EVALUATION OF MERGERS OF CADASTRAL SYSTEMS:
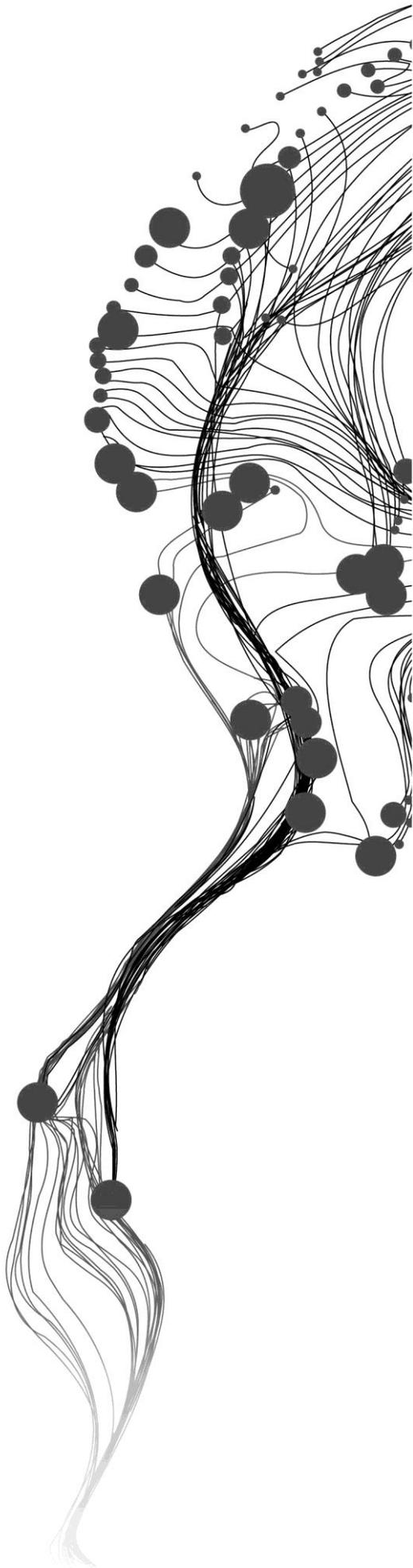# A corporate cultural perspective

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February, 2013

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EVALUATION OF MERGERS OF CADASTRAL SYSTEMS:
A corporate cultural perspective

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ABSTRACT

There is limited empirical evidence and superficial theoretical perspective to reveal the organisation's adaptation and well being after the merger of land registration and the cadastre components despite the European cadastral systems are gradually converging towards the unification strategy. The theoretical perspective underpins that cadastral restructuring enhances land information delivery for growing land markets and humankind to land relationship. The present research seeks to unveil how organisations adapt to mergers through studying the corporate culture changes from before the merger until after the merger.

Four empirical objectives to measure the corporate culture changes of the cadastral mergers include; (1) To describe the important elements of corporate culture; (2) To device the tools and methods to be used to measure the elements of corporate culture in the Swedish cadastral system; (3) To measure the corporate culture elements for land registration, the cadastre and the merger in the Swedish cadastral system; (4) To compare the research findings for land registration corporate culture elements, cadastre corporate culture elements and the merger corporate culture elements.

In order to fulfil these objectives Q methodology was applied on the basis of its ability to withdraw and distinguish shared human subjectivity. The study purposively and conveniently sampled the Swedish cadastral merger as the case to study the corporate culture changes. An instrument of 36 statements constructed from the competing values framework was employed to withdraw views from 16 participants to evaluate the post merger, 3 participants to evaluate the premerger of either the land registration and cadastre component. Empirical findings from the statistical processing and the accompanying interviews reveal that a small change has occurred between each of the premerger components after the merger.

On one hand the change established from the cadastre's premerger state to the post merger involved a shift of work processes from the incremental and consistent change relative to the organisation's internal environment towards flexible and adjustable work processes relative to the organisation's external positioning. On the contrary another set of change showed a shift from adjustable and flexible work processes towards incrementally and consistently changed work processes. Another shift occurred from the incremental change of work processes towards the collaborative slow review of work processes. An opposing shift rather took place from the slow and collaborative review towards the incremental change of work processes. Eventually the conflicting changes of work processes were found consistent with the competing values framework. Additional shifts of the cadastre's premerger involved a multifaceted change from the spontaneous execution of tasks, towards the collaborative execution of tasks and controlled or monitored execution of tasks. Simultaneously the spontaneous execution of tasks partially maintains itself. The cadastre's premerger also show altered collaborative decision making in preference to autonomous decision making. On the other hand, the land registration displays a depleting preference for rules in favour of loyalty, tradition and commitment. The leadership roles are streamlined from rule enforcers and competitors to innovators. After the merger the director's coercive decision making is delegated to teamwork decision making. Overall corporate culture for either component tends to be more inclined to flexible cultures: adhocracy and clan cultures than the hierarchical and market cultures. However, the research remains exploratory and confined to a single case. These empirical findings cannot be generalised to a larger population.

Therefore more researches using the same approach and research objectives with their questions will improve the empirical findings. Moreover the function of this study remains exploratory and technically equips the researcher with the methodology so that in future similar cadastral researches in a different context or in Africa are pursued.

Keywords: *Corporate culture, Values, Views, Cadastral systems, Land registration, Cadastre, Merger*

ACKNOWLEDGEMENTS

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1. INTRODUCTION

1.1.   Introduction and Background

Cadastral systems constitute of two components namely: land registration and cadastre (Berthon, 1993; Bogaerts et al., 2001; Çağdaş et al., 2009; Yip, 1992). The purpose of these two components derives and develops from their historical origin. In continental Europe the cadastre evolved to serve land taxation whilst the land registration developed to serve legal processes (Silva et al., 2002). However, according to Silva et al. (2002) the cadastre has developed a relation with the land registration. Bogaerts et al. (2001) state that almost 70% of data and efforts are duplicated in land registration and cadastre components. Alongside, Bogaerts et al. (2001) reveal that the existence of separated cadastral components is a source of inefficiency in the flow of information and decision making. Bogaerts et al (2001) further explain that duplication of data and efforts degrades the performance of the cadastre by retarding its ability to deliver land information at the right time for land market purposes. Accordingly the summary of previous evaluation studies summed by Çağdaş et al. (2009) record Ting (2002) and Steudler (2004) who recognise the need of countries to possess cadastral systems that facilitates the dialogue between the government and its constituency and the efficient flow of information. Following the need to improve the functioning of the land registration and cadastre some countries like Netherlands, Hungary, Lithuania, Sweden, Romania, Turkey and Cyprus in Europe have since considered the decision to unify these components (Bogaerts et al., 2001; Bronislovas, 2010; Elikos, 2010; Österberg, 2011; van der Molen, 2010; Yomralioglu, 2003).

The initiative to unify the land registration and cadastre originates from FIG commission 7 where the research findings of 1994 and 1996 show that the strategic management and operations of cadastral systems are vested in different organisations (Kaufmann et al., 1998). Pursuing these research findings cadastre 2014 vision is articulated by directing emphasis on unification of the land registration and cadastre. Thereafter the research work by (Berthon, 1993; Bogaerts et al., 2001; Steudler et al., 1997; Williamson et al., 2001) give reasons for the importance of the cadastral restructuring. Their research confirms the articulated benefits of restructuring posed in Kaufmann et al (1998) as (1) the improvement of customer service with increased efficiency (2) provision of more data in better quality (3) provision of data that are sufficiently accurate (4) provision of data to the government and citizens at the right time . The most reiterated overarching importance of cadastral restructuring is to serve the efficient operation of the land markets segment.

In connection to the identified strengths of unification strategy, this research appreciates and embraces the cadastral mergers. However the form to safeguard the unification strategy undertaken has not been sincerely addressed. This research acknowledges picking out the opportunities and threats that can cease the long term benefits of cadastral mergers. Therefore this research has chosen to focus on the least exploited aspect of corporate culture changes in cadastral mergers. It entails that corporate culture can either be an opportunity or a threat (Carrillo et al., 1999). When organisations choose to leverage corporate culture investment, the fruits of mergers are reaped without difficulty (Carrillo et al., 1999). Yet when the same organisation diverges from investing in corporate culture the same merger is prone to bring disappointment as far as performance and efficiency amongst others are concerned (Carrillo et al., 1999). Although this has been proven true by Carrillo et al (1999) there is limited knowledge on corporate culture changes after merging of the land registry and the cadastre. It is therefore not known what corporate culture typologies exist after the merger.

This research derives the issue of corporate culture changes from finance and management disciplines where culture difference is exhaustively discussed and considered as a threat to mergers if not managed properly. (Carroll et al., 2002; Chatterjee et al., 1992; Zaheer et al., 2003) signify culture difference as the main cause of merger failure or merger performance. Carrillo et al.(1999) reprimand that each organisation has a defined corporate culture which distinguishes one organisation from another. Specifically corporate culture is perceived as the "collective programming of the mind which distinguishes the members of one group of people from another" (Hill, 1990, p. 5; Vrakking, 1985, p. 16). In continental Europe, cadastral systems are made of two groups which have evolved separately with different functions appointed to them (Çağdaş et al., 2009; Silva et al., 2002). Thus the two groups referred to are the lawyers who are responsible for the land registration, and the surveyors whose task is centralised on the cadastre. Çağdaş et al.(2009) state that as the cadastre evolved to serve the land taxation purpose, the land registration was appointed to record legal processes. Each of the groups is defined by their independent education system which has a different education protocol designed to serve the cadastre and land registration separately. Therefore each of the components possesses a different corporate culture.

Along the aspect of corporate culture issues in cadastral systems, researchers like Koerten (2011) have placed an effort to study culture difference between the geodesist and the cadastral surveyor towards establishing the Geoportals of Europe. The outcome of the research established that culture difference was responsible for the unsuccessful establishment of the Geoportals. However the discussion by Koerten (2011) does not engage the study of corporate culture changes in cadastral mergers. The research by Koerten (2011) restricts itself to the surveying discipline and does not extend further to other disciplines. Thus the evaluation of cadastral system in this research is driven by the need to identify the corporate culture changes since merging mixes distinct corporate cultures. It is from this perspective that this research prompts to focus on the corporate culture before the merger and after the merger.

1.2. Justification

This research is justified on the basis that there seem to be a lot of discussion to improve the cadastral systems by the land administration experts (Kaufmann et al., 1998; Silva et al., 2002). Cadastre 2014 vision is an indication which confirms that western developed countries seek to improve their cadastral systems through comparing and sharing of information about the performance of their cadastral systems. One way of extracting what is happening within the cadastral systems after mergers is by assessing the corporate culture changes. Corporate culture plays a fundamental role in revealing the true perception of the initiatives by employees. Thus an evaluation of cadastral systems through a corporate culture lens assist the land administration experts to gain clarity and deep understanding on the way things are done after the merger initiative. Conversely there is limited research about the corporate culture before and after the cadastral mergers. It entails that there is little qualitative and quantitative data on corporate culture before and after merging of the land registration and cadastre. Moreover corporate culture typologies existing after the merger are not known. Inevitably, this research is important to the government as it pictures the influence of merging of land registration and cadastre organisations. The research is important to the cadastral organisations too, as it shed light on forgotten areas of management that threaten the long term survival of mergers which have already been proven previously as crucial. The research is crucial to the universities and colleges in that it serves as a platform which reveals what is happening in the cadastral industry and how experts should be groomed to fit the industry and also vice versa. In total the research enriches the information base for the sake of cadastral development by also adding an unfamiliarly applied research method (Q methodology) to evaluate cadastral systems.

1.3.   Research Problem

This research applies the corporate culture lens to evaluate cadastral mergers. (Drori et al., 2011; Johnson et al., 1984) define corporate culture as the deeper level of basic values, assumptions and beliefs that are shared by members of an organisation. (Hill, 1990) adds that corporate culture is a psychological asset of an organisation which can be used to predict what will happen to its financial assets in the near future. Corporate culture is an asset that influences the human brain and his/her physical interaction with processes, the rate of engagement to new technology , the adaptation to switching external environments and the passion or ability to drive organisational goals and strategies. Therefore (Carrillo et al., 1999) contend that both success and failure to achieve the organisational goals is credited to the organisation's culture since it has the power to either retard or boost the organisation's performance. It follows that even though an organisation may employ adequate strategies to run long term goals and objectives, the lack of fitness between the strategic orientation and corporate culture retards the establishment of an organisation's mission and goals (Gardner, 1985). In total corporate culture is one of the organisational determinants that strongly detect goal achievement. This is backed up by the opinion that corporate culture "defines the organization's employees, customers, competitors, and suppliers, as well as the way in which it interacts with these"(Carrillo et al., 1999, p. 646).

The inevitable influence of corporate culture within organisations lies within its ability to draw a line between organisations (Hill, 1990). Whilst two organisations may indicate the presence of team work as a way to achieve a goal, Carrillo et al (1999) note that between these organisations teamwork may bear different meanings. One of organisations may identify teamwork with humbleness and honesty whilst another organisation may recognise team work as consensus working possessing attributes of a family spirit. Eventually the discussion by Carrillo et al (1999) underpins that each organisation has its own culture. Consequently there is a difference "of doing things" (corporate culture) in every organisation which explains why different organisations have different performance levels. Thus the initiative to merge organisations brings distinct groups of different corporate cultures under one authority to share information, knowledge, processes, programs amongst other things in order to support the set goals and objectives. In that case each group of employees in a merger is expected "to unlearn, to de-commit, to develop new skills, to explore, to learn at a number of different levels, or to newly commit to different approaches"(Vrakking, 1985). Cadastral mergers are not an exception to the exposure of this alteration considering that it brings fields of land registration and cadastre which are known to possess distinct historical evolutions. Yet on the other hand, there is still limited theoretical discussion about the corporate culture aspect following the merger of land registration and the cadastre. Moreover there is no discussion about culture differences or culture changes to reveal what occurs after the merger since the exhaustive research about cadastral reform highlights a number of advantages.

The vast theoretical literature in cadastral systems articulate cadastral reform along the dimensions to address the changing dynamic human-land needs and an information enabled society yet does not detail the way things are handled beyond the merger (Denison et al., 1991; Williamson et al., 2001). For instance Bogaerts et al. (2001) discover the Budapest's fragmented cadastral system as responsible for a 4 year backlog in the land registration; the diagnosis following thereafter is to either integrate the information systems and adopt the use of a common database. Connected to this problem is an alternative diagnosis which involves the unification of cadastral systems. The theoretical perspective about cadastral reform has a limited say on the rate at which the stated advantages are converted into reality after the merger. There is no precise and empirical evidence that discloses the way things are done after the merger. Therefore one way to unveil the state of cadastral mergers is to engage an empirical research of corporate culture changes.

Basically the benefits arising from evaluating the corporate culture are four fold. (1) Assessing the current culture of an organisation informs the organisation of the change management initiatives required (Mathew et al., 2012). (2)To assess the existing corporate culture is a crucial step of organisations' strategic planning which helps to establish adaptability of and fit between an organization and its environment (Mathew et al., 2012). (3) Being aware of the existing corporate culture directs and facilitates the integration of cultures. (4) The familiarisation of corporate culture preserves the strategy of cadastral mergers. Researching on the aspect of culture deems useful to the cadastral community as it can help to (ex post) evaluate the changes that took place since the 80s, and it can help to (ex ante) evaluate the possible changes / alternative in the future. It enables better understanding of complex corporate culture and its impact on service delivery. Therefore this research applies one main objective together with four sub-objectives to obtain the empirical data of the cadastral merger. To gain a full understanding of the unfamiliar field of corporate culture within the field of land administration the case of Sweden cadastral system is singled out on the basis explained in section 1.3.1

1.3.1. Swedish cadastral system

The Swedish cadastral system is a target chosen to measure the corporate culture changes on the basis that it is a product of the cadastre and the land registry mainly that has recently merged in 2008. The origin of the cadastre component is traced back to the 1530s where cadastral books were used for land taxation as required by the king (Österberg, 2011). These cadastral books compiled real properties or land parcels according to each village. Later in the 1600s the cadastral book became a useful instrument to compile population data. In the 17th century a cadastral map was introduced and used together with the cadastral books. The main purpose of this combination was to "improve the taxation of land and make it more just and equal, by surveying the area and value of each land parcel"(Österberg, 2011).

Parallel to the cadastre component was the land registration component whose responsibility belonged to the courts (Österberg, 2011).The date of its emergence is not stated but it is clear that written documents were used to verify ownership of property since the medieval times. "In the 18th century a title registration was introduced"(Österberg, 2011). By then the real property came into the picture. Its main purpose was to gather the developments arising from the comparison of the court proceedings with the cadastral maps together with the cadastral books. The real property register was considered as a special register since it gave the real property one definition. Moreover the real property register became a necessary tool for the title registration system.

 In 1930's the work to establish a unified national map with one geodetic system was initiated. The maps were produced from aerial photography, photo mosaics and orthophotos techniques to come with economic maps of scales ranging from 1:5,000-1:20,000 (Österberg, 2011). All the cadastral boundaries on old village maps were moved to the new system by photo interpretation techniques. The task lasted until 1978. Meanwhile in the 1960s the government took the initiative to computerise the real property register and the land registration. Precisely the real property register was computerised in 1968 and the land registration in 1970. By 1995 the construction of the Swedish system was already finished. The system functioned with separate land registration and cadastre component until 2008 when the two began to function under one authority and under one roof.

These developments are evident of the change in the Swedish cadastral systems yet there is no clear theoretical evidence and empirical data of the corporate culture changes before and after the merger. Therefore this research appoints the main objective: To evaluate the corporate culture changes for cadastral mergers to address the research problem. The main objective engages four sub research questions to collect empirical data for the corporate culture using the Swedish cadastral system. Section 1.4 presents the research objectives together with their sub-objectives and the corresponding research questions.

1.4.   Research Objectives

1.4.1.   Main Objective and Main Research question
  - ➢ To evaluate the corporate culture changes for cadastral mergers.
  - ➢ How can corporate culture changes for cadastral mergers be evaluated?

1.4.2.   Sub objectives and Sub research questions
Four empirical sub objectives with their corresponding research questions are presented below from item 1 up to 4

1)   To describe the important elements of corporate culture.
  - ➢ *What are the elements of corporate culture?*
  - ➢ *How can the elements of corporate culture be classified?*
  - ➢ *How can the classified corporate culture element/s be measured?*

2)   To device the tools and methods to be used to measure the elements of corporate culture in the Swedish cadastral system.
  - ➢ *Which of the methods can I use and why to observe and describe corporate culture elements in reality?*

3)   To measure the corporate culture elements for land registration, the cadastre and the merger in the Swedish cadastral system.
  - ➢ *What are the findings for the operant value systems in the Swedish cadastral post merger?*
  - ➢ *What are the findings for the operant value systems of the Swedish cadastre in the premerger?*
  - ➢ *What are the findings for operant value systems of the Swedish land registration in the premerger?*

4)   To compare the research findings (from objective 3) for land registration corporate culture elements, cadastre corporate culture elements and the merger corporate culture elements.
  - ➢ *How can the post merger operant values be differentiated from the premerger values?*
  - ➢ *How much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?*
  - ➢ *Which cases are likely to have had a change and how can I observe the changes?*

1.5.   Analytical Framework
The analytical framework presented by the conceptual model in Figure 1.1 mirrors the general objective and the sub-objectives which addresses the research problem. In other words the conceptual model is the full apparatus which maps the beginning, through and to the end of this research. Precisely Equation 1 maps the general objective which aims to evaluate corporate culture changes of cadastral mergers. It is assumed that for a merger to take place two organisations with different cultures are brought together. Equation 2 is built up from the general objective assuming that corporate culture has a set of elements that build it up. Thus the equation 2 leads to the sub-objective 1. Sub-objective 2 identifies the methods and tools to be used from the set of elements found in sub-objective 1. Sub-objective 3 is built up from the equations 3, 4, and 5 which identify corporate cultures for land registration, cadastre, and the merger through utilising the tools and methods devised in sub-objective 2. Sub objective 4 concentrates on the comparison of either the land registration value systems or the cadastre value systems relative to the post merger.

The set notation in Figure 1.1 reflects the anticipated results of the outcome after merging the land registration and the cadastre component. It is expected that either of the cultures inherent within these components may dominate the other or the outcome may possibly be an overlap between the land registration's culture and the cadastre's culture. To derive the nature of change Section 1.6 gives a brief

$$CC_A + CC_B \rightarrow CC_{AB} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (1)$$

Where   CC   is Corporate Culture,

        A   is the land registration,

        B   is the cadastre,

        CC_A is the land registration corporate culture before merger,

        CC_B is the cadastre corporate culture before merger,

        +   mean "merging"

        $\rightarrow$ stand for "Implies"

        CC_{AB} is the integrated Corporate Culture for both the land registration and the cadastre after the merger

However, corporate culture has a set of elements depicted below:

$$CC = f \{i, j, k, l, m, n,...etc\} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. \quad (2),$$ entail that Corporate Culture is a function of corporate culture elements ($\{i, j, k, l, m, n,...etc\}$). Therefore it can be deduced from that for

Land registration corporate culture

$$CC_A = f \{i_A, j_A, k_A, l_A, m_A, n_A...etc\} \dots\dots\dots\dots\dots\dots\dots \quad (3)$$

Cadastre corporate culture

$$CC_B = f \{i_B, j_B, k_B, l_B, m_B, n_B...etc\} \dots\dots\dots\dots\dots\dots\dots.. \quad (4)$$

Merger corporate culture

$$CC_{AB} = f \{i_{AB}, j_{AB}, k_{AB}, l_{AB}, m_{AB}, n_{AB}...etc\} \dots\dots\dots\dots\dots..(5)$$

*Anticipated Results; (**Set notation**)*
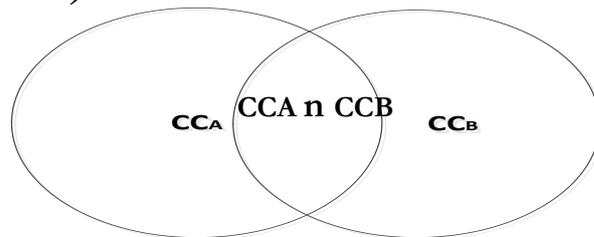
The set notation shows that after the merger one of the component's cultures may dominate while it is also possible that an overlap between the land registration's culture and the cadastre's culture may occur.

Figure 1.1: Conceptual Model

introduction of the methodology applied to solve each of the objectives set for the study.

1.6.   Overview of the Methodology

Çağdaş et al. (2009, p. 872) defines methodology as "explicit rules and procedures upon which research is based and against which claims for knowledge are evaluated". The research manipulates Q methodology upon its established abilities to withdraw human subjectivity and reveal the distinctive shared patterns of values within a dataset constituting of views. Q methodology employs both qualitative and quantitative to go about its investigative procedures and rules (Watts et al., 2012). Quantitative research is established on the design of statements, the ranking process and the statistical processing while the qualitative research is established on the interviewing process and the narrations. Quantitative employs mathematical reasoning to simplify the complexity of the views collected while Qualitative withdraws what the interviewee understands from the statements (Çağdaş et al., 2009).

Q methodology work with statements sampled out of the concourse that covers a broad range of the subject at hand. For instance the concourse is developed through the research questions of objective 1 in Table 3.1. Thereafter the methodology allows purposive and convenience sampling to choose the appropriate case study and participants. Thus the Swedish case study is appointed for this research on the basis that it has merged recently and the employees were open for the interviews. The participants reveal their opinions by ranking statements according to their perception on the forced distribution scale with reference of terms such as "strongly agree" through the neutral scale until strongly disagree (-5) (Watts et al., 2005).

The exercise of ranking specifically responds to the research *"How can the classified corporate culture element/s be measured?"* of Objective 1. The perceptions of participants upon a 36 statement-instrument formulate a pool of views. Statistical processing by factor analysis means extract the underlying patterns together with their distinctive nature. Meanwhile the approach to unveil the nature of shared views responds systematically to the research question of Objective 2 in Table 3.1. Automatic statistical means lead to the best solution which is weighted out of the varied patterns obtained. The best solution is a composite of statements and their scores produced against each identified shared pattern of views. Thus statistical processing helps to unveil the shared values of the post merger and each of the premerger components. Research objective 4 compares the narrations built out of a combination of the holistic overview of statements arrays and the interview data obtained in either the land registration and cadastre component from Objective 3 to the post merger values. Thus Objective 4 marks the final phase of the Q methodology process. The analysis proceeds by employing the competing values framework to plot and interpret the culture changes in either of the premerger components relative to the post merger.

1.7.   Thesis Structure

The outline below presents the chapters that are covered by the present research.

Chapter 1: Introduction: The Introduction focus on the background, research problem, research objectives, research questions and research methodology.

Chapter 2: Conceptualisation of Corporate culture: This chapter provide a conceptualisation of the corporate culture elements and how they can be measured basing on the chosen and proven methods. It ends by building a sample of statements from the concourse.

Chapter 3: Collection of views and values: This chapter provide the physical procedures of Q methodology executed in Fieldwork. It ends up by stating the steps for processing the data.

Chapter 4: Views and operant values in the Swedish cadastral system. The aim of chapter 4 is to present the statistical results from factor analysis and display the research findings from the fieldwork. The chapter distinguishes operant value systems of the post merger from operant value systems of the premerger states operant value systems. The chapter ends by depicting the changes noted out of the comparisons for each premerger value systems to the post merger.

Chapter 5: Coalition of Views and Operant values in the premerger and post merger: This chapter discusses the research findings relative to the competing values framework.

Chapter 6: The chapter systematically responds to each of the research questions, presents the limitations and strengths of the study and eventually profile the recommendations.

1.8.   Conclusion

The formulated research problem based on the merging of the land registration and the cadastre is addressed through the use of Q methodology. Four articulated sub objectives, together with the

corresponding research questions are specifically designed to address the research problem of corporate culture changes study in a merger. Each of these research objectives systematically manipulates the investigative rules and procedures of Q methodology in order to fulfil the demands of the main objective which is: "To evaluate corporate culture changes of the cadastral mergers". The statements are the instrument to fetch the views of the participants in the merger. The statistical factor analysis process helps withdraw the shared perceptions out of a pool of views. Each premerger component and the post merger values are obtained by interpreting the statistical findings displayed in form of statement arrays. Narrations based on a consistent logic of abduction gains a holistic overview of each set of statement arrays. Thereafter comparisons of the premerger relative to the post merger are conducted to derive the empirical results for culture change.

Chapter 2 details the initial phase of accumulating the concourse and the construction of the statements upon the identified concourse as guided by the research questions of Objective 1.

2. CONCEPTUALISATION OF CORPORATE CULTURE

2.1. Introduction

The aim of this chapter is to address two research questions from Objective1: What are the corporate culture elements? How can the corporate culture elements be classified? While addressing these research questions the chapter accumulates the relevant concourse to generate Q statements for data collection. Section 2.2 introduces the concept of culture and their elements and how they are classified. Section 2.2 concludes on the elements which are vital for use in measuring corporate culture. Section 2.3 discusses different approaches on measuring corporate culture. Section 2.4 unveils the sources for statements Section 2.5 is a conclusion.

2.2. Conceptualisation of culture: culture elements

The definitions of culture are diverse yet they converge on particular elements such as values, norms, attitudes and behaviour patterns. Herzog (2008) confirms that there are 164 definitions of culture. According to Herzog(2008) the most frequently used definition comes from Schein. Thus Schein perceives culture as a "pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems"(Herzog, 2008, p. 1). Accordingly Hofstede further emphasise that "culture constitute the mental programming that differentiate one group of people from another" (Contiua et al., 2012, p. 553). Relative to their definitions, Hofstede and Schein use a model approach to decompose their definitions. Figure 2.1 shows the culture levels illustrative of their culture definitions.
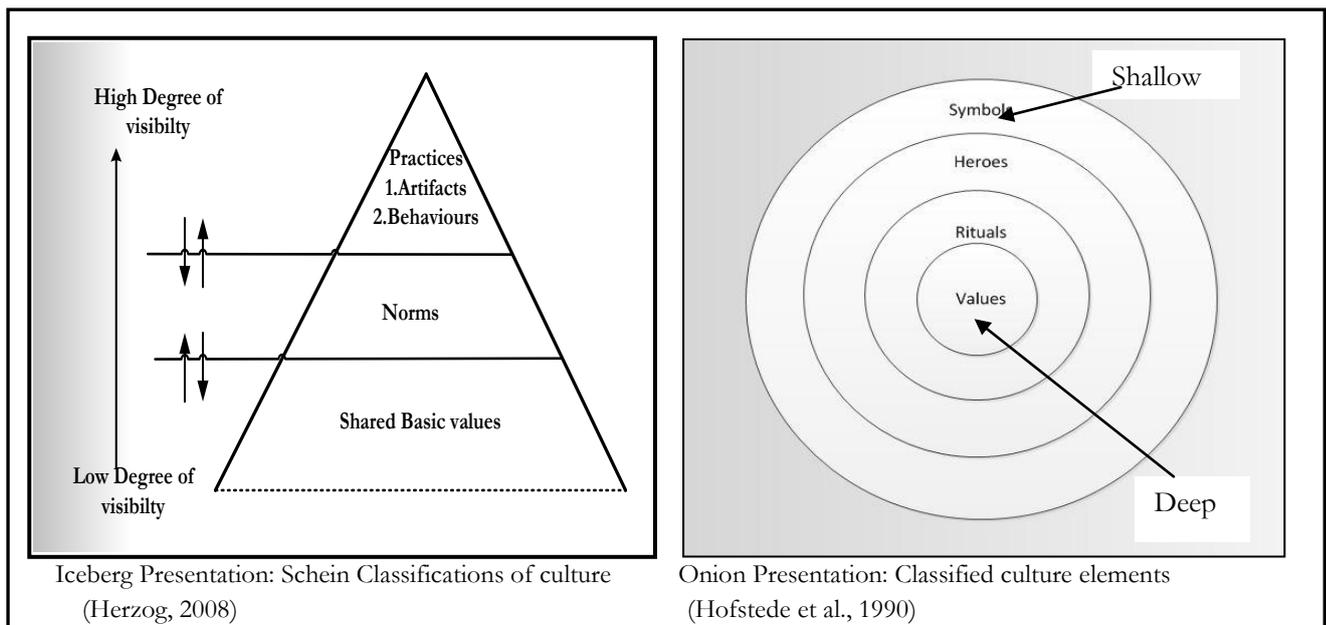
Figure 2.1: Culture Models

The two models presented in Figure 2.1 convey the same message despite their different structural presentation. While Schein presents culture in three levels, Hofstede uses four levels. The Iceberg presentation by Schein delivers that artefacts are the most observable and contains the visible behaviour of individuals (Thomson et al., 2004). Thus Schein label both the artefacts and the behaviour as practices. In

the case of the Onion model, Hofstede states that the first three levels form the practices which are perceived as empirically observable by (Morschett et al., 2009). In detail artefacts displayed by Schein involve all the "the cultural phenomena that are easily perceived and empirically observable" which include the first three layers of Hofstede model: symbols, heroes and rituals (Morschett et al., 2009, p. 204). Furthermore, Schein's illustrative model displays that the degree of visibility deteriorates from practices until the shared basic values. Likewise Hofstede mentions that with each layer of the onion structure, the deepest and invisible layer is approached. This layer is perceived as the core of culture and it is the least visible. As a result both models converge at the point where they communicate that the least visible culture element is the value while the behaviour of individuals is the most visible.

Herzog (2008, p. 1) underpins that "shared values and beliefs help individuals understand organizational functioning and thus provide them norms for behaviour in the organization". Norms are informal principles or informal rules known by the group and they provide the group with a defined unified character that is applied in particular situations (Morschett et al., 2009). Herzog (2008) considers norms as a link that transmit values to the common shared behaviour which is easily observable. However norms remain abstract and are considered immeasurable (Herzog, 2008). Precisely Lamond (2002, p. 3) argues that, "for the purpose of measuring culture, values are both more accessible than assumptions and more reliable than artefacts".

A study of twenty organisations by Hofstede et al(1990) already reveals the laborious and time consuming aspects of measuring culture using symbols together with heroes and rituals. The method is designed for a rather longer duration in order to fully capture symbols, heroes, rituals and values. The research design employs a three phase course to collect the required data. The first phase involves a reconnaissance to acquire a qualitative impression through using an in-depth interview together with a checklist for the symbols, heroes, rituals and values. Thereafter the second phase employs a standardised survey questionnaire which is administered before embarking on the final phase of pioneering a questionnaire coupled with interviews. The whole exercise is worthy more than a year according to Hofstede et al (1990). In addition to the longer duration spent to measure these elements, symbols/artefacts are open to various interpretations which make it difficult to interpret them and difficult to classify (Schein, 2009). Thus values remain the best culture element by considering the following reasons.

Deal et al (1982) indicate that values define the norms which are responsible for channelling the behaviour of a group in one direction. Values form "the basic concepts and beliefs of an organisation" (Deal et al., 1982, p. 14). Buono et al (1989) mention that values best reflect the shared beliefs, attitudes and behaviours of a group thus setting a distinction between groups. Yet again values reflect the good and the bad (basic assumptions) amongst the organisational members. Deal et al.(1982) regard values as key determinants of the heroes, the myths, rituals and ceremonies of the organisation. At this juncture values are perceived as a fundamental input of culture basing on their reliability to withdraw subjectivity as fully supported in fields of psychology, sociology and political science (Narasimhan et al., 2010).

While values gain support in terms of their strength, it is fundamental to note that corporate culture receives consensus on the basis that it is the " pattern of shared values and beliefs that help individuals understand organizational functioning and thus provides them norms for behaviour in the organization"(Flamholtz, 2001; Hynes, 2009, p. 645). From the definition, the emphasis of corporate culture dwells in the underlying values and the attitudes. These shared values are fundamental to organisational individuals in that they convey a common understanding about organisational functioning and provide individuals with the informal principles (norms) of operations (Herzog, 2008). Every organisation has a set of values that influence the organisational members' behaviour and their way of approach to every day organisational operations (Flamholtz, 2001). Therefore, regardless of a series of culture elements underscored above of which two elements have been added by Deal et al.(1982, p. 1) (the

business environment and the cultural network), the present research filters *values* as the fundamental corporate culture element that helps to achieve the aim of this research.

2.3. Overview of frameworks to measure Corporate Culture; The use of values

This research withdraws culture frameworks or models from scientific literature basing on their proven reliability and validity. The key guiding corporate culture element is that of values. Whilst there is vast consensus about the strength of values to withdraw subjectivity and display the behaviour, "values have been conceptualised in different ways" (Narasimhan et al., 2010, p. 370). For instance models scheme the varying meaning of values. Such models involve the rational system model versus the natural system model. These frameworks have gained popularity due to their influence in the field of organisational behaviour yet their difference is known for creating confusion (Quinn et al., 1981). In an effort to clear the confusion, Richard Scott creates the third view of open system model (Quinn et al., 1981). Richard Scott reasons in the lines that whilst the rational system model is concerned about the number of output produced from a unit in a specified time (productivity and efficiency), the natural model system focus largely on the activities to be engaged in order to keep the unit going (Quinn et al., 1981). Therefore Richard Scott embarks on the open system model which "emphasise on adaptability and resource acquisition" (Quinn et al., 1981, p. 124). These theories are crucial but with observed problems such as; "sheer number and variety of effectiveness criteria employed" (Quinn et al., 1981, p. 124). Ultimately there are various levels of analysis which varies all the time. In other words their quality is eroded by their inconsistence.

Following the problems arising from the above stated models Quinn et al.(1981) outline the qualifications that need to be met by a culture framework. These conditions are given by Quinn et al (1981, p. 125) as: "1) the framework should be at one level of analysis; 2) the framework should integrate theoretical perspectives and thereby provide a more holistic view; 3) the framework should resolve the problem of multiple criteria by presenting a parsimonious and well-defined set; 4) the framework should provide assertions (amenable to empirical test) about the relationships between criteria; 5) the framework should recognize the coalitional and dynamic nature of organizations and the variability of criteria across time and perspective; 6) the framework should provide an analytical tool that can be applied in specific settings, while facilitating comparison and generalization of findings across studies; 7) the framework should explicitly define effectiveness in an organisation".

It is obvious that different culture frameworks are developed in order to meet the criteria of qualifications. Section 2.3.1 presents the colour coding framework. Section 2.3.2 presents the Competing values framework, section 2.3.3 presents the enzymic analogue of the competing values framework, and section 2.34 gives the final decision on the framework to use.

2.3.1. Colour Coding Framework

Porter wraps and reclassifies three sets of culture typologies arising from Vrakking, Quinn and McGrath and Maccoby (Brink, 1991) into four names namely cool green, hot red, true blue and the dull gray. A matrix of the reclassified culture typologies with their original names versas 30 organisational aspects is shown in detail in Appendix 1. Each of the four culture typologies represents the nature and character of the persons found within an organisation. The cool green represents those people who are comfortable at doing their work in their own way (Brink, 1991). "These people like to do their own things without dependence on other people and hence they respect other peoples' independence too"(Brink, 1991, p. 2). The second typology (hot red) constitute of people who see themselves as strong and deserving to get to higher positions of leadership and authority. These people expect to operate with subordinates who are calm and not rebellious. In organisations containing this character the boss is the one who dictates the goals. Brink (1991, p. 6) says hot reds perceive that "anyone who cannot follow or lead must get out of the

way". Both the cool green and the hot red cultures are after achieving goals but differ in the sense that the cool green culture individuals depict their own goals while the hot red individuals receive their goals from their bosses and adhere to manuals, procedures and committees. Therefore the latter requires an individual to listen carefully to instructions because they do things to meet the standards detected by their bosses. The true blue, constitute friendly people. This group of people disfavour bossy people who display that they know too much. Thus they consider equitability amongst themselves. Finally the dull gray harbours people who are completely governed by a set of rules or manuals, procedures and guidelines in executing the duties. These people observe hierarchy or bureaucracy.

The Porter's four culture typology of motivation is not an exception of inconsistency. Although the organisational aspects are presented uniformly to serve each culture typology, there is inconsistency in the comparison and rating scale. Furthermore the rating cannot set how low is low, thus fostering an overlap. The other aspects uses the rating scales labelled LOW and HIGH while other organisation aspects utilises the rating scales USUALLY, RARELY and SOMETIMES, SHORT AND LONG. Therefore the scale provided has various words used to distinguish one culture typology from another. Thus there is no single scale. Whilst the culture framework contains a diverse variation of comparison it still remains an input to the Q statement however to a considerably lower degree. The main reason of consideration lies within its ability to deliver detailed organisational aspects that provides potential assessments of how the Swedish cadastral system copies with a diverse range of professionals in a merger. At the same time the framework classify these organisation aspects according to a suitable culture type. Thus the additional organisational aspects involved are; standardisation of professional training, autonomy and standardisation of work processes.

2.3.2. Competing Values Framework

Tianyuan et al (2009) say that the origin of competing values framework has its roots in organisational effectiveness, where 52 organisational researchers have collaboratively worked together to build the framework. Similarly Quinn et al (1981) capture the efforts by Campbell whose aim was to create a consistent and economic framework. (Quinn et al., 1981) records a two stage process to process and condense a thirty criterion framework. The involved participants from various backgrounds condense the framework through a factorial analysis with the aim to obtain parsimonious model of two major dimensions.

The first stage aimed to reduce an appropriate framework through the use of three rules (Quinn et al., 1981). The first rule recognises a one organisational level of analysis with the same generality. The second and third rules aim to obtain a list of consistent measurable and observable values (Quinn et al., 1981, p. 127). The second stage involves participants to assess the degree of similarity in the pairing criteria through employing the comparison judgement utilising a rating scale of 1 up to 7. Eventually the process leads to a three axes framework. (Tianyuan et al., 2009) record these axes as; internal-external, control-flexibility and means-ends. The means-ends axes is integrated together with the two axes of control-flexibility and internal-external axes, to come up with a model defined by two dimensions (Tianyuan et al., 2009). These two dimensions form the theoretical basis of the competing values framework.

Each of the dimensions presents conflicting outcomes which are assumed to occur within organisations. The "horizontal dimension is related to organizational focus, from an internal emphasis on people in the organization to an external focus of the organization itself, while the vertical dimension contrasts stable, order, and control structures on the one hand from flexible, spontaneous and dynamic structures on the other" (van der Wal et al., 2011, p. 6). While some organisations are effective when they emphasise on the internal focus of people, other organisations are effective when they emphasise on the external environment of the organisation (Dastmalchian et al., 2000). Similarly some organisations are effective when they emphasise on either stable structures or flexible structures instead of both extremes. However,

"the competing values framework is based on the assumption that a balanced repertoire of the roles is an essential prerequisite for managerial effectiveness' (Belasen et al., 2010, p. 3). Denison et al.(1991) contend that an imbalance of managerial roles, together with an asymmetric attention of values is a potential threat to the organisation's performance. They continue to say that employee involvement may retard the organisation's effectiveness if much attention is given to the internal environment than the external environment.

Precisely the integration of the horizontal and vertical dimensions forms four quadrants presenting four different values or cultures which remains idealistic and theoretically based. Some authors like (Quinn et al., 1983) term these four culture typologies as; the human relations model, open system model, the internal process model, and the rational goal model. Denison et al (1991) label the same quadrants as group, developmental, hierarchical, and rational cultures. Cameron et al (2006)brand the same four culture types as collaborate, create, control and compete. Cameron et al (2006) alternatively use the terms; clan, adhocracy, hierarchy and market culture for the same quadrants. Therefore there is more than one version of the competing values framework yet they convey to the same message. Figure 2.2 adopts the latter nomenclature which is defined by an OCAI (Organisational Culture Assessment Instrument) scale constituting of four dimensions: dominant attributes, leadership style, bonding and loyalty.

Organic
(flexibility, spontaneity)

CLAN

Dominant Attributes. Cohesiveness, participation, teamwork, sense of family
Leader Style. Mentor, facilitator, parent-figure
Bonding Loyalty, tradition, interpersonal cohesion
Strategic Emphases Towards developing human resources, commitment, morale

ADHOCRACY

Dominant Attributes: Entrepreneurship, creativity, adaptability
Leader Style: Entrepreneur, innovator, risk taker
Bonding: Entrepreneurship, flexibility, risk
Strategic Emphases: Towards Innovation, growth. new resources

Internal
(smoothing activities, integration)

External
(competition, differentiation)

HIERARCHY
Dominant Attributes: Order, rules and regulations uniformity
Leader Style: Coordinator, administrator
Bonding: Rules, policies and procedures
Strategic Emphases: Towards stability, predictability, smooth operations

MARKET

Dominant Attributes: Competitiveness. goal achievement
Leader Style: Decisive, achievement-oriented
Bonding: Goal orientation, production, competition
Strategic Emphases: Towards competitive advantage and market superiority

Mechanistic
(control, order, stability)

Figure 2.2: Competing values framework (Ernst, 2001)

Figure 2.2 shows four culture typologies formed from two dimensions with each culture defined by a suite of varying values. From these culture typologies two tensions or conflicts exist. The first tension runs diagonally from the clan culture to the market culture. Similarly the diagonal line from the hierarchical culture to the adhocracy culture defines the second tension or conflict.

The market culture aims to describe the competitive state of an organisation. Market culture is identified by fast change where the main focus is to achieve measurable results and markets within a short specified time (Dastmalchian et al., 2000). People from this culture type are goal oriented and perceive that competition and rapid response are the root of their success (Cameron et al., 2006). Thus people from this category believe that working aggressively and forcefully helps them maintain a competitive advantage and a huge market share (Dastmalchian et al., 2000). Likewise activities involving "aggressive response to change of markets, outsourcing selected aspects of production or services, investing in customer acquisition and customer service activities" characterise the market culture (Cameron et al., 2006, p. 34). Hence according to Ernst (2001) the market culture is best manifested by leaders qualified as producers and competitors with high decisive and goal oriented mindsets. Additionally market culture is result

oriented and has tough and demanding leaders (Gotteland et al., 2006). The long term emphasis is to carry the legacy on reputation, success and winning (Cameron et al., 2006).

Apart from marketing culture is the clan culture which focuses on flexibility and internal integration of people. Herzog (2008) says that clan culture concern itself with values of cohesiveness, participation, and teamwork. The environment allows employees to care for each other through sharing of personal values and depending upon each other. The leaders of the clan are entitled to be humble reflecting the parental figure-hood in order to facilitate thick interaction amongst the employees and also to maintain the long term established relationships (Cameron et al., 2006). Moreover the leaders of this value system are expected to fulfil strategies that supports human and social capital rather than financial capital (Cameron et al., 2006; Herzog, 2008). Dastmalchian et al.(2000) prescribe those leaders with qualities of a mentor, facilitator and parental figure as the appropriate leaders of the clan culture.

The lower left quadrant of Figure 2.2 presents the internally oriented hierarchical values with stable structures in place. This quadrant implies that hierarchical values place their importance on formalised rules, procedures and policies to control employees and operations Herzog (2008, p. 10). Therefore hierarchical values enable the smooth running of the organisation through governing people, processes or operations by rules, procedures, and policies. The aim is to install efficient and predictable processes. Coordinators and rule enforcers are suitable leaders meant to promote the bond of formalised rules, procedures and policies shared by individuals belonging to a hierarchical culture. The leaders have respect for the complicated methodologies, or processes existing. Unlike the extreme opposite culture, adhocracy is nurtured and kept alive by risk takers or innovators who has the passion for emphasising spontaneity, flexibility, creativity, adaptability, growth and acquiring of the necessary external resources (Ernst, 2001).

Adhocracy culture "allow for freedom of thought and action among employees so that rule breaking and stretching beyond barriers are common characteristics of the organization's culture" (Cameron et al., 2006, p. 36). Ernst (2001) says individual initiative, experimentation and flexibility and freedom are crucial aspects of adhocracy culture. Adhocratic organisations strive to establish new markets, new products and new directions for growth. These organisations can adapt to the external environment by doing things first. Entrepreneurs, risk takers and innovators are perceived as the most appropriate leaders of this category. Leaders are expected to bring along rapid and spontaneous strategic thinking to support the "hyper-turbulent, fast moving environments that demand cutting edge ideas and innovations"(Cameron et al., 2006, p. 36).

Therefore the competing values framework is found beneficial for use in that it presents four conflicting values at one goal and allow for comparable analysis from both use of structures, and the organisation focus. An added benefit involves the associated OCAI scale (Organisational Culture Assessment Instrument) which provides the present research with a set of measurable indicators or dimensions. Thus the competing values framework makes it possible to view the possible interactions amongst behaviours, leadership role, bond and the strategic emphasis. Moreover (Hynes, 2009) displays the analytical power of the competing values framework to mirror the organisation's entire corporate typologies. Section 2.3.3 presents a detailed analytical strength of the competing values framework.

2.3.3. Enzymic analogy of the competing values framework

Hynes (2009)recognises that an organisation can have more than one strategy and appreciates that organisations tend to pursue a number of different strategies at departmental level. Eventually each organisation tends to generate subcultures. Hynes (2009) manipulate the competing values framework to illustrate the relationship existing between the strategic orientation and the corporate culture to achieve stipulated organisational goals and objectives. In the research, Hynes(2009, p. 4) pursue that corporate culture "is a set of beliefs and values while the strategic orientation comprise of set of actions and

behaviours that determine long term goals and objectives"(Hynes, 2009, p. 2). Analogously Hynes (2009) relates the interaction of the strategic orientation and the corporate culture to the chemical reaction of the the enzyme and the substrate. The assumption is that the strategic orientation is the substrate and the enzyme is the corporate culture. (Hynes, 2009) continues to state that a successful reaction of the substrate and the enzyme occurs when the appropriate substrate and enzyme fuse and also in the absence of inhibitors. Likewise a successful business output or outcome occurs when the appropriate strategic orientation is collided with the appropriate corporate culture in the absence of external part. This means that there ought to be congruence between a set of activities and the values to produce a successful outcome. (Hynes, 2009) maps possible interactions existing between the strategic orientation and corporate culture typology extracted from the competing values as shown in Table2 1.

Corporate Culture (Enzyme)	Strategic orientation (Substrate)			
	Employee	Shareholder	Customer	Competitor
Clan	*Match*	Competitive inhibitor	Competitive inhibitor	Competitive irreversible inhibitor
Bureaucratic	Competitive inhibitor	*Match*	Competitive irreversible inhibitor	Competitive inhibitor
Adhocratic	Competitive inhibitor	Competitive irreversible inhibitor	*Match*	Non-competitive inhibitor
Market	Competitive irreversible inhibitor	Competitive inhibitor	Non-competitive inhibitor	*Match*

Table 2.1: Examples of possible interactions (Hynes, 2009, p. 7)

Simultaneously Table 2.1 appreciates that an organisation system composes of various strategic orientations and corporate cultures where each strategic orientation or corporate culture does not exist in isolation. Inhibitors retard the interaction of the strategic orientation and corporate culture. The corporate culture can be a potential inhibitor in conditions of mismatch. For instance, a market orientation can best be manifested by a market culture. However trying to achieve a market orientation by installing adhocratic culture negatively influences the business outcome. In that case the adhocracy culture is perceived as the inhibitor at hand. "Inhibitors have a variety of characteristics and can be competitive or non competitive and reversible or non reversible"(Hynes, 2009, p. 5). Non competitive inhibitors reduce the chances of other corporate culture types from interacting with the strategic orientation at exposure. Yet the competitive inhibitors may closely associate with the strategic orientation thereby distracting the right corporate culture from successfully manifesting with the appropriate strategic orientation. Thus a competitive inhibitor may be reversible or irreversible.

Therefore the illustration of the enzymic analogue conveys that corporate culture interacts in different ways with each strategic orientation. Moreover the interaction of the strategic orientation and corporate culture may not remain static forever. For that reason an enzymic way of thinking may play a crucial role in diagnosing and analysing of the empirical findings of an organisation considering that it realises the effects of external turbulences like dynamic change of technology, markets change, etc. Therefore the present research appoints the competing values framework realising the analytical strengths that can be imported from the enzymic analogue to explain the variations of empirical findings from the Swedish cadastral system.

2.3.4. Reliability and validity of the Competing Values Framework

Lamond (2002) assemble evidence to support the reliability and validity of the competing values framework. For instance Howard (1998) reproduces the dimensions of the competing values framework after requesting 68 executives and managers of the business school from mid west US state university to rank order 48 statements on a Gaussian chart. Another research mentioned by Lamond (2002) involves the measure of psychometric properties of the competing values instrument in Australian organisations. The research involved the use of a 7 point Likert scale where 1 represented "very strongly disagree" and 7 represented "very strongly agree". The empirical data was processed by using multidimensional scaling methods and SPSS. The results obtained conformed to the dimensions of competing values framework. Therefore Lamond (2002) concludes that competing values framework is a suitable instrument to measure an organisation's culture. More evidence from Tufts et al.(2010, p. 1) unveil four dominate leadership conceptualisations which are consistent with the competing values framework on investigating the leadership within the public sector IT profession. 36 statements generated from the competing values framework was used to collect data from IT directors, executives and senior staff. The raw data obtained was processed by PQMethod software using the Principal component analysis and followed by the Varimax rotation. Finally but not least, Scott et al.(2003) further mention the successful application of the competing values framework in measuring corporate culture for 265 UK and Canadian hospitals.

Apart from the supporting evidence concerning its reliability and validity, the competing values framework still has additional advantages. Scott et al.(2003) say the competing values framework is simple and quick to complete analysis in the course of measuring corporate culture. Moreover, Scott et al. (2003) contends that competing values framework is capable of measuring congruence and the strength of corporate culture. However, Scott et al.(2003, p. 20) argue that "the plurality of conceptualizations, tools, and methods are more likely to offer robust, subtle, and useful insights". Therefore the present research imports additional organisational aspects from the colour coding framework. These organisational aspects add value to the research in that they withdraw detailed empirical data about the scenario under study. Whilst the aspects of dominant attributes, leadership style, bonding and strategic emphasis are squarely instrumental to measure the existing value systems before and after the merger, the research equally retrieves the degree of decision making involvement through the aspect of autonomy. At the same time as the research gathers the degree of innovation within the organisation, it is feasible to measure the nature work processes and professional training. In total seven aspects are considered adequate to collect the empirical views sufficient enough to evaluate the Swedish cadastral corporate culture change. Section 2.4 details how to go about arranging the necessary instrument plausible and feasible for field data collection.

2.4. Compilation of Q statements using the Competing values framework

The compilation of statements to measure corporate culture is based on the categories of the OCAI scale and its characteristics that define each culture typology of the competing values framework (Table 2.2).

The letters A, B, C and D corresponds to Clan, Adhocracy, Market and Hierarchical culture types. The table is adopted from (UPC, 2002-2012). Based on the categorisation shown in Table 2.2 and Figure 2. 2 statements are withdrawn from (Brink, 1991, pp. 40-43; Dastmalchian et al., 2000, p. 5; Helfrich et al., 2007, p. 7; Swallow, 1996-1999, pp. 10-11).

Appendix 3 and Appendix 4 specifies the statements withdrawn from these articles. The initial set of statements generated amounts to 75 statements which are gradually reduced to 50 until 36 statements as shown in Appendices 5 and 6. The judgement process involves selecting the statements that represents a particular population of statements.

Category	Characteristics
1. Dominant organizational characteristics	A: Personal, like a family B: Entrepreneurial, risk taking C: Competitive, achievement oriented D: Controlled and structured
2. Leadership style	A: Mentoring, facilitating, nurturing B: Entrepreneurial, innovative, risk taking C: No-nonsense, aggressive, results oriented D: Coordinating, organizing, efficiency oriented
4. Organizational glue	A: Loyalty and mutual trust B: Commitment to innovation, development C: Emphasis on achievement and goal accomplishment D: Formal rules and policies
5. Strategic emphasis	A: Human development, high trust, openness B: Acquisition of resources, creating new challenges C: Competitive actions and winning D: Permanence and stability

<div align="center">

Table 2.2: OCAI scale of the Competing value framework (UPC, 2002-2012).

</div>

2.5. Conclusion

The aim of the chapter was to address two research questions from objective 1: What are the corporate culture elements? How can the corporate culture elements be classified? The corporate culture elements identified are *values* from a pool of culture elements. The values are classified according to four culture typologies which are clan, adhocracy, hierarchical and hierarchical through the competing values framework and the colour coding framework. Precisely the competing values framework employs an OCAI scale that constitutes themes to consistently distinguish and characterise each type of values according to each culture typology. The themes from the OCAI involve; Dominant organizational characteristics; Leadership style; Management of employees; Organizational glue or Bond and Strategic emphasis. These themes help to generate the statements for data collection. However the competing values framework narrowly classifies the culture typologies. Therefore in order to increase the robustness of the competing values framework and reduce it for local use, 3 additional themes based on the four culture typologies clan, adhocracy, hierarchical and hierarchical were incorporated. These include; autonomy of individuals; standardisation of work processes; standardisation of professional training. Eventually 7 themes were utilised to come with 76 statements which were gradually reduced to come up with 36 statements for data collection. Chapter 3 illustrates the strategy employed to collect views from the Swedish participants using 36 statements generated from the competing values framework.

3. COLLECTION OF VIEWS AND VALUES

3.1. Introduction

The objective of this chapter is to reflect upon the strategy applied to collect views concerning corporate culture before and after the merger using 36 statements generated in Chapter2. Meanwhile the chapter gives a feedback on the research question: "How can the classified corporate culture element/s be measured?" The chapter ends by highlighting the procedure that will be used to process the collected views. The research question that accompanies this requirement is: "Which of the methods can I use to observe and describe corporate culture elements in reality?" Section 3.2 gives an overview of Q methodology, section 3.3 outlines the research process and section 3.4 concludes the chapter.

3.2. Overview of QMethodology

Q methodology has gained popularity on its established power to withdraw human subjectivity (Barry et al., 1999). Even though methodologies such as the Cultural Consensual Analysis and Cultural Modelling are equally suitable to withdraw human subjectivity, there tend to be distinctive remarks associated with Q methodology. Unlike Cultural Consensual Analysis and Cultural Modelling, Q methodology withdraws the distinctive shared patterns of beliefs or values (Rinne et al., 2012). Furthermore, while the Cultural Consensual Analysis is a quantitative methodology, "Q methodology integrates qualitative and quantitative techniques to identify and categorize individual perceptions and opinions" (Rinne et al., 2012; Tufts et al., 2010, p. 4; Webler et al., 2009). On the contrary, Cultural Modelling methodology is a pure qualitative method but lacks the quantitative part. While quantitative methods are known for their statistical inclination, qualitative methods seek a deep understanding and meaning behind the events of study. Hence Q methodology owns the wisdom to manipulate statistical investigative procedures in order to withdraw the underlying patterns at the same time leverage observations and interviews to explain the opinions.

Rinne et al (2012) claims that the statistical and sampling techniques associated with the quantitative research designs makes it possible for the research findings to be generalised to a wider population of people. Yet even though Q methodology constitutes the quantitative statistical techniques, its results cannot be generalisable to a population of people (Jedeloo et al., 2010). Moreover, Q methodology results do not tell the proportions of participants or refer to the personal characteristics. Instead, Q methodology emphasises the "participant's point of view as central to its investigative procedures and describes a population of viewpoints" (Goldman, 1999, p. 589; Jedeloo et al., 2010, p. 595). Purposively the views are the target to reveal the shared patterns of values and beliefs that conceptualises corporate culture. Therefore in order to observe and describe corporate culture elements in reality, the present research applied the wisdom of Q methodology to collect views using 36 statements generated in Chapter 2.

Briefly the first step of Q methodology process begins by identifying the relevant concourse or literature from which statements are generated around the topic of interest (Webler et al., 2009). To ensure a detailed and consistent coverage of the study, statements are generated according to devised themes or categories. The second step engages the appropriate participants to grade the statements on a graduated forced distribution chart with specified reference of terms such as "strongly agree" for (+5), neutral for (0) and "strongly disagree" for (-5) (Coogan et al., 2011). The third step involves intercorrelating and factor analysing the overall configurations or views. The aim is to obtain the shared perceptions or values amongst the views obtained. The final fourth step involves the factor analytic process and the construction of narrations based on the mathematical solution generated by the statistical processing together with the accompanying interview data. Section 3.3 proceeds to reflect on the practical systematic

application of Q methodology engaged in the pre-field work and fieldwork phase in conjunction to the research questions of the study. Stage 4 outlines the procedure to process the views after data collection.

3.3.   Research Process

Each stage of the flow chart in Figure 3.1 addresses specified research questions from the four objectives in Table 3.1. Meanwhile the flowchart maps the procedure undertaken to collect the views from the
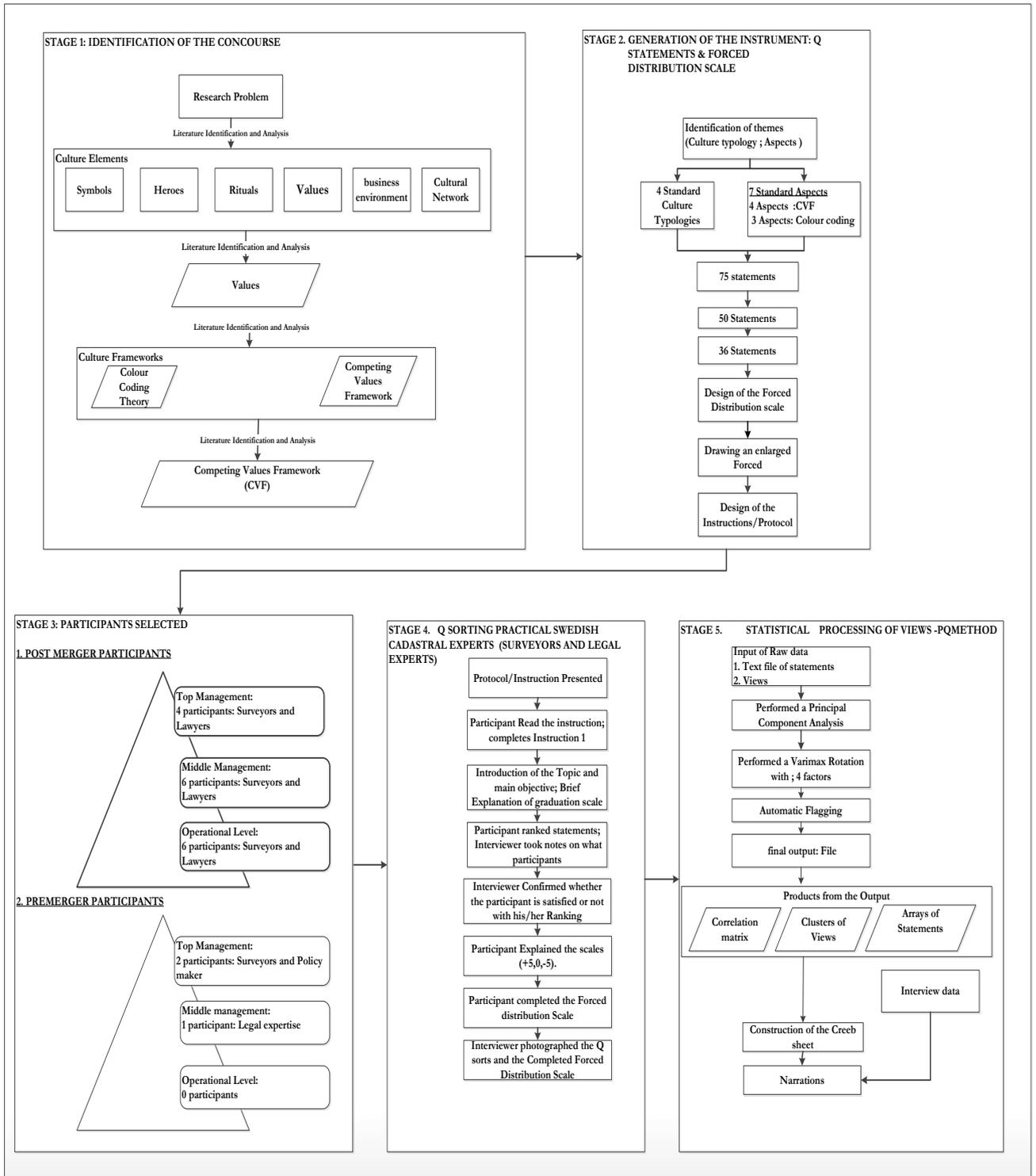
Figure 3.1: Research Process

Swedish cadastral merger in four stages from stage 1 up to 4. The fifth stage discusses how processing of the views will be done to extract the underlying patterns and shared values. Each of the stages strategically addresses the research questions for objectives 1 to 4 in Table 3.1.

Stage 1: Concourse Generation

Stage 1 of the flow chart in <u>Figure 3.1</u> displays the procedure undertaken to derive the appropriate frameworks for statement-construction. The identification of the concourse was led by three research

Sub-objectives	Questions	Data Sources	Research Method	Expected Output
1)	What are the elements of corporate culture?	Scientific Research papers	Concourse identification and analysis	Corporate Culture Elements:
	How can the elements of corporate culture be classified?	Scientific Research papers	Concourse identification and analysis	Culture model/s or framework
	How can the classified corporate culture element/s be measured?	Scientific Research papers	Literature search; Sorting or rank-ordering	Views/ Qsorts
2)	Which of the methods can I use and why to observe and describe corporate culture elements in reality?	Scientific Research papers	Factor analysis	Factor/ Value system's arrays
3)	What are the findings for the operant value systems in the Swedish cadastral post merger?	Factor/ Value system's arrays	Logic of abduction	Crib sheets Narratives
	What are the findings for operant value systems of the Swedish land registration in the premerger?	Factor/ Value system's arrays	Logic of abduction	Crib sheets Narratives
	What are the findings for the operant value systems of the Swedish cadastre in the premerger?	Factor /Value system's arrays	Logic of abduction	Crib sheets Narratives
4)	How can the post merger operant values be differentiated from the premerger values?	Factor /Value system's arrays	Inspection of the value systems (Comparison)	Value systems' matrices Comparison Clusters
	How much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?	Factor /Value system's arrays Narratives	Inspection of the value systems (Comparison)	Similarities Differences Shifts
	Which cases are likely to have had a change and how can I observe the changes?	Factor /Value system's arrays	Inspection of the value systems Plotting of changes	Aspects of change

Table 3.1: Research Matrix

questions of objective 1 displayed in the research matrix (Table 3.1). A body of scientific literature was identified from Springer Link, Science Direct databases and websites (Table 3.2).

Initially the foundation to recognize the appropriate proceedings towards statement-construction begins from the whole, where the conceptualisation of culture in general is identified, to the part where the chosen framework for statement construction is finalised. 7 sources of scientific Journal articles were used for reconnaissance and to derive the meaning of the concept "culture" (Table3 2; *1&2*). Even though the literature in Table 3.2 identifies the disagreements amongst definitions of culture, the literature tend to agree on the listed culture elements shown in Figure 3.1 on stage 1. The article from Hofstede (1990) indicate that measuring each of the elements is laborious and time consuming with an average duration time of a year. However, the classification of culture elements by Hofstede and Schein together with the definition of corporate culture nominates a *value* as a representative and feasible element to measure culture within a short period of time. Yet the article from Narasimhan et al (2010) stresses the struggle of organisational researchers to derive a framework to measure values.

PURPOSE	LITERATURE SOURCES AND THEIR REFERENCES
1. Conceptualisation of culture 2. Identification of corporate culture elements	(Herzog, 2008); (Contiua et al., 2012); (Thomson et al., 2004); (Morschett et al., 2009); (Deal et al., 1982); (Flamholtz, 2001); (Hynes, 2009); (Hofstede et al., 1990)
3. Overview of frameworks to measure corporate culture (Nomination of frameworks for Statement-construction)	(Narasimhan et al., 2010); (Quinn et al., 1981); (Brink, 1991); (Tianyuan et al., 2009);(van der Wal et al., 2011); (Dastmalchian et al., 2000); (Belasen et al., 2010); (Cameron et al., 2006); (Gotteland et al., 2006); (Herzog, 2008)
4. Reliability and Validity of the Competing Values Framework	(Lamond, 2002); (Ernst, 2001); (Howard, 1998)
5. Compilation of statements	(Brink, 1991, pp. 40-43); (Dastmalchian et al., 2000); (Helfrich et al., 2007, p. 7); (Swallow, 1996-1999) http://www.ctp.uk.com/; (UPC, 2002-2012) http://changingminds.org/
6. Q methodology	(Watts et al., 2012): (Rinne et al., 2012);(Tufts et al., 2010); (Webler et al., 2009); (Jedeloo et al., 2010); (Goldman, 1999); (Coogan et al., 2011); (Stergiou et al., 2010); (Watts et al., 2005)

Table 3.2: Scientific Literature Sources

Quinn et al.(1981) construct the competing values framework out of the conflicting theories brought along by the different researches of the past generations to assess organisational life. The competing values framework gathers four conflicting models in form of a four quadrant figure with each quadrant entailing a unique culture typology. Therefore the present research finalised competing values framework as the appropriate tool to generate statements because of its wide coverage of the topic under study. Yet in order to increase its robustness and reduce it for local use, three aspects from the colour coding framework were added to the OCAI scale of the competing values framework. Meanwhile the competing values framework addressed the second and third research questions of Objective 1 (Table 3.1). The requirements of the third research question of Objective 1 begins by building the instrument to measure the corporate culture which involves Stages 2 up to 4.

Stage 2: Generation of statements

In order to generate 36 statements which were used to collect the views, 4 dimensions/aspects from the competing values framework together with 3 additional aspects from the colour coding framework were used as themes. It means that upon each culture typology, 7 aspects were used to define and distinguish consistently one culture from another. Therefore 4 culture typologies along with their 7 aspects became

the categories to strategically sample the statements obtained. A matrix in Appendix 4 begins with a total outcome of 75 statements and gradually slimmed to obtain a manageable set of statements (Q sample). The process of trimming involved selecting statements according to their representativeness of the statement population. Appendix 6 shows the final sample of 36 statements upon 7 aspects and four culture typologies. 36 statements became part of the toolset used to collect views from the appointed case and participants. Stage 3 displays the strategy to appoint participants and the case to withdraw subjectivity.

Stage 3: Appointment of the Swedish case to examine the culture changes and selection of Participants

The available information to distinguish merged and un-merged cadastral systems was found from the Cadastral Template and FIG website. The nature of information obtained is displayed under this stage in Table 3.3. Places with merged and unmerged cadastral systems were highlighted on an editable layer template of the European map from http://edit.freemap.jp/en/trial_version/edit/europe. Figure 3.2 shows a map created out of this template in order to distinguish the merged cadastral systems from the unmerged cadastral systems by country. However information of approximately 25 countries was not found due to time limitations. It was identified that 10 countries possess a unified land registry and cadastre under one roof.

Country	Year of Merger	Institutional Framework	Professionals engaged	Duties
Hungary	1972 up to 1981	*Land Office;* Ministry of Rural Development, Department of Land Administration and Geoinformation	Surveyors and Lawyers from public and private sector	Maintaining and updating cadastral maps and legal data such as ownership rights, mortgage, easements and restrictions (Osskó, 2010, p. 8)
Lithuania	1997	*State Enterprise Centre of Registers:* Ministry of Justice of the Republic of Lithuania	Surveyors and Lawyers	Administers Property registration and Mortgage registration Bronislovas (2010, p. 2)
Netherlands	1838	Topographical Service Kadaster	Surveyors and Lawyers	Maintaining registers, boundary surveys, maps and dissemination of information (van der Molen, 2010)
Belgium		Patrimony Documentation Department	Surveyors and Lawyers	Guarantee of publicity of immovables/ ownership (Gabele et al., 2003)
Czech	1993	Czech Office for Surveying, Mapping and Cadastre	Surveyors	Maintaining the geodetic files, survey documentation, collection of deeds (Tomandl, 2010)
Finland	2010	*National Land Survey of Finland;* Ministry of Agriculture and Forestry.	Surveyors and Lawyers	Maintaining topographic database; cadastral surveys topographic mapping Maintaining the land register and cadastre (Halme, 2009, p. 2)
Cyprus	-	*Department of Lands and Surveys:* Ministry of Interior.	Surveyors and Lawyers	Official land or cadastral registration (Elia, 2010).
Romania	2004	National Agency For Cadastre and Land Registration	Surveyors	Mapping, cadastre and land registration activities (Savoiu et al., 2012)

Turkey	1925	General Directorate of Land Registry and Cadastre	Surveyors and Lawyers	Maintain the land registry and cadastre (Yomralioglu, 2003, p. 3).
Sweden	2008	Lantmäteriet; Ministry of Environment	Surveyors and Lawyers	Maintains the land information systems for cadastral and land registration; Dissemination of land information (Österberg, 2011, p. 3)

Table 3.3: Matrix for European mergers
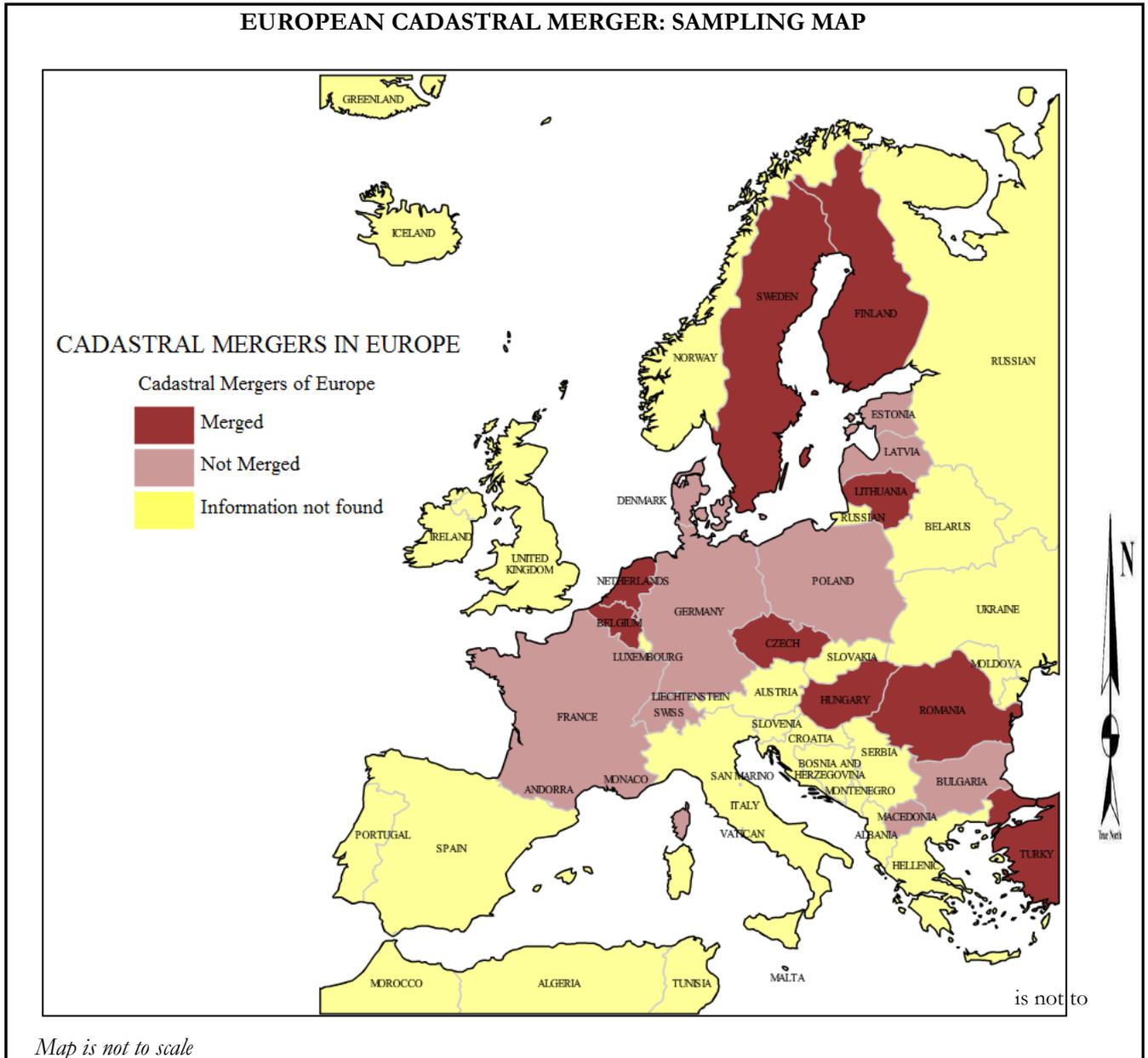
Figure 3.2: Map of mergers

Out of the 10 countries non-probability sampling such as the Purposive sampling and Convenience sampling were applied. Tongco (2007, p. 147) perceives purposive sampling as "deliberate selection of informants due to the qualities they possess". Convenience sampling "selects cases based on their availability" (Gary, 1990, p. 18). Therefore in order to obtain a single study area, an elimination criterion

involved duration of the merger, availability of information and convenience e.g. how accessible the professionals are. Countries like Hungary, Lithuania, Netherlands, Czech and Turkey were screened off because of the long life span of the merger despite that they have both surveyors and lawyers. Finland and Romania were screened because of inconvenience to the participants. Eventually Sweden was nominated on the basis that informants or participants were accessible and the merger is also recent. The Swedish merger of the land registration and cadastre occurred in 2008. The history of the cadastre and land registration is outlined in Section 1.3.1.

In order to access participants from the Swedish cadastral system, both purposive and convenience sampling were applied. Two surveyors were contacted to recruit surveyors and legal expertise with knowledgeable backgrounds of English language from the top management, middle management and operational level Figure 3.1: Stage 3. The contacts were requested to engage participants from the merger and those cadastral professionals who have not experienced the cadastral merger. 16 participants turned for the interview to sort for the cadastral merger while for the premerger only 3 participants turned out. The premerger lacked attendance to the extent that only 2 participants from the Swedish cadastral merger opted to evaluate the land registration and cadastre based on memories of their past before the merger. The third participant with policy making experience offered to evaluate for the premerger states of the cadastre and the land registration.

Stergiou et al (2010, p. 314) states that "in small sample Q studies the number of statements is a function of the individuals taking part in the study and hence the statements can be twice as the number of the individuals" . Hence according to this reasoning it can be regarded that the ideal number of participants to evaluate the merger were supposed to be 18 which also apply for each premerger state. Thus the total participants were supposed to 54. Typically participants are regarded to range from 40 to 60 (Stergiou et al., 2010). However, due to lack of willing participants coupled with limited time, English illiteracy and a constricted budget for extending fieldwork period, only 16 participants evaluating the merger and 3 participants evaluating the premerger were found. It was even more difficult to find participants from outside Lantmäteriet. Yet Watts et al.(2005, p. 79) stress the best statistical eloquence behind fewer participants. They state that the "range of 40-60 is only a rule of thumb hence far fewer participants can produce a highly effective Q study" Watts et al.(2005, p. 79). They also assert that fewer participants yield quality on the outcome and yet still consistency and pattern can still be detected even though the "breadth of views might be limited"(Webler et al., 2009, p. 9). Therefore, the rank ordering process with the participants at hand progressed as stated in Stage 4.

Stage 4: Rank ordering or Sorting of statements
The final sample of statements is not an end in itself because it does not carry meaning before rank ordering. Therefore a forced distribution chart with 36 boxes and a scale ranging from +5 (strongly agree), through 0 (neutral) up to -5 (strongly disagree) was designed to accompany the statements. The extreme parts of the scale, +5 and -5 consisted of only one box each, in order to strain out the feel of the participant's evaluation. The neutral part consisted of 6 boxes for 6 statements. Therefore the forced distribution chart became an important part of the toolbox where participants expressed their views.

Figure 3.1 shows that for each participant out of 19 participants, a protocol defining a set of instructions was issued out before commencing the sorting exercise (Appendix 2). Each participant was left to read the instructions first. The protocol's function was to maintain the consistence of instructions for each participant. Meanwhile the protocol also collected each participant's personal profile and preliminarily introduced the sorting exercise to each participant. The interviewer also briefed the purpose of the meeting and highlighted on the requirement to place each statement on a single box as shown in Figure 3.3.

Participants were allowed to think aloud during the sorting exercise and notes were written down upon their views. After completing the sorting exercise each participant systematically explained the reason for placing particular statements at the extreme ends of the chart (+5 and -5) and on the neutral scale (0).

Figure 3.3: A single set of views: Q sort

Even though the initial plan assumed that the neutral scale would mean "no feel or no opinion", the experience in the fieldwork reflected otherwise. Some views associated the neutral scale with a "YES and NO" response while some views reflected lack of knowledge concerning the statement. This means that some statements of the neutral scale ended up with limited interview data. Yet some participants adequately provided the reasons behind ranking certain statements on the extreme scales and the neutral scale. Although 17 participants issued out their views for the post merger experience, one of the participants later revealed that he had confused the post merger from the premerger. Therefore the views from participant 13 were discarded. 16 sets of views were considered for the post merger. 2 sets of views specifically evaluated the land registration before the merger and similarly 2 sets of views specifically evaluated the cadastre before the merger.

Even though the participants are not the variable of the Q methodology they affect the breadth of the opinions that can be obtained around the subject at hand (Webler et al., 2009). This automatically means that the breadth of opinions offered by views of the premerger is possibly narrower. Despite the limited number of participants to evaluate the premerger state, their views are important for noting the differences and changes of culture before and after the merger. Stage 5 outlines the procedure and the aim of statistical processing of the post merger views and premerger views.

Stage 5: Statistical Processing

The strategy to observe and describe values as requested in Objective 2 in Table 3.1, begins by a statistical processing of the views. The statistical processing is done automatically by a software called PQMethod to generate a single best solution. The process employs factor analysis techniques to arrive at shared values or views. Webler et al (2009, p. 25) define factor analysis as a "mathematical technique that reveals underlying explanations for patterns in a large set of data". Factor analysis reveals patterns amongst views by creating variables or "idealised sorts". Webler et al (2009, p. 25) assert that "idealised sorts are perspectives produced by the analysis and comprise of many people's subjective expressions". The present research prefers to use the term "cluster of views" in place of the word "idealised sort". Views sharing the same perception are classified into a single cluster. Hence the aim of the researcher is to read idealised views and

write a narrative describing each of them in order to compose readable perspectives or values (Webler et al., 2009, p. 25). Figure 3.1 show the technical process of factor analysis involved.

The technical process begins by inputting a text file of statements and collected views. Thereafter Principal Component Analysis is engaged to identify the commonality and specificity of views (Webler et al., 2009). The technique of principal component analysis generates a table of Eigen values. The aim of the Eigen values is to qualify the statistical strength and explanatory power of a single cluster of views. (Watts et al., 2012) asserts that clusters of views to be considered must have a magnitude of more than 1. The next step involves the extraction of those clusters whose Eigen values are greater than 1. The process to judge and decide upon the number of clusters to be extracted is called Rotation (Webler et al., 2009). The aim of rotation is to come up with the best solution by generating the number of clusters as guided by Eigen values and specifying the position of each individual view in a single cluster. The solution is a matrix reflecting the degree of relationship existing between a single set of views with each cluster of views through a correlation. The next step involves marking the views which best approximate each cluster using a threshold determined by equation 6 below:

Threshold value $= \pm 2.5\ (1/\sqrt{n})$ where n=number of "view sets" involved in the sorting process……………………….. (6)
After the software has identified views which closely approximates each cluster, the weighted averaging automatically generates the best fit set of views based on the marked views. The output text file shows the best fit arrays which is automatically the shared perceptions identified by statistical operations of factor analysis. The output text file also contains the correlation matrix and the cluster of views which shows the best approximating views on every cluster. However the best fit arrays is the ultimate and final solution for Objective 2 (see Table 3.1), although the Chapter 4 gradually presents the results using the correlation matrix and the cluster of values. The aim is to demonstrate the derivation of the solution.

Chapter 4 presents the results obtained based on this procedure. The statistical processing is done first for the post merger, followed by the cadastre component and then lastly the land registration component. Three sets of best fit arrays will be generated specifically for the post merger, the land registration and the cadastre. Simultaneously each part will have its own cluster of views. Thus best fit arrays helps derive the value systems for each of the research questions of Objective 3 through crib sheets and narrations. According to Watts et al (2012) a crib sheet is a template aiming to gain a holistic overview through extracting meaning along subtopics that capture; (1) extreme scores (extremely positive and negative); (2) highly emphasised scores on the particular array relative to its companion arrays; (3) lowly emphasised scores on that particular array relative its companion arrays. The aim of the crib sheet is to consistently derive and crystallise meaning for each array. The technique avoids eliminating some meaning from the statements and their arrays.

After obtaining the value systems from the post merger and each of the premerger components, the next phase involves comparison of each premerger component to the post merger values. The comparison strategically resumes from the present to the past. Therefore the technique to identify the changes involves adding premerger views to the post merger views and identifying the impact the impact they cause. Their influence automatically is culture change and likewise the processing of each integration is done in a similar fashion like the post merger. Chapter 4 details and explains the derivation of empirical results. Therefore Chapter 4 ends by responding systematically to the Objective 4 (see Table 3.1).

3.4.   Conclusion

The objective of this chapter was to reflect on the data collection strategy which involved answering the research question "How can the classified corporate culture element/s be measured?" The preferred methodology applied to measure corporate culture values is Q methodology. The methodology is good when there are limited numbers of participants. Moreover the methodology is best known for

withdrawing human subjectivity which happens to be the fundamental considerable feature to measure *values*. The methodology employs statements to withdraw subjectivity. Each participant ranks statements on a forced distribution scale upon his/her opinions. Thus 36 statements were used to withdraw subjectivity or views from a purposively sampled set of participants convenient to the researcher. The good part of Q methodology when constructing statements is that it emphasises building statements from a broad coverage of the study. Thereafter a strategic sampling of the statements builds up the final sample. Therefore the views obtained from participants actually reveal the shared perception of the population of views. In that manner statements constitute a sample of a wide collection of communicability while rank ordering gives the statements the actual position relative to their existence in the organisational context. Eventually, the views collected lead to the determination of values that are present within the specified cadastral system. The limitation is that the extent of the population of statements designed for rank ordering cannot be claimed to adequately cover the whole communicability of culture.

The good part of Q methodology for rank ordering is that it triangulates the qualitative and quantitative research and hence possesses a hybrid of qualitative and quantitative strengths. For instance the statistical rank ordering phase does not go in vain without eliciting the meaning behind the opinions expressed by participants on the forced distribution chart. The forced distribution itself withdraws subjectivity by forcing the participants to give preference to their options. Therefore highly and lowly emphasised preferences are displayed. The limitation encountered in the rank ordering process was that participants complained that the process was strenuous and the boxes for ranking gave them limited freedom to express flexibly their views. However the same participants turned to like the process eventually.

Q methodology constitutes a regulated statistical process where rank ordering is kept consistent by use of a protocol on every participant. Q methodology possesses a systematic and methodical statistical investigative procedure to reveal underlying distinctive patterns of the massive data set. Eventually the methodology embraces the inductive consistent logic to convey meaning of the Q methodology results by lacing qualitative narratives to crystallise the statistical results of Q methodology. Therefore Q methodology offers clearly defined steps and these can be repeated with the same set of objectives and research questions in a different cadastral system or even at a different time in the same cadastral system. By this repetition of collecting views it means a pool of value systems can be created and their quality and meaning compared. Q methodology creates a platform to gather data that can eventually be generalised to a larger population of views after several measurements. Moreover, the statistical processing excludes the researcher's bias by shielding the output results from own subjectivity/thinking. There is a higher degree to preserve the participants' original subjectivity or views. Hence the present research applies Q methodology as a tool to measure the corporate culture elements: *values,* but it realises the disadvantages of Q methodology.

Even though a diverse range of views is unveiled, these views cannot be generalised to people populations. Q methodology results do not consider the people proportion or causal relationships between variables. However these weaknesses are taken into account as research proceeds to pursue Q methodology based on the strengths mentioned. The measurement of values engaged participants from the Swedish cadastral system because of easy availability and convenience of the participants. Moreover, the Swedish cadastral merger is also recent. However other cases such as Finland and Romania could be equally evaluated to guard content validity yet time was limited to pay attention to other cases.

The second objective of the chapter calls an answer for the research question: "Which of the methods can I use to observe and describe corporate culture elements in reality?" In order to observe and describe corporate culture elements in reality, Q methodology employs factor analysis. Thereafter narrations of the best fit set of arrays based on the crib sheets constructed (Appendix 7 to 9) are used to describe corporate culture elements. Chapter 4 present the empirical results at the same time reveal the means of processing.

4. VIEWS AND OPERANT VALUES IN THE SWEDISH CADASTRAL SYSTEM

4.1.   Introduction

This chapter addresses four research questions from sub-objective 3 and 4. The specific research questions referred to are stated as follows; (1) "what are the findings for the operant value systems in the Swedish cadastral post merger?"; "what are the findings for the operant value systems in the Swedish cadastre before the merger?" what are the findings for operant value systems in the Swedish land registration before the merger?"; "how can one differentiate the operant beliefs during the post merger and the operant beliefs during the premerger?"; "how much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?"; "which cases are likely to have had a change and how can I observe the changes?" In order to answer these research questions, the empirical views are processed according to the procedure outlined by Webler et al.(2009) and Watts et al (2012) as explained in Chapter 3. Therefore this chapter first presents results on the operant value systems of the post merger state and then presents the operant value systems in the premerger states of the cadastre and land registration as required by the research questions. The operant value systems of the post merger state are presented gradually in Section 4.2 from three products namely the correlation matrix, value systems' matrix and value systems' arrays. Section 4.3 presents the procedure to derive the premerger states. The same section continues to present the operant value systems of the premerger. Section 4.4 proceeds to compare the value systems emerging from the post merger and each of the premerger states. Section 4.5 is the concluding section.

4.2.   Postmerger state

According to Stergiou et al (2010, p. 315) ideally "Q studies function with 40 to 60 participants" yet Watts et al (2005, p. 79) tend to conflict by asserting that "employing a larger sample of participants poses the danger of negating many of the complexities and fine distinctions contained in the data". A smaller sample of participants elevates quality and consistency of the output and distinctive patterns can still be obtained (Watts et al., 2005).

The post merger value system is produced from the statistical processing of views expressed by 16 cadastral professionals. 15 cadastral professionals are from the Swedish cadastral system while 1 cadastral expert is from the Netherlands cadastral system. Each set of views is a fundamental input of the value system. Thus 16 sets of views form the value system of the post merger which remains clumsy and raw before the statistical processing. After processing the views three products gradually explain the variation of the views by first pitching the relationship existing between the views, followed by identifying the groups of views existing until the revelation of the specific elements forming the groups. As a matter of recap, a series of 36 statements were presented before 16 participants from whom each of the participant's views was expressed. Thus the thinking variation forms the difference and similarities of views. The present section's interest is to acquire that which is shared in the post merger. Thus the most prominent strength of a *value* is to present that which is shared in the midst of views. Therefore to arrive on specific values the statistical processing presents a correlation matrix, followed by a grouping of the similar views into categories of value systems and then the specification of the statements that formed the variation or difference. From the statements arrays the narrations are modelled from the statements arrays.

4.2.1. Correlation matrix: Level of agreement

A correlation matrix provides a relationship between two variables by displaying their degree of resemblance or similarity in form of a correlation coefficient (Watts et al., 2012). According to this research each set of views is a variable. Thus Table4.1 presents 16 sets of views relating to one another through a correlation coefficient which varies from -1 to +1. Accordingly (-1) present a highly negative correlation between the views which ultimately conveys opposition between the two views. A (+1) correlation coefficient communicates a highly positive correlation between the views which express total agreement between two views. A (0) articulate the absence of agreement or similarity between two views.

```
Correlation Matrix Between Views of 16 participants
                             VIEWS
Views   1    2    3    4    5    6    7    8    9   10   11   12   14   15   16   19

   1  100   12   11   23   18   36   54   41   46   21   43   62   53   51   60   17
   2   12  100   20   15   -4   33   36   19   43   35   58   26   60   35   36   15
   3   11   20  100   54   19   27    5   20   20   33   19   19   -1   22   -4   -4
   4   23   15   54  100   28   22    9   39   38   49   27   26   -7   49    8  -21
   5   18   -4   19   28  100   16    9   12   14   37   27   15    6   23    3   17
   6   36   33   27   22   16  100   60   37   64   43   47   38   25   45   31   36
   7   54   36    5    9    9   60  100   30   64   34   49   41   52   48   50   44
   8   41   19   16   39   12   37   30  100   46   40   41   64   33   48   25   29
   9   46   43   20   38   14   64   64   46  100   43   42   42   39   50   46   26
  10   21   35   33   49   37   43   34   40   43  100   54   38   29   50   30   15
  11   43   58   19   27   27   47   49   41   42   54  100   69   65   70   44   25
  12   62   26   19   26   15   38   41   64   42   38   69  100   60   70   49   27
  14   53   60   -1   -7    6   25   52   33   39   29   65   60  100   55   70   35
  15   51   35   22   49   23   45   48   48   50   50   70   70   55  100   60   12
  16   60   36   -4    8    3   31   50   25   46   30   44   49   70   60  100   23
  19   17   15   -4  -21   17   36   44   29   26   15   25   27   35   12   23  100

NB: A correlation coefficient 100 is equivalent to 1 or 54 is equi-
    valent to 0,54
```

Table 4.1: Correlation matrix for the Post merger

This entails that the correlation matrix in Table4 1 converge to a correlation coefficient of +1 when each set of views is matched by itself only. The matrix also displays largely the presence of positive intercorrelation between views than the negative positive correlations. Thus a certain degree of agreement ranging from as little as 0.03 to 0.7 is established between the views of 16 participants than their disagreements. However a threshold correlation coefficient of ± 0.5 shows that there are few exceptional views that satisfactorily establish their relationship to this extent. Some views like those from participants 12, 14, 15 and 16 establish substantial relationships with relatively more views compared to other peoples' views. Furthermore the correlation matrix communicates the highest agreement level of 0.7 between the views of participant 15 and 11, 15 and 12, 16 and 14. It means these views have very similar configurations and are likely to belong to one group sharing the same meaning. .Moreover, the views from participant 1 and the views from participant 8 load significantly higher with views from participant 12 compared to any other views related to each of these views. As a result since views from participant 12 identify themselves with views from 11, 15, 16, and 14, it means the group is incomplete without views from participant 8 and 1. Thus it can be reasoned that there seem to be a similarity of the views' configuration established between the top management level and the line management since these views originate from participants befitting either of the categories.

Other probable reasons behind the extreme agreement between these views may be caused by the type of the participant, the gender, or the nature behind their job, their level of interaction in the organisation and even the difference of participant's origin. For instance, the difference in experience between the participant groomed by the Netherlands cadastral system and participants from the Swedish cadastral system may affect the way participants configure their views. It is shown that the configuration of the views from participant 19 from the Netherlands cadastral system tends to share little in common with all other views from the Swedish cadastral system. Yet the differences of cadastral systems seem to be an invalid reason to explain the non existence of a substantial relationship in the case of views from participant 5. It therefore means that the cause of the relationship may be coincidentally true but it may

not be always true. In total it can be seen from the correlation matrix that there is varying similarity or configuration amongst the views with some views establishing comparatively higher relationships than other views. The important role successfully shown by the correlation matrix is how much each of the views shares in common with other views. However the matrix is belittled when it comes to the details which demand what is shared in common in the views and the established regularities and patterns of the relationships. Thus the function of section 4.2.2 unveils the patterns of the relationship existing amongst the views shown in the correlation matrix.

4.2.2. Patterns of shared views and values

An extraction of "different regularities and patterns of similarities" is facilitated through employing a statistical inspection of the correlation matrix shown in Table 4.1 (Watts et al., 2012, p. 98). Alternatively Webler et al.(2009) mention that the distinct shared perspectives are revealed through the factor analysis which creates new variables called factors. The purpose of factors is to act as the vessels that gather views by their similar configurations. Initially PQMethod creates 8 factors. (Watts et al., 2012) indicate that each individual set of views establish a relationship with each of the 8 factors. However not all of these factors deliver quality information about the shared perspectives. In that manner a measure in form of the Eigen values entail the quality with which a factor delivers the shared perception. Thus the purpose of Eigen value is none other than displaying the statistical strength and explanatory power of each factor. Accordingly all factors with Eigen values less than 1 are eliminated because they have poor statistical strength and explanatory power (Watts et al., 2012). Hence technically a rotation process plays the role to specify the significant position of each individual set of views. Rotation eliminates confusion amongst views whereby each view occupies two factors. Thus Table 4.2 shows 4 factors obtained by the same

NB: The present research interchangeably refers a factor as a cluster of values

```
Value systems'Matrix: An X Indicates a Defining set
                     of Views

                  Cluster of Values/ Factors
VIEWS
         Cluster 1    Cluster2    Cluster3    Cluster4

   1      0.8030X      0.0690      0.2059     -0.0966
   2      0.1616       0.1893      0.2015      0.8695X
   3     -0.0527       0.7431X     0.0036      0.1342
   4      0.2049       0.8624X    -0.1321     -0.0477
   5      0.1235       0.4328      0.2536     -0.3436
   6      0.1879       0.3582      0.7086X     0.1720
   7      0.4251       0.0380      0.6817X     0.2357
   8      0.5511X      0.3521      0.2767     -0.1417
   9      0.3621       0.3539      0.5583X     0.2333
  10      0.2468       0.6402X     0.2925      0.2046
  11      0.5744X      0.3532      0.2580      0.4369
  12      0.8270X      0.2218      0.1703      0.0403
  14      0.6995X     -0.1432      0.2367      0.4231
  15      0.7376X      0.4079      0.1188      0.2067
  16      0.7337X     -0.0948      0.1808      0.3188
  19      0.1296      -0.1886      0.7993X    -0.0412

explained    25          17          15          11
variance (%)

eigen       6.4624      2.0414      1.2413      1.1782
values
```

Table 4.2: Cluster of Views and Values

derivation and reasoning out of 8 factors. Eventually it means 4 factors from Table 4.2 have adequate statistical strength and explanatory power of the distinct shared patterns of views of the post merger opinions. The threshold of ± 0.5 defines the extent to which each individual set of views "closely approximate the cluster's viewpoint" (Watts et al., 2012, p. 128). Cluster 1 is significantly approximated by 7 sets of views through a factor loading marked X. By definition "factor loadings are the degree to which an individual's sort [view] correlates with a factor" (Webler et al., 2009, p. 29).

The high approximation marked with an X for views from Cluster1 coincidentally originate from top and line management cadastral experts. Although the origin can be traced these results suffer from the limitation that they cannot be proportioned to people or their professions. Therefore the position of clustering views is only to show patterns of shared views and how much these views as a group explain the variation of subjectivity. Thus Cluster1 is able to explain 25% of the distinct variation delivered by four clusters.

3 sets of views closely approximate the shared meaning and perception of Cluster 2. As these views approximate this cluster, they play a role to distinguish Cluster2 from any of the 4 clusters shown in Table 4.2. The cluster tends to explain 17 % of the variation existing cross 4 clusters. Accidentally these 3 sets of views come from a few survey experts at operational level only. Yet the reasoning from Q methodology does not crystallise the cause as related to people although long lasting friendship and companionship of people can influence their thinking or opinions. Hence, even though Cluster 2 is approximated by participants of the same professionals, their views just form a type of value existing in the post merger. This means not all surveyors think in the same manner.

Cluster3 is distinguished from all other three clusters by 4 sets of views. Cluster 3 explains 15% of the variation existing within these four clusters. Coincidentally, only participants with survey backgrounds form significant approximating views of Cluster3. Similarly, these views cannot be generalised to all surveyors but they exist to indicate the presence of a particular distinct type of values.

Finally, Cluster4 is distinguished from three clusters by one set of views. Inadvertently, the origin of the views can be tracked from the top management level. Thus the purpose of Cluster 4, like all the clusters discussed, identifies one of the value systems existing in the post merger. Cluster4 explains 11% of the variation delivered by these four clusters.

The explanatory power of each cluster of values tends to deteriorate gradually from the first cluster to the last cluster. However they all deliver the reliable information about each cluster. The total explanatory strength of all 4 clusters accounts for 68% variance occurring in the correlation matrix in Table4 1. In simple terms four clusters are able to explain only 68% of the differences and similarities existing amongst the views shown by the correlation matrix in Table 4.1. It is important to note that the distinction and similarities of views identified in Table4 2 does not sample the participants per se but samples the views. One can reason and conclude that views in Table4 2 grouped themselves as influenced by the organisational level since the dominant views clearly distinguish themselves accordingly. At the same time the reasoning can be overridden by other reasons too. The most prominent aspect on hand is that there are evidently four groups of value systems whose meaning is not known yet. Section 4.2.3 derive the labels to each value system presented in Figure   4.1.

4.2.3.   Cluster of value systems of the Post merger cadastral system.

The clusters of views and values displayed in Table4.2 forms the bridge to the final output containing specified statements together with their respective scores as shown in Table 4.3. The arrays of statements shown in Table 4.3 are derived from weighted averaging of significant views marked with an X for each clusters of values in Table 4.2. Hence the scores are the best estimate obtained from the averaging of the views significantly defining each cluster of values. The sufficient delivery and presentation of each cluster of values is credited to Watts et al.(2012). Their form to present holistically each cluster employs the use of crib sheets. A crib sheet is a consistent logic to extract the statements and their scores from the value systems' arrays shown in Table 4.3. Thus each cluster of values is modelled consistently by four headings which are; (1) statements scoring +5; (2) statements ranking higher in that particular cluster of value system than any other cluster; (3) statements ranking lower in that particular cluster of value system than

any other cluster; (4) statements scoring -5. Four value systems' arrays presented in Table 4.3 are modelled by four crib sheets in Appendix 7.

Statement Number	Value systems array				Statement Number	Value systems array			
	1	2	3	4		1	2	3	4
1.	4	5	2	5	19.	2	0	-2	-1
2.	-2	-2	-4	-2	20.	-1	1	-2	0
3.	1	-3	0	-1	21.	5	3	-3	-1
4.	-2	-3	0	0	22.	-2	-2	1	3
5.	3	4	2	3	23.	0	-1	5	1
6.	0	-2	0	-2	24	0	-2	-1	1
7.	1	2	2	1	25.	-1	-4	0	-4
8.	-3	0	-5	-3	26.	-2	0	-1	-4
9.	4	0	4	4	27.	-4	2	3	-3
10	2	-1	1	3	28.	0	1	2	0
11.	2	1	1	-3	29.	-5	-1	-3	0
12.	-1	0	0	0	30.	0	0	1	2
13.	1	3	-1	2	31.	1	-1	3	2
14.	-1	-4	-1	0	32.	-1	1	0	1
15.	3	4	3	-1	33.	-4	3	-4	-2
16.	-3	-5	-2	1	34.	-3	2	-3	-1
17.	2	2	-1	2	35.	0	0	-2	-2
18.	1	-1	1	4	36.	3	-3	4	-5

Table 4.3: Value system's Arrays presenting the Post merger

The narration of each crib sheet discloses and describes the full overview and meaning communicated by a cluster of values. A topic is then tagged to a harmonious rhythmic meaning conveyed by each set of statements and their scores. In total these cluster of values are (1) "Rules are for the new employees and definitely not us"; (2) "We are the overseers of the system"; (3) "Flexibility under the house of the law"; (4) "We have authority over processes, procedures and task". The narrations from which these themes come from are presented from number 1 to 4 under this section.

1   Cluster of operant values: " Rules are for the new employees and definitely not us"

Views from this value system consider additional in-house training for newly employed cadastral professionals despite the fact that they have undergone a lengthy and tedious professional training. The views reveal that it is better to nurture the incompetent employees rather than to expel them from the organisation. By virtue of tradition, friendliness and devotion, the value system reveals that it is unheard of, to expel newly recruited employees because of their incompetence. As such the views consensually point out that incompetent employees are nurtured through an in-house training. Work in the organisation is rather taught to the newly employed professional mainly to guard the tradition of the organisation. Therefore views consider keeping records in the old fashioned way, conducting of subdivisions in a traditional way and performing the title and mortgage registration in the old way.

Accordingly the value system reveals that processes and information systems are quite stable and are renewed after a long time. Despite the growing technology the views still prefer to register two types of

land information in different places and different formats. According to the views it is quite inconsiderable to instantly switch to new technology especially when there are many stakeholders depending on the Lantmäteriet services. The value system underscores that it is better to keep old systems and alter prices attached to land information access than to disfigure the tradition. Hence the value system condemns incoming technology such as Web Map Service, new formats like GML (Geographic Mark-up Language), new laws like INSPIRE (Infrastructure for Spatial Information in the European Community) despite the diversity of tasks and voluminous workload involved. Rather the views position customers as the central point of concern. The value system entails that clients are not conversant and dynamic to arising technology. Therefore the value also perceives new technology as burden which calls along community training of all affected clients or parties. As a result the views reveal that, even though the organisation embraces such new technology it is rather easy to discard rules and proactively solve problems based on the past accumulated knowledge and experiences. In fact, the views conflict themselves by demarcating the newly recruited employees from long tenured employees when it comes to preference for rules.

While the value system enslave new employees to rules and orders specified for a task, the value system gives the long tenured employee the right to denounce existing procedures set for a task in case of any problems. The value system qualifies long tenured employees as experienced and competent enough to improvise working methods in the way they understand. Nonetheless the value system allows systematic and formal approaches to address the conflicts at hand. The value system acknowledges that the misunderstanding that occurs with technical processes such as subdivision, ends up involving the court procedures to settle down the conflicts. The chief legal officer is involved to monitor internal conflict too. Eventually the value system allows the old expertise to make decisions over their work and it dispatches the right of autonomy to the old expertise since they can accurately execute the instructions given by their directors.

2   Cluster of operant values: "We are the overseers of the system"

Even though the value system gives priority to departmentalisation of staff members, it equally prioritises cooperation amongst employees to cater for the diversity of tasks. The value system allows employees to share knowledge and information since each of them is occupied by different tasks which turn out to be difficult to finish at times. Hence employees are allowed to make decisions on given tasks and objectives. Despite the fact that the views identify leaders as coordinators who have passion for rules and procedures, the leaders prefer employees to be proactive instead of sticking to rules when executing tasks. The views permit employees to criticise the existing goals or tasks, bring up new ideas upon and interact openly concerning faulty areas with their leaders.

The people adhering to this value system have a diverse range of professional backgrounds and hence the value system capitalises on renewing and developing them through an in-house education system. Each group of new professionals receives approximately 18 weeks of education followed by 2 to3 weeks of education in the next 3 years from the date of employment. Thus the value system protects and embraces the incompetent employees. In spite of everything, its focus is not to achieve measurable results and markets or the conversion of resources. Thus the value system has no relationship to tasks and goal achievement.

While the value system stresses creating new things, it does not appreciate the fast changing markets and prevailing innovation. On that same note the value system chooses to rely on the existing methods rather than improving the working environments of the processes. This is so because there are already many complex data structures in place which creates inconsistency. The pluralism of data structures comes along with too many types of softwares used for the land information updates like ArcGIS, MapInfo, AutoCAD, etc. Hence the value system appreciates the lacking bond to innovation, experimentation and development. For instance its followers reveal that update of land information still resorts to use of old

Geodatabase Alfa which was created specifically for the geometry part in 1988 followed by the textual part created in 1972. For this reason the value system neglects the view whereby the leaders are seen as tough and demanding but rather admits to identify these leaders as warm-hearted, cheerful and teachers.

3   Cluster of operant values: "Flexibility under the house of the law"

According to this value system it is a matter of choice to engage further education considering that employees pursued a tedious and lengthy educational protocol. The views reveals a sense of security by mentioning that no one is chased away for incompetence. Consequently the value system figures out the harder part of education and chooses to isolate the role it plays. Alternatively, the value system fantasises cooperation amongst its followers when it comes to task achievement. Furthermore it gives room for its followers to share ideas and knowledge so that they complete the task within a reasonable time. Hence the value system recognises its strong association with loyalty, cohesion and tradition.

According to the followers of this value system creating new things is not an option contributing to their tradition. Yet the value system continues to apply a gradual change of the existing processes. Gradual alterations of processes are all depicted by law which forms part of the tradition. However the alterations of processes imply that the value system does not consider meeting standards and stability. In actual fact the value system frequently reviews the existing processes consistently.

Another aspect characteristic to this value system is that it honours structure and rules. For instance while the value system organises its followers into departments it prefers to have the lower offices execute orders coming from higher offices. The professionals following this value system recognises the clear distinction and the demand for adhering to procedures set for tasks implicated by the value system. Moreover, the followers of this value system are led by appropriate rules, policies and guidelines yet the followers choose not follow. The value system gives its followers the opportunity to raise conflicting opinions concerning tasks at hand and also to bring on table exceptional ideas. The value system allows frank communication between the lower levels and higher levels. In total the value system has rules but hosts autonomy for its followers thus creating a freedom space for them.

4   Cluster of operant values 4: "we have authority over processes, procedures and task"

Even though in the past, the education offered by universities was synchronised to Lantmäteriet, presently the universities provides a diverse range of cadastral programmes tailored for Surveying and Geomatics on the market. The existing education is no more standardised according to the views of this value system. Thus the value system employs an in-house training to harmonise different backgrounds into the needs of Lantmäteriet. As a result, incompetent employees are nurtured and developed by an in-house training. The value system promotes collaboration and disengages rules and innovation amongst employees as far as task and goal achievement is concerned. Accordingly, competent employees transfer the knowledge to the incompetent employees. After all, the views entail that leaders are not coordinators and therefore employees are not enforced to follow rules. Instead the views express that tasks can be criticised, new ideas raised and even decision made by the employees. Accordingly the views flexibly adjust processes relative to dynamic human needs.

The aim posted by this value system is to achieve planned objectives and goals even though the leaders involved are not coercive and instructive. Likewise the views specifically decline the legitimacy of competition within the value system. This explains why the views impulsively relate the disengagement of once a division of Lantmäteriet; METRIA. The division once belonged to Lantmäteriet functioning as a commercial part that competed with the private sector. However the views reveal that its eviction is mainly explained by its competitive positioning to the clients who happens to be recipient of land information. The views specifically states that, it is inconsiderate and unethical for Lantmäteriet to compete with the one they give information. However the value system recognises the importance to adapt to dynamic markets and modernization.

4.3. Premerger state

This section addresses the research questions of objective 4 which are stated as: *"How can one differentiate the operant beliefs during the post merger and the operant beliefs during the premerger?" "How much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?"* Thus the aim of this section is to note down the approach applied to answer these research questions at the same time display the operant value systems pertaining to the difference established between the two states; the Post merger versus the Premerger. As noted earlier in chapter one the cadastral system constitutes of the land registration component and cadastre component. Likewise chapter three has already stated that 2 sets of views were obtained to evaluate each premerger state. Thus in total the premerger states constitute only four sets of views. The proceedings to note the changes between the premerger state and the post merger state are explained in subsection 4.3.1

4.3.1. Procedure to differentiate values of the Post merger from the Premerger state

One way to differentiate the operant values between the post merger and premerger state of each of the components (cadastre and land registration) is to add their views to the Post merger separately and note the change or difference. For this reason comparison begins from the post merger to the past . The premerger values or views are rather taken as memories.

States to be compared	Operant value systems
Post merger (16 sets of views) versas Premerger cadastre (2 sets of views from participants 17 and 20)	Operant value systems for the post merger & Operant value systems for the combined post merger views and premerger cadastre views
Post merger (16 sets of views) versas Premerger Land registration (2 sets of views from participants 18 and 21)	Operant value systems for the post merger& Operant value systems for the combined post merger views and premerger cadastre views

Table 4.4: Layout to extract differences between the Post merger and Premerger state

Table 4.4 specifies the states to be compared and the number of views attached to each state. The combination of the premerger views and the post merger views are statistically processed in a similar manner applied to the post merger views. It means a by-person factor analysis technique is applied using the PQMethod tools. Thus for each comparison there are two sets of operant value systems generated. This involve the Post merger operant value systems already processed in subsection 4.2.3 and the operant value systems for the integrated post merger views and the premerger views. Similarly a series of 36 statements are generated to present the integrated views of both states. The operant value systems emerging present a shift of the values. Each of the component's operant values is presented in section 4.3.2. and 4.3.3.

4.3.2. Operant Value system of the Premerger: Cadastre component

Table 4.5 presents the shift of operant value system after introducing the premerger views. The operant value systems are narrated under this section from 1 up to 4. The crib sheets modelled to guide the narrations are presented in Appendix 8. The four value systems arising are: (1) "we were experts and liked to do things our own way"; (2) "Non conformists and Activists"; (3) "we were product oriented and slow to change"; (4) "Hierachicalists"

1   Cluster of operant views and values: "we were experts and liked to do things our own way"

Despite the fact that rules and policies prevail to lead the employees, the views purport that employees are competent enough to handle tasks without the external guidance. After all the views pride off that employees are adequately trained. Likewise the views consensually agree that employees are not good listeners and are impatient to follow planned procedures. Cadastral professionals sticking to this value system believe that they have genuine confrontation and criticism of problematic tasks and goals. On the contrary the value system perceives leaders as coordinators who were supposed to enforce rules and policies. Unfortunately the views expose that employees are allowed to break rules at the same time achieve the objectives as planned. Even though the value system reveals the enthusiasm of this group, it exposes that the same group is not in the habit to bring up exceptional ideas. Instead the views assert that employees are brought closer to their work by an in-house education.

Statement Number	Value system				Statement Number	Value system			
	1	2	3	4		1	2	3	4
1	2	5	4	2	19.	3	0	0	-2
2.	1	-2	-3	-4	20.	0	1	-1	-1
3.	-1	-3	2	1	21.	1	3	3	-3
4.	-2	-3	-2	0	22.	-3	-2	2	1
5.	0	4	3	1	23.	4	-1	0	3
6.	-1	-1	-1	0	24	0	-2	1	-2
7.	2	2	1	2	25.	-1	-4	-2	0
8.	-2	0	-3	-5	26.	-3	1	-4	-1
9.	3	0	5	5	27.	-1	1	-5	4
10	2	-1	3	2	28.	0	2	-1	2
11.	4	1	-1	0	29.	-1	-1	-4	-3
12.	-2	0	0	0	30.	-1	0	0	1
13.	-3	3	1	-2	31.	3	-2	2	3
14.	-2	-4	1	-1	32.	1	0	0	0
15.	0	4	2	3	33.	-4	3	-2	-4
16.	-4	-5	-2	-1	34.	-5	2	-3	-3
17.	0	2	1	-1	35.	1	1	-1	-2
18.	2	-1	4	1	36.	5	-3	0	4

Table 4.5: Operant value system for the Premerger Cadastre

2 Cluster of operant views and values: "Non conformists and Activists"

This value system structures employees by their specialisations into departments and rejects monitoring these employees by rules. Thus the value system identify leaders as warm hearted and teachers whose pride is vested in uplifting the renewal and continuous education of employees to cater for the diverse range of professional profiles emerging from different backgrounds or universities. Despite the fact that the value system disallow venturing into new opportunities it expresses the struggle on creating new working environments such as the internet services that enhances customers to access the cadastral services and have their transactions and payments done. Therefore from the value's point of view it is unacceptable to rely on old standardised procedures which are reviewed after a longer period of time. Hence it accommodates a free will to raise opposing and alternative ideas since it supports proactiveness. Thus the value system spontaneously raises decisions on a particular concerned technical part. Precisely the value system pinpoints that the overall decision on how to handle the task comes from the directors. In particular, the value system associates decision making with full recognition of law.

The perspectives delivered henceforth by the value system align the leadership role with rule enforcing whereby the cadastral professionals are supposed to bow to rules, policies and procedures. Unfortunately the value system identifies vividly that although strict programmes and procedures exist, some of the cadastral professionals choose to break the rules and report later on what was done. Moreover the perspective of rule enforcement is further crippled by unclear authorities over processes and lack of clear guidelines. This leaves the value system with no choice other than to offer its followers independence by letting them guide themselves rather than being led by rules and procedures. In that case the value system boldly shares that no external party has the right to dictate directions for employees. Therefore the value system courageously disconnects itself from rules and gives employees the responsibility to carry out tasks their own way. Accordingly this value system offers different tasks to each person yet it turns around and declares that it has no attachments with tasks and goal achievement. At the same time it further exposes the view whereby leaders are never coercive and detective since there is totally no need to achieve stipulated objectives. It is unfortunate that the value system does not sympathise with the transformation of resources. Eventually according to this value system it is despicable to qualify leaders as innovators.

3   Cluster of operant views and values: "we were product oriented and slow to change"

There may be order and structure in terms of departments, ranks are absolutely not distinguishable. The value system states that there is no respect for hierarchy even though there are departments. Rules and policies are not at all important. For instance the views show that the main aim is to achieve tasks and goals but it is not important to adhere to the accompanying set procedures. Accordingly the value system exposes task, procedures and goals to criticism. It means the tasks are open to judgement through allows employees to challenge the existing procedures. The value system then employs a formal approach to resolve the conflicts about the task or goal encountered. The main concern of this value system is to reach the stipulated measurable results and markets through decreasing the cost of the cadastral procedures. The value system identifies that even though there is a cost of 1250Kronos per hour in the subdivision procedure, there is still room to cut off the price together with their costs. Therefore according to the value system it would not be conducive to keep track with law. The value system underscores that law takes ages to revise because it is hard to change. Therefore the value rests its preference and focus on improving the standardised procedures established by the law many years ago.

The value system negotiates continuous adaptation to the external dynamic markets but attest that change is slow. Moreover the value system entails that it accepts reviewing processes after a longer period of time. According to this value system all key players are the immediate input to the final decision. Eventually the value system emphasises that each decision is evaluated frequently to check its feasibility and societal acceptance. Hence the value system advises to buy time while the decision is being evaluated. Ultimately the value system has no flexible processes in place.

4   Cluster of operant views and values: " Hierachicalists"

The value system totally disagrees with the view which expresses lack of order and structure. According to this value system it identifies and uplifts the use of the handbooks which is the simpler version of law. Consequently the value system attaches work practices or activities with the law. It carries forward the idea that loyalty, cohesion and tradition are fundamental aspects that defines its existence. Thus the value system discerns that cadastral systems are known for delivering the democracy and economic importance. Moreover the value system magnifies the importance of the surveying professional which has reached the peoples' hearts. Accordingly, this value system appreciates the view whereby people are grateful of the surveying professional due to its unquestionable submission to the economic importance. However, the value system reveals that the activities enrolled capture a high degree of order whereby cadastral experts are organised into departments with their respective specialisation.

This value system establishes a clear division and authority between ranks and over processes. The value system keeps hold of rules, procedures and guidelines in order to execute processes. For instance it guards the view whereby legal advice is delineated to the technical employee who operates closely with the demarcation of boundaries. The value system does not hide that in the case of law adjustment, a protocol via the Ministry of justice is employed to carry out the necessary procedures. At daily basis work the value system engages between the higher and lower levels. Accordingly it entails that ideas for change are sent to higher levels via the appropriate levels and the feedback is formally returned following the same path of hierarchy to the lower levels. At the same time the value system grades itself with qualities of good listening and obedience when it comes to the interaction between the higher level and the lower level. Thus the value system does not hesitate to underline the respect existing between the higher and the lower ranks. This entails that plans made by the chiefs are eventually combined together with the lowest levels. Hence the value system recycles obedience amongst all organisational levels. For this reason the value systems finds the right to say that it associates close loyalty to the employment of rules and procedures to carry out the task or goal . The value system promotes individual guidance since the law is clear.

The uniqueness of this value system is that it stretches its qualities towards the promotion of individual guidance and autonomy as far as task achievement is concerned. The value system has many different tasks which are engaged by different approaches thereby attracting the need for independence. One way that the value system engages to go along with the diversity of tasks and ways of doing things is that it reviews processes frequently to meet the changing human needs. Thus the end result registered to the value system is that it has no intention to either meet standards and stability or to create new things.

4.3.3. Operant Value system of the Premerger: land registration component

This subsection presents the narration of the value system of the land registration before the merger. A detailed presentation of the shift of each value system contains 36 statements and their corresponding scores as shown Table 4.6. Each value system is narrated as directed by crib sheets presented in Appendix 9. Four conceptualisations of value systems are: Four conceptualisations of value systems are: "We were goal oriented and fast to change"; "we were like a family"; "we were conservative and obedient"; "we struggled to break new grounds yet we remained obedient to our leaders". The narrations of the value systems are presented under this section from number 1 to 4.

1. Cluster of operant values: "We were goal oriented and fast to change"

On one hand the value system is deeply profound in the views which express minimum order and little adherence to rules. The value system expresses clearly that the bond existing amongst employees in not defined by rules. For instance, the value system harbours a mixed group of professionals whose training is not standardised. Moreover, even though the value system accommodates the organisation of professionals into departments, the ranking system of the higher and lower levels remains clumsy. Yet again the value system does not adhere to rules and procedures planned for a particular goal or task at that time. This discord does not stop the lower levels from passing on the decisions on the given objectives.

On the other hand the value system prefers order. For instance, even though the value system allows employees to make decisions, rules and regulations exist to determine the extent of the decisions. The executive board passes final judgement concerning the alterations to be made. Furthermore, the value system considers standardised processes sometimes and prefers to guide employees. The value system confers that law is built in standardised digital technical procedures. Hence the role of employees is to check the structure of the data to see if it meets the standards set. For example all mortgages that do not follow the standards are rejected. The value system also recognises that there are many processes tailor

Statement number	Value system				Statement number	Value system			
	1	2	3	4		1	2	3	4
1	4	5	1	4	19.	0	0	5	-2
2.	-3	-2	0	-4	20.	-1	1	-1	-2
3.	2	-3	3	1	21.	2	3	3	-3
4.	-2	-3	-4	0	22.	2	-2	-2	0
5.	3	4	-1	2	23.	1	-1	0	4
6.	-1	-1	2	-1	24	1	-2	-2	-1
7.	1	2	2	1	25.	-2	-4	-2	0
8.	-3	0	-3	-5	26.	-4	1	1	-2
9.	4	0	1	3	27.	-5	1	-1	2
10	3	-1	1	1	28.	-1	2	0	2
11.	-1	1	4	1	29.	-3	-1	-2	-3
12.	0	0	-4	0	30.	0	0	0	1
13.	0	3	1	-1	31.	3	-2	4	3
14.	1	-4	0	-1	32.	0	0	-3	0
15.	2	4	3	5	33.	-2	3	-3	-4
16.	-2	-5	-5	-3	34.	-4	2	-1	-2
17.	1	2	1	0	35.	-1	1	0	-1
18.	5	-1	-1	2	36.	0	-3	2	3

Table 4.6: Operant value system of the premerger Land registration

made for each dataset and thus there are many information models too. Therefore the value system prefers employees to be guided.

Accordingly the value system expresses discomfort to autonomy and therefore prefers to stick to a particular set of instructions passed by their supervisors and directors. The value system clarifies that resolving conflicts is entirely formal. It appreciates that law adjustments tends to be slow and difficult. Whenever alterations concerning processes and tasks are done, there is full application of law. Yet the law lags behind the societal developments. However there seem to be no other options to cut off the process of law, since the value system installs rule enforcers as the guardian of the employees. Thus the value system enforces employees to adhere to their leaders' expectations which boldly underline that they must follow the established rules, policies and procedures to undertake tasks and goals. The value system further intensifies the muscle of law by installing tough and demanding leaders conceptualised as producers and competitors to achieve objectives and goals. Hence the value system heavily emphasises on task and goal achievement and critically considers accomplishing the required measurable results and markets. For this reason, the value system is attentive to the fast change on the market and thrives to secure the innovation lead while continuously adapting to each emerging market.

2. Cluster of operant values: "we were independent from rules yet we did not make final decisions"

According to this value system, arrangement of professionals into departments is given priority and lower ranks are entitled to perform duties as given by their higher ranks. The value system is not strict about ordering employees around. Instead the value system gives room for employees to guide themselves since there are switching tasks and several options to engage tasks. Thus the value system is not strict about following processes precisely hence processes do not last. Resultantly employees adhering to this value system consider autonomy as an option since there is no authenticated dominion over processes. Views of

the value systems perceive leaders as warm hearted with mentoring and parental qualities. As a result the value system gives employees the responsibility over their jobs, education life and the opportunity to be proactive. However, that does not mean that the value system neglect self renewal through additional educational training.

Cadastral employees adhering to this value system are flexible and free to oppose and bring along exceptional ideas about tasks and present them to their leaders. However, the value system does not allow all employees to make decisions. According to the value system directors pass the final judgement to decisions in order to meet a stable environment. It follows that the value system has no inclination to innovation since it also records the absence of risk takers within it. Moreover the value system does not involve the conversion of resources. Hence the value system neither modifies nor alters the existing processes or even old processes. The value system does not emphasise on the creation of new things nor expansion.

The diversity and numerous standards within this value system forces it to choose stability and maintenance of processes over dynamism. As such the value system does not consider production because leaders are not tough and demanding. Thus it delivers the message that there is neither a need to accomplish measurable results and neither markets nor the need to focus on tasks and goal achievement but rather a family approach is suitable to accomplish a task.

3. Cluster of operant values: "we were conservative and obedient"

Cadastral professionals adhering to this value system are organised according to their specialisation with lower levels ready to receive orders from the higher levels. Thus the value system insinuates that the lower levels closely execute orders according to the planned procedures set by the higher levels. It realises the significance of handbooks which simplifies the land registration laws. These handbooks are instrumental for guiding data entry in the computers.

While the value system has a firm grip on rules, procedures, guidelines and policies, it neither tolerates an interactive environment between leaders and subordinates nor withstand opposition about the procedures, goals and task arising from employees. Hence the value system is dedicated to rules, guidelines and policies. Thus cadastral experts who adhere to this value system consider clear line authority over processes. Simultaneously the value system considers decision making as a responsibility of directors. Clearly spotted is the point that the value system aims for stability and consistence. For instance the value system takes long to review processes. Thus the value system installs slow change by developing old processes launched many years ago.

Likewise the value system completely rejects to be associated with innovation and risk taking. It is clear from this value system that it does not accommodate venturing into new opportunities. It does not pay particular attention to markets dynamics or the innovation lead. It therefore follows that the value system seeks not for the recurrent adjustment of processes to match the external markets. Hence the value system has inflexible processes which do not suit the dynamic changing human needs. For this reason the value system prefers to employ rules as a tool to guide its fanatics in activities since it also gauges its followers as incompetent. In total the value system disconnect itself from innovation, experimentation and development.

4. Cluster of values: "we struggled to break new grounds yet we remained obedient to our leaders"

This value system associates adequate professional training with extreme competence. It then assumes that employees are capable of guiding themselves and therefore promote autonomy. It subsequently protects the incompetent employees by exposing them to education that is local to their work. However it allows employees to either chase or discard additional education besides the in-house education. Accordingly the

leaders are not available to teach and pamper employees. As a result the views do not appreciate self renewal by acquiring additional training and education especially from external institution like universities and colleges.

Precisely, the value system divides employees into departments by specialisation. The lower offices execute instructions as given by their higher offices. However the views of the value system employ participatory decision making where everyone has the right to make decisions. Simultaneously the views reveal that employees consider paying attention to instructions coming from their directors. It is only in the event of conflict when the value system expects opposition from employees. Consequently the value system appreciates conflict as a sign of participation and proactivity but it chooses formal means to resolve the conflicting parts of the processes. For that reason the value system embraces fast change through frequent evaluation and revisits of the processes and goals but it gradually alters the existing processes. This entails that the value system does not adhere to procedures designed for a task at a particular instant. Eventually it neither aims for standards and stability nor innovation. Resultantly, the value system struggles to venture into new opportunities yet it does not give an effort to take risks.

4.4. Comparison of the Postmerger and Premerger research findings

This section's role is to compare the value systems of each component to the post merger value systems. The immediate origin of comparison is the value systems matrices shown in Table 4.7. These matrices helps to identify both new patterns of clustering that emerge after the introduction of the views and rigid patterns maintained despite an addition of views. Section 4.4.1 presents the comparison of the cadastre premerger value systems to the post merger value systems and section 4.4.2 will proceed to compare the land registration value systems with the post merger value systems.

4.4.1. Comparison of Cadastre premerger and Post merger value systems

A value systems matrix is an alternative way to initiate the comparison, followed by matching statements arrays of the post merger and the cadastre premerger. This is done to keep track of similar clusters of value systems and their changes or to note the emerging cluster of value systems too. Comparison of the value system begins from the present to the past.

Value systems'Matrix: An X Indicates a Defining set of Views

Post merger

VIEWS	1	2	3	4
1	0.8030X	0.0690	0.2059	-0.0966
2	0.1616	0.1893	0.2015	0.8695X
3	-0.0527	0.7431X	0.0036	0.1342
4	0.2049	0.8624X	-0.1321	-0.0477
5	0.1235	0.4328	0.2536	-0.3436
6	0.1879	0.3582	0.7086X	0.1720
7	0.4251	0.0380	0.6817X	0.2357
8	0.5511X	0.3521	0.2767	-0.1417
9	0.3621	0.3539	0.5583X	0.2333
10	0.2468	0.6402X	0.2925	0.2046
11	0.5744X	0.3532	0.2580	0.4369
12	0.8270X	0.2218	0.1703	0.0403
14	0.6995X	-0.1432	0.2367	0.4231
15	0.7376X	0.4079	0.1188	0.2067
16	0.7337X	-0.0948	0.1808	0.3188
19	0.1296	-0.1886	0.7993X	-0.0412

Value systems'Matrix: An X Indicates a Defining Set of Views

Cadastre premerger

VIEWS	1	2	3	4
1	0.6926X	0.1739	0.3482	0.1312
2	-0.0374	0.0774	0.7256X	0.1637
3	-0.0454	0.6863X	0.0399	-0.0108
4	0.2135	0.8746X	-0.0006	-0.1498
5	-0.2843	0.4685X	0.1143	0.2861
6	0.2645	0.3533	0.1633	0.6757X
7	0.3292	0.0895	0.3843	0.6488X
8	0.4907	0.4424	0.1598	0.2508
9	0.4529	0.3475	0.2635	0.4847
10	-0.0239	0.6378X	0.3704	0.3047
11	0.1393	0.3588	0.7609X	0.2387
12	0.4103	0.3386	0.5799X	0.1303
14	0.3002	-0.1195	0.8586X	0.1924
15	0.3815	0.4786	0.6076	0.0806
16	0.5238	-0.0466	0.6324X	0.1114
17	0.7051X	0.0644	0.0876	0.2591
19	0.0973	-0.1843	0.1382	0.7963X
20	0.7367X	-0.2768	0.1310	0.0686

Table 4.7: Value systems' matrices of Post merger versas Cadastre Premerger

From Table 4.7 it can be seen that there is cluster reform as far as views are concerned. For instance while premerger clusters have redefined themselves, similarly their views have regrouped themselves largely by adding other views or by relocating to join other views. For instance the views of participant 1 are regrouped with views of participants 17 and 20 in the premerger unlike in the post merger where views of participant 1 has companionship with the views of participant 8; 12; 14; 15, and 16. This restructuring of views exposes the presence of change. Thus Table 4.5 proceeds to align the clusters by employing the participant's views as a common denominator. It can further be observed that cluster number 2 still maintains the views forming the group in both states except that there is an additional set of views from participant 5. Cluster 3 of the post merger is reformed into cluster 4 of the premerger where the sets of views are still rigid however with one set of views lost. While the clusters which are comparable are identified as shown in Table 4.8, it is now convenient to plot their corresponding value system as shown in Table 4.9.

Post merger clusters	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cadastre Premerger Cluster	Cluster 1	Cluster 2	Cluster 4	Cluster 3

Table 4.8: Realignment of clusters

Table 4.9 compares the operant value system as guided by Table 4.8. Four value systems are matched to note the shift of value systems existing as a result of additional cadastre views.

Aspect	Row number	Post merger value systems	Premerger cadastre value systems
Competence and experience	1. *(Cluster1: Cluster1)*	"Rules are for the new employees and definitely not for us"	"we were experts who liked to do things in our own way"
Proactiveness	2 . *(Cluster2: Cluster2)*	"We are the overseers of the system"	"Non conformists and Activists"
Recognition of Law	3 *(Cluster3: Cluster4)*	"Flexibility under the house of law"	"Hierarchicalists"
Task and goal achievement	4 . *(Cluster4: Cluster3)*	"we have authority over processes, procedures and task"	"we were product oriented and slow to change"

Table 4.9: Aligned Cluster of value systems

4.4.2.   Similarities, differences and Shifts

Basing on the clustering of similar value system displayed in Table 4.9, similarities and differences are extracted and displayed in item 1 to 4 and shifts are displayed from Figure4.1 up to Figure 4.6.

1.   Cluster1: Cluster1: Similarities and differences

On one hand the two value systems before and after the merger are similar on views concerning the right to criticise tasks or procedures of the tasks despite the fact they are closely defined by rules and procedures. Moreover these value systems proactively respond to cadastral subdivisions for example. This means that even though the Property Formation Act prevails, the value systems accommodate a certain degree of flexibility in certain issues such as the decision making meetings engaged by the surveyor. However the value systems consider that criticism should not go beyond the law that is in place. The aim of the value systems is to achieve stability and standards. Order through departmentalisation is also important to both value systems. On the other hand, the new value system tends to differ from the old one on aspects concerning professional training, respect for structural order, and standardisation of work processes. The post merger value system indicates the stronger formation of loyalty, preference to

tradition and cohesion amongst the employees. It also promotes people development and enhancement of the community through offering an in-house education to the incoming new employee. The education involves training about the Swedish cadastral subdivision or property formation, how to engage meetings with a client, the technical issues on cadastral index map, etc.

2.   Cluster2:Cluster2: Similarities and differences

The value systems of the premerger and post merger are similar in that they both consider people development and community development. Hence in both the premerger and the post merger, the value systems install mentors, facilitators and parental figures. Accordingly the value systems allows for an interactive environment whereby staff members are given the chance to speak openly and frankly concerning the faulty areas about tasks and procedures for the tasks. Yet still, both value systems appreciate the presence of order through departmentalising of the staff members. In that regard the value system employ the coordinators, rule enforcers and organisers with expectations to engage the staff members to rules, procedures and policies. However, it turns out that the value systems simultaneously do not install clear authority over processes. Ultimately the end result is that the value systems emphasise on acquiring new working environments through acquiring new technologies such as the Web Map Service, new formats such as the GML, etc. Yet still, the value system of the post merger tend to differ from the post merger in terms of work related issues, the way staff members conduct their everyday activities, the relationships existing between the staff members and the conduct of decision making.

3.   Cluster3:Cluster4 : Similarities and differences

The value systems for the premerger and post merger tend to prefer order through departmentalising staff members. Moreover the value systems enforce a clear distinction between higher and lower ranks and the lower offices are expected to execute orders coming from the higher offices. The value systems are strictly tied to planned procedures concerning the tasks at hand. At the same time both value systems offers different approaches to handle tasks. However, the value systems are flexible on matters concerning the interaction of staff member to fulfil the procedure for the task. While the value systems allow the staff members to depend on each other upon executing a procedure for a task, the same value systems allow for autonomy, and loyalty. Consequently the value systems appreciate sticking to tradition as far as the relationships amongst staff members towards executing the tasks are concerned. Yet still, the post merger tend to differ from the premerger value system in that it prefers frank and open communication between the lower and the higher offices.

4.   Cluster4:Cluster3 : Similarities and differences

The premerger and post merger value systems are connected by three similar views that emphasises order through departmentalisation, continual adaptation to fast changing markets, task and goal achievement, and freedom to criticise the task or procedure in place. There is a difference between these two values. The post merger value system stress its concern on matters concerning collaborative, loyalty, tradition to achieve the tasks and goals. After the merger it is vivid that the new value system is concerned about meeting the stipulated objectives and goals coming from their leaders. Moreover the new value system appreciates risk takers, and innovators for leaders.

Therefore as these value systems prove that they are almost similar, there are observable shifts with particular views such as the work processes, the approach to execute tasks and the decision making. Figure4.1 up to Figure 4.6 displays the respective original culture typology and their post merger culture typology.

1.   Change of work processes

Figure 4.1 up to Figure 4.6 shows the shift of views concerning the work processes from the premerger to the post merger state. Precisely Figure 4.1 shows contradicting shifts of views. One set of shift shows that

there is a deterioration concerning the attention paid towards work processes. This is indicated by the shifting focus from incremental change of work processes towards a slow and inconsistent review of work processes. Contrary to this reasoning the other set of views shows that there is rather an increased attention to the existing work processes. In that case the shift identifies that the premerger view allows for a slow and inconsistent review of work processes, while the destined view of the post merger shows that there is an incremental change of work processes. The contradicting shifts observed shows that change takes place from the internal environment of the organisation with the observed shifts taking place from the hierarchical culture and clan culture and vice versa.
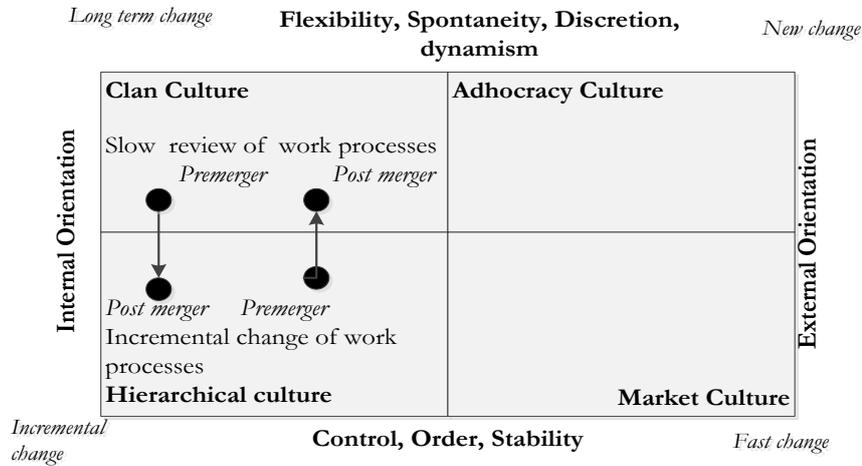
Figure 4.1: Change of work processes (Internal environment)

Figure 4.2 unveil yet another set of views arising concerning the shifts that has occurred from the
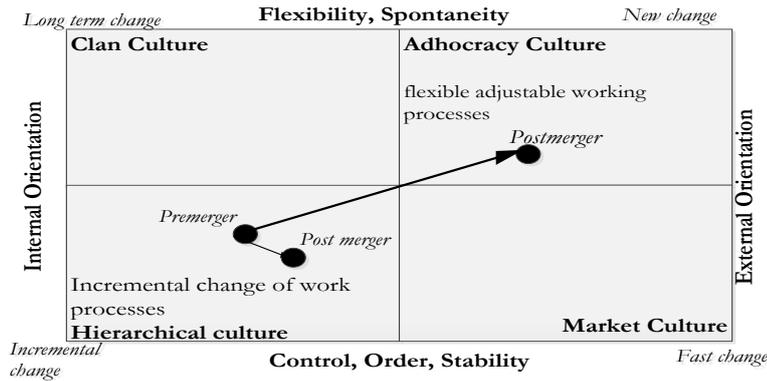
Figure 4.2: Change of work processes (Internal to External environment)
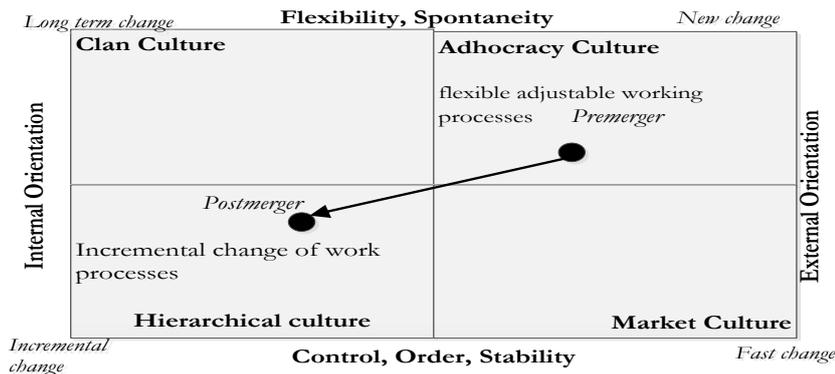
Figure 4.3: Change of work processes (External to internal environment)

premerger to the post merger. The views reflect that change has pursued two dimensions. The first dimension remains internally oriented where work processes are incrementally changed but the second dimension is externally oriented where work processes are tuned spontaneously to changing dynamic human needs. Figure 4.3 contradicts Figure 4.2 by displaying a shift from adaptive processes which are externally oriented to processes with incremental change and internally oriented.

2. Change of behaviour towards execution of tasks

There is a multi-faceted shift of views concerning the behaviour or conduct employed to handle a task at hand after the merger. It is shown in Figure 4.4 that even though the premerger view is kept partially stable after the merger, there are shifts still displayed. For instance there are shifts from an external oriented environment where spontaneous execution exists to internal focus where there is collaborative and controlled execution of tasks. Shifts occurs from adhocracy to clan and hierarchical cultures
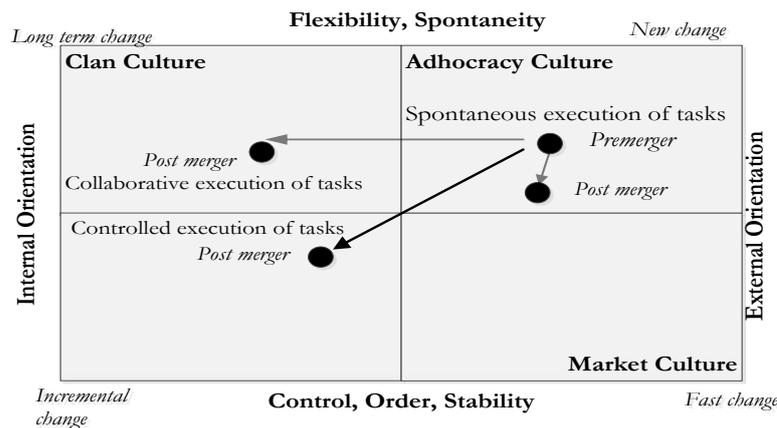
Figure 4.4: Spontaneous, collaborative and controlled execution of tasks

3. Decision making

Another notable change is displayed by the shift of views concerning decision making.
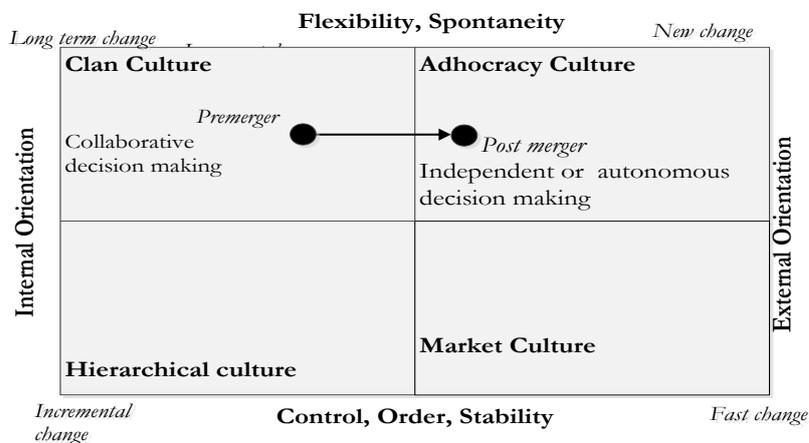
Figure 4.5: Collaborative, Autonomous decision making

While Figure 4.5 reveals that there is a shift from collaborative decision making to autonomous decision making after the merger, Figure 4.6 displays that there is an increase of collaborative decision making instead of the Director making decisions. Thus two views tend to contradict. There happens to be an increase and decrease of collaborative decision making at the same time. Eventually the post merger views shows that decision making is collaborative from within the organisation yet it is autonomous in the external environment.
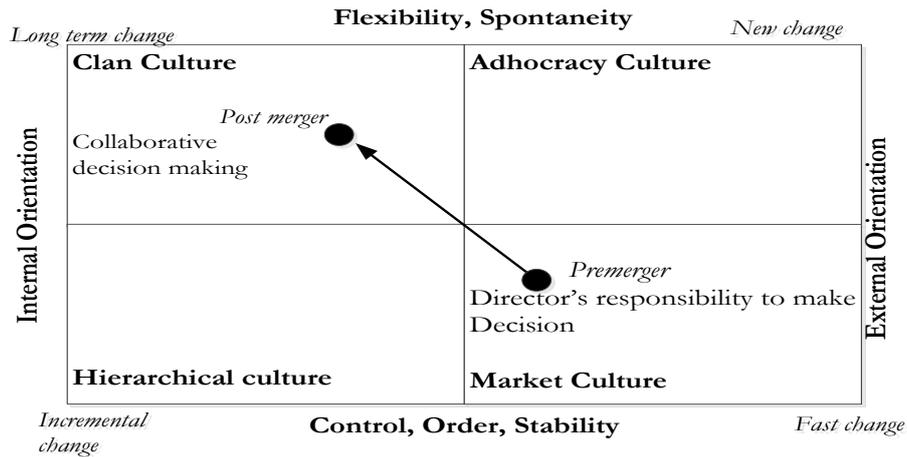
Figure 4.6: Director making decisions, Collaborative decision making

4.4.3. Comparison of Land registration premerger and Post merger value systems

The comparison between the land registration and the post merger make use of the value systems' matrix

```
Value systems'Matrix: An X Indicates a Defining set        Value systems' Matrix: An X Indicates a Defining
              of Views                                                    set of views

            Cluster of Values/Views                                    Cluster of Values/Views
VIEWS     1        2        3        4                   VIEWS     1        2        3        4

  1    0.8030X   0.0690   0.2059  -0.0966                  1    0.3482   0.1039   0.6079X   0.3493
  2    0.1616    0.1893   0.2015   0.8695X                 2    0.7610X  0.1869  -0.3459    0.2075
  3   -0.0527    0.7431X  0.0036   0.1342                  3    0.0345   0.7298X -0.0374   -0.0092
  4    0.2049    0.8624X -0.1321  -0.0477                  4    0.0571   0.8779X  0.1211   -0.0586
  5    0.1235    0.4328   0.2536  -0.3436                  5   -0.1489   0.4292X  0.2838    0.1759
  6    0.1879    0.3582   0.7086X  0.1720                  6    0.1891   0.3468   0.0722    0.7251X
  7    0.4251    0.0380   0.6817X  0.2357                  7    0.4022   0.0453   0.1317    0.7401X
  8    0.5511X   0.3521   0.2767  -0.1417                  8    0.2626   0.3909   0.2488    0.3726
  9    0.3621    0.3539   0.5583X  0.2333                  9    0.3380   0.3573   0.1257    0.6289X
 10    0.2468    0.6402X  0.2925   0.2046                 10    0.3643   0.6392X  0.0117    0.2412
 11    0.5744X   0.3532   0.2580   0.4369                 11    0.7070X  0.3552   0.2346    0.2301
 12    0.8270X   0.2218   0.1703   0.0403                 12    0.5207   0.2480   0.5896    0.2377
 14    0.6995X  -0.1432   0.2367   0.4231                 14    0.8642X -0.1257   0.1948    0.2540
 15    0.7376X   0.4079   0.1188   0.2067                 15    0.5764   0.4216   0.5036    0.1640
 16    0.7337X  -0.0948   0.1808   0.3188                 16    0.6707X -0.0852   0.4456    0.2157
 19    0.1296   -0.1886   0.7993X -0.0412                 18    0.1803  -0.0080   0.7899X  -0.1403
                                                         19    0.0770  -0.1984   0.0931    0.7354X
                                                         21   -0.1017   0.1303   0.7136X   0.2599

Post merger                                              Land registration Premerger
```

Table 4.10: Value systems' matrix

as its origin of comparison for the same reasons mentioned in section 4.4.1. Thus Table 4.10 displays the new patterns that arise after the introduction of land registration views. After an addition of land registration views there is a new companionship of views established in the premerger state while some views still retain their companionship. Table 4.10 helps to keep track of comparable clusters. One way to identify and match the clusters is to track common sets of views and align their statements arrays in the excel sheet to check their resemblance. Thus Table 4.11 is formed from aligning clusters displayed in Table 4.11. According to Table 4.10 there is a possibility of similarities between the clusters 1 and 3 for

Post merger clusters	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Land Registration Premerger Cluster	Cluster 3	Cluster 2	Cluster 4	Cluster 1

Table 4.11: Realignment of clusters

the post merger and premerger respectively, because both clusters contain the views of participant 1. The same reason applies for the rest of clusters shown in Table 4.11. Ultimately Table 4.11 guides the value systems to be compared. Thus Table 4.18 is a result of the cluster alignment displayed in Table 4.11. Based on Table 4.12 a comparison before the merger and after the merger commences in the paragraphs underneath in section 4.4.4.

Aspect	Row number	Post merger value systems	Premerger land registration value systems
Obedience to Rules	*Clusters 1: 3*	"rules are for the new employees and definitely not for us"	"we were conservative and obedient"
Work processes	*Clusters 2: 2*	"we are the overseers of the system"	"we were independent from rules yet we did not make final decisions"
Proactive execution of tasks	*Clusters 3: 4*	"flexibility under the house of law"	"we struggled to break new grounds yet we remained obedient to our leaders"
Task and goal achievement	*Clusters 4: 1*	"we have authority over processes, procedures and task"	"we were goal oriented and fast to change";

Table 4.12: Aligned Cluster of value systems

4.4.4. Similarities, differences, and shifts

The land registration premerger values show some views that are similar to those of the post merger yet other views tend to differ. Items 1 up to 4 shows the similar thinking from both value systems and where they differ. Figure 4.7 up to Figure 4.10 displays the specific views that cause the small shift observed from the pre merger to the post merger.

1. Cluster 1: Cluster 3: Similarities and differences

Both value systems accommodate order through departmentalising staff members according to their specialisation. The value systems pay close attention to planned procedures scheduled for tasks and do not accommodate opposition. In addition, the premerger and post merger value systems review processes after a longer period of time and strongly emphasise on meeting stability and standards. The post merger value systems tend to differ from the premerger value system in that long tenured employees do not follow planned procedures set for a task. Moreover the new value system allows staff members to choose between unity and independence as far as tasks are concerned.

2. Cluster2: Cluster2: Similarities and differences

According to the premerger and post merger value systems, people think order is important. Consequently the value systems identify order through the arrangement of staff members into departments according to their specialisations. Simultaneously both value systems allow employees to collaborate with each other in order to execute tasks and allow employees to participate with their leaders concerning faulty parts of the tasks or procedures designed for the task. Hence the leaders from both value systems are perceived as parental figures, facilitators or mentors. However after the merger the new value system tend to consider flexible and adaptive processes in order to match the dynamic human needs. Moreover the new value system tend to differ from the old value system in that it realises the importance for creating new working methods and working environments by installing coordinators, rule enforcers and organisers in place.

3. Cluster3: Cluster4: Similarities and differences

Before the merger and after the merger, the value systems allows for a stable incremental change and improvement of the work processes. Furthermore, the value systems install order in the sense that they prefer to have a clear distinction between ranks. Yet the value systems promote open and frank interaction

of employees and their leaders. Hence, both post and premerger value systems consider frequent review of processes and invites critical comments and exceptional ideas concerning tasks or procedures in place. Resultantly the value systems install a lot of options and approaches to handle tasks in place. Simultaneously both value systems prefer autonomy or independence amongst employees in order to execute tasks. However the post merger value system tend to differ from the old value system in the premerger in that it tends to enforce strict adherence to planned procedures set for a particular task.

4.   Cluster4: Cluster1: Similarities and differences

While both premerger and post merger value systems are defined closely by task and goal achievement, the value systems invite critical comments from the employees concerning the task at hand. Thus the value systems open the floor to conflicting opinions which are later resolved by formal means. Meanwhile both value systems realises the importance of continual adaptation to fast changing markets. Simultaneously the value systems treasure order through organising employees by their specialisation in appropriate departments. However there are viewpoints that differentiate the premerger value systems from the post merger value system. For instance, after the merger the new value system prefer to have individuals make decisions rather the directors. The new value system gives priority to team work towards the execution of tasks at hand. The new value system even appreciates tradition, loyalty and cohesion amongst the employees. Eventually the new value system considers the importance of people development and community building.

Therefore the similarities and differences have helped to reduce four shifts highlighted below from Figure 4.7 up to Figure 4.10

1.   Shift of the Bond or relationship existing amongst employees

Figure4 7 displays that there is a decrease of a hierarchical control in favour of a more friendly, loyal and cohesion internal environment amongst employees. The shift occurs from the organisation's internal environment from hierarchical culture to the clan culture.
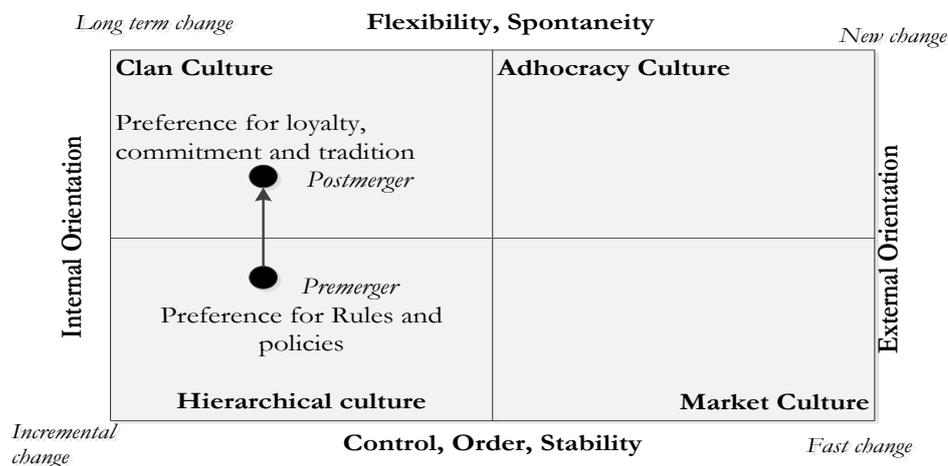
Figure 4.7: Shift of the Bond

2.   Change of decision making preferences

Figure 4.8 shows a shift of decision making from an external focus of the organisation towards an internal focus of the organisation. Alternatively the decision making responsibility has shifted from the coercive decision making by directors to a more collaborative and flexible decision making where every individual is equally rightful to make decisions. Therefore there is an increase of influence by lower ranked work force.
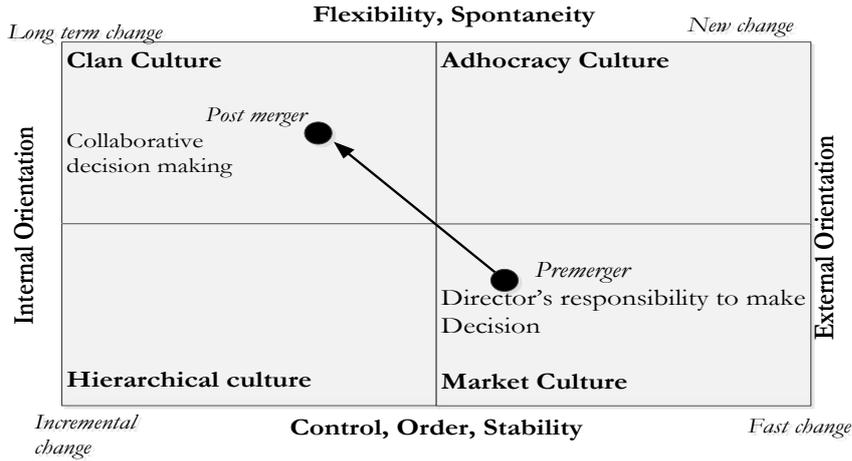
Figure 4.8: Shift of decision making

3. Change of leadership roles

Figure 4.9 displays that the leadership roles have narrowed from a hybrid of leaders to a single specific form of leaders.
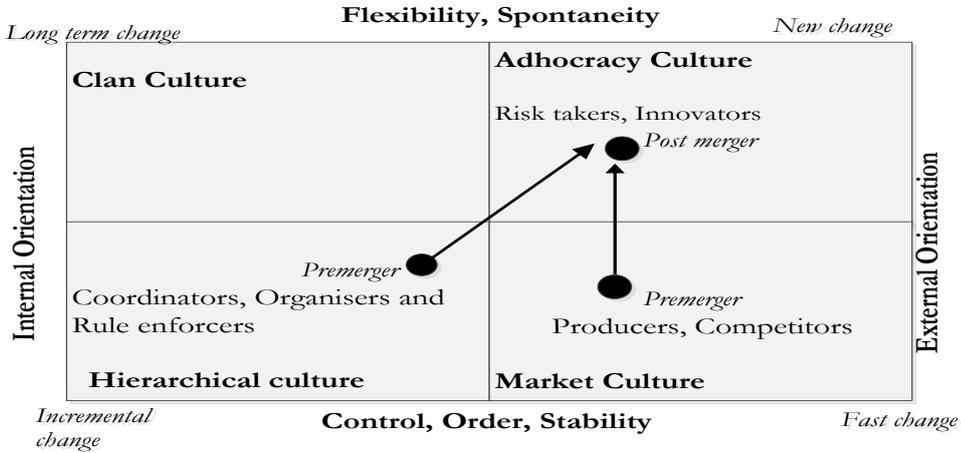
Figure 4.9: Shift of leadership roles

A shift has occurred from powerful, coercive and precise leaders to creative, adaptive and spontaneous leaders. The shift is also a witness to the decrease of a hierarchical control towards independent or freelancing. The shift shows that there is an increase of external creative focus.

4. Shift of behaviour towards the planned procedures of a task

Figure 4.10 displays a shift from devotion to planned procedures for a task to a rather more frivolous, creative and spontaneous responses for a task. The shift drifts from fast change towards new change in the external environment of the organisation.
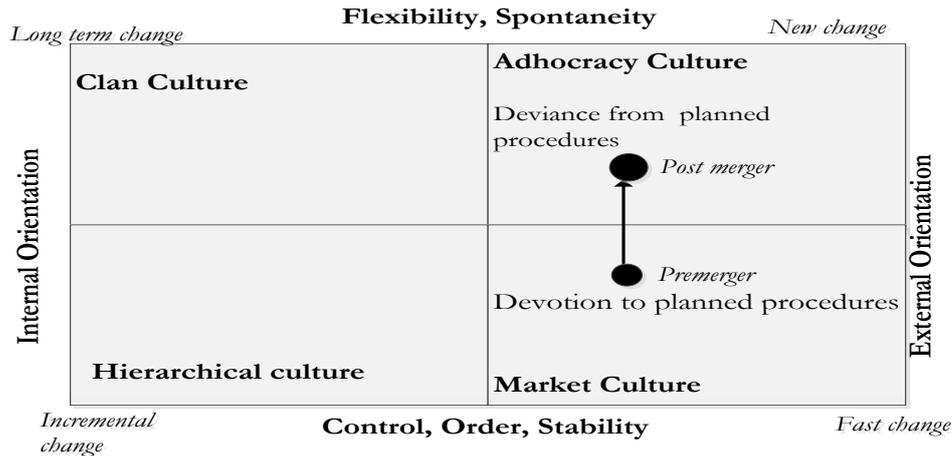
Figure 4.10: Shift of behaviour

4.4.5. Vector Map of Culture Change: Overlay of Changes

The overview of changes occurring from the cadastre and land registration to the post merger is shown in Figure4.11. There seem to be a total departure from the Market culture from either premerger component to the clan culture and the adhocracy. It means there is a decrease in the compete or fast change towards a collaborative zone or long term change and creative zone or new change. Precisely the there is divided attention from the internal organisation whereby the concentration is on maintaining the systematic processes (hierarchical) and collaborative decision making (clan culture). Preferably there is more of flexibility than control even though hierarchical traces are still present. It can be seen from the number of arrows that the external position of the organisation only embraces spontaneity and flexibility. According to this vector map it can also be concluded that amongst the values of the Swedish cadastral system, there tend to be a collapse of the market culture in favour of clan, hierarchical and adhocracy cultures after the merger. It can also be concluded that there tends to be an inclination towards long term change, incremental change and new change instead of leaning to fast change.
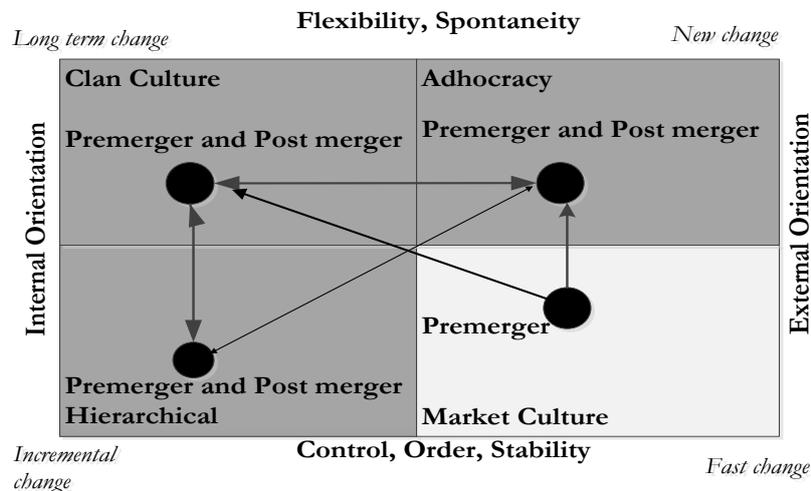
Figure 4.11: Overlay of Corporate Culture Changes

4.5. Conclusion

This chapter addressed two objectives along with 6 corresponding research questions. The first research question designed for objective 3 namely; "What are the findings for the operant value systems in the Swedish post merger?" Four value systems were found; the first value system is a mixture of egocentrism, conservatism and authoritarianism whereby it designates rules for the new employees and leave long

tenured employees to spontaneously attend to activities. The value system conserves the tradition of keeping old information systems in favour of the external clients; the second value system is a mix of collectivism, compassionate and proactiveness; the third value system displays flexibility, compassionate, conservatism and collectivism; the fourth value system declares traditional collectivism, pragmatism and entrepreneurialism over the existing tasks and procedures.

The second research question is; "What are the findings for operant value systems of the Swedish cadastre in the premerger?" There are four value systems; the first value system is egocentric and exhibit conscientiousness and impulsiveness towards solving problems; the second value system expresses antagonism or non-conformism between freedom to criticise existing tasks and their procedures and the need to follow rules, policies and procedures in place; the third value system exhibit conservatism in terms of keeping tradition through depending on old standardised procedures and maintaining stability. Simultaneously the value system expresses irrationalism whereby views reveal that employees do not adhere to procedures and rules in place although the aim is to accomplish quantifiable results and markets. The fourth value system is a mix of conservatism and authoritarianism; the views displays that people consider listening to the instructions issued out by supervisors and adhere closely to given procedure. The views shows that there is also preference for loyalty, tradition and commitment and it is normal that lower ranks perform duties as given by the higher ranks.

The third research question is; "What are the findings for the operant value systems of the Swedish land registration in the premerger?" There are four value systems; the first value system displays results oriented pragmatism whereby the emphasis is to achieve tasks or goals at hand and measurable results through installing order; the second value system displays monitored collectivism whereby the emphasis is to depend and share information amongst each other. The value system allows criticism and exceptional ideas but the directors pass final judgement; the third value system appreciates conservatism and authoritarianism whereby the value systems prefers to keep the rules, policies and procedures that are in place; the fourth value system displays an endeavour for entrepreneurialism whereby it struggles to bring along new technology to transform the way land information should look like. Yet the involvement of formalising new ideas retards the progressiveness of creating new working environments.

The fourth research question; "How can post merger operant value systems be distinguished from the premerger operant value systems?" The first step involved automatic statistical processing of integrated views of the post merger and cadastre's premerger views. Results from the integrated views such as the value system's matrix and arrays, were compared to the post merger value system's matrix and arrays. Each value systems' matrix is a composite of four clusters made up of views. Hence a set of views became the denominator to crosscheck new and maintained classification or companionship of views after introducing the premerger views. Similar classifications or companionship of views upon each cluster from the value systems' matrices of the post merger and the cadastre's premerger identified unchanged cluster of views. Simultaneously new classification of views indicated the presence of change. The second step involved crosschecking the scores from value systems' arrays of the post merger with value systems arrays of integrated views on a Microsoft excel sheet. Therefore, post merger value systems were distinguished by first mixing views of the premerger to identify the changes occurring to the value systems of the post merger.

The fifth research question requires knowing; "How much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?" The relationship of each component to the post merger was provided in form of similarities, differences and shifts. For instance the cadastre's value systems relate to the post merger value systems in that they display conscientiousness and egocentricism towards solving problems attached to given tasks. Thus the value systems of the cadastre inductively and proactively provide a unique solution for each incoming task. However after the merger the new value systems allows new employees to systematically follow the

existing processes to this value system gives its followers the official right to make decisions. It is also observed that before the merger there used to be autonomy but after the merger the value system shifts to cooperation when executing orders. While the greater emphasis on task and goal achievement and meeting stipulated objectives is still maintained after the merger, the value system has turned to offer its followers the opportunity to make instantaneous decisions at the point of the problem.

The land registration has its own shifts, differences and similarities too. For example there is a shift from strict adherence to rules to flexible approaches to rules due to wider options of approaches made available to tackle tasks. However the old employees are only ones who are confident and trusted to break rules while the new employees remain the typical reflection of the previous "obedient" value system. While maintaining the privilege to raise conflicting and exceptional ideas, after the merger the value system removes the burden of making leaders the ultimate examiner, judge over problematic areas observed by its followers on tasks and procedures. Thus the value system appreciates that its followers are competent enough to undertake the rightful decisions. It is also true that before the merger the value system makes an effort to acquire new opportunities under flexible conditions but after the merger the effort is overridden by the shift to cooperation over doing things. Yet again after the merger, views begin to consider a task and goal orientation. Before the merger all decisions around task and goal achievement are approached according to the protocol of law while after merger decisions are made informally by those employees affected by the problem.

The sixth research question is: "Which cases are likely to have had a change and how can I observe the changes?" The cases that have changed involve the way decision making is done, behaviour concerning the execution of tasks, work processes, leadership roles, and planned procedures. Changes were observed by first extracting the similarities and differences from the narrations produced. Thereafter views involved in the shift were tracked back to their culture typologies and mapped on the corresponding quadrant of the competing values framework.

The present research recognises the limitations brought along by fewer premerger participants' attendance. Though fewer Qsorts/views of the premerger mean a smaller breadth of information, the present research does not undermine the impact and strength they have to indicate change. However the present research notices that if more premerger participants were available to evaluate the premerger components, there are chances that there could have been more variation and changes.

Other possible notable limitations may be arising from the application of competing values framework to build the statements for data collection. Even though Competing Values Framework may seem to cover a broad range of organisational values, the present research cannot claim that the ideal values offered by the framework are adequate. There tends to be constricted and aggregate culture typologies. Therefore it can be said that the instrument is still universal and not local to depict a lot of changes. There seem to be an erosion of validity caused by the nature of statements especially for Market culture. Hence it is neither known if the problem is on the construction or meaning of statements that are market oriented. The observations in field show that even though views accept the existence of task and goal achievement they do seem to associate production with manufacturing in heavy industries. They do not see production in terms of their line of business. Helfrich et al.(2007) identifies that the limitation associated with the competing values framework is that of internal validity. Therefore the present research realises the shortcoming of the competing values framework but does not repel the small noted changes observed. Moreover the definition by Schein specifies that culture is gradually learnt by noting the assumptions that arise from the internal integration and external positioning. Hence the present research gains confidence in the use of Competing Values Framework because it gathers both the external and internal environments. Moreover a qualitative and quantitative Q methodology guards the authenticity of the results. Therefore Chapter 5 utilises the Competing values framework to contrast the findings identified.

5.   COALITIONS OF VIEWS IN PRE-MERGER AND POSTMERGERS

5.1.   Introduction

This chapter contrasts the empirical shifts occurring from the premerger operant value systems to the post merger operant values systems of the Swedish cadastral system with the competing values framework. Therefore the objective of the chapter is to evaluate the change of the operant value systems from the premerger state to the post merger state with the competing values framework. Section 5.2 evaluates the cadastre empirical shifts from the premerger to the post merger while section 5.3 evaluates the land registration empirical shifts from the premerger land registration to the post merger.

5.2.   Coalition of the Corporate culture changes between the Premerger and Postmerger

The authenticity of culture changes obtained is constrained by the multifaceted origin of the participants who evaluated the post merger cadastral system. Employees from sections of cadastral index maps, data collaboration, real-property legislation, methods and specification, real-property formation and law and regulations were found at disposal to evaluate the cadastral system. Each of these sections has multifaceted teams organised to execute tasks. On one hand the organisational arrangement of the participants can possibly constrain the quality of the changes obtained. Yet on the other hand, the diversity of sections increase the confidence in the results obtained for the post merger in that the constitution also tends to be varied enough to reflect the various distinctive value systems (Watts et al., 2005). However the constitutions of the cadastre and land registration are streamlined to only three sources of views; a surveyor or lawyer at top management and a policy maker. That means the premerger components have a narrower breadth of views than the post merger (Webler et al., 2009). In addition participants who evaluated for both the premerger and the post merger tend to have served the cadastral system since before the merger with an average duration of 25-35 years. Some participants testified that they had forgotten their experiences before the merger. This explains why three participants were available to evaluate for the premerger state of the cadastre component. Ultimately change obtained turned out to be small.

The nature of change is also constrained by the small education distance between the legal expertise and the surveyors. Universities such as Lund are still producing expertise tailored to serve the Swedish cadastral system. That means there are a lot of similarities between the law profession and survey profession of Sweden. After all new recruits of Lantmäteriet organisation are tailored to learn the job at hand by an in-house training of 18 months. Alternatively, it can be concluded that the findings are valid in that the two teams are possibly similar and there change is possibly smaller.

Yet another constraint can be that, fewer women than men turned out for the interview to share their views. Probably adding more women would have yielded some other additional subjectivity.

Apart from these limitations, the prime strength of the Organisational Culture Assessment Instrument cannot be rejected. An OCAI instrument is a questionnaire constructed from a list of items that run across four culture typologies consistently with the aim to differentiate types of organisational life. The questionnaire is open to additional scales. For instance the present research utilised the OCAI scale which employs four items to differentiate each culture typology; dominant attributes, leadership style, bonding and strategic emphases (Ernst, 2001) (see section 2.3.2). For each culture typology the construction of each items' validity is confirmed from the research work by Desphande and others; Cameroon and Freeman; Jaworski and Kohli (Ernst, 2001). The research by Deshpandé et al (1993) confirmed the fitness

of customer orientation in the external environment with the dominant attributes of entrepreneurship and competitiveness using Japanese companies as an example. Market culture is validated upon an environment of "high turbulence in terms of the market, technology and competitive intensity"(Jaworski et al., 1993, p. 1). Another research of 344 higher education institutions by Cameron et al (199l) shows that the clan culture closely capitalises on morale and human relations. They also discover that adhocracy and market culture are externally oriented. Furthermore, they confirm that strategies of control increase the effectiveness of hierarchical culture. More empirical evidence from their study confirms the possibility of having plural cultures in a single organisation. These results tally with the changes that occur from the premerger of either cadastre or land registration component where the post merger ends up with more than one culture (see section 4.4.5).

Based on the confirmations which are highlighted under this section and in Chapter2, the present research continues to contrast the empirical findings to the competing values framework. The present research realises the narrowness and aggregated culture typologies of the competing values framework. However besides this limitation, the research realises the high face validity of competing values framework.

The competing values framework reflects the face value of culture which clearly mirrors its definition from Schein. The definition "culture" by Schein conceptualises culture as the shared beliefs and values that are gradually learnt by a group of people to copy with the internal environment and the external environment. Likewise the framework of competing values is based on the comparison of the internal and external assessment of the organisation. In the same respect it includes an additional comparison of organisational structures. These comparisons formulate four different organisational lives (culture) that organisations leverage to adapt the external and the internal environments. Therefore the competing values framework immediately delivers the function to relate different types of cultures in terms of the organisation's adaptation.

The competing values framework exhausts its explanatory strength to the extent of SCHEIN' culture definition and HYNES' corporate culture definition. (Hynes, 2009, p. 645) perceives corporate culture "as the shared values and beliefs that help individuals understand organisational functioning and thus provide them norm for behaviour". Values tend to be an important element with influence on learning the organisation's functioning. Therefore the strength of competing values framework dwells in that it appoints "values" as an instrument to measure culture. Simultaneously it provides the basis for analysis too. Since the present research extracted statements using the OCAI scale of the competing values framework, it also finds it viable to contrast the findings with the competing values framework.

The present research gains confidence in both the framework employed for analysing results and the empirical shifts in that both qualitative and quantitative techniques were applied to collect data. Thus interviews followed after the ranking of statements. Thereafter a statistical process free from the researcher's interruption was applied to unveil the underlying distinctive patterns of views for either the premerger or the post merger. This means the results are free from the researcher's bias. Unexpectedly and fortunately, all participants involved completed the ranking exercise despite the fact that the method was new to them.

Therefore discussions in the following sections employ the competing values framework to explain the nature of changes depicted.

5.3.   Coalition of the Corporate culture changes between the Cadastre and Postmerger

The discussions from section 5.3.1 up to section 5.2.3 focus on the observed changes of work processes, behaviour towards task execution and decision making.

5.3.1. Discussion on the change of work processes after the merger

The shifts presented by the work processes denote the presence of the competing values. Figure 4.2 and Figure 4.3 presents that work processes have shifted from an internal environment towards an external environment, and also work processes have shifted their focus from an external environment towards the internal environment respectively. On one hand it means that some tasks are better handled with flexible and adaptable work processes that are externally positioned relative to the customers and clients. These work processes can be tuned according to the employees' judgement and conscientious. Lawrence et al.(2002) assert that the preference for flexibility involves inductive reasoning. Therefore it means that the employees functioning with the externally positioned working processes use inductive reasoning towards problem solving. They tune the work processes to adapt to the needs of the customers to the external environment. Empirical data reveals that the subdivision procedure is flexible to involve the customers concerning the pricing and service delivery, and therefore each meeting yields a different decision. Yet if a step of the procedure is found unnecessary it can be eliminated. This is not true with working processes of the land registration where they have stable complex information models specifically designed for each data set. Therefore on the other hand, some work processes are effective when they are kept stable and internally orientated. These work processes involve a methodical response where each procedure is handled with caution and carefulness to avoid errors. Therefore the internally positioned work processes are kept stable with incremental and consistent change.

Figure 4.1 displays the competing values within the internal environment of the organisation. The shift reflect the polarity of flexible and collaborative attention over work processes versas the stable and controlled attention over work processes. The competing values reveal a slow and flexible review of working processes at the same time reveal an incremental change of working processes. This means that some work processes flow smoothly and effectively when all key players collaborate and bring foward their own ideas. Processes are reviewed to achieve satisfaction for everyone involved. Simultaneously some work processes are effective when review is incremental and systematic to achieve quality, efficient and error free processes.

5.3.2. Discussion on the change of behaviour towards task execution

The competing values framework identifies that value creation connects the specified behaviour to the specified competencies and eventually to the created value (Cameron et al., 2006). Figure 4.4 displays competing values as far as the behaviour involved to execute the tasks is concerned. It is therefore shown that the execution of tasks is either internally oriented or externally oriented. On one hand, after the merger, the spontaneous execution of tasks opposes the controlled execution of tasks. It means that there is preferable effectiveness or value creation when people spontaneously respond to tasks or methodically respond to tasks. Thus relating to externally positioned work processes referred in section 5.3.1, the spontaneity and creativity towards the execution of tasks produces adaptive working processes that emerge spontaneously to solve a given problem. According to the theory, there is congruence and fitness that exists between the spontaneous proactive behaviour and the adaptive working processes. Hence these findings also confirm the conceptualisation of adhocracy culture according to the competing values framework in the context of the Swedish values.

On the other hand, the organisation's internal environment tends to secure both collaborative execution of tasks and the controlled execution of tasks. This means optimal effectiveness in the internal environment of the organisation is achieved when people resort to helping each other and when they systematically and consistently employ processes to guide themselves in the execution of tasks. The manipulation of collaborative behaviour can simultaneously strengthen other cultures required by the organisation. For instance if collaborative behaviour places more emphasis and enforcement on the stable behaviour than the spontaneous behaviour, there is an opportunity to raise more stable internal-oriented

work processes than flexible working processes. However this still stands as a presupposition but the bottom line is that the views shows that the organisation prefers to have controlled, collaborative and spontaneous execution of the tasks at the same time. In that case all these three behaviours work together to yield effectiveness within the Swedish cadastral organisation.

5.3.3. Discussion on the change of decision making

Figure 4.5 presents a shift from a competitive decision making with external positioning relative to the emerging markets to a collaborative decision making with internal focus relative to the people in the organisation. The new preference enforces participatory and involvement in decision making than a competitive and impatient focuses. It also means that there is there is preference for long term decision making than fast short term decision making. Together Figure 4.5 and Figure 4.6 reveal that after the merger, decision making has shifted into two opposing values; collaborative and autonomous decision making. This means that effectiveness is achieved when both internal and external environments fosters flexible and dynamic decision making. In that regard decision making calls for the freedom of each employee or key player affected to participate at the same time calls for dynamic and adaptive response to changing external environments. While the collaborative decision making seeks to achieve the satisfaction of all the participants, it is equally important to achieve customer satisfaction through adaptive decision making.

5.4.   Coalition of the Corporate culture changes between the Land Registration and Postmerger

The merger between the Land registration and the cadastre results in three notable shifts of the Land registration namely; the bond existing amongst the employees, the decision making and the leadership roles too.

5.4.1. Discussion on the shift of the Bond or relationship existing amongst employees

Figure 4.7 reflects the collapse and deterioration of the hierarchical bond defined by rules, policies and procedures towards a friendly bond characterised by loyalty, tradition and commitment. Preference to converge in an internal friendly environment promotes value creation and effectiveness. The internal environment of the organisation recognises the need for flexibility and dynamism in order to be effectiveness instead of the systematic and controlled relationship where operation and functioning is strictly authorised. It means ranks and authority becomes less recognisable too. Instead equality dominates in the post merger. Thus in the post merger people begin to see each other from the same level. They instead resort to helping each other than to be controlled.

5.4.2. Discussion on the change of decision making preferences

Figure 4.8 displays the presence of competing values in the sense that before the merger there is a preference for competitive decision making by directors yet after the merger a collaborative decision making dominates. Figure 4.8 shows the departure from an externally oriented decision making towards an internally oriented decision making. Before the merger there is a preference for decision making that is competitively positioned. The decision making embraces short-term emerging markets in order to satisfy the customers by gaining a more markets. Moreover the decision making is competitively positioned to outcompete the private sector. After the merger the attention shifts in disfavour of competition towards a more flexible and long term decision making. The focus favours tradition to promote value creation and satisfy the customer needs. There is tendency to satisfy the customer needs relative to employees' needs in the organisation. The authenticity of this analysis is further supported by empirical evidence that exhibits the dismissal of the former Lantmäteriet division called METRIA after the merger. While the Lantmäteriet political objectives favours tradition, before the merger METRIA department favoured competing with

private sector. Upon this reasoning the participants evaluating the views sync this evidence to the shift from compete value to collaborate value.

5.4.3. Discussion on the change of leadership roles

Figure 4.9 displays a shift from a hybrid leadership to a narrowly defined leadership. Thus there is a shift from a wide strategic thinking to foster control and compete environments toward the creative strategic thinking. Before the merger, effectiveness and value creation is deeply profounded through a hybrid of leaders with competencies promoting competition and control in the organisation. Effectiveness is achieved through paying attention to both the external environment of the organisation and the internal environment of the organisation. Therefore before the merger the focus is more on achieving the results fast and more dependence of incremental improvement of activities. Eventually the coordinators are installed to drive stability and control to cultivate effectiveness before the merger. Similarly the competitive directors are found effective through promoting a fast and speedy recovery of strategic thinking to match the external positioning. After the merger the innovators, risk takers are installed with emphasis to the spontaneous and creative strategic thinking that drives radical innovation in the external environment of the organisation.

5.4.4. Discussion on the shift of behaviour towards the planned procedures of a task

Figure 4.10 presents a shift from dedicated adherence to planned procedures set for a task, towards deviation from planned procedures set for a particular task. Moreover, the shift occurs from the external focus of the organisation where preference for spontaneous and innovative thinking dominates over the strict adherence to planned procedures detected. Therefore it means innovative thinking is rather effective for tasks in place instead of sticking to detected procedures. Also the organisation is better off with an innovative and creative external positioning than a competitive and controlled positioning.

5.5. Conclusion

The discussion addressed the demands of the chapter which prompts for the evaluation of the extent to which the competing values framework could explain the empirical shifts. The competing values framework could explain the shifts in terms of the organisational focus and the nature of structures. It means the shifts were explained from either their external positioning or their internal positioning and from either their flexibility or stability. From these continuums flexibility versus stability and internal integration versus external position the competing values framework manipulated the characteristics of each quadrant to explain the empirical findings too. It also means the analysis engaged a holistic overview of cultures assuming that an organisation will bear more than one culture. For instance the premerger cadastre transition to the post merger has four notable changes. These include a shift from externally oriented and flexible work processes towards internally oriented and stable work processes. Alternatively another shift displays a departure from internally oriented work processes to externally oriented work processes. Hence work processes tend to alter their position between the hierarchical and the adhocracy cultures. Additionally work processes shifts internally from the hierarchical control to the clan culture. On the other hand work processes tend to shift from the clan culture where equality is responsible for slow review, towards the hierarchical culture where efficiency increases the effectiveness of working processes.

The cadastre component also maintains the spontaneous and flexible behaviour at the same time departs towards the stable and collaborative behaviours as far as the execution of tasks is involved. Therefore the behaviour engaged to execute tasks shift from the adhocracy culture to the collaborative culture and the hierarchical culture. The cadastre component also displays a shift from competitive decision making towards the collaborative decision making. Alternatively there is a shift from collaborative decision making towards the adaptive decision making. This means decision making has shifted from the clan culture towards the adhocracy culture.

The Land registration component indicate shifts of the bond or relationship existing amongst employees, decision making preferences, leadership roles and behaviour towards the planned procedures of a task. There is a decrease of the hierarchical bond in favour of the collaborative friendly bond. Decision making also shifts from the coercive directors towards a collaborative and participatory decision making. Leadership roles are narrowed from a hybrid of coordinator or rule enforcers and producers or competitors to innovators or entrepreneurs. Finally there is a shift from a systematic and methodical response to task towards a spontaneous proactive response to tasks.

The authenticity of these results is guaranteed on the basis of the methods applied to extract, process the data and analyse the empirical findings. Their analysis is also guaranteed to the reputable competing values framework with reiterated high face validity and reliability. There seem to be exactness in what the competing values framework claim to measure in conjunction with the definition of SCHEIN's culture and HYNES' definition of corporate culture. *Values* are the pivotal element to display the types of organisations. Likewise the competing values framework employs *values* as the core instrument to measure culture. Hence the present research gains confidence in both the results and the framework used to analyse the findings. In that case it can be highlighted that the framework played two roles; generation of statement and analysis. The advantage of the framework is that it has a flexible questionnaire structured systematically and consistently across each culture type. Thus the advantage tends to be a disadvantage from another extreme in that the questionnaire (OCAI) tends to come in varied versions. Some questionnaire employs 6 items while some have 5 items measure culture. Thus the present research employed a 4 item questionnaire validated by Desphande and others. Probably there could be some erosion of quality by dropping one scale. It turns out that fewer statements keep the participants active in the process than more statements which can easily frustrate and stress the participant. It is possible that a participant may fail to finish the process.

The capacity of Q methodology during the research was established in combining the qualitative and the quantitative methods in order to collect views. Ultimately the processing of the values did not depend on a single source of data. Thus the quantitative rank ordering was accompanied by interviews to secure the true meaning of the views. Therefore the value systems obtained for each state (either the premerger or the post merger) maintained originality and displayed subjectivity as obtained in the field. Moreover, the automatic statistical processing of the results was free from the researcher's interruption and therefore Q results obtained were free from the researcher's bias. Furthermore, during the research the strength of Q methodology was noticed in the ability to pick out the smallest changes of corporate culture from the transition from before the merger to after the merger. Q methodology was able to distinguish existing patterns of shared values from the raw data whose state remains clumsy and complicated to manually pick out the shared values. In that manner the variation of emphasis for each value system was obtained. It can also be said that the suit of methods accompanying Q methodology was able to derive interpretable results. Yet the prime limitation encountered during the data collection was that participants remarked the ranking process as difficult. Even though participants turned to like it and complete the targets, the method was new to them. Other participants often found it difficult to prioritise statements. Some participants rather thought it was better if there was an asymmetrical or freedom offered by the forced distribution scale. Some participants suspected that the method was beyond the research material and felt they were rather putting their organisation at stake. However even though they started by complaining, eventually they would turn to like the process.

A possible limitation from using the Swedish case is that there seem to be a close professional distance between the law and the survey professions, hence the small culture change. The empirical findings from this case remain exploratory and cannot be generalised to other cases. Chapter 6 further highlight the limitations of results through conclusions on each research question.

6.   CONCLUSIONS AND RECOMMENDATIONS

6.1.   Introduction

The objective of this chapter is to respond systematically to each of the research questions displayed in chapter 1. Thereafter the chapter takes note of the limitations and the extent of validity within the research findings of the Q methodology utilised section 6.3. Recommendations to achieve more change, future research and to the practitioners in the Swedish cadastral system are noted down in section 6.4. Finally the conclusion withdrawn from the thesis is articulated in section 6.5.

6.2.   Research Questions

The present research's main objective was to evaluate corporate culture changes in cadastral mergers. The drive behind this objective was to note the changes through the corporate culture lens after merging the land registration and the cadastre components. The research utilised the Swedish cadastral merger by appointing Lantmäteriet as the organisation to study the changes that have occurred after the merger. Four objectives were designed to address the main objective: (1) To describe the important elements of corporate culture elements; (2) To device the tools and methods to be used to measure the elements of corporate culture in the Swedish cadastral system; (3) To measure the corporate culture elements for land registration, the cadastre and the merger in the Swedish cadastral system; (4) To compare the research findings for land registration corporate culture elements, cadastre corporate culture elements and the merger corporate culture elements. The extent and adequacy of answers to these objectives and their research questions are outlined in the following paragraphs.

6.2.1.   Objective1: To describe the important elements of corporate culture

Three research questions designed to address this objective involved; (1) What are the elements of corporate culture? (2) How can the elements of corporate culture be classified? (3) How can the classified corporate culture element/s be measured? The extent with which each of the research questions was addressed is unveiled below.

What are the elements of corporate culture?
The term "culture" was the foundation to initiate the response to the research question. The definitions from Schein quoted by Herzog(2008) and Hofstede cited by Contiua et al (2012) were used on the basis that they are frequently referred to by other researchers. Schein perceives culture as a "pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems"(Herzog, 2008, p. 1). Simultaneously Hofstede perceives culture as the "mental programming that differentiate one group of people from another" (Contiua et al., 2012, p. 553). These definitions were considered because of; (1) the separate historical evolution of land registration and cadastre components; (2) the different education systems involved to raise the legal expertise responsible for the land registration and the surveyor responsible for the cadastre component. Hence the assumption was that the upbringing of the lawyers influence their value systems differently from the surveyor's values whose upbringing is also different.

According to Schein and Hofstede, the key elements of culture involve the symbols, heroes, rituals, norms and values. Other authors like Deal et al (1982) add two more culture elements such as the business environment and the cultural network. Therefore the elements of culture involve symbols, heroes, rituals, norms, values, the business environment and the cultural network. The models of Hofstede and Schein

together with the definition of corporate culture converge to a *value* as the prime element of corporate culture. Likewise the present research considered a *value* as the central element of corporate culture.

How can the elements of corporate culture be classified?
There are two frameworks to classify the values were identified. These include the colour coding framework and the competing values framework.

The colour coding framework gathers and matches similar culture typologies from 3 researchers who have employed different nomenclatures. There are four culture typologies that are classified. According to Vrakking's nomenclature the four types are: Task, Power, Persons and Role. According to Quinn and McGrath's nomenclature the four types are: Ideological, Rational, Consensual and Hierarchical. Relative to the nomenclature by Maccoby the four types are: Expert, Innovator, Helper and Defender. The colour coding framework by Porter, gathers similar types of culture into one group where they obtain one single name according to Porter. Four groups of this various nomenclature are: Cool green, Hot Red, True blue and Dull gray.

The Cool Green is made up of: Task, Ideological and Expert;
The Hot Red is made up of: Power, Rational and Innovator;
The True blue is made up of: Persons, Consensual and Helper;
The Dull gray is made up of: Role, Hierarchical and Defender.

Thus the for culture types by Porter's colour coding theory involve: The Cool Green, The Hot Red; The True Blue and The Dull Gray. This classification of values tallies with the competing values framework. However the limitation behind the framework is the approach to measure the differences of the values. There tend to be a variation and inconsistency of scales overlapped on one framework to identify the nature of each of the 30 organisational aspects used to characterise each typology. For this reason the present research considers some of the scales from this framework based on their corresponding culture typology.

The competing values framework classifies values by overlapping the two dimensions displaying conflicting descriptions of the organisational structures and focus (Dastmalchian et al., 2000). The vertical dimension differentiates flexible, adaptable, dynamic and spontaneous structures from control, stable and order structures. The horizontal dimension differentiates the organisation's internal focus from the organisation's external focus. The two dimensions form four quadrants classifying values into four types: clan; adhocracy; hierarchical and market or alternatively collaborate, create, control and compete respectively. Each quadrant is defined by a set of an OCAI scale (questionnaire) consisting of sub- items to uniformly display the characteristics of each quadrant or value. The advantage identified by the present research is the consistency and uniform manner supplied to measure the values through the OCAI scale. Moreover the framework itself provides a basis to analyse the empirical findings. Therefore the present research considered the competing values framework together with a four validated OCAI scale from Desphande and others. The OCAI scale include: Dominant attributes, Leadership style, Bonding, and Strategic emphasis (Ernst, 2001). However the scale is flexible for additional scales.

Therefore additional scales were obtained from the colour coding framework with the intent to sharpen the robustness and locality of competing values framework. The nomenclature from the competing values framework was adopted to differentiate the values: Clan, Adhocracy, Hierarchy and Market cultures. These four cultures are identical to Porter's culture typology. Clan is identified as True Blue; Hot Red is identified as Market; Cool green s identified as Adhocracy while Dull grey s identified as the Hierarchy. From the Colour coding framework three scales involved were Standardisation of work processes, Standaridisation of professional training and Autonomy of individuals. Eventually the OCAI scale carried 7 scales in total in order to generate the statements for withdrawing the views or opinions from the Swedish cadastral merger.

How can the classified corporate culture element/s be measured?

According to Lamond(2002) values can be measured using Q methodology and the competing values framework. Lamond (2002, pp. 50-52) asserts that "varied series of instruments based on the Q methodology" can be applied. One way involves requesting respondents to distribute 100 points against each of the six items of the questionnaire including: Dominant characteristics; organisational leader; organisational glue; organisational climate; criteria for success and management style (Lamond, 2002). " For each of the items respondents are provided with four descriptions of organisations corresponding to each of the four competing values" (Lamond, 2002, pp. 50-52). The total score for each item is averaged to produce a profile against each of the values. However, researches from O'Reilly et al (1991) express dissatisfaction and rather choose to employ a 5 point Likert scale with terms of reference varying from "little extent" up to "great extent". Their choice for Likert scale is that it enables the correlation analysis of values. Out of the same six items of the OCAI scale, Howard (1998) generates a "48 item paper-and-pencil version of a Q sort data collection instrument to capture the competing values dimensions" (Lamond, 2002, p. 51). A multi-dimensional scaling data analysis is employed to assess the variation of the findings. A research by (Tufts et al., 2010) to investigate leadership styles uses 36 statements from the competing values framework based on the Qmethodology techniques. Their research applies forced ranking to extract the variation of leadership types within public sector IT professionals. They apply factor analysis techniques to extract the patterns of leadership types and uses narrations to conceptualise each of the leadership.

Therefore the present research utilises Q methodology and a set of 36 statements formulated from the competing values framework to measure the corporate culture element; *values*. The statements are generated using four items from the Competing values framework questionnaire: Dominant attributes, Leadership style, Bonding, and Strategic emphasis and three additional scales from the colour coding framework. Each of the items is described according to four types of values or culture typology from the competing values framework. The views collected are differentiated and classified into distinct patterns by employing factor analysis. Eventually the best mathematical solution produced is synthesised by narration to conceptualise each value system obtained.

6.2.2. Objective2: To device the tools and methods to be used to measure the elements of corporate culture in the Swedish cadastral system

Which of the methods can I use and why to observe and describe corporate culture elements in reality?

Q methodology was applied because of its statistical investigative procedures that help to retrieve shared human subjectivity or perceptions. The first step of Q methodology began by identifying the relevant concourse of corporate culture elements, their classification and how they can be measured. The analysis of corporate culture concourse determined competing values framework as the most feasible framework to measure corporate culture within a short specified period of six months. The Organisation Culture Assessment Instrument of the competing values framework became the prominent tool to strategically design statements. Q methodology allows the appointed participants to express their views by sorting the selected statements on a graduated forced distribution scale. Therefore the source of the statements was the competing values framework and the seven aspects concluded in objective 1. The seven aspects were consistently varied across four culture types provided by the competing values framework. For each culture typology a set of statements was generated based on those seven aspects. In total 76 statements were generated in the beginning and reduced gradually by judging their representativeness of other statements formed around a single aspect. The end result of the statements involved 36 statements. Therefore the statements became part of the tools to be used. The package of 36 statements to evaluate the corporate culture changes in the Swedish cadastral merger was accompanied by a forced distribution

scale graduated from (+5) through (0) to (-5). A protocol to guard the consistent flow of instructions across the participants formed part of the tools too.

Likewise the participants from the Swedish merger were allowed to express their opinions on the graduated scale constituting 36 boxes belonging to a particular graduation. The graduation stretched from "strongly agree" at (+5) through "neutral" at (0) until "strongly disagree" at (-5). Eventually the expression of views from each participant produced a gestalt of views and communicability. 16 sets of views were obtained from 16 participants who expressed their perception for the post merger. 2 additional sets of views expressed the individuals' perceptions about the land registration before the merger. Similarly 2 sets of views were obtained from the individuals' perception concerning the Cadastre component before the merger. Obtained views were automatically the raw data and tool to observe and describe corporate culture elements. However, statistical processing was done to extract distinct regularities and patterns similarities of the views obtained from the Swedish cadastral professionals. Statistical tools from the PQMethod program engaged the Principal Component Analysis to classify the views of the cadastral professionals installed in the program and to arrive into a single best mathematical solution. The solution constitute products such as the correlation matrix, a cluster of views or value systems and the best "set or arrays of views" (value systems array) to represent all the views uploaded for statistical processing. The best "set of views" contains 36 statements evaluated according to the shared perception in form of the score varying from "strongly agree" at (+5) through "neutral" at (0) until "strongly disagree" at (-5). Four groups or clusters of views were obtained. For each array of the four groups identified, the logic of abduction from Watts et al (2012) was employed to consistently and holistically narrate the contents of each value system. In that way the message conveyed by each value system was revealed by the narrations.

Therefore 3 separate similar statistical operations were applied to the post merger views, the integrated post merger and land registration views, and the integrated post merger and cadastre views. This tactical approach allowed the comparison of the post merger views with the premerger views. This reveals the massive strength of the Principal component analysis. However the weakness of Principal component analysis is that it lacks the form to interpret the results it has produced. Therefore the present research turned to seek the meaning of results from the competing values framework.

In total tools and methods to observe and describe corporate culture elements can be separated in three parts. In order to solicit the views of participants tools such as; (1) statements; (2) Graduated forced distribution scale; (3) Protocol or "condition of instruction" to govern consistence. In order to classify the views of cadastral experts a statistical tool called the Principal Component Analysis was used. In order to interpret the statistical results, a logic tool from (Watts et al., 2012) was applied to narrate each value system. In order to note the culture changes and interpret the meaning of the changes the competing values framework was used.

6.2.3.   Objective3: To measure the corporate culture elements for land registration, the cadastre and the merger in the Swedish cadastral system

What are the findings for the operant value systems in the post merger?

Four value systems were found; the first value system is a mixture of egocentrism, conservatism and authoritarianism whereby it designates rules for the new employees and leave long tenured employees to spontaneously attend to activities. The value system is conservative to the tradition of keeping old information systems in favour of the external clients; the second value system is a mix of collectivism, compassionate and proactiveness; the third value system displays flexibility, compassionate, conservatism and collectivism; the fourth value system declares collectivism, pragmatism and entrepreneurialism over the existing tasks and procedures.

What are the findings for operant value systems of the land registration in the premerger?

There are four value systems; the first value system displays results oriented pragmatism whereby the emphasis is to achieve tasks or goals at hand and measurable results through installing order; the second value system displays monitored collectivism whereby the emphasis is to depend and share information amongst each other. The value system allows criticism and exceptional ideas but the directors pass final judgement; the third value system appreciates conservatism and authoritarianism whereby the value systems prefers to keep the rules, policies and procedures that are in place; the fourth value system displays an endeavour for entrepreneurialism whereby it struggles to bring along new technology to transform the way land information should look like. Yet the involvement of formalising new ideas retards the progressiveness of creating new working environments.

What are the findings for the operant value systems of the cadastre in the premerger?

There are four value systems; the first value system is egocentric and exhibit conscientiousness and impulsiveness towards solving problems; the second value system expresses antagonism or non-conformism between freedom to criticise existing tasks and their procedures and the need to follow rules, policies procedures in place; the third value system exhibit conservatism in terms of keeping tradition through depending on old standardised procedures and slow change. Simultaneously the value system expresses irrationalism whereby views reveal that people do not adhere to procedures and rules in place although the aim is to achieve measurable results and markets. The fourth value system is a mix of conservatism and authoritarianism; the views displays that people consider listening to the instructions issued out by supervisors and adhere closely to given procedure. The views shows that there is also preference for loyalty, tradition and commitment and it is normal that lower levels execute orders from higher levels without complaining.

6.2.4. Objective4: To compare the research findings for land registration corporate culture elements, cadastre corporate culture elements and the merger corporate culture elements

How can the post merger operant values be differentiated from and the premerger values?

Views of the post merger are statistically processed by factor analysis techniques to generate a single best solution from which products such as the cluster of values and statements arrays are useful for differentiation. While the cluster of values displays the pattern of shared views and those views which best approximates a cluster, the statements arrays withdraws best fit scores against 36 statements based on the weighted averaging of significant approximating views per each cluster. The cluster of values and the statement arrays are the source of comparison between the post merger and the premerger. However the premerger components suffer from limited number of participants therefore there is a narrow breadth of views.

Each of the premerger components constitutes of 2 sets of views which cannot be statistically processed alone. Thus views from each of the premerger component are added separately to the post merger to note the changes they cause. Each integration, (post merger and cadastre views or post merger and land registration views) is statistically processed by factor analysis techniques to obtain the best mathematical solution comprising of the "cluster of values" and "value systems' arrays". The role of factor analysis is therefore to expose the underlying distinctive patterns of the value system. Comparison of the views from the post merger with the new generated values from the integration of either components is done through tracking the patterns of views which best approximate a "cluster of values". When views approximating each "cluster of values" are maintained after the integration, it is most probable that the cluster has kept its rigidity or changed a little bit. Yet when there is a change of views approximating a cluster of values, there are higher chances that there is a new meaning delivered by the value. The scores of the statements arrays are re-established when a new pattern of views arises after the premerger views are integrated with the post merger. Therefore based on the statements arrays befitting each cluster of values, a holistic narration for both the post merger and the premerger value systems are crystallised to reveal their meaning.

Narrations are based on the quantitative statistical findings of statement arrays together with the qualitative findings from the interviews to enrich the meaning conveyed. The narrations are done for the post merger, the land registration premerger and the cadastre premerger separately. Each premerger component is related to the post merger via the value systems created and the meaning posted by each of the value systems. However, the matrices of cluster of values are put to use for comparison of these narrated value systems. Since views of the premerger components are few, they did not disturb the entirety of the views of the post merger. Thus some views maintained their companionship and pattern even after the integration of views for both premerger and the post merger. This implies no change or little change as far as those particular clusters are concerned. Thus similar grouping of views are matched together and compared to fetch out any difference in their meaning. At the same time some views are disturbed and an excel sheet is used to extract almost similar views. Eventually each cluster of values within either of the premerger component is cross matched with the corresponding cluster in the post merger values to identify similar and almost similar views. Their narrations are compared correspondingly following the suit of matching clusters. The similarities, differences, and shifts conveyed by the comparisons are noted down.

How much do the post merger operant value systems relate to either the land registration or the cadastre components of the premerger?
Similarities, differences and shifts permit to relate the post merger to either the land registration or the cadastre component. The empirical findings depict the plurality of conflicting values. This strange occurrence is inconsistent and familiar with the theory of the competing values framework.

On one hand, both the cadastre and post merger values consider criticising the existing procedures planned for tasks. Even though rules prevail to guide employees in the premerger, limitations such as unclear ranks and authorities over processes forces the coordinators or rule enforcers to loosen up and allow the employees to criticise the tasks. In a similar fashion but in a different way the premerger value stimulates pomposity and pride out of the competent and long trained employee by endorsing that they are competent enough not to listen to orders or procedures accompanying the tasks. After the merger the value system finds another reason to raise criticisms. For instance, the new value condemns incoming new technology such as Web Map Service, new formats like GML (Geographic Mark-up Language), new laws like INSPIRE (Infrastructure for Spatial Information in the European Community) despite the diversity of tasks and voluminous workload involved. The perspective said by the value system is that long tenured employees applies accumulated knowledge and experience to solve problems with a customer at mind instead of leveraging technologies that eventually strain the unconversant client who is yet to learn new technology.

On the other hand, both premerger values of the cadastre component and post merger values are related through order whereby they foster clear authority over processes and prefer to structure employees by rules. In that manner the value system consider employees to follow planned procedures set for a particular task or goal. Maintaining order through organising the employees by their specialisation into departments prevail in both the post merger and the premerger value systems.

Additional similarities between the old cadastre and the new post merger value systems involve the renewal of people through an in-house training.

Finally another set of value system that links the post merger with the premerger cadastre involves task and goal achievement. In that manner, both old and new value systems prefer a continuous adaptation to ever changing markets.

The transition from the premerger values to the post merger results in a multifaceted changes of work processes. The nature of changes of values yields opposing values that are consistent with the competing

values framework. For instance while the hierarchical control of some processes deteriorates in favour of slow collaborative review after the merger, some work processes shifts from slow reviewing to a consistent and incremental change after the merger. Thus after the merger, from the internal environment of the organisation there is preference to keep other processes in the hands of the team's attention while some other processes are better off when they are strictly monitored and controlled. In addition some work processes hibernate a double faced change whereby the same work processes are kept stable and incrementally changed but on other end they are rather flexible and adjustable relative to customers' needs. The change of work processes is accompanied by the change of behaviour towards the execution of these work processes. It turns out that the behaviour towards the execution of tasks takes a multifaceted change from the spontaneous execution of tasks in the premerger towards a controlled and collaborative execution of tasks in the post merger. However, the behaviour of execution of tasks also secures a position of spontaneity. Likewise, decision making transit from the coercive hands of the directors before the merger and delegated to employees' collaborative authority after the merger. Yet some decisions are withdrawn from collaborative attention by employees to individual authority where autonomy prevails. It can then be concluded that culture change from the premerger to post merger is gradually and carefully undertaken instead of revolved. Therefore a multifaceted change tends to occur while maintain some parts of the premerger values.

Plural conflicting value types characterise both the premerger of the Land registration and the post merger. On one hand both land registration and post merger values consider paying close attention to planned procedures scheduled for tasks. The land registration value system before the merger, is entitled to adhere to planned procedures because employees cannot copy or memorise the complicated inbuilt digital technical laws for each information model designed for each data set. After the merger the value system entitles employees to follow planned procedures because they are incompetent and are at the learning stage. In both cases there is no opposition raised against the procedures at hand. On the other hand both old and new values consider criticism and collective participation. Conflict is perceived as a sign of participation revitalising the group to fully engage with a diverse range of tasks which are accompanied by a varied range of approaches. Thus employees engage with each other to share ideas and knowledge.

On one hand the old and new values review processes after a longer period of time in order to accommodate stability and standards within some information models that are designed for building data sets, land parcels data sets, etc. On the contrary the old and new value systems consider a fast review of processes to quickly address the changing tasks as the changing markets take charge. Both the land registration and post merger values thrives to secure innovation lead at the same time achieve measurable markets. In return the value systems are faced with a diversity of tasks accompanied by a wide choice of options. Nevertheless in case of conflict, the value system relies on law processes and hence it is only formal means are used to resolve conflicts. However there are shifts that distinguish the land registration values from the post merger values.

The post merger values depart from land registration premerger values through aspects of decision making, leadership roles and bonding systems. Thus before the merger the value system confers that employees are held together by law but after the merger there is a decrease of the hierarchical control in favour of friendliness, tradition and commitment. The value system shifts from the coercive control in courts where the judge is the decision maker and seen as the head to a flexible environment where a chief line manager functions close to his group to motivate people towards participation and make decisions as a group. Thus the director's responsibility to make decisions is decreased in favour of collaborative decision making. Moreover, after merger the leadership is narrowed from a hybrid coordinators and competitors to innovators. In actual fact leaders with flexible and creative mindsets are preferred after the merger than leaders with coercive and methodical mindsets. Alternatively, the strategic thinking is narrowed after the merger. Yet again, there tends to be a deterioration of the devotion by employees as far

as planned procedures are concerned in favour of deviance from the planned procedures. The shift of the from the old value to the new value expresses the need for flexible inductive thinking than a controlled short-timed thinking that is accompanied by instructions.

Which cases are likely to have had a change and how can I observe the changes?
The cases that have changed involve the way decision making is done, behaviour concerning the execution of tasks, work processes, leadership roles, and planned procedures. Changes were observed by first extracting the similarities and differences from the narrations produced. Thereafter each view involved in the shift was tracked back to its culture typology and mapped on the corresponding quadrant of the competing values framework. It means the competing values framework was utilised to map the original state before the merger and map the destined state after the merger.

6.2.5. Reflection on Anticipated results

The vector map in section 4.4.5 indicates that the direction of change from either of the components is in favour of the flexible, long term change and new change than stable, incremental and fast change. Thus change prefers to occur in preference to flexible cultures of Clan and Adhocracy than cultures calling for order and stability like the Hierarchical and Market cultures although the traces of these stable cultures are still present. The land registration decreases the controlled coercive decision making in favour of the clannish flexible decision making by all employees. However already some culture change of the cadastre's component oscillates or alternate between flexible cultures of adhocracy and clan cultures. Therefore both components pursues change in the direction of flexible cultures.

6.3. Limitations and Strengths of the Study

The limitations inherent to the present research propagate from the fewer premerger views obtained. Thus fewer views result in a smaller breath of variability and information. Alternatively fewer views cut off the amount of change. Yet their influence and impact to depict differences is realised vividly despite the fact that the change they are able to show is small. It means that the methods employed to withdraw change are undeniably robust. The use of Q methodology determines the distinctive shared patterns on the views thus exposing the difference by statement arrays and their scores instead of person data like age, experience, height etc. The methodology remains focused on the views instead of the person. Therefore Q method empirical results only can be generalised to the population of views and not to the people population.

At this juncture it can be recalled that during the construction of statements, a framework whose coverage is broad enough to reflect the communicability relative to past theories was employed. The limitation of the competing values framework is that it has narrow and aggregated culture types. That means it does not refine itself for local use as it is. However the accompanying OCAI scale is operational enough to be used to extract the value systems. Meanwhile the OCAI scale is open for additional scales that draw closer to the study at hand. In that manner the present research employed 7 aspects to pick the details of the organisational lives. Furthermore, the strength of competing values framework lies with the ability to gather conflicting theories of the past generation on a single point of analysis. Simultaneously the competing values framework is able to compare internal organisational adaptation relative to the organisation's external positioning. This gives enough coverage of the organisational life. However the present research cannot claim that the statements obtained based on the competing values framework had broad coverage for all culture communicability. But, the present research is convinced that the statements covered the broad range of four forms of organisations reiterated; hierarchical; clan; adhocracy and market.

Simultaneously additional limitations from Q methodology lie within the ranking exercise of statements. While the force distribution scale strain the participant to reflect emphasised views, participants began by

complaining because they said the task was difficult. However, they ended up liking the exercise and all of them completed their portion of exercise. The strength of the data collection procedure is based on the notion that both Quantitative and Qualitative methods were applied. The ranking process itself is quantitative while the accompanying interviews to explain the flow communicated by their ranking are qualitative. Interviews also targeted extreme highly emphasised views and those neutralised views. It means interviews were able to unveil different interpretations of scale like "Neutral". It happens that the scale played different roles to the participants. The constitution of the participants also covered a variety of sections thus creating variability of thinking. However men tended to be more than women. This can be a limitation in that probably women perceive the organisational life in different manner. Yet the views are pivotal to this research and they are variables themselves hence the person is not the concentration of this research.

The statistical processing arrested the quantitative views for analysis thus rescuing the introduction of bias in the views. The strength of the statistical process offered by factor analysis seems to be the core input to this research. The processing was the root where values were identified according to the shared perception and their distinctive variation or nature. This proves that Q methodology directly measures corporate culture and meets the demands of corporate culture instantly. Therefore Q methodological statistical processing together with the ranking can be qualified as a valid methodology to measure corporate culture. The distinctive thinking by Hofstede is revealed when the participant is given freedom to rank statements according to his/her opinion or thinking. The shared perception revealed by the Factor analysis is consistent with the central pivotal concept of a *value*. Following the Q empirical findings a consistent logic of abduction is applied as adapted by Watts. This closes the weakness behind limited method to interpret Q statistical results.

The use of a single case study remains exploratory and confined for the present research. That means the empirical findings cannot be generalised to the whole world, or to Europe itself and definitely not to Africa either. The fact that cadastral systems are varied in terms of their operations means that Sweden forms its own unique cadastral system too. For instance the present research discovered that there is a small professional distance established between the law professionals and the survey professionals. Lantmäteriet uses an in-house training as a gate of entry to new employees. Lawyers are not an exception to this bracket as revealed by the interviews. This implies that changes could be more or less. Yet if the methodology is applied in the context of other merger cases where the professional distance between surveyors and lawyers is large, there can be a big differences obtained but it cannot be guaranteed that change obtained in those cases will be small or big. A large distance of professions may actually yield resistance and end up indicating no change. Therefore the culture changes obtained from the Swedish cadastre remains important in the manner that even with fewer views the presence of change were noted. Yet the present research is confident to stress that the Swedish case may actually be having more changes based on the noted observations. More views for the premerger would turn out to enlighten more changes.

6.4.   Recommendations

Based on the corporate culture changes obtained, the present research considers the following recommendations:

6.4.1.   Swedish Managers/ Practitioners

The contrast of the empirical findings to the competing values framework helped to identify the direction of change; Culture change tends to be more inclined to flexibility than stability. Precisely change takes place to three cultures: Adhocracy, Clan and Hierarchical. Therefore the present research recommends:

- Managers to consider that an overemphasis of one culture may cripple the effectiveness and progress in the organisation. For example an overemphasis of people involvement and too much participation may actually inhibit decision making and steer ignorance and frustration. Therefore managers must appreciate that collaborative decision making is as good as its opposing/conflicting culture competitive fast decision making. Thus considering both opposing culture from the positive perspective, creates an opportunity to develop a new value. For instance the opposing culture of a collaborative decision making versus competitive fast decision making can be manipulated to yield a composite culture value "collaborative fast decision making" (Figure 4.6). That means the team ends up dedicating themselves to fast decision making and accomplishment. In other words the negative of each culture typology is pruned off to embrace the strengths of each of the two opposing culture typologies. Therefore the present research highlights that considering all four culture types is important. The opposing culture types can be manipulated or triangulated or integrated from their positive perspective to create a new value.
- In order to steer change the Managers need to dress up the cultures they expect to see eventually in their subordinates.
- Leaders need to improve the Hierarchical culture by installing and maintaining the processes constantly than deserting them and turning to them when they need them.

6.4.2. Future Research

- While the context of the corporate culture changes fit a single case, the Swedish cadastral system, the empirical findings cannot be generalised to a wider population of cadastral systems. The application of the research findings is constrained by the professional distance existing between the lawyers and the surveyors. The views revealed a close relationship between the legal professionals and the survey professionals of the Swedish cadastral systems. The views also revealed the close relationship between some universities like Lund with the Lantmäteriet. These kinds of relationships can actually be different by each country. Hence in the context of a large professional difference, the aspects changing and their rate of change may be different from the Swedish cadastral system. Therefore the present research recommends that gaining more insight and convincing evidence of the nature of culture changes in cadastral mergers has to be done with more case studies. The same objectives and research questions, same methodology and statements can be used to measure culture change in a different cadastral merger despite the country but as long as there are separate lawyers and surveyors with a large professional distance. Therefore the present research further recommends that a reconnaissance to identify the nature of the professional distance is important before embarking on the study of culture change.
- It is recommendable to find out what is the preferred future corporate culture for the work processes since the present corporate culture of the work processes is already known. In that case the future research will require collecting views that reflects what the Swedish cadastral system wants to be.
- The present research also suggests in future it is advisable to enrich the empirical evidence of culture change with the archival data.
- In the context of the Swedish merger, the present research recommends that more views for the premerger has to be considered and processed by similar statistical approaches and logic to note whether there nature of culture changes are maintained or improved.

Arising questions that may be interesting to research in future may include:
- How much of the culture changes are not shown by the present research in the context of the Swedish cadastral systems?
- What is likely to be the nature of change after two or three years down the line?
- What is likely to be the nature of the professional training specific to surveying and law in Sweden five years down the line?

- How do the external stakeholders influence the culture changes?
- How does corporate culture change of work process influence the e-governance?
- What is the difference between the planned corporate culture and the existing individual values?
- What is the difference between the planned corporate culture and the expected corporate culture?

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APPENDICES

Appendix 1Colour Coding

Colour coding typology / Researcher's term		COOL GREEN	HOT RED	TRUE BLUE	DULL GRAY
Vrakking's term		Task	Power	Persons	Role
Quinn & McGraths 'term		Ideological	Rational	Consensual	Hierarchical
Maccoby's term		Expert	Innovator	Helper	Defender
	ASPECTS OF ORGANISATION				
	Roles of the Individual executives	Low	High	Low	Low
	Autonomy of Individuals	High	Low	Low	Low
	Roles of formal rules	Low	Low	Low	High
	Role of Informal procedures	Low	Low	High	Low
	Manager seen as a cheerleader	Usually	Usually	Rarely	Never
	Manager seen as a peer	Usually	Rarely	Usually	Sometimes
	Manager seen as rule maker	Rarely	Usually	Rarely	Sometimes
	Manager seen as a rule follower	Sometimes	Rarely	Sometimes	Usually
	Manager seen as a smoother of relationships	Sometimes	Rarely	Usually	Rarely
	Manager seen as a facilitator and empowerer	Usually	Sometimes	Rarely	Rarely
	Age of organisation	Varies	Young	Varies	Old
	Size of organisation	Varies	Small	Small	Large

	Organisation chart	Flat	Flat	Confused	Tall
	Roles of budgets and funding	High	Low	Varies	High
	Market served	Dynamic	Dynamic	Stable	Stable
	Average job tenure	Varies	Short	Long	Long
	Evaluation based on achievement	Yes	Yes	No	No
	Evaluation based on compliance	No	Yes	No	Yes
	Promotion based on seniority	No	No	Yes	Yes
	Promotion based on popularity	No	No	No	Yes
	Stress due to fast pace	No	No	Yes	No
	Stress due to fast pace	No	Yes	No	No
	Stress due to unsupportive environment	No	No	No	Yes
	Boredom	No	No	Yes	Yes
	Control Factor				
	Direct supervision	Rarely	Usually	Rarely	Rarely
	Mutual adjustment	Usually	Sometimes	Usually	Rarely
	Standardisation of work processes	Rarely	Sometimes	Rarely	Usually
	Standardisation of outputs	Sometimes	Usually	Rarely	Rarely
	Standardisation of training	Usually	Rarely	Sometimes	Sometimes

Appendix 2Protocol for Qsorting

Protocol for Q sorting

University of Twente

This research is in partial fulfilment of the requirements for the award of a Master of Science degree in Geo-information Science and Earth Observation for Land Administration. The aim of the study is to evaluate corporate culture changes in cadastral mergers by soliciting the participant's views through rank-ordering the Q statements according to his/her views on a forced scale chart. The scale is meant to relate Q statements according to the continuum scale within the boxes spread on a normal distribution curve on the scale chart. Data to be provided will be used solely for this study.

Please respond to the protocol provided below. The protocol is designed to engage consistence in Q sorting. The process lasts for an hour and will involve both the participant and the interviewer.

1. Data about the participant

Profession			
Gender *(Please Tick)*	Female		Male
Organisational level			
Duration in the organisation			
Type of the education system attended *(Please Tick where applicable or Fill in on the space provided)*	Law school		
	Surveying		
	Geodesy		
	Computer Technology		
Renewal/Training programmes attended			

2. You are entitled to arrange 36 Q statements on a plain surface by portraying the scaled chart provided.

3. You will model your point of view by rank-ordering Q-sample statements along a continuum scale of -5 to +5 of the chart.

4. You are required to force each of the 36 statements on each of the boxes in the chart.

5. You are then required to enter the numbers appearing on the Q statements on the provided scaled chart according to your views.

6. After completing the arrangement process, verification is done on whether you are satisfied.

7. Questions are then posed concerning your reaction. Questions will be asked on the scale (+5: extremely agree); (-5: extremely disagree); and (0: neutral)

8. Photographs will be taken for both the filled in scale chart and the Q statements arranged on enlarged scaled chart.

Appendix 3 Original sources of statements

Culture typology	Statements (Helfrich et al., 2007, p. 7)	Additional reference	Dimension (competing values framework (Ernst, 2001, p. 533)	Statement generated
Adhocracy/ Entrepreneurial	My facility is a very dynamic and entrepreneurial place. People are willing to stick their necks out		Dominant attributes: *Entrepreneurship, creativity, adaptability*	Our organisation is a very dynamic and entrepreneurial place. We are willing to stick our necks out and take risks (Quinn et al., 1981)
	Managers in my facility are risk takers. They encourage employees to take risks and be innovative		Leadership style: *Entrepreneur, innovator, risk taker*	Our leaders are innovators and risk takers. They encourage us to take risks and be innovative.
	My facility emphasises growth and acquiring new resources. Readiness to meet		Strategic emphasis: *Towards*	Our organisation's long-term emphasis is on growth and

	new challenges is important		*innovation, growth new resources*	acquiring new resources(Quinn et al., 1981)
	The glue that holds my facility together is commitment to innovation and development.	The glue that holds the organisation together is commitment to experimentatio n and innovation(Das tmalchian et al., 2000; Swallow, 1996-1999, p. 10)	Bonding system: *Entrepreneurship, flexibility ,risk*	We are held together by commitment to innovation, experimentation and development. (Swallow, 1996-1999)
Hierarchic al	My facility is very formalised and structured place. Bureaucratic procedures generally govern what people do			We are organised into departments according to our specialisation(Quinn et al., 1981)
	Managers in my facility are rule enforcers. They expect employees to follow established rules, policies and procedures		Leadership style: *Coordinator, administrator*	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures (Quinn et al., 1981)
	The glue that holds my facility together is formal rules and policies. People feel that following the rules are important	We stick to procedures and rules which are neither based on individual authority nor on group participation (Brink, 1991)		We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation (Brink, 1991; Quinn et al., 1981)
	My facility emphasises permanence and stability. Keeping things the same is important		Strategic emphasis: *Towards stability predictability, smooth operations*	Our organisation emphasises permanence and stability. Keeping things the same is important (Quinn et al., 1981).
Team	Managers in my facility are warm and caring. They seek to develop employees' full potential and act as their mentors or guides		Leadership style: *parent figure facilitator , mentor*	We have warm and caring managers. They make an effort to train us, teach us and guide us (Quinn et al., 1981)

	The glue that holds my facility together is loyalty and tradition Commitment to this facility runs high		Bonding systems: *Loyalty, Tradition, Cohesion*	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation (Quinn et al., 1981)
Rational	Managers in my facility are coordinators and coaches. They help employees to meet the facility's goals and objectives	The leaders are hard drivers, producers, and competitors. They are tough and demanding (Swallow, 1996-1999)		Our leaders are tough and demanding. They make sure we meet the stipulated goals and objectives (Quinn et al., 1981; Swallow, 1996-1999)
	The glue that holds my facility together is the emphasis on tasks and goal accomplishment. A production orientation is commonly shared		Bonding systems: *Goal accomplishment, production orientation*	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared (Quinn et al., 1981)

Appendix 4 Main Q statements

Statements from this table sourced from:

THEMES ASPECTS	CLAN		MARKET		HIERARCHY		ADHOCRACY
	sense of family Cohesiveness participation,		*Competitiveness*		*Order, rules, and regulations, uniformity*		*Entrepreneurship, creativity, adaptability*
1. Staff climate/Dominant attributes	1. We depend on each other to complete a task (Moe et al., 2010)		26. In this organisation anyone who cannot follow or lead must get out of way (Brink, 1991)		49 Our organisation rests on improving standardised procedures which were established long ago. We therefore have low risk (Helfrich et al., 2007; Swallow, 1996-1999)		64 Our organisation is a very dynamic and entrepreneurial place. We are willing to stick our necks out and take risks(Quinn et al, 1981)
	2. In case of a conflict we resolve it ourselves without seeking formal authorities(Moe et al., 2010)		27. In this organisation we are good at listening and obeying our directors. We do not accommodate emotional and opposing people (Brink, 1991)		50 We are governed or controlled by rules, policies, guidelines, and appropriate rewards and punishments(Brink, 1991)		65 We are highly competent and like to do our own things in our own way (Brink, 1991)
	3. We share amongst ourselves our personal values		28 We do not have time to share personal values. We separate private life from Organisation life		51 We try to maintain our personal security and freedom from		66 Some of us share personal values amongst

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each other but some do not. It merely depends on us what we want	anxiety by manipulating others and the organization to secure the "right" mix of superordinancy /subordinancy	because we trust each other.(Moe et al., 2010)
67 We are not structured and ordered by rules	52 We are organised into departments according to our specialisation(Quinn et al., 1981)	4. We feel free to propose alternative ideas for facing problems and opportunities and to introduce conflicting opinions without fear of retaliation or punishment (Rego et al., 2008)
	29Even if we propose ideas we are bored	
68 We see the future before others and establish new outcomes for the first time. We are visionaries and opportunistic.	53 We are frustrated, discouraged and ill-treated(Brink, 1991)	5. We see ourselves as equal and dislike competing people who want to be seen and identified with success more than any of us. we do not have the passion to rise to
	30Every employee around our organisation is strong and ambitious, and is capable to rise to a position of leadership and authority (Brink, 1991)	

							69 We are held together by commitment to innovation, experimentation and development. (Swallow,
							Entrepreneurship, flexibility ,risk
						54 We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on	
						Rules, policies and procedures	
		31We act on stipulated ideas delegated to us by our managers	32We are very competitive and goal-orientated	33Each and every one of us is kept busy and focused on fulfilling set goals	34We are held together by the emphasis on tasks and goal achievement. A production orientation is shared(Quinn et al., 1981)		
					Goal accomplishment, production orientation		
	the position of leadership and authority(Brink, 1991)	6.We share ideas and combine them to come up with an idea or ideas as agreed by everyone (Moe et al., 2010)	7we do not like competitive and selfish people who claim to know more than anyone	8we explain to each other what is required of us to produce a task (Moe et al., 2010)	9we are held together by an emphasis on loyalty, cohesion and tradition. commitment is very high in our organisation		
					Loyalty, Tradition, Cohesion		
2.	**Bonding systems**						

3.	Leadership	*parent figure, facilitator, mentor*	10. we are concerned about our satisfaction rather than winning (Herzog, 2008)	*Decisive, achievement oriented*	(Quinn et al., 1981)	*Coordinator, administrator*	individual authority nor on group participation (Brink, 1991; Quinn et al., 1981)	*Entrepreneur, innovator, risk taker*	1996-1999)
			11. our leaders are mentors, facilitators and reflect parental figures (Ernst, 2001)		35 We are held together by an emphasis on winning and gaining the market share (Swallow, 1996-1999).		55 Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures (Quinn et al., 1981)		70 Our leaders are innovators and risk takers. They encourage us to take risks and be innovative.(Helfrich et al., 2007)
			12. we have warm and caring managers. they make an effort to train us, teach us and guide us (Quinn et al., 1981)		36. Our leaders are hard drivers, producers, and competitors (Swallow, 1996-1999).		56 Our leaders pride themselves on being good coordinators and organisers who are efficiency-minded		71 Our leaders depend on us.
					37 Our leaders are tough and demanding. They make sure we meet the stipulated goals and objectives(Quinn et al., 1981)				

38 Our leaders tell us what our goals and tasks are , provide structure and prescribed procedures which we are enforced to undertake to meet the goals .(Brink, 1991)	39 We have directors or bosses	40 In our organisation we abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself (Flamholtz, 2001)	
13. We and our leaders agree on goals and work flexibly. we have no formula to achieve these goals	14.in our organisation there is no one person who is "'bossy'"	15. We have open and frank communication with our leaders. we are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal(Rego et al., 2008)	16.our leaders makes an effort to develop

		Towards developing a human resources, commitment and morale	Towards competitive advantage and market superiority	Towards stability predictability, smooth operations	Towards innovation, growth new resources
4.	Strategic emphases	employees' full potential and act as their mentors (Quinn et al., 1981)			
		17.our organisation stresses the long-term benefits of human resources development	41 Our organisation's long-term focus is on competitive actions and achievement of measurable goals and markets	57 Our organisation emphasises permanence and stability. Keeping things the same is important (Quinn et al., 1981).	72 Our organisation's long-term emphasis is on growth and acquiring new resources(Quinn et al, 1981)
		18.our organisation promotes morale and friendliness amongst ourselves	42 Our organisation perceive that morale and friendliness is not productive	58 Our organisation promote rules and procedures on all operations	73 Our organisation promote readiness to meet new challenges
		19.our organisation emphasise on people development by investing in knowledge development and community building	43Our organisation places its emphases on achieving the results. Its focus is on productivity(Dastmalchian et al., 2000)	59 Our organisation places its focus on meeting standards	
		20.our organisation	44 Our organisation emphases are on		74 Our organisation

No.	Dimension	Descriptor	Statement A	Scale A	Statement B	Scale B	Statement C	Scale C	Statement D
			reviews processes and goals, after a long period. the change is very slow		continual adaptation and innovation-lead to acquiring and keeping necessary external resources.				emphasises being on the leading edge. We do things first.
5.	Autonomy of individuals	*Group decision making*	21. Decision making is not made by individuals but by all of us. individuals have no right to decide for everybody		45 Decision making is not made by anyone. Decisions are made by our directors. We have low independency (Brink, 1991)		60 We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide		75 We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things
6.	Promotion	*popularity*	22.in the case of promotion a popular person is accepted by the group, but not an outside one who does not appreciate our way of doing things around here (Brink, 1991)		46 Promotion is neither based on seniority, neither on standard assessment not even on popularity. If you are fed up you just leave (Brink, 1991)		61 Promotion is based on seniority, compliance to standards and procedures, politeness with the people in higher offices.		76We do not have any standardised form of promotion
7.	Standardisation of work	*rarely*	23.we rarely have any standardised	*Sometimes*	47 Sometimes we do have standardised work	*Usually*	62 We have clear lines of authority	*rarely*	77 We have flexible

processes	work processes			processes		over processes	
processes that can be adjusted to suit the changing human needs		*low*	*rarely*		*sometimes*		*usually*
8. Standardisati on of training		24.our professional training standardisation is very low	48 Our professional training is rarely standardised		63 Sometimes our professional training is standardised but at times is not		78 We have undertaken long and difficult standardised professional training

Appendix 5 **2ⁿᵈ Q Sample**

Staff climate/Dominant Attributes	CLAN	MARKET	HIERARCHY	ADHOCRACY
	1. We depend on each other to complete a task	2. In this organisation anyone who cannot follow or lead must get out of way	3. We depend on improving standardised procedures which were established long ago. We therefore have low risk	4. We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks
	5. In case of a conflict we resolve it ourselves without seeking formal authorities	6. In this organisation we are good at listening and obeying our bosses. We do not accommodate emotional and opposing people	7. We are governed or controlled by rules, policies, guidelines, and appropriate rewards and punishments	8. We are highly competent and like to do our own things in our own way .
	9. We feel free to propose alternative ideas for facing problems and opportunities and to introduce conflicting	10. Even if we propose ideas we are bored	11. We are organised into departments according to our specialisation	12. We are not structured and ordered by rules

	opinions without fear of retaliation or punishment			
Bonding systems	13. We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	14. We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	15. We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	16. We are held together by commitment to innovation, experimentation and development
Leadership	17. Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	18. Our leaders are hard drivers, producers, and competitors. They expect us to be active and alert to the fast change on the market	19. Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	20. Our leaders are innovators and risk takers. They expect us to take risks and be innovative
	21. We have warm and caring managers. They make an effort to train us, teach us and guide us	22. Our leaders are tough and demanding. They make sure we meet the stipulated goals and objectives	23. Our leaders pride themselves on being good coordinators and organisers who are efficiency-minded	24. Our leaders depend on us.
	25. We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	26. In our organisation we abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself		
Strategic emphases	27. Our emphasis on people development by investing in knowledge development	28. Our organisation places its emphases on achieving the measurable results and markets.	29. Our emphasis is on meeting standards and stability. Keeping things the same is important.	30. Our emphasis is on creating new things, growth and acquiring new resources

	and community building	Its focus is on productivity	
	31. We review processes and goals, after a long period. The change is very slow	32. Our emphases are on pursuing continual adaptation and innovation-lead to acquire and keeping necessary external resources.	33. We incrementally change and improve the exiting processes. We mind about consistency	34. Our emphases is on transformation of resources
Autonomy of individuals	35. Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	36. Decision making is not made by anyone. Decisions are made by our directors. We have low independency	37. We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	38. We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things
	39. In the case of promotion a popular person is accepted by the group, but not an ambitious, abrasive achiever, especially an outside one who does not appreciate our way of doing things around here	40. Promotion is neither based on seniority, neither on standard assessment not even on popularity. If you are fed up you just leave	41. Promotion is based on seniority, compliance to standards and procedures, politeness with the people in higher offices.	42. We do not have any standardised form of promotion
Standardisation of work processes	43. We rarely have any standardised work processes	44. Sometimes we do have standardised work processes	45. We have clear lines of authority over processes	46. We have flexible processes that can be adjusted to suit the changing human needs
Standardisation of training	47. Our professional training standardisation is very low	48. Our professional training is rarely standardised	49. Sometimes our professional training is standardised but at times is not	50. We have undertaken long and difficult standardised professional training

Appendix 6 Final Q sample

	CLAN	MARKET	HIERARCHY	ADHOCRACY
STAFF CLIMATE/DOMINANT ATTRIBUTES	1. We depend on each other to complete a task. We share information and knowledge amongst us	2. In this organisation anyone who cannot follow or lead must get out of way	3. We depend on improving standardised procedures which were established long ago. We therefore have low risk	4. We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks
	5. We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	6. We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	7. We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	8. We are not structured and ordered by rules
BONDING SYSTEMS	9. We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	10. We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	11. We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	12. We are held together by commitment to innovation, experimentation and development
LEADERSHIP	13. Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	14. Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	15. Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	16. Our leaders are innovators and risk takers. They expect us to take risks and be innovative
STRATEGIC	17. Our emphasis is based	18. Our organisation places its	19. Our emphasis is on meeting	20. Our emphasis is on

EMPHASES	on people development by investing in knowledge development and community building 21. We review processes and goals, after a long period. The change is very slow	emphases on achieving the measurable results and markets. Its focus is on productivity 22. Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	standards and stability. Keeping things the same is important. 23. We incrementally change and improve the exiting processes. We mind about consistency	creating new things, growth and acquiring new resources 24. Our emphases is on the transformation of resources
AUTONOMY OF INDIVIDUALS	25. Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	26. Decision making is not made by anyone. Decisions are made by our directors. We have low independency	27. We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	28. We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things
STANDARDISATION OF WORK PROCESSES	29. We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	30. Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	31. We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	32. We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way
STANDARDISATION OF PROFESSSIONAL TRAINING	33. Our professional training standardisation is very low	34. Our professional training is rarely standardised	35. Sometimes our professional training is standardised but at times is not	36. We have undertaken long and difficult standardised professional training

Appendix 7Post Merger Factor crib

Factor crib 1

Items ranked @+5

21	We review processes and goals, after a long period. The change is very slow	(+5)

Items ranked Higher in Factor 1 array than in any other Factor Arrays

2	In this organisation anyone who cannot follow or lead must get out of way	-2
3	We depend on improving standardised procedures which were established long ago. We therefore have low risk	1
6	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	0
9	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	4
11	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	2
17	Our emphasis is based on people development by investing in knowledge development and community building	2
19	Our emphasis is on meeting standards and stability. Keeping things the same is important	2
35	Sometimes our professional training is standardised but at times is not	0

Items ranked Lower in Factor 1 array than in any other Factor Arrays

7	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	1
12	We are held together by commitment to innovation, experimentation and development	-1
22	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	-2
27	We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	-4
28	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	0
30	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	0
32	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	-1
33	Our professional training standardisation is very low	-4
34	Our professional training is rarely standardised	-3

Items ranked @ -5

29	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	-5

Additional statement

23.	We incrementally change and improve the exiting processes. We mind about consistency	0

Factor crib 2

Items ranked @+5

1	We depend on each other to complete a task. We share information and knowledge amongst us	5

Items ranked Higher in Factor 2 array than in any other Factor Arrays

2	In this organisation anyone who cannot follow or lead must get out of way	-2
5	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	4
7	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2
8	We are not structured and ordered by rules	0
12	We are held together by commitment to innovation, experimentation and development	0
13	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	3
15	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	4
17	Our emphasis is based on people development by investing in knowledge development and community building	2
20	Our emphasis is on creating new things, growth and acquiring new resources	1
32	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	1
33	Our professional training standardisation is very low	3
34	Our professional training is rarely standardised	2
35	Sometimes our professional training is standardised but at times is not	0

Items ranked Lower in Factor 2 array than in any other Factor Arrays

3	We depend on improving standardised procedures which were established long ago. We therefore have low risk	-3
4	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	-3
6	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-2
9	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	0
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	-1
14	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	-4
18	Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity	-1
22	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	-2
23	We incrementally change and improve the exiting processes. We mind about consistency	-1
24	Our emphases is on the transformation of resources	-2

25	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	-4
26	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	0
31	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	-1

Items ranked @ -5

16	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-5

Factor crib 3

Items ranked @+5

23.	We incrementally change and improve the exiting processes. We mind about consistency	5

Items ranked Higher in Factor 1 array than in any other Factor Arrays

4.	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	0
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	0
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2
9.	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	4
12.	We are held together by commitment to innovation, experimentation and development	0
25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	0
27.	We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	3
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	2
31.	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	3
36.	We have undertaken long and difficult standardised professional training	4

Items ranked Lower in Factor 1 array than in any other Factor Arrays

1	We depend on each other to complete a task. We share information and knowledge amongst us	2
2	In this organisation anyone who cannot follow or lead must get out of way	-4
5	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	2
13	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	-1
17	Our emphasis is based on people development by investing in knowledge development and community building	-1
19	Our emphasis is on meeting standards and stability. Keeping things the same is important	-2
20	Our emphasis is on creating new things, growth and acquiring new resources	-2

21	We review processes and goals, after a long period. The change is very slow	-3
33	Our professional training standardisation is very low	-4
34	Our professional training is rarely standardised	-3
35	Sometimes our professional training is standardised but at times is not	-2

Items ranked @-5

| 8 | We are not structured and ordered by rules | -5 |

Factor crib 4

Items ranked @ +5

| 1 | We depend on each other to complete a task. We share information and knowledge amongst us | 5 |

Items ranked Higher in Factor 4 array than in any other Factor Arrays

2.	In this organisation anyone who cannot follow or lead must get out of way	-2
4	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	0
9	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	4
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	3
11	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	-3
12	We are held together by commitment to innovation, experimentation and development	0
14	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	0
15	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	-1
16	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	1
17	Our emphasis is based on people development by investing in knowledge development and community building	2
18	Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity	4
20	Our emphasis is on creating new things, growth and acquiring new resources	0
22	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	3
29	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	0
30	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	2

Items ranked Lower in Factor 4 array than in any other Factor Arrays

6	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-2
7	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	1
11	We are held together by formal rules, procedures and policies. We stick to	-3

	procedures and rules which are neither based on individual authority nor on group participation	
15	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	-1
23	We incrementally change and improve the exiting processes. We mind about consistency	1
24	Our emphases is on the transformation of resources	1
25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	-4
26.	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	-4

Appendix 8Cadastre Premerger Factor Crib

Factor1

Items ranked @ +5

36	We have undertaken long and difficult standardised professional training	5

Items ranking higher in factor 1 array than any other factor arrays

35.	Sometimes our professional training is standardised but at times is not	1
32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	1
31.	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	3
23.	We incrementally change and improve the exiting processes. We mind about consistency	4
19.	Our emphasis is on meeting standards and stability. Keeping things the same is important.	3
11.	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	4
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2

Items ranking lower in Factor 1 array than any other factor arrays

33.	Our professional training standardisation is very low	-4
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	-1
22.	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	-3
15.	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	0
13.	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	-3
12.	We are held together by commitment to innovation, experimentation and development	-2
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-1
5.	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce	0

conflicting opinions without fear of reprisal

2.	In this organisation anyone who cannot follow or lead must get out of way	1
1	We depend on each other to complete a task. We share information and knowledge amongst us	2

Items ranked @-5

34.	Our professional training is rarely standardised	-5

Factor crib 2

Items ranked @ +5

1	We depend on each other to complete a task. We share information and knowledge amongst us	5

Items ranking higher in factor 2 array than any other factor arrays

5.	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	4
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2
8.	We are not structured and ordered by rules	0
12.	We are held together by commitment to innovation, experimentation and development	0
13.	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	3
15.	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	4
17.	Our emphasis is based on people development by investing in knowledge development and community building	2
20.	Our emphasis is on creating new things, growth and acquiring new resources	1
21.	We review processes and goals, after a long period. The change is very slow	3
33.	Our professional training standardisation is very low	3
34.	Our professional training is rarely standardised	2
35.	Sometimes our professional training is standardised but at times is not	1

Items ranking lower in Factor 2 array than any other factor arrays

3.	We depend on improving standardised procedures which were established long ago. We therefore have low risk	-3
4.	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	-3
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-1
9.	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	0
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	-1
14.	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	-4
18.	Our organisation places its emphases on achieving the measurable results and markets.	-1

	Its focus is on productivity	
23.	We incrementally change and improve the exiting processes. We mind about consistency	-1
24	Our emphases is on the transformation of resources	-2
25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	-4
26.	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	1
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	2
29.	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	-1
31.	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	-2
32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	0
36.	We have undertaken long and difficult standardised professional training	-3

Items ranked @-5

16.	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-5

Factor Crib3

Items ranked @ +5

9.	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	5

Items ranking higher in factor 3 array than any other factor arrays

21.	We review processes and goals, after a long period. The change is very slow	3
22.	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	2
24	Our emphases is on the transformation of resources	1
18.	Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity	4
12.	We are held together by commitment to innovation, experimentation and development	0
14.	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	1
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	3
3.	We depend on improving standardised procedures which were established long ago. We therefore have low risk	2

Items ranking lower in Factor 3 array than any other factor arrays

26.	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	-4
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	-1
29.	We rarely have any standardised work processes. In case of a conflict we resolve it	-4

ourselves without seeking formal means

32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	0
20.	Our emphasis is on creating new things, growth and acquiring new resources	-1
11.	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	-1
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-1
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	1

Items ranked @-5

| 27. | We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide | -5 |

Factor Crib4

Items ranked @ +5

| 9. | We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation | 5 |

Items ranking higher in factor 4 array than any other factor arrays

25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	0
27.	We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	4
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	2
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	1
31.	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	3
12.	We are held together by commitment to innovation, experimentation and development	0
16.	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-1
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2

Items ranking lower in Factor 4 array than any other factor arrays

32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	0
33.	Our professional training standardisation is very low	-4
35.	Sometimes our professional training is standardised but at times is not	-2
19.	Our emphasis is on meeting standards and stability. Keeping things the same is important.	-2
20.	Our emphasis is on creating new things, growth and acquiring new resources	-1
21.	We review processes and goals, after a long period. The change is very slow	-3
24	Our emphases is on the transformation of resources	-2

1	We depend on each other to complete a task. We share information and knowledge amongst us	2
2.	In this organisation anyone who cannot follow or lead must get out of way	-4
4.	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	0
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	0
17.	Our emphasis is based on people development by investing in knowledge development and community building	-1

Items ranked @-5

| 8. | We are not structured and ordered by rules | -5 |

Appendix 9Premerger: Land Registration component

Factor crib 1
Items ranked @+5

| 18. | Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity | 5 |

Items ranking higher in that factor 1 array than other factor array

9.	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	4
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	3
12.	We are held together by commitment to innovation, experimentation and development	0
14.	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	1
15.	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	2
16.	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-2
22.	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	2
24	Our emphases is on the transformation of resources	1

Items ranking lower in that factor 1array than other factor array

6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-1
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	1
11.	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	-1
26.	Decision making is not made by anyone. Decisions are made by our directors. We	-4

have low independency

28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	-1
29.	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	-3
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	0
34.	Our professional training is rarely standardised	-4
35.	Sometimes our professional training is standardised but at times is not	-1

Items ranked @-5

| 27. | We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide | -5 |

Factor Crib 2

Items ranked @+5

| 1 | We depend on each other to complete a task. We share   information and knowledge amongst us | 5 |

Items ranking higher in that factor2 array than other factor array

5.	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	4
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2
8.	We are not structured and ordered by rules	0
26.	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	1
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	2
29.	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	-1
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	0
33.	Our professional training standardisation is very low	3
34.	Our professional training is rarely standardised	2
35.	Sometimes our professional training is standardised but at times is not	1

Items ranking lower in that factor2 array than other factor array

3.	We depend on improving standardised procedures which were established long ago. We therefore have low risk	-3
9.	We are held together by an emphasis on loyalty, cohesion and tradition. Commitment is very high in our organisation	0
10	We are held together by the emphasis on tasks and goal achievement. A production orientation is shared	-1
12.	We are held together by commitment to innovation, experimentation and development	0

13.	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	3
14.	Our leaders are producers, and competitors, tough and demanding. They make sure we meet the stipulated goals and objectives	-4
17.	Our emphasis is based on people development by investing in knowledge development and community building	2
18.	Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity	-1
19.	Our emphasis is on meeting standards and stability. Keeping things the same is important.	0
20.	Our emphasis is on creating new things, growth and acquiring new resources	1
21.	We review processes and goals, after a long period. The change is very slow	3
22.	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	-2
23.	We incrementally change and improve the exiting processes. We mind about consistency	-1
24	Our emphases is on the transformation of resources	-2
25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	-4
31.	We have clear lines of authority over processes. We are led by appropriate procedures, rules, policies, guidelines to execute the processes	-2
36.	We have undertaken long and difficult standardised professional training	-3

Items ranked @-5

16.	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-5

Factor crib 3

Items ranked @ +5

19.	Our emphasis is on meeting standards and stability. Keeping things the same is important.	5

Items ranked higher in Factor 3 array than any other factor array

1	We depend on each other to complete a task. We share information and knowledge amongst us	1
2.	In this organisation anyone who cannot follow or lead must get out of way	0
3.	We depend on improving standardised procedures which were established long ago. We therefore have low risk	3
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	2
7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	2
11.	We are held together by formal rules, procedures and policies. We stick to procedures and rules which are neither based on individual authority nor on group participation	4
21.	We review processes and goals, after a long period. The change is very slow	3
31.	We have clear lines of authority over processes. We are led by appropriate	4

procedures, rules, policies, guidelines to execute the processes

Items ranked lower in factor array 3 than any other factor

4.	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	-4
5.	We have open and frank communication with our leaders. We are free to propose unconventional ideas for facing problems and opportunities, and to introduce conflicting opinions without fear of reprisal	-1
12.	We are held together by commitment to innovation, experimentation and development	-4
18.	Our organisation places its emphases on achieving the measurable results and markets. Its focus is on productivity	-1
22.	Our emphases are on pursuing continual adaptation and innovation-lead to fast change on the market, acquire and keep necessary external resources.	-2
24	Our emphases is on the transformation of resources	-2
26.	Decision making is not made by anyone. Decisions are made by our directors. We have low independency	1
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	0
32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	-3

Item @-5

16.	Our leaders are innovators and risk takers. They expect us to take risks and be innovative	-5

Factor crib 4

Items @+5

15.	Our leaders are co-ordinators, monitors, organisers and rule enforcers. They expect us to follow established rules, policies, and procedures	5

Items ranked higher in Factor 4 array than any other factor array

4.	We break new grounds and seek for new opportunities all the times. We are willing to stick our necks out and take risks	0
12.	We are held together by commitment to innovation, experimentation and development	0
25.	Decision making is not made by individuals but by all of us. Individuals have no right to decide for everybody	0
30.	Sometimes we do have standardised work processes. We are good at listening and obeying instructions coming from our directors or supervisors.	1
32.	We have flexible processes that can be adjusted to suit the changing human needs. We are highly competent and like to do our own things in our own way	0
36.	We have undertaken long and difficult standardised professional training	3

Items ranked lower in Factor 4 array than any other factor array

2.	In this organisation anyone who cannot follow or lead must get out of way	-4
6.	We abide and stick to planned procedures set for a particular goal or task at that particular moment. We do not oppose or raise conflicting opinions about either the task or goal or the procedure itself	-1

7.	We are organised into departments according to our specialisation. Each level has a level higher that itself and must execute orders as given	1
13.	Our leaders are mentors, facilitators and reflect parental figures. They expect us to understand for the sake of our future term	-1
17.	Our emphasis is based on people development by investing in knowledge development and community building	0
19.	Our emphasis is on meeting standards and stability. Keeping things the same is important.	-2
20.	Our emphasis is on creating new things, growth and acquiring new resources	-2
21.	We review processes and goals, after a long period. The change is very slow	-3
23.	We incrementally change and improve the exiting processes. We mind about consistency	4
27.	We have a clear distinction between the lower ranks and the higher ranks. The lower offices execute decisions that are already set and cannot decide	2
28.	We are motivated by autonomy or independence. We guide ourselves and not all of us can have one approach to do things	2
29.	We rarely have any standardised work processes. In case of a conflict we resolve it ourselves without seeking formal means	-3
33.	Our professional training standardisation is very low	-4
35.	Sometimes our professional training is standardised but at times is not	-1

Items ranked @-5

| 8. | We are not structured and ordered by rules | -5 |