In addition to the short term resource allocation flexibility Tekes has also prepared itself to the more long term and strategic direction changes. As in top management, also in other parts of Tekes there are permanent contracts, but temporary posts. This together with joint competences adds to the fluidity of tasks, posts, people and structures. When a development opportunity or need for change is spotted and strategic direction needs to be changed, Tekes is able to do it more fluently in the future. Not only is the structure more fluent, but also mindset is growing to the idea of nothing being permanent and organization being in constant change reactively and proactively towards its environment.

6.3.4 Resource fluidity: summary

Also Tekes as an organization has understood that in able to execute fast decisions and agile strategy application, it needs to have fluid and flexible resources. Tekes is learning new ways to allocate resources not strictly based on units or functions but where they should be used at that particular moment. This supports the network structure being built inside Tekes, where there are no set boundaries to inhibit capital, people or other resource flows.

Tekes is in the beginning of building the network structure, which will be one key element in resource flow in organization while eliminating boundaries. Another practices enhancing fluidity in Tekes involve people rotation, competence reforming and agile resource allocation, which have been starting and/or further developing during last few years when organization has taken the direction to agility. Tekes is also preparing the whole organization to upcoming changes through mindset change from permanent posts to permanent contract with changing tasks.

From the top management mindset and interviews can’t be detected any hoarding of resources or jealousy in the use of people in different projects or borrowing them to other tasks, but more understanding of the organization as one entity that needs to work smoothly with the resources it has, regardless where they are appointed at that moment.

Still one challenge in resource fluidity is the difficulty to create slack in the organization. As a public actor, the budgets are tight and efficiency is expected. There are no possibilities to create slack through growing sales or other private company methods, but to keep processes efficient and carefully plan how the available budget and resources are used. Looking it from another perspective, shortage of resources teaches to use creative ways to improve organization and forces to make decisions how to design and make organization more flexible and multi-purpose with ability to be shaped for future.

6.4 Levers for maintaining agility

Organization may loose its strategic agility for example when falling in to the trap of success or focusing more to operational issues during growth and maturity. Also Tekes has had different levels of agility over time. They were agile in the beginning, but needed more structure and systematizing when growing to the current size. Now they have made changes to become agile and fast organization, but need also consider how to remain agile over time. They have already taken measures to ensure the continuance of agility.

6.4.1 Cognitive lever

Tekes' strategic direction is wide enough to be appealing to top management, the whole organization and to its stakeholder. Tekes' mission widely concerns all the industries in Finland and enhancing their competitiveness in global markets. This gives the scale and scope to the entity they need to be aware of. In principle, it will not be restraining the needed strategic awareness in top management and lead to one-sided or too narrow perspective.

On the other hand this is what is not happening in Tekes only in top management, but also wider in the organization. The level of awareness is raised for example through the transfer from industry expert to business expert. It forces to broaden the perspective and with strong internal dialog practices, this awareness is collected throughout the organization. The scope and quality of awareness is key to strategic sensitivity.

Also the launched experimental culture is one way to keep organization alert and keeping their thinking open and receptive. Combined with understanding creating discussions it offers a way for cognitive changes and reflection to own awareness. What Tekes still needs to achieve is to confirm broader learning from experiments in order to achieve all the benefits.

Experimental culture relates to the cognitive change of how people perceive change and stability. When Tekes people acknowledge and embrace the change as a permanent state of the organization it also affects emotions towards it.

6.4.2 Emotional lever

Although the renewal of Tekes has brought some confusion and questions about the new direction and practices, the overall spirit in Tekes is strong commitment and appreciation of the organization. People are proud to be working in Tekes. They are proud to be able to make a difference in Finnish business life and its a strong motivator. Also top management has mostly generated trust in the organization and acceptance for the new doctrine of speed and agility with their exemplary behavior and open discussions. Although, there are some doubts on new practices, which need to be addressed, especially when working in an organization with strong experts.

Forward moving energy has been provided by decentralized decision making, being able to influence own progress in organization and being part of the development. In Tekes people are proud of what they are doing and how they are able to impact the Finnish business life. They are also proud of the history and heritage of the organization. They have an open and supportive culture where everyone is appreciated and respected for their expertise.

"When our work has had an impact (to the customer) – it makes you feel really good and motivates you. We are influencing (Finnish business life) in the key position and see where the things are going, but first and foremost we are able to make a difference."

"I appreciate Tekes high, I always have. This is an open organization, knowledge transfer between colleagues works exceptionally well. Colleagues appreciate each other and we are talking about a group of individualists with strong backgrounds. This is what makes Tekes great: we have tremendously strong feeling of belongingness, Tekes-clue among people. Its extraordinary."

"People need to feel safe. It makes receptive to renewal."

Tekes also measures emotions in the organization. There is a survey addressed especially to map the level of the organization concerning current feelings.

6.4.3 Organizational lever

In Tekes all the functions are represented in the top management team, which balances perspectives when making decisions on strategy or resources. Regarding the organizational restructuring the whole organization was given the opportunity to participate in workshops where the structure was discussed and different models evaluated.

In its new form Tekes functions like the spider network, especially when considering the network structures inside the organization. Top management leads by example, with organizational values and clear vision of what the organization is wanted to achieve. The functions themselves are strong, but together they form a combination which creates the whole entity of this unique organization. Organization finds its current working and development balance through resource reallocation, competence development and open discussions throughout the whole organization.

Decentralized decision making is also here a factor for agility and fast responses.

> *"Decision making capability, swift decision making, is the key promoter to organization's renewal. "*

Decisions are not only made faster, but the decision making ability and capability has been spread to the organization and it creates agility. This in turn enhances the decision making related competences in the organization. This has been noted also by external stakeholders.

> *"People's capability to make decisions, ability to solve problems, experience on own mandate seems to grow all the time. It's a good development path."*

6.4.4 Political lever

In Tekes political lever is used by forming the top management to work as a team with multidimensional interaction between members. There are no permanent posts, which prevents forming of long term cliques inside management team. As pointed out before change of directors also changes the dynamics, perspectives to strategy and practices in top management team, which in turn prevents the deadlock situation.

There also seemed not to be any politics between different units outside top management team. For example resources were borrowed over unit boarders, people were encouraged to rotate between positions and units and work was done in multifunctional teams, which decreases the competition between units.

6.5 Challenges

There are challenges recognized internally and externally when moving to more agile organization. Some of them have been mentioned above in connection to the subject. There are also some more general challenges concerning the change and renewal. Most of them might be considered to be psychological obstacles.

External challenge relates to customers and their perception of Tekes. Customers have a certain image of Tekes, which might be from long time ago and does not respond to current organization. These might concern Tekes being more bureaucratic and slower than it actually is. After making the organization more agile, how to build the new image and make it known to old and new customers. Old image should not prevent the willingness to contact Tekes with project ideas.

There are also internal challenges, which concern changes in general, but especially in larger practice and culture changes. In addition to learning new methods and ways of thinking, change also includes letting go of old practices and line of thoughts. In Tekes this has included e.g. unlearning from the previous planning culture with the need to accept imperfect planning phase. There is also a balance to be found in the future with renewal when new things are implemented and launch with the existing resources, which means that there is always something that should be let go of.

> *"Those should be things which don't provide value to customers, e.g. bureaucracy has been questioned."*

Another psychological obstacle relates to Tekes as a governmental funding organization.

> *"As Tekes funding is ruled by different laws and regulations and people working in Tekes have responsibility of state officer, they probably experience the frames more tight than they in reality are. There the biggest obstacle for renewal is the caution they have in making decisions."*

When Tekes mission is funding and its governmental organization, there are certain laws and rules which need to be met by the organization. At the same time organization needs to combine proactive measures to it to provide a system where the both sides support each other instead of smothering the other. The balancing act is between how to be responsible but at the same time be able to experiment new things. Especially here the psychological barrier of perceived frames for action can be a delaying matter.

There is also a need to find a balance in going too slow or going full speed ahead in order to keep all people in Tekes onboard. The amount of changes can become overwhelming and can't be coped with. This applies also to the changes made in the customer surface.

> *"There has to be found a everyday pace, a balance where the pace is fast enough, but not overwhelming. In this sense there are no concerns on Tekes being able to renew itself, but getting too big counter reaction to too much renewal in a short time."*

7. DISCUSSION

Tekes has undergone a change which was initiated due to the evaluation of Tekes (Van Der Veen et al., 2012) and especially due to the changes and ruptures occurring in the environment of Finnish economy. Although Tekes had been renewing its innovation funding and programs successfully already earlier, it also needed to renew its organization and practices to be able to be successful also in the future. Tekes' mission to promote development of Finnish industries means that Tekes helps to create innovations, offer funding that enables growth and create value with future oriented offerings. This mission requires Tekes itself to be ahead of the upcoming trends, respond to the fast-changing environment and be able to renew itself accordingly. Renewal cycle in industries has increased and Tekes needs to renew itself and offerings partly even faster than its customers. For this Tekes needs knowledge, fast decision making and agility. To enable these Tekes engaged to discontinuous strategic transformation (Agarwal & Helfat, 2009) with the goal to become faster and more agile organization with continuous renewal.

Doz and Kosonen (2008) state that for organization to be able to become agile it needs to have all three perspectives in use: strategic agility, collective commitment and resource fluidity. These dynamic capabilities are dependent on each other. Being strong in one dimension doesn't automatically create strength in other dimensions. There can be a need to emphasis some feature over other in a specific time span, but none of them should be ignored at the same time. To build the needed dynamic capabilities Tekes has needed to create and renew multiple routines that are interconnected to each other (Piening, 2013). Tekes has started its journey to the agile strategy and organization from the strengths it already had earlier: strategic awareness and strong internal culture of open and active dialog. Tekes has been lead towards excellence and they have had practices to support continuous development (Saarnivaara, 2013). This has been a good base for starting to create more agile organization and operations and provided acceptance to the new doctrines. Path dependency (Teece, 2007; Zollo & Winter, 2002; Piening, 2013) has been affecting the reformation of these routines mainly in positive way. Tekes has started a new journey of continuous renewal, which brings along practical, mindset and emotional growing processes.

External dialog, understanding environment and sensing changes (Pryor et al., 2007; Teece, 2009) has been the core of Tekes from the beginning of its existence. They have managed to use the gained knowledge, in other words they have the dynamic learning capability to be able to combine existing and new knowledge to provide needed insights in order to redirect their strategy and offerings (Roth, 1996; Kogut & Zander, 2003; Kogut & Zander, 1992; Lin & Wu, 2014; Doz & Kosonen, 2008). This also means they have been able to exploit the opportunities in their environment to create new programs and funding before they became trends, e.g. services (Teece, 2009; Doz & Kosonen, 2008).

Many studies (Pryor et al., 2007; Binns et al., 2013; Doz & Kosonen, 2008) have suggested experimental methods to enhance strategic sensitivity and renewal. Experimental culture has been started to build also in Tekes and it permeates the whole organization. Although there are still phases in the process to enhance (e.g. overall learning from the experiments), the benefits and development needs have been acknowledged and are being solved.

Strong internal discussion practices are supporting the knowledge creation from external sources and experiments in Tekes. Open discussion and the right kind of language in the dialog may enhance or prevent how the surroundings are interpret (Doz & Kosonen, 2008). Tekes is building their common, and at the same time rich language by working over boarders and industries. This broadens understanding of phenomenon and concepts and keeps the strategy discussions also wide. Strategy has been traditionally been a wide dialog in Tekes, as Binns et al. (2013) suggests, and still although the strategy work has slightly changed, it involves the whole organization.

It has been acknowledged in Tekes that the organization needs to embrace the idea of being in a constant change, aware of the environment and in a constant state of readiness to change. These have been identified to be factors to maintain strategic sensitivity (Doz & Kosonen, 2008). Tekes has a clear, but wide goal of boosting innovations and helping Finnish companies to succeed, which already requires the organization to be aware of the environment. Tekes has also publically stated accountabilities of e.g. impact to the economy, which leads naturally to following external impulses and renewal of the organization.

Top management has been raised to the discussion in many studies concerning strategic agility and renewal. Tekes' top management becoming a well-functioning unite team with common goal, multilateral connections and rich strategic discussions supports the studies of Binns et al. (2013) and Doz & Kosonen (2008), which state that unite leadership community is needed for renewal. They need to be able to separate themselves from their operational roles to see the entity of the organization. loose the organizational politics and have broad discussions with consensus on strategic matters. Tekes has made room for organizational perspective by increasing accountability of top management team members. They are more independent with decisions concerning their own responsibility area, which frees more time in top management meetings to organization wide strategic issues. At the same time they engage in different organization wide tasks, which also require the broader perspective. Doz & Kosonen (2008) state that in ideal organization every unit director not only feels responsible for their own unit, but also seeks actively ways to enhance other units' results an also that "it is necessary for the top management team to spend most of their shared time to open, constructive and comprehensive conversation on essential organization level issues" (pp. 122).

Volberda (1997; 1998) names top management and their capability as the other important factor to create agility in the organization. In Tekes top management has been the driver to change and they have launched the needed practices to support the change to more agile way of working. However, to be able to actually renew the organization successfully, it has been proposed that not only top management needs to commit to the goals, but also the whole organization (e.g. Hopkins et al, 2013). Tekes has been creating mutual dependencies across organization. Dependencies increase the cognitive awareness of the whole organization and therefore create more comprehensive decisions (Doz & Kosonen, 2008).

Managers are in a significant role in creating strategic renewal. According to Hopkins et al. (2013) the mindset of top management is proposed to influence directly to middle managers' perceptions of the empowerment they have to affect organizational goals and through that to strategic renewal. Accordingly the clear commitment to agile and fast organization of Tekes top management together with the new practice of decentralized decision making creates active and unite mobilization of top management insights to whole organization.

Teece (2009) saw decision making protocol as a microfoundation to dynamic capabilities. Tekes changed the protocol to be more decentralized, which has made the decision making faster and supports Eisenhardt (1989) view. Similarly Tekes is using internal experts to support top management decision making as well as cross-functional decision making, also a view supporting Eisenhardt (1989) and Doz & Kosonen (2008) studies. Tekes has also experienced the downside of making too fast decisions (Yi et al., 2015) and is finding the balanced speed in decision making. However, likewise according to Kortelainen & Lättilä (2013), fast decision making also helps to recognize and correct wrong decisions faster and diminishing losses.

For Shimizu & Hitt (2004) decision making barriers Tekes has response from culture that allows mistakes to happen with the intention that they are learned from as well as having experimental culture, which is preventing the status quo situation. With the open discussion culture comes also the natural habit of questioning assumptions and alternatives, which is allowed and encouraged e.g. in strategy process. There are still actions that needs to be taken in measurement of experiments, but renewal is already measured.

Both Shimizu & Hiit (2004) and Doz & Kosonen (2008) studies bring forward the rotation of managers in key positions. Tekes has taken this practice into use and top management team members have fixed period positions. This enables fresh ideas, development of top management team dynamics and practices, diminishing politics and creating movement in the organization. Members also possess versatile background from different parts of Tekes, which helps them understand each other perspective and have a constructive dialog (Doz & Kosonen, 2008). Furthermore, these practices are organization wide, which again strengthens the agility and mindset of continuous renewal in Tekes.

Another dimension seen important in creating strategic agility is flexibility (Sherehiy et al., 2007; Volberda 1997; Volberda, 1998; Doz & Kosonen, 2008). Teece (2009) is referring to it with the capabilities which enable seizing opportunities. Without flexibility or resource fluidity fast decisions can't beput into action (Doz & Kosonen, 2008) Flexibility on the other hand has been seen to refer to organizational design and structure (e.g. Weber & Tarba, 2014) as well as resources (e.g. Doz & Kosonen, 2008). Tekes is creating structurally a multidimensional organization, which will help create both flexibility and strategic sensitivity to the organization (Doz & Kosonen, 2008). They are using team and project structures to involve people from different units. They are also creating networks across the organization, e.g. competence networks. This multidimensional structure is lowering barriers (e.g. Kraatz & Zajac, 2001) between units and promotes cooperation across organization, which enables agility.

In addition to not having permanent posts, people mobility is used in Tekes to lower the barriers, even the work load between different units and create more integrated networks inside the organization. They also enable broader understanding of the whole organization. According to Sherehiy et al. (2007) job rotation, ongoing redefinition of job descriptions and authority tied to tasks rather than positions are associated with organizations committed to continuous change.

Besides fixed configuration, challenges to resource fluidity can come from hoarding of resources in units, working with no slack, resource allocation practices and long partner and customer relationships (Doz & Kosonen, 2008). Many studies refer to separation of resource allocation from operations (Fourné et al., 2014; Doz & Kosonen, 2008; Weber & Tarba, 2014). Tekes has been given two budgets: operational and funding to customers. Allocation of the budgets has been recently moving more from assigning resources to certain unit towards assigning resources to purposes or goals. Resources become more flexible, can't be hoarded and there are less "turf battles" (Fourné et al., 2014). Allocation of resources between exploitation and exploration (Weber & Tarba, 2014; Lewis et al., 2014) has not been proved to be a challenge in Tekes as their mission includes creating new offerings alongside with the existing. Experimentation is done as part of the tasks and additional funding can be received if needed from the unit's or shared units' budget. However the challenge in work loads concerning the balance between core and explorative work is still present also in Tekes. Working with public funding, there is no additional slack or "buffers" (Kraatz & Zajac, 2001; Sull, 2009), but the renewal is part of the normal work and included in the core task of everyone.

Modularity has been seen as one key answer to flexibility (Doz & Kosonen, 2008; Weber & Tarba, 2014; Sanches & Mahoney, 1996). Tekes uses modularity in its offerings as well as in its structures in a way that the modules can later on be copied as one practice to launch new offerings. Tekes builds modularity through experimenting and then standardizing the modules into use. Different units also share some modules and develop them together.

Some of the resources has been claimed “sticky”, i.e. more rigid in both time and place (Doz & Kosonen, 2008). These include for example competences, which are crucial resource in expert organization. They might become a hinder for change, but they may also promote change (Kraatz & Zajac, 2001). Tekes has tackled the stickiness by creating organization wide competences, e.g. innovation knowledge, business knowledge or company finance knowledge, which are promoted across the organization. These kind of competences makes the organization more agile for example for job rotation. The strategic competences possessed by a wide range of experts in Tekes enables common language but also possibility to wider customer work. Complementing these strategic competences is substance knowledge of every expert, which can be seen more sticky, but on the other hand also they are made less sticky through knowledge sharing in competence networks.

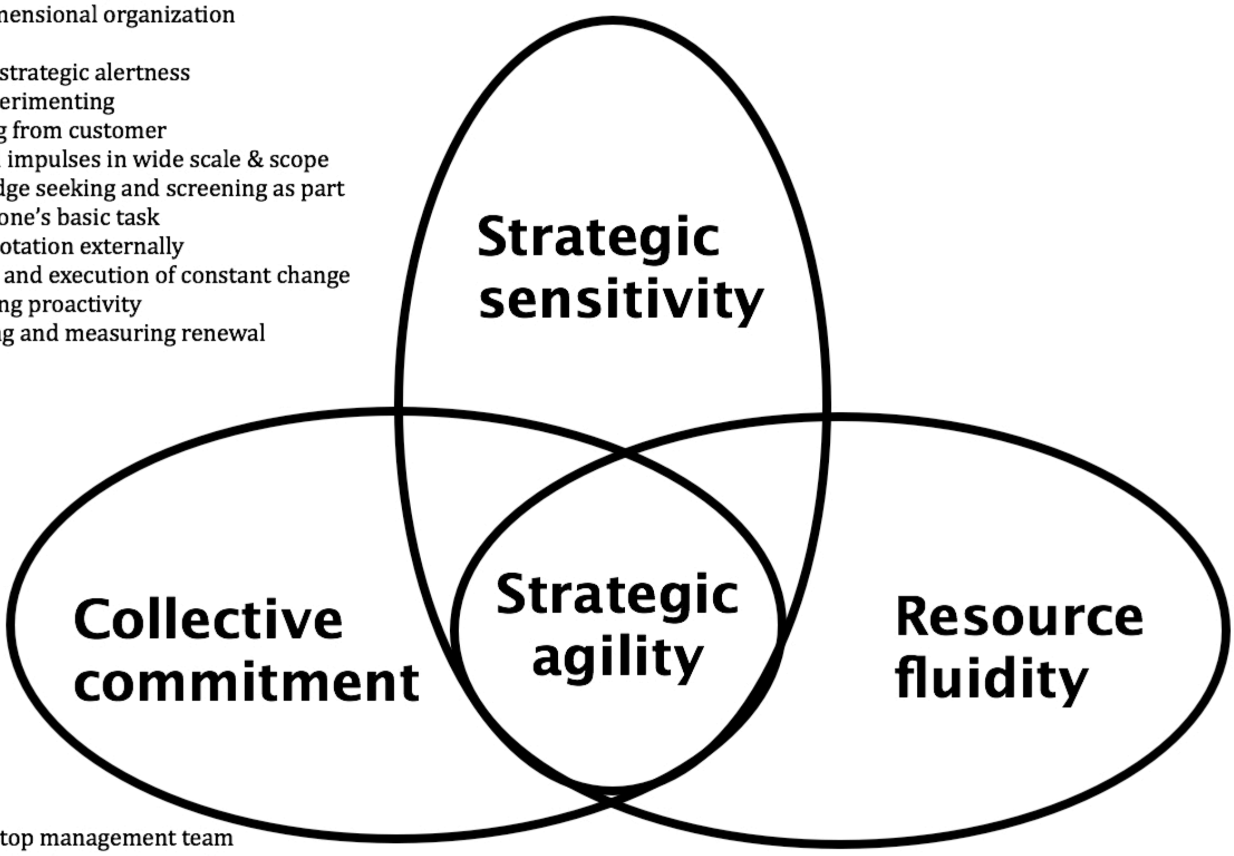
Finally the strategic agility related theory recognizes tensions as the key factors in maintaining strategic agility, but on the other hand also as challenges for managers (Doz & Kosonen, 2008; Lewis et al., 2014; Fourné et al., 2014). Tekes has taken the proactive approach (e.g. Lewis et al., 2014; Binns et al., 2013) to managing tensions and promoting renewal. They have set practices and mechanisms in place which create continuous movement in the organization, whether it is cognitive, emotional, organizational or political (Doz & Kosonen, 2008). They challenge their knowledge and awareness with continuous new external impulses. They measure and address the emotions in the organization. They use the flexibility of the structures and resources and keep the organization in continuous renewal mindset. They diminish negative political tensions with job rotation, unite leadership and cooperative culture. They also have HRM practices, e.g. resource allocation, strategic competence development, as supporting tools to manage the tensions (Fourné et al., 2014). They are able to leverage both the core activities and the explorative activities to create benefits for their own renewal (e.g. exploiting knowledge from programs for their own renewal) and value to their customers (e.g. creating new offerings through experimentation) (Lewis et al., 2014).

Altogether overall Tekes' renewal towards strategic agility and practices and capabilities it has lead to could be described with the following figure 15. Doz & Kosonen (2008) framework of strategic agility providing the base for the empirical results, it may be concluded, that mostly the dynamic capabilities revealed from private companies go also for Tekes. There are evidence of strategic sensitivity, collective commitment and resource fluidity. However the practices and routines forming the capability and emphasis of different features differs slightly from the original framework as it is illustrated in the figure 15. They seem to support the findings of Piening (2013) on the dynamic capabilities in public sector organizations e.g. reshaping, knowledge sharing, absorptive and managerial capabilities, corss-functional teams, communication and learning. However to these findings empirical evidence of this study brings much more content to the capabilities and routines. This is why Doz & Kosonen (2008) wider framework is used as a base.

Continuous, open strategy work with wide mission and goal

High quality and massive internal dialog
- Open discussion culture
- Common rich language
- Multidimensional organization

Heightened strategic alertness
- Fast experimenting
- Learning from customer
- External impulses in wide scale & scope
- Knowledge seeking and screening as part of everyone's basic task
- People rotation externally
- Mindset and execution of constant change
- Increasing proactivity
- Managing and measuring renewal



Renewal of top management team
- Versatile backgrounds creating understanding
- Fixed term posts

Shared agenda and mutual dependency across whole organization
- Multilateral connections
- Network structures

Leadership style and capabilities of Director General
- Decentralized decision-making
- Trust for management team
- Open management culture

Functioning together as "one Tekes"
- Relaxed, cooperative, respective culture
- Motivated people proud to work in Tekes
- Top management functioning as a team
- Forward moving energy harnessed

Mobility of capital and people
- Shared competences
- Multidimensional organization
- Job rotation, mobility over boundaries
- Temporary posts

Modularity
- Working in smaller groups
- Shared resources
- Focused suitable participation

Access to resources
- Network strategy
- Continuous development and internal renewal
- Exploring part of core work
- Resources allocation to serve purpose

Figure 15: Overall picture of Tekes' strategic agility.

The most significant difference is that Doz & Kosonen (2008) framework covers mostly issues from top management perspectives. However, empirical evidence from Tekes suggests that one key aspect for strategic agility to work in a public innovation funding agency, are the practices and perspectives to be organization-wide. For example screening for external impulses is part of every experts core task. The same way shared agenda, mutual dependencies and functioning as “one team” is not only applicable to top management team, but to the whole organization. This supports Hopkins et al. (2013) view of needing the whole organization to commit for successful renewal of organization. From this perspective this capability would not be leadership unity, but collective commitment as it also has been formed, but concerning the whole organization, Although, leadership unity is a part of the collective commitment.

Another protocol getting more attention and affects in Tekes than in the framework of Doz & Kosonen (2008) is decentralized decision making. It not only enables experimental culture, but also supports top management team concentration to organizational strategic issues instead of unit-specific issues. It empowers middle managers, makes decision making faster and supports the multilevel cooperation with sister organizations.

In the practices and routines created to the organization, Tekes has also included features and practices that keep up the positive tensions in the organizations (Doz & Kosonen, 2008; Lewis et al., 2014; Fourné et al., 2014). They also answer to the challenge of organizational inertia concerning public sector organizations: strategic atrophy, diverging commitments and resources imprisonment (Hämäläinen et al., 2012).

Finally, concerning the public status of Tekes as an organization they have mission and budget given from external stakeholders, which might be restricting (e.g. Piening, 2013). However, Tekes mission is wide enough to be inspirational to the whole organization. Budget is a restricting thing, with leaving no slack that might enable more fluidity in resources (Doz & Kosonen, 2008), but on the other hand experimental culture, knowledge creation and experiments as a part of the core work might provide the needed slack. At this point also political environment hasn't been restricting harmfully either, but also Tekes needs to be active in its communications towards different public stakeholders. This might not be comparable to lobbying (Hämäläinen et al, 2012), but brings additional responsibility for Tekes.

Tekes is working in a complex environment, but on the other hand it has also benefits from working with private companies. As Piening (2013) suggests that public managers are supposed to adapt practices from private sector, Tekes has an excellent opportunity to do this as they have access to many organizations. As long as the confidentiality is not broken. On the other hand they also have access to the newest research on e.g. worklife development. Tekes is able to renew itself quite independently when needed, even with the bureaucracy coming from external sources (Landau, 1993). The biggest obstacles are the organizational beliefs of how much the bureaucracy in reality is restricting or allowing.

8. CONCLUSIONS

The purpose of this study was to examine how a public innovation funding organization, in this case Tekes, renews itself same pace or faster than its customers. Empirical evidence showed that this was possible through dynamic capabilities that lead to strategic agility of the organization. Tekes is strategically sensitive, its top management dynamics and practices drive the agile and fast approach and the organization has been made flexible and multidimensional in its structure. The organization is able to benefit from its position and use of private company practices in its renewal.

8.1 Benefits from the unique position

Through its unique position in between the public administration and business life Tekes has both restrictions and possibilities.

Tekes funding comes from public budgets, which means that it is, though before hand known, also set already in advance. On the other hand tight budget leaves no additional slack to development, but it also means that Tekes needs to find inexpensive ways to develop its operations to be able to be efficient with decreasing budget. Development is done through the every day work and it becomes natural part of the core work. Core processes have been tuned along the years to be very efficient. Being a funding agency, the laws and regulations are strict, but they have also created a wide official system for internal dialog and knowledge transfer. Also otherwise organization has managed to create practices that have been implemented organization wide and enhance continuous development.

Being part of Finnish innovation system and having sister organizations in the public administration, Tekes is able to use the network of public actors for further development and to create one aspect of agility through roles and joint offerings with the actors. As a public organization Tekes is also trusted non-competitive actor towards business life organizations. Through its funding process and projects with companies Tekes has wide access in industry specific developments and innovations which a company in business might not have. Tekes needs to be careful not to break the confidentiality agreement, but otherwise it has a huge advantage to its role in innovation system when it has the access to company specific innovations, practices and future knowledge. On the other hand it needs to get new customers all the time from the rising or just founded companies with new perspectives on traditional issues. Also expanding industries and programs to concern a wider range of companies and organizations Tekes has expanded its own understanding of business trends and future possibilities. Through its unique position Tekes has been able to build connections, networks and practices needed for strategic sensitivity. Combined with well established internal dialog and boarder crossing knowledge Tekes' strategic awareness might be higher than any other type of public administration or even any one company in certain industry.

8.2 Private company practices in a public innovation funding organization

Being close to customers, i.e. companies and organizations, it has a vantage point to the private sector practices in use of public innovation funding organization. In other words, if Tekes has a will, it has an opportunity to adapt private sector practices to its own organization. For this to happen Tekes needs a mindset change on what in the laws and regulations are in reality restrictive and what are thought to be restrictive, but are not. Disengaging from unnecessary bureaucracy and limitations gives Tekes a freedom to develop its organization towards more agile and fast direction and this is what Tekes has done. The whole new doctrine of speed, agility and customer orientation can be traced to the changes happening also in the business life. One example of this is the framework of Doz & Kosonen (2008) which was used to elaborate the findings from Tekes. Framework was constructed from the basis of global companies mostly in ICT industry or related industry, but was totally applicable to use as a framework for Tekes' renewal. Also Doz & Kosonen (2012) have suggested that although public organizations are bound to certain public budget, mission and to social responsibility, they are still able to adapt similar practices and mindsets than companies in business. Tekes gives empirical evidence to this statements and therefore supplements.

In addition to the doctrine of speed and agility, Tekes has made experiments in integrating private company practices in their operation. Tekes has for example borrowed principles to organizational development from one of its programs directed to companies. It aims to "renew the business operations of companies through developing management and forms of working and actively utilising the skills and competencies of their personnel" (Tekes, 2015). The tools are in use in companies, but seem to work well also in Tekes environment and support the agility goal.

8.3 Renewal of public innovation funding organization

To the question of how public innovation funding organization like Tekes is able to renew itself same pace or faster than its customers is to use its unique position between companies and public administration as well as the practices from the private companies in high-speed industries described above. In addition to these, the whole top management has taken the goal to themselves and open-mindedly take forward experiments, practices to support agility and act as examples of the culture they want to create in the organization. Especially worth mentioning is the decentralized decision making which has had huge impact on for example the dynamics of top management, speed of actions, ability to take responsibility and start experiments. Another issue worth mentioning is how Tekes has rolled through organization some perspectives usually connected to top management. In this way Tekes is building capabilities across organization, which help to prepare for the future needs and keep Tekes in the cutting edge knowledge.

To be able to spread strategic capabilities and understanding across organization, it requires highly capable people working in the organization as well as a organization culture which promotes dialog, networking and cooperation between experts. One capability Tekes has started to create is a stronger cross-industry competence across the organization, which comes through the new organization structure division by customer segments. Experts are handling funding applications from different industries. Another new element requiring a broader view across industries are the new ecosystems Tekes is building with its customers. They require participation of different experts as well as network structures inside Tekes.

Multiple competence people with network structure and fast decision making makes Tekes also agile to respond to the changes originating either inside or outside Tekes. They together create the multidimensional organization Doz & Kosonen (2008) emphasize to be one key element to strategically agile organization. It allows Tekes to take action to the impulses receive and renew offerings or organization accordingly to again help their customers in time for Finnish business life to be competitive.

Although there needs to be certain elements for Tekes to be strategically agile, there also needs to be certain continuous disharmony internally and externally for Tekes to maintain its ability to renew. As several studies (Doz & Kosonen, 2008; Lewis et al., 2014; Fourné et al., 2014) presented the levers and how there should be tensions created and maintained through these levers, there should not be a long lasting static phase in the organization. The consequence might be inertia. On the other hand it needs to be considered when making changes, that the modules and practices are still compatible to each other, if the effect is wider than only the one practice that is being changed, for example for strategic agility is needed more than one dynamic capability with its complementing practices for it to work. Continuous disharmony keeps the organization alert and ready to transform yet again. In this sense continuously evolving and adjusted organization might be considered as the appropriate approach. The similar change in theory has been happening in general from rigid strategic planning with timely planned changes to strategic agility with continuous adjustments.

9. IMPLICATIONS FOR FURTHER STUDIES

Interviews in Tekes and with stakeholders provided a big mass of data that couldn’t all be used in this study. Some of these could be studied even further. One aspect for deeper analysis could be learning from customers, which is in the core of Tekes. This could reveal something in general for industries dependent on learning from customer, e.g. training and consulting businesses. For example Im & Rai (2008) have found that exploratory and exploitative knowledge sharing lead to relationship performance gains in interorganizational relationships between private companies.

Considering this study was conducted during building of certain capabilities in Tekes, a study on the results later on would shed light on the further development of agility and impacts on key performance indicators. Also a network aspect to strategic agility could be examined, when strategic cooperation with sister organizations have progressed from the starting phase.

Comparison between innovation funding agencies in different countries could be the topic for further research to reveal differences and commonalities between the agencies with similar missions. This would require deep knowledge on how the different organizations work to be able to define how they are comparable.

From the theoretical point of view the concept of fit compared to the strategic agility might be considered as a perspective to study more thoroughly.

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Appendices

Appendix 1: List of used documents in data collection

Publisher / Creator	**Document name (translation)**
Ministry of Employment and the Economy	Innovaatiotoiminta muutoksessa (Innovation activity in turning point)
The Ministry of Education and the Ministry of Employment and the Economy	Evaluation of the Finnish National Innovation System – Full Report.
Ministry of Employment and the Economy	Evaluation of Tekes
Johnson Cornell University, INSEAD,WIPO	The Global Innovation Index 2014
European Commission	Innovation Union Scoreboard 2014
The Ministry of Education and the Ministry of Employment and the Economy	Evaluation of the Finnish National Innovation System – Abstract.
Tekes	Renewal of personal salary part in Tekes
Tekes	Renewal of organization's structure in Tekes – employees main message on basic solutions of the structure
Tekes	Statement of human resources 2011
Tekes	Statement of human resources 2012
Tekes	Statement of human resources 2013
Tekes	Culture change survey supporting the change in Tekes
Tekes	Application for Excellence Finland Quality Award competition
Excellence Finland	Excellence Finland –finals Evaluation report
Tekes	Change morning theme – Pioneer of continuous renewal

Tekes	Organizational chart
Tekes	Renewal of organizational structure. Material for employee workshops.
Tekes	Strategic competences 2013-2014
Tekes	Impacts of Tekes and innovation activities 2013
Tekes	Tekes key performance indicators 2013
Ministry of Employment and the Economy	Regional reach of innovation politics
Ministry of Employment and the Economy	“Licence to SHOK?”
Tekes	Operational and financial plan 2012-2015
Tekes	Operational and financial plan 2013-2016
Tekes	Operational and financial plan 2014-2017
Tekes	Operational and financial plan 2015-2018
Tekes	Performance agreement for year 2014 between Ministry of Employment and the Economy and Tekes
Tekes	Tekes-websites

Appendix 2: List of Interviewees and duration of interview

Interviewee	Duration of recording
Interviewee 1 top management member Interviewee 2 expert	1:11
Interviewee 3 expert	0:37
Interviewee 4 expert	1:15
Interviewee 5 top management member	0:46
Interviewee 6 top management member	1:05
Interviewee 7 top management member	1:12
Interviewee 8 expert	1:03
Interviewee 9 Director General	0:42
Interviewee 10 top management member	1:13
Interviewee 1 top management member	1:09
Interviewee 11 Board member	0:48
Interviewee 12 Customer	0:48
Interviewee 13 Customer	0:51
Interviewee 14 Director General	0:56
Interviewee 15 Partner representative	0:54
Interviewee 16 Partner representative	0:44
Interviewee 1 top management member Interviewee 2 expert	Not recorded, not full interview

Appendix 3: Outlines for interviews

Here is provided a more detailed list of all the questions interviewees. Also iterative versions are included. Some single and very detailed questions may not be included.

Interview questions for experts and managers

Background information

1. What is your role in Tekes?
2. How would you describe Tekes?
3. How would you describe Tekes' organizational culture?
4. How would you describe Tekes' management culture?

Renewal

5. How would you describe what is renewal and ability to renew?
6. How has Tekes renewed itself past years?
7. How does renewal show in your own work / in your responsibility area?
8. Where and how does renewal initiate?
9. Are you guided towards renewal? How?
10. How do you learn from customer?
11. How do you learn from colleagues?
12. What factors promote continuous renewal in Tekes? What are the most important methods / practices?
13. What factors prevent continuous renewal?
14. What kind of assumptions, truisms have been questioned lately?
15. What kind of resources Tekes has for renewal?
16. Is renewal measured? How?

Development

17. What kind of sources you follow to develop your work, Tekes or to find new ideas?
18. How does information flows in Tekes?
19. How do you develop work?
20. If you have an idea, how do you go forward with it?
21. How would you describe authority and responsibility in the organization?
22. How Tekes innovates?
23. Tell about quick experimenting in Tekes?
24. How do you learn from experimenting?

Future planning and strategy

25. How do you recognize future threats and opportunities?
26. How do you or Tekes respond to changes in the environment?
27. Is Tekes able to influence its environment? How?
28. Are you able to take advantage the opportunities that present themselves? How? Why?
29. How does Tekes make decisions regarding future? What guides strategy work? What is strategy process like?

30. How are you involved with the decisions on future?
31. How are you involved in strategic planning?
32. How quickly are changes made?

Competences and capabilities

33. How much employees have freedom to decide on their tasks and work content?
34. How is your knowledge used?
35. How are competences renewed?
36. How is your team's capabilities to respond to the upcoming changes ensured?
37. How have in top management team composition been considered competences and their renewal?

Finally

38. What should stay the same that Tekes' capability to renew itself would be guaranteed in the future? What should change?
39. What haven't I asked and we still haven't discussed, that should be brought up regarding renewal in Tekes?

Interview themes for Director General

1. Organizational culture and management culture in Tekes
2. What is renewal / ability to renew?
3. Director General as leader for renewal
4. Goals for renewal. What kind of renewal is Tekes after?
5. How is renewal initiated? Internal and external perspectives. How are strategic threats and opportunities recognized? What sources do you follow?
6. Methods for renewal in Tekes – strategy work, learning, experimenting. What are the similarities and differences between Tekes and private companies? What have you learned from customers about renewal?
7. Factore preventing and promoting renewal – organizational, aching points of change, interfaces and friction
8. Managing renewal – renewal as continuous process, people management
9. Measuring renewal and results
10. Renewal of Tekes in the future – what should stay the same / what should change?
11. What haven't I asked and we still haven't discussed, that should be brought up regarding renewal in Tekes?

Interview themes for external stakeholders

1. What is renewal / ability to renew?
2. What is your role in cooperation with Tekes?
3. How would you describe Tekes?

4. What is the significance of Tekes to Finnish business life? How do you see Tekes renewal in this light?
5. Why is it important to you that Tekes renews itself?
6. How does Tekes renewal represents itself, or does it? How has Tekes renewed itself past years? Do you know Tekes' current goals for renewal?
7. How do you see the possibilities for Tekes to renew itself? What are the promoting / enabling elements, what elements prevent / delay? What competences Tekes need to have to be able to renew itself?
8. What kind of sources Tekes should follow to renew?
9. How are your organization's and Tekes' renewal similar / different?
10. Has your organization helped Tekes to renew?
11. What could Tekes benchmark from your organization for renewal?
12. How does Tekes listen to its stakeholders?
13. Has Tekes been able to challenge some beliefs, assumptions, truisms lately?
14. What challenges / benefits Tekes gaines from more dense cooperation (with sister organizations)?
15. How should Tekes renew itself in the future? What should stay the same, what should change in Tekes?
16. What haven't I asked and we still haven't discussed, that should be brought up regarding renewal in Tekes?

Appendix 4: Data analysis categorization of findings in phases

First round themes in rough categorization – derived from empirical evidence

Themes are assembled from the similar phrases and descriptions of interviewees to wide categories

Renewal and ability to renew
Organization description (structure etc.)
Tekes described by Tekes-people
Management culture
Goal for change
Strategy work
External impulses
Learning from customers
Experimentation
Participation, empowerment
Proactive work
Innovation, ideation and initiative process
Challenges
Competences and professional identity
Measuring renewal
Enhancements in organization and practices for renewal
Factors needed to change to enable continuous renewal in the future
Factors needed to remain same to enable continuous renewal in the future

Time-related categorization – before and after last disruptive renewal of organization

From the categorized themes a timespan could be detected referring to before and after the last disruptive renewal with some lasting capabilities, practices and cultural factors. Categorizing the data according to the timespan revealed the transformation of the organization and the results from it. Wider themes were broke-down to more compact entities of data with reference to theory.

Earlier capabilities / practices	**New capabilities / practices**
Wide and massive strategy process	Continuous strategy work
Concentrated decision making	Decentralized decision making
Industry competences	Business competences
Official communication	Unofficial communication methods
Long preparation periods, wide application	Fast experimenting, iterative practices
Extensive participation	Focused suitable timely participation
Renewing offerings	Internal and offerings renewal
Managing resources	Managing and measuring renewal
Industry focused organization	Customer focused organization

Enhancing existing capabilities
Increasing proactivity
Increasing customer orientation
Developing competences over industry boarders
From Tekes centered strategy to network strategy

Continuing capabilities with long history
Learning from customers (and colleagues)
Global trends and external signals screening
Relaxed, cooperative and motivated people with thirst for knowledge
Continuous development

Final, detailed elaboration of main themes, capabilities and practices in connection to the framework of strategic agility.

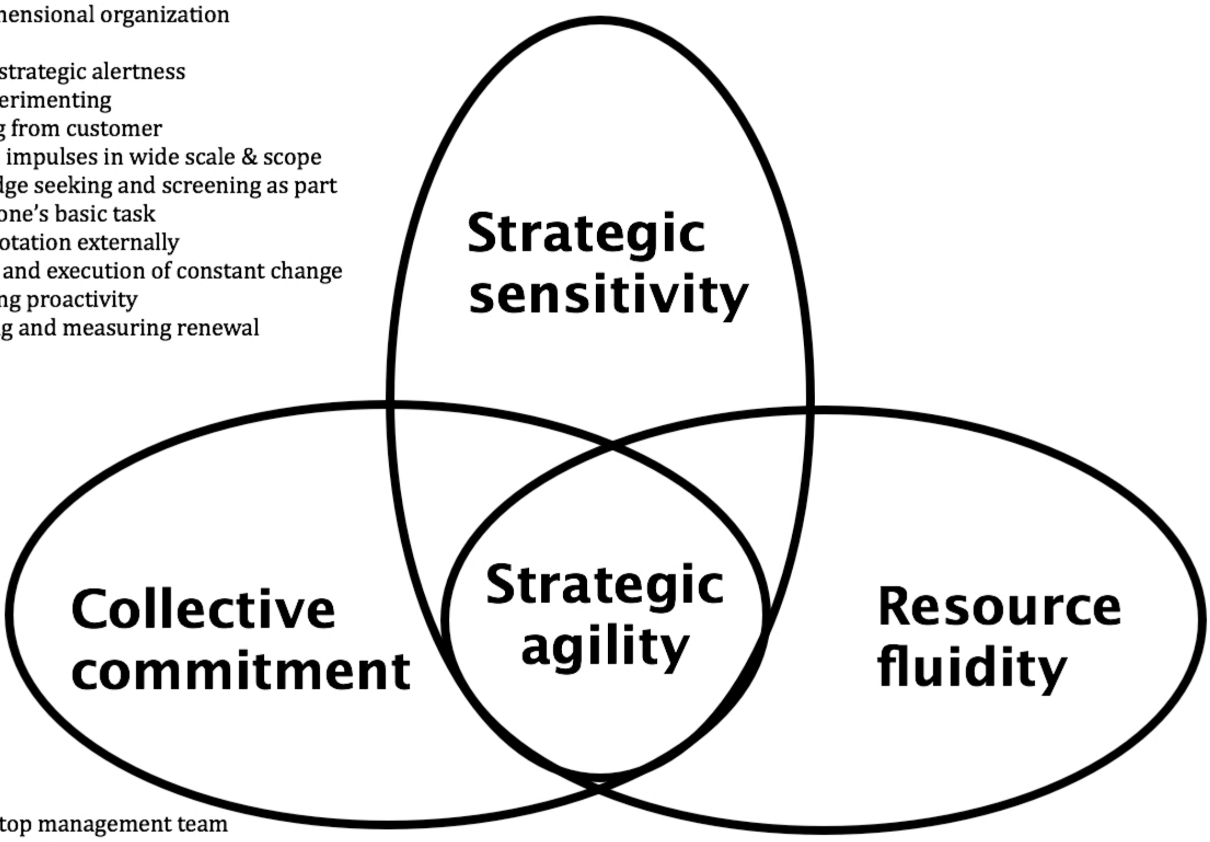
After the iteration and theory revisions was found a framework of strategic agility that could be used to elaborate the empirical findings. Doz & Kosonen (2008) framework was used to further categorize findings and give more detailed elaboration of the capabilities and practices revealed from the empirical evidence. Findings were gathered in a figure to show the connection to strategic agility. Findings were then discussed with the theory revisions.

Strategic Sensitivity	Collective Commitment	Resource Fluidity
Continuous, open strategy work with wide mission and goal High quality and massive internal dialog - Open discussion culture - Common rich language - Multidimensional organization Heightened strategic alertness - Fast experimenting - Learning from customer - External impulses in wide scale & scope - Knowledge seeking and screening as part of everyone's basic task - People rotation externally - Mindset and execution of constant change - Increasing proactivity - Managing and measuring renewal	Renewal of top management team - Versatile backgrounds creating understanding - Fixed term posts Shared agenda and mutual dependency across whole organization - Multilateral connections - Network structures Leadership style and capabilities of Director General - Decentralized decision-making - Trust for management team - Open management culture Functioning together as "one Tekes" - Relaxed, cooperative, respective culture - Motivated people proud to work in Tekes - Top management functioning as a team Forward moving energy harnessed	Mobility of capital and people - Shared competences - Multidimensional organization - Job rotation, mobility over boundaries - Temporary posts Modularity - Working in smaller groups - Shared resources - Focused suitable participation Access to resources - Network strategy - Continuous development and internal renewal - Exploring part of core work - Resources allocation to serve purpose

Continuous, open strategy work with wide mission and goal

High quality and massive internal dialog
- Open discussion culture
- Common rich language
- Multidimensional organization

Heightened strategic alertness
- Fast experimenting
- Learning from customer
- External impulses in wide scale & scope
- Knowledge seeking and screening as part of everyone's basic task
- People rotation externally
- Mindset and execution of constant change
- Increasing proactivity
- Managing and measuring renewal



Renewal of top management team
- Versatile backgrounds creating understanding
- Fixed term posts

Shared agenda and mutual dependency across whole organization
- Multilateral connections
- Network structures

Leadership style and capabilities of Director General
- Decentralized decision-making
- Trust for management team
- Open management culture

Functioning together as "one Tekes"
- Relaxed, cooperative, respective culture
- Motivated people proud to work in Tekes
- Top management functioning as a team
- Forward moving energy harnessed

Mobility of capital and people
- Shared competences
- Multidimensional organization
- Job rotation, mobility over boundaries
- Temporary posts

Modularity
- Working in smaller groups
- Shared resources
- Focused suitable participation

Access to resources
- Network strategy
- Continuous development and internal renewal
- Exploring part of core work
- Resources allocation to serve purpose