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**THE DYNAMIC NATURE OF STRATEGIC CONSENSUS: A LONGITUDINAL STUDY OF
MULTI-LEVEL COGNITIVE SHIFTS DURING A CRISIS**

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Doctor of Philosophy

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September 2017

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Thesis Summary

The proliferation of crises facing organisations is challenging how individuals make sense and respond to their new environments. This research investigates cognitive shifts in both leaders and followers in response to a cumulative crisis to ascertain the fluctuations in achieving cognitive consensus within a single case study firm. Cognitive vision formation theory and followership theory are integrated to account for the role of both leaders and followers throughout the crisis. 91 cognitive maps of leaders and followers were elicited during three phases of data collection over a four year period and analysed following a standardised procedure to explain how and where consensus was formed. Distance ratios are calculated to measure within and between group consensus and cognitive shifts.

This research makes several key and original contributions to knowledge. First, during the initial stages of responding to a crisis it is the followers that are the locus of consensus rather than leaders and subsequently the cognitively diverse leadership teams converges towards follower teams which builds consensus as the crisis first unfolds. Second, following the initial stages, a bottom-up diffusion of consensus process is observed with middle-managers emerging as the locus of consensus between the middle and latter stages. Third, the inclusion of a midpoint in data collection provides fresh empirical evidence that the scope of cognitive consensus fluctuates rather than builds over a sustained period of time. Fourth, this fluctuation requires cognitive shifts in individuals which are detected as being initially higher in leaders than followers during responses to the crisis. Fifth, preliminary empirical evidence demonstrates that degree of cognitive shifts are also greater over a longer period of time than in the initial response to the crisis. Finally, a theoretical framework is developed to map the four different types of cognitive shifts individuals experience during a cumulative crisis. The thesis concludes with a call for future longitudinal multi-level research to further investigate the antecedents of cognitive shifts and empirically test the theoretical framework. Additionally, more attention is now required into the strategic role of followers and middle managers during a crisis.

KEYWORDS:

Consensus, Cognitive Mapping, Cognitive Shift, Crises, Strategy Formation

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List of Abbreviations

CEO: Chief Executive Officer

DR: Distance Ratio

FLE: Frontline Employee

HR: Human Resources

IT: Information Technology

MDS: Multidimensional Scaling

MM: Middle Manager

MOC: Managerial and Organisational Cognition

NHS: National Health Service

R&D: Research & Development

SMT: Senior Management Team

TMM: Team Mental Model

TMT: Top Management Team

UK: United Kingdom

USA: United States of America *OR* **US:** United States

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CHAPTER 1 – INTRODUCTION

Facing radical environmental change is a significant challenge for today's organisations. The immense scale of economic demands, technological advances, competitive intensity, speed of information exchange, and social and political change are sending organisations into crises (Audia et al., 2000, Combe and Carrington, 2015, Mumford et al., 2007) and rendering prior strategies ineffective (Haveman, 1992, Smith and Grimm, 1987). This is creating evermore complex and ambiguous environments for organisations to navigate through. However, the ability to cope with the dramatically altering contextual forces has become a key determinant of success, competitive advantage and organisational survival (Greenwood and Hinings, 1996, D'Aveni, 1994, Helms-Mills et al., 2008).

These major challenges for organisations are “*placing unprecedented information-processing burdens on the individuals and groups working within them*” (Hodgkinson and Healey, 2008, p. 388) as they attempt to perceive, evaluate and respond to the changing environment. This information processing perspective considers how cognitive structures give the information environment form and meaning which guides action (decision-making). In recent years the study of cognition in understanding strategy and management has significantly increased in importance (Hodgkinson and Healey, 2008, Kaplan, 2011, Narayanan et al., 2011). Likewise, the ubiquitous yet idiosyncratic nature of change has consistently made it an imperative domain in the strategy field for both academics and practitioners alike (Hannan and Freeman, 1984, Brown and Eisenhardt, 1997, Pettigrew, 1990).

An organisational crisis is “*a low-probability, high-impact event that threatens the viability of the organisation and is characterised by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly*” (Pearson and Clair, 1998, p. 60). Noticeably, well-practiced patterns are interrupted by a change in circumstances often characterised by ambiguity, confusion, and feelings of disorientation (Maitlis and Sonenshein, 2010). This can lead to different interpretations both across firms (Gary and Wood, 2011, Hodgkinson and Johnson, 1994, Marcel et al., 2011, Reger and Palmer, 1996) and even within firms (Combe and Carrington, 2015, Kilduff et al., 2000, Markóczy, 1997). Therefore, these different interpretations of the environment can give rise to cognitive diversity and conflict within a single organisation.

However, prior research has asserted the importance of achieving cognitive consensus through aligning strategic priorities (Floyd and Wooldridge, 1992, Kellermanns et al., 2005, O'Reilly et al., 2010). Without consensus, strategies may not be implemented to overcome a crisis. It has been found that during strategic change initiatives the range of consensus across an organisation increases (Markóczy, 2001) and starts to occur within specific leadership teams (Combe and Carrington (2015). This is also consistent with the rational view in strategic management that has often assumed the importance of cognitive consensus and reaching consensus. However, consensus is not a universal panacea for success. It seems that cognitive diversity can provide different perspectives which may be advantageous when a leadership team is first faced with complexity (Kilduff et al., 2000) even if consensus is required later in the adaptation process.

Despite the abundance of research on consensus and diversity the link to performance still remains ambiguous (Fiol, 1994, Gonzalez-Benito et al., 2012, Miller et al., 1998, Smith et al., 1994, West and Schwenk, 1996). It has been argued that the mixed results for the consensus-performance link is due to inadequate conceptualisations and measurement in prior studies (Markóczy, 2001, Kellermanns et al., 2005). Therefore, it is essential that going forward the concept of consensus is examined in much greater detail.

Furthermore, in order to build consensus and/or respond to change, requires a cognitive shift or cognitive reorientation in individuals (Barr, 1998, Barr et al., 1992, Kaplan, 2008). In other words, individuals have to re-think how they conceive their organisation and their environment (Balogun and Johnson, 2004, Gioia and Chittipeddi, 1991, Sonenshein, 2010, Mantere et al., 2012). Consequently, as crises do not neatly conform to existing mental representations¹, these need to be restructured for a response to a crisis to take place (Marcy and Mumford, 2010). It is this individual cognitive shift from one mental representation to another (Foldy et al., 2008) which makes forming consensus possible (Ospina and Foldy, 2010). As a result, flexibility in thinking can lead to organisational effectiveness

¹ Mental representation is used as an umbrella term for individuals that internalise their knowledge and understanding of organisational life in the form of a simplified representation of reality which in turn is linked to organisational action (Hodgkinson and Sparrow, 2002, p. 22). The collective term encompasses concepts such as schemas (e.g. Dutton and Jackson, 1987, Ireland et al., 1987, Lord and Foti, 1986), mental models (e.g. Hodgkinson and Johnson, 1994, Porac et al., 1989, Senge, 1990), belief structures (Mohammed et al., 2000), and 'knowledge structures' (e.g. Lyles and Schwenk, 1992, Walsh, 1995) which are common terms in the literature and often used interchangeably. However, these terms do have some fundamental differences and are discussed in greater detail in sections 2.3 and 2.4.

particularly when facing novel environments (Gupta, 1984, Walsh, 1995). Whereas inflexibility in thinking can lead to a failure to adapt to new contexts, impede sensemaking, inhibit creative thinking, and enable strategic myopia (Dane, 2010, Nag et al., 2007, Harris, 1994).

Understanding leaders' cognition, especially how leaders think about change events and how they develop resolutions to crises by envisioning the future is vital to understanding organisational adaptation (Mumford et al., 2007). However, a focus only on the thinking of a single individual leader, such as the Chief Executive Officer (CEO), when investigating how firms respond to crises presents a very limited picture of this organisational adaptation. In many firms leadership is distributed within multiple individuals (Friedrich et al., 2009) and followers are also key to strategies implemented in response to change to ensure adaptation. Followers can be in close contact with key stakeholders, such as customers, and can provide critical information as a crisis unfolds in a leader-member exchange process (Uhl-Bien et al., 2014).

Furthermore, while cognitive shifts are required in leaders when facing radical change events (e.g. Barr et al., 1992, Barr, 1998), followers are seemingly ignored, but are also likely to require a change in thinking when overcoming a crisis. Leaders can strategise to overcome a crisis, but unless others within an organisation also shift their beliefs, barriers to change are likely to dominate. Middle managers, can act as both leaders and followers and are important to organisational change processes and strategy implementation so their thinking needs to be considered for effective organisational adaptation (Raes et al., 2011, Balogun and Johnson, 2005, Rouleau and Balogun, 2011). Furthermore, because followers have an important role in linking leaders to other stakeholder groups, such as customers, they can be ahead of leaders in understanding what is happening during radical environmental change. However, empirical research comparing the cognitive shifts of both leaders and followers as they grapple with the same radical environmental change and subsequent crisis, over time, is absent from the literature.

To truly understand cognitive shifts, longitudinal evidence is required which is limited in the extant literature. A limited stream of empirical research has started to address the need for longitudinal evidence regarding changes in mental representations (Barr et al., 1992, Bingham and Kahl, 2013,

Benner and Tripsas, 2012). However, to date this support has predominantly been through secondary data using documentary evidence (i.e. letters to shareholders, trade publications, annual reports and other archival data). This approach not only assumes consensus within organisations but also problems relating to authorship of mental representations.

At present the research into strategic cognition (Narayanan et al., 2011) at an individual level (micro-level) focuses on either top managers or leaders (Clarke and Mackaness, 2001, Kiesler and Sproull, 1982). This is furthered by literature exploring the concept on a group level (meso-level) which looks at top management teams or middle management groups (Hambrick and Mason, 1984, Nadkarni and Narayanan, 2007b, Tarakci et al., 2013). However, strategic cognition at all levels of the firm are imperative as organisational change initiatives and responding to organisational crises are not just restricted to the upper echelons. Consequently, not only is empirical research into understanding individual cognition at all levels of an organisation essential, it is also neglected in much of the literature. Therefore, this study addresses another on-going theme in the call for future research across the work into schemata (Cornelissen and Werner, 2014), cognition (Hodgkinson and Healey, 2008), and strategic cognition (Narayanan et al., 2011) which is the need to bridge between levels of analysis. Therefore, this current research aims to longitudinally analyse consensus and cognitive shifts in all levels of an organisation.

In summary, a thorough review of the prior literature has highlighted the following gaps in knowledge. Firstly, there is a fundamental need to understand the potential fluctuations in cognitive consensus and diversity with a longitudinal study over three time periods during a crisis. This includes examining whether cognitive consensus builds over a sustained period of time or whether alternatively consensus and diversity oscillates. Secondly, the role of followers in the scope of building strategic consensus is neglected as empirical research has been confined to leaders and special interest groups. Thirdly, without studying these groups longitudinally there is a lack of empirical knowledge in understanding the diffusion of consensus process during a crisis. Fourthly, the implications of a crisis and the dynamic nature of forming consensus indicates the need for cognitive shifts within individuals. However, empirical evidence into how this phenomenon develops over time is absent from the literature.

Fifthly, due to the lack of multilevel empirical research into cognitive shifts, there is a clear need to investigate these shifts beyond just the leadership group.

Therefore, this current research makes several substantial and original contributions to knowledge. One, the findings demonstrate that whilst leaders are cognitively diverse during the initial stages of responding to a crisis it is the followers that are the locus of consensus. As the crisis unfolds leaders converge towards followers, and not the other way round. Two, a bottom-up diffusion of consensus process is observed with middle-managers emerging as the locus of consensus between the middle and latter stages. Three, the inclusion of a midpoint in data collection provides fresh empirical evidence that the scope of cognitive consensus fluctuates rather than builds over a sustained period of time. Four, this fluctuation requires cognitive shifts in individuals which are detected as being higher in leaders than followers during the onset of the crisis. Five, the degree of cognitive shifts are also greater over a longer period of time than in the initial response to the crisis. Six, a theoretical framework is developed to map the four different types of cognitive shifts individuals experience during a cumulative crisis.

1.1 Thesis Structure

The remainder of this thesis is structured into seven distinct chapters, including this introduction. Through a review of the literature, Chapter 2 will first theoretically explain strategic cognition during crises. This will provide a strong foundation for investigating cognitive consensus and cognitive shifts. In Chapter 3 prior research into the construct of cognitive consensus is critically evaluated and presented. This also includes an outline of the implications for different levels of analysis and generate the first set of propositions through a theoretical development. Next, in Chapter 4 the stability or flexibility of individuals' cognition during crisis and change will be addressed. This chapter will also be concluded with a subsequent set of propositions relating to cognitive shifts. Following this, in Chapter 5, the methodology required to deal with the research questions in hand taking into account the limitations of prior research methods in interrelated studies is documented. In Chapter 6, the

longitudinal data is analysed across three studies and the findings presented. Finally, in Chapter 7, these findings are discussed in relation to the extant literature and the original contribution to knowledge. In addition, the methodological and managerial implications as well as the limitations and future research directions are addressed.

CHAPTER 2 – THEORETICAL BACKGROUND: COGNITION DURING CRISES

2.1 Distinct Approaches to Strategy

The literature on strategy and strategic decision-making has developed on a spectrum of two contrasting perspectives; the rational-normative approach and the incremental-political approach (Bourgeois, 1980).

The normative view originates from the strategic planning school which advocates a rational approach to strategy making (Andrews, 1971, Ansoff, 1965, Steiner, 1969). In the rational-normative approach, prior to deciding on a strategy, executives meticulously and objectively analyse both the external and internal environment of the firm (Hitt and Tyler, 1991). As rational agents, individuals' set goals and then decide on the most optimal means to achieve these in a decision sequence of strategy formulation. This quest towards an ends-means prescription, claims that individuals' rationally conduct an exhaustive search of alternatives and calculate their expected outcomes (Bourgeois, 1980). Consequently, strategic decision-making encompasses a series of sequential, rational, and analytical processes whereby a set of objective criteria are used to evaluate strategic alternatives (Hitt and Tyler, 1991, p. 329).

Seminal theories of this approach have included bureaucratic theory, decision theory, game theory, and systems theory. This approach is akin to the planning mode as discussed by Mintzberg (1978, p. 934) and “...depicts the process as a highly ordered, neatly integrated one, with strategies explicated on schedule by a purposeful organization.” This draws parallels with what is subsequently classified as deliberate strategy (Mintzberg, 1978). Furthermore, the conventional theory of the firm has “...a market-level focus on specific price and quantity outcomes and a tendency to favour aggregation and outcome (rather than process) explanations (Gavetti et al., 2012, p. 3). Therefore, ironically this view tends to ignore the decision-making processes of organisations, neglecting the behaviour of individuals and groups within firms.

Conversely, the incremental-political view (Quinn, 1978, Braybrooke and Lindblom, 1970) draws inspiration from the ‘Carnegie School’ approach to behavioural economics (March and Simon, 1958, Cyert and March, 1963, Simon, 1947). This position is derived from critiquing and challenging the rational perspective to offer a broader view of firm behaviour. As a result, this behavioural theory of the firm takes into account the cognitive limits to human rationality. As a result, “...*complex decisions are largely the outcome of behavioural factors rather than a mechanical quest for economic optimisation*” (Hambrick and Mason, 1984, p. 194). From this perspective, decision-makers lack perfect knowledge and must search for information, which contradicts the maximisation postulate of the rational agent model (Gavetti et al., 2012, p. 4). “*Actors are unable to take decisions in a completely rational manner, due to the fact that they are constrained by fundamental information processing limitations*” (Hodgkinson and Sparrow, 2002, p. 12). Therefore, decision-makers within organisations act on incomplete and imperfect perceptions of the environment (Narayanan et al., 2011).

Consequently, at the heart of the Carnegie school’s approach is the conceptualisation of bounded rationality and that the cognitive limits to human rationality make an incremental approach to strategy making not only more realistic, but preferable (Bourgeois, 1980, p. 228). Furthermore, in contrast to the planning mode, Mintzberg (1978, p. 934) views the process of the adaptive mode “...*as one in which many decision-makers with conflicting goals bargain among themselves to produce a stream of incremental, disjointed decisions.*” This is also subsequently referred to as the basis of emergent strategy (Mintzberg, 1978). However, it is argued that even within this perspective individuals still strive for rationality but only within the limits of their cognitive capacities (Hodgkinson and Sparrow, 2002, p. 12). As a result, much of the contemporary literature on managerial and organisational cognition has its roots in the Carnegie school.

2.2 Upper Echelons Theory

As the complexity of the decision increases, the concept of bounded rationality becomes more pertinent. Therefore, decision-making must be scrutinised from a microfoundation position to capture the idiosyncrasies of one’s cognitive capacity. Within an organisation, the most complex decisions are

often strategic in nature than they are operational. Traditionally, it is contended that these decisions occur within top management teams (TMT) and forms the foundation of upper echelons theory (Hambrick and Mason, 1984).

“The central premise of upper echelons theory is that executives’ experiences, values, and personalities greatly influence their interpretations of the situations they face and, in turn, affect their choices” (Hambrick, 2007, p. 334). The purpose of the original theory is twofold; first, it is important to examine decision-making beyond the CEO to incorporate the entire TMT and second, demographic attributes can be adopted as proxies for cognitive frames (Michel and Hambrick, 1992, Wiersema and Bantel, 1992, Hambrick, 2007). In other words, demographics are related to cognitive elements of orientation (perceptions or filtering) and are often used as surrogates for this (Knight et al., 1999). Therefore, executives make decisions consistent with their cognitive base or orientation, comprising of psychological characteristics (e.g. values, cognitive models, and other personality factors) and observable experiences (e.g. demographics) (Knight et al., 1999). As a result, managerial background characteristics could partially predict organisational outcomes e.g. strategic choices and performance levels (Hambrick and Mason, 1984). Subsequently, the topics of strategy and strategic change have dominated upper echelons theory (Finkelstein and Hambrick, 1990, Michel and Hambrick, 1992, Grimm and Smith, 1991, Wiersema and Bantel, 1992).

However, these two initial claims of upper echelons theory are extremely problematic and form the basis of the theoretical background in this study. Firstly, strategy isn’t exclusive to the TMT and involves organisational actors from all levels, both in the formulation of strategy and in its implementation. Secondly, and of particular concern is using substitute demographic variables to imply cognition which jeopardises construct validity. This has resulted in a number of studies which have critiqued this perspective (Priem et al., 1999, Kilduff et al., 2000, Knight et al., 1999) and pushed for future studies to examine the intervening variables (i.e. cognition) or to open up the ‘black box’ (Pelled et al., 1999, Olson et al., 2007, Lawrence, 1997). Even in revisiting his original theory, Hambrick (2007) discusses the importance of future research in opening up the ‘black box’. Therefore, it is imperative that subsequent research studies cognition directly. These arguments are developed further in section 3.4.3 when TMT heterogeneity and homogeneity is discussed in greater detail.

2.3 Examining Cognition

Simultaneously, in parallel to the development of upper echelons theory, managerial and organisational cognition research has also evolved considerably. Consequently, early on various researchers examined the cognitions of executives (Schwenk, 1986, Stubbart, 1989, Gioia and Poole, 1984, Fahey and Narayanan, 1989, Eisenhardt, 1989b). As managers' acquire information for strategy formulation and send information during strategy implementation, information processing is pivotal (Olson et al., 2007). Traditionally, psychologists have long been intrigued by how information is acquired, stored, and retrieved from memory (Lord and Maher, 1991). Information-processing theory explains how organisations are information processing systems, and strategic decisions require information-processing by the managers whereby members exchange, process, interpret information from a variety of sources and then act on it before making decisions (Olson et al., 2007, p. 198). However, consistent with bounded rationality there are cognitive limitations to the information-processing capabilities of key decision-makers (Walsh and Fahey, 1986).

Recent studies on managerial cognition have focused their attention towards schemata to attain a more detailed understanding of how information is processed (Ansari et al., 2013, Benner and Tripsas, 2012, Bundy et al., 2013, Dane, 2010, Miller and Sardais, 2013, Rerup and Feldman, 2011, Bingham and Kahl, 2013, Tarakci et al., 2013). A schema is a mental template (Walsh, 1995), cognitive model (Ireland et al., 1987), mental model (Hodgkinson and Johnson, 1994), or generalised cognitive framework (Labianca et al., 2005) that individuals impose on an information environment to give it form and meaning (Walsh, 1995, p. 281) (for a detailed discussion of the terminology see section 2.4). The origins of the concept can be traced back to seminal work of Bartlett (1932), whereby he defines schemata as data structures in memory that represent knowledge about concepts which individuals employ to understand their world (Dutton and Jackson, 1987, p. 78). Therefore, one's perception and evaluation of the environment occurs through their schema (Fiske and Taylor, 1984, Lau and Woodman, 1995, Miller and Sardais, 2013).

Schemata are comprised of categories of information and the relationships among them. Lau and Woodman (1995, pp. 538-539) highlight three general dimensions of a schema: causality, valance,

and inferences. Through *causality* a schema provides a person with a frame of reference about event sequences and connections between events and people. A second feature of a schema is that it allows a person to evaluate the significance, or *valence*, of a specific event, person, process, or relationship. Finally, schemata enable a person to predict the future, or make *inferences*, by specifying the likelihood of the occurrence of events or behaviours. This inferential nature of schema theory is further supported by Harris (1994, p. 310) who claims that schemata are typically conceptualized as subjective theories derived from one's experiences about how the world operates that guide perception, memory, and inference.

Consequently, Harris (1994, p. 310) defines schemata as the dynamic, cognitive knowledge structures regarding specific concepts, entities, and events used by individuals to encode and represent incoming information efficiently. Therefore, schemata enable individuals to compress, order and categorise information into units (Labianca et al., 2005, Dane, 2010) thus reducing the information-processing demands associated with social activities (Lord and Foti, 1986, p. 38). Additionally, schemata also direct information acquisition and processing (Harris, 1994, p. 309) and guide interpretation and action (Walsh, 1995, Kaplan, 2008). Therefore, schema theory remains the most useful and pervasive perspective on the mechanics of social cognition (Markus and Zajonc, 1985).

2.4 Defining Cognitive Terms

In the literature on management and organisational cognition alternative terms for schemata are used, often synonymously (Walsh, 1995). Exemplary studies with their preferred term, key authors and definitions are presented in Table 2.4.1.

Table 2.4.1. Terms used in the Managerial and Organisational Cognition Literature

Term	Author(s)	Definition
Assumptions	(Mohammed and Ringseis, 2001)	a system of shared meaning that governs collective perceptions, thoughts, feelings, and actions and are the natural set of givens involved in the perception of a situation (Mohammed and Ringseis, 2001, p. 314)
Beliefs	(Markóczy, 1997, Walsh, 1988, Mohammed et al., 2000, Porac et al., 1989, Walsh and Fahey, 1986)	a cognitive structure that represents organized knowledge about a given concept or type of stimulus.... It contains both the attributes of the concept and the relationships among the attributes (Walsh, 1988, p. 874)
Cognitive Maps	(Tolman, 1948, Ng et al., 2009)	a TMT relies on a cognitive map to make sense of its complex information environment ... a cognitive map facilitates interpretation of the competitive environment by simplifying the ... complex cognitive problem of independently analysing a larger number of competitors by grouping them (Ng et al., 2009, p. 352)
Dominant Logic	(Prahalad and Bettis, 1986)	a mind set or a world view or conceptualization of the business and the administrative tools to accomplish goals and make decisions in that business. It is stored as a shared cognitive map (or set of schemas) among the dominant coalition. (Prahalad and Bettis, 1986, p. 491)
Frames of Reference	(Cyert and March, 1963, March and Simon, 1958, Shrivastava and Mitroff, 1983)	knowledge structures that help individuals to organize and interpret incoming perceptual information by fitting it into already available cognitive representations from memory (Cornelissen and Werner, 2014, p. 187)
Generalised Cognitive Framework	(Labianca et al., 2005)	give form and meaning to experience and contain general knowledge about a domain (Labianca et al., 2005, p. 678)
Implicit Organising Theories	(Brief and Downey, 1983)	enduring features in our views of the world around us (Brief and Downey, 1983, p. 1071)
Knowledge Structures	(Lyles and Schwenk, 1992, Walsh, 1995)	A knowledge structure is a mental template that individuals impose on an information environment to give it form and meaning. (Walsh, 1995, p. 281)

Term	Author(s)	Definition
Mental Models	(Porac et al., 1989, Hodgkinson and Johnson, 1994, Hill and Levenhagen, 1995, Senge, 1990, Johnson-Laird, 1983, Hodgkinson, 1997)	actors, both individually and collectively, form simplified representations, or ‘mental models’, of their competitive worlds and that these define the boundaries of the competitive arena and bases of competition. (Hodgkinson, 1997, p. 922)
Organising Models	(van de Ven et al., 2008)	use the term diverse organizing models to refer to different mental models among employees about the priorities, values, and principles that their organization should pursue. (van de Ven et al., 2008, p. 338)
Schemata / Schemas	(Dutton and Jackson, 1987, Fiske and Taylor, 1984, Ireland et al., 1987, Kiesler and Sproull, 1982, Lord and Foti, 1986)	cognitive models that allow managers to categorize events, assess consequences, and consider appropriate actions. (Ireland et al., 1987, p. 470)

As well as schemata, mental models are a commonly used term. According to (Knight et al., 1999), mental models are similar to knowledge structures (Walsh, 1995), schema (Ireland et al., 1987), and implicit theories (Brief and Downey, 1983). Rousseau (2001) also views mental models and schemata as tantamount to each other. However, Hodgkinson and Healey (2008) argue that in the cognition literature there has been a wide spectrum of defining and usage of mental models from the temporary dynamic model to the long term schema perspective (see Rouse and Morris, 1986). Therefore, you have this working memory idea similar to Johnson-Laird (1983) to the more long term enduring schema perspective of Bartlett (1932). Various definitions of mental models are presented in Table 2.4.2.

Table 2.4.2. Definitions of Mental Models

Definitions	Author
<i>“mechanisms whereby humans are able to generate descriptions of system purpose and form, explanations of system functioning and observed system states, and predictions of future system states.”</i>	Rouse and Morris (1986, p. 351)
<i>“an internal representation of the problem that reflects the causal relationships between actions and outcomes.”</i>	Huang and Hutchinson (2013, p. 164)
<i>“working memory updates mental models but working memory load interferes with the ability to detect slowly evolving changes. Adapting to change necessitates the detection of any discrepancy between what is currently observed and what our model predicts based on prior observations”</i>	Valadao et al. (2015, p. 1443)

Definitions	Author
<i>“mental models allow individuals in organizational settings to more effectively recognize, interpret, react to, and forecast key events in the competitive environment.”</i>	Kellermanns and Barnett (2008, p. 1000)
<i>“Cognitive theorists define mental models as psychological representations of the environment and expected behavior ... Mental models allow individuals to understand phenomena, make inferences, and respond appropriately to a situation ... In essence, they enable sense-making and generate action.”</i>	Kellermanns et al. (2008, p. 121)
<i>“Similar in layout to a schematic, these mental models are abstract cognitive representations of a particular situation that people apply in reasoning ... Mental models contain base concepts and/or events found to be salient to a person, as well as conditional information linking these concepts and events together.”</i>	Marcy and Mumford (2010, p. 3)

Not only has the Johnson-Laird (1983) perspective of mental models got its critics and received notable revisions (Ragni and Knauff, 2013, pp. 3-4, Barrouillet et al., 2008) but the majority of the work published on mental models is from the team mental model (TMM) or shared mental model perspective (Edwards et al., 2006, Mathieu et al., 2000, Klimoski and Mohammed, 1994, Smith-Jentsch et al., 2001, Marks et al., 2000). The TMM research stream has evolved to study a collective phenomenon that also incorporates how group members perceive each other in relation to a specific task (for reviews see Mohammed et al., 2010, Mathieu et al., 2008, Islam, 2015). Likewise, this notion of shared cognition is also evident in the concept of the collective strategy frame which is “*a set of cause-effect understandings about industry boundaries, competitive rules, and strategy-environment relationships available to a group of related firms in an industry*” (Nadkarni and Narayanan, 2007a, p. 689). These start to detract from the individual mental representation and sensemaking perspective that is studied in this current research.

Whilst Hodgkinson and Sparrow (2002) appreciate the different origins of schemata, mental models, and cognitive maps, they use these terms interchangeably on a broader definition to reflect mental representation. These terms capture the overarching idea that individuals internalise their knowledge and understanding of organisational life in the form of a simplified representation of reality which in turn is linked to organisational action (Hodgkinson and Sparrow, 2002, p. 22). The umbrella term of mental representations is also used to capture beliefs and belief structures which are represented in individual’s cognitive maps (Markóczy, 2001, Markóczy and Goldberg, 1995). This forms an important aspect to the methods adopted in this study and discussed in great detail throughout the

methodology. Consequently, this research will use the terms schemata, mental models, beliefs, and cognitive maps interchangeably to broadly encapsulate mental representations.

2.5 Defining Crises

Fundamental to this study is the examination of cognition during crises. Therefore, it is essential to study this contextual setting further. The significant impact that a crisis can have on an organisation makes developing knowledge on this phenomenon paramount. However, prior research has offered a variation of definitions to what constitutes crises (see Table 2.5).

Table 2.5. Definitions of a Crisis

Crisis Definitions	Author
<i>“a low-probability, high-impact event that threatens the viability of the organisation and is characterised by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly”</i>	Pearson and Clair (1998, p. 60).
<i>“crisis situations are ambiguous and include unanticipated major threats to system survival coupled with limited time to react.”</i>	Stachowski et al. (2009, p. 1536)
<i>“low-probability, high-impact events that are characterized by time pressure and ambiguity and that have significant consequences for an individual, team, and/or organization”</i>	Yu et al. (2008, p. 452)
<i>“crisis, or change, events are often complex involving multiple subsystems where the outcomes of action are ambiguous.”</i>	Mumford et al. (2007, p. 522).
<i>“an event perceived by managers and stakeholders as highly salient, unexpected, and potentially disruptive”</i>	Bundy et al. (2017, p. 1662)
<i>“Crisis implies a perception that an individual or set of individuals faces a potentially negative outcome unless some type of corrective action is taken.”</i>	Dutton (1986, p. 502)
<i>“Organizations frequently must cope with anomalous events, referred to as crises, that create high levels of uncertainty and are potential threats to the viability of an organization.”</i>	Grewal and Tansuhaj (2001, p. 67)
<i>“any event or condition that threatens the survival of the organization”</i>	D'Aveni and MacMillan (1990, p. 635)

As a crisis can be classified as any event or condition that threatens the survival of the organisation (D'Aveni and MacMillan, 1990), crises come in many forms, differing radically in both

their nature and consequences (Grewal and Tansuhaj, 2001, Kaplan et al., 2013). At their most dramatic, crises can range from disasters that are natural (e.g. earthquakes, hurricanes, tsunamis, volcanic eruptions and floods) or human-induced and technology induced (e.g. gas leaks and explosions, oil spills, nuclear accidents, pollution, aviation, malware computer virus, and the Y2K computer bug) to economic crises (e.g. the Wall Street crash and the great depression, black Monday, the global financial crises, and the dot-com collapse) and firm-level crises (e.g. ethical scandals, website crashes, labour strikes). The latter two forms illustrate crises manufactured by market forces and due to the vast scale of current political, economic, social, and technological change, the probability of organisations confronting these events is increasing rapidly.

Therefore, crises may be evoked from external sources such as deliberately by an external principal (e.g. the government) or more organically when the firm loses its competitive standing in the market and in technology (Kim, 1998). According to D'Aveni and MacMillan (1990, p. 635), one such crisis is declining or stagnant demand, which frequently precedes organisational bankruptcy. These demand-decline crises are often symptomatic of larger problems such as a niche contraction or a downturn in the general economy that are often threats to organisational survival (D'Aveni and MacMillan, 1990, p. 635). Furthermore, it is argued that periodic economic crises are inherent of market capitalism, when growing markets over-heat and subsequently crash to realistic levels over differing timescales and magnitude (Witcher and Chau, 2012). This is most exemplified by the global financial crisis of 2007/08.

“...to maximize long term effectiveness, organizations need to develop the capability not only to cope with day-to-day events in the environment, but also to cope with external events that are both unexpected and of critical importance. Events of this nature commonly are called crises. Crises are unique and rare events for many firms, but in some industries crises may be inevitable features of corporate life” (Smart and Vertinsky, 1984, p. 199). This demonstrates not only the precarious position all firms face in the current climate but that crisis management becomes fundamental to survival. The term “crisis” is expressed in Chinese using two characters, the first meaning “danger” and the second “opportunity” (Kim, 1998). This challenges the negative connotation of the term and emphasises that organisations do have agency during a crisis. Consequently, firms often embark on major strategic change when confronting a crisis (Markóczy, 2001, Kim, 1998, Tushman and Anderson, 1986).

It is also important to consider the temporal aspect to crises. Some crises, such as those that occur in military situations can arise abruptly and may require an immediate response. The literature has distinguished these forms of crisis as abrupt (Hwang and Lichtenthal, 2000) and sudden (James and Wooten, 2005). Other crises are more cumulative and arise over some time. These crises are classified as cumulative (Hwang and Lichtenthal, 2000) and smoldering (James and Wooten, 2005). For example, a typical organisational crisis might be due to the loss of large contracts, a major reduction in sales or a large unpaid debt resulting in a financial crisis for the firm. As individuals have some time to think through the issues, there is likely to be different interpretations of events and different solutions put forward by managers to resolve this type of crisis.

This time effect introduces the dynamic nature of crises as they can change and evolve over time (Stachowski et al., 2009, p. 1537). Crises can have cascading effects and shocks after the original event. On the other hand, crises can form from a multiple of smaller events accumulating into a larger crisis. Therefore, as crises change and evolve pinpointing a single event can be extremely difficult. Take for instance the 2011 Tōhoku earthquake which triggered a Tsunami that collided with the east coast of Japan, causing destruction to many ports, transport infrastructure, utilities (water, gas, electricity, and telecommunications), residential properties, commercial premises, and nuclear power plants. Subsequently, these events generated both a humanitarian crisis and an economic crisis. Likewise, which event(s) define the global financial crisis of 2007/08 e.g. subprime mortgage crisis, high levels of consumer credit and debt, mismanaged companies and banks, deregulated financial markets and services. Consequently, a crisis is dynamic, pluralistic, extensive, and enduring with cascading implications that threaten the viability of organisations.

Crisis is frequently used interchangeably with the notion of threat or adversity (Dutton, 1986). However, a threat is of less intensity than a crisis (Gladstein and Reilly, 1985). Other terms such as disaster, catastrophe, problem, and turning point have also all surfaced in the literature to broaden the ambiguity of the crisis terminology (Preble, 1997). Furthermore, other comparable terms considered in prior research focus on market forces and have included radical environmental change (Audia et al., 2000), fundamental environmental transformation (Haveman, 1992), environmental variation (Smith and Grimm, 1987), high velocity environments (Bourgeois and Eisenhardt, 1988), environmental

uncertainty (Ireland et al., 1987), environmental jolt, and institutional change. Synonymous terms for crises and the confusion surrounding terminology have also been previously evaluated in the literature (see Preble, 1997, p. 773). Whilst many of these terms encompass similar scenarios, the term crisis is most apt for this study and used herein.

2.6 Cognition and Sensemaking during Crises

Activating schemata from prior experience to guide the perception of present cues and stimuli (Miller and Sardais, 2013, Walsh, 1995, Starbuck and Milliken, 1988) is the dominant response except in extreme novel situations or when the information environment is dramatically altered (Gavetti and Levinthal, 2000, Labianca et al., 2000, Louis and Sutton, 1991). This is most prevalent when an organisation faces a crisis as prior experience disappears or is no longer adequate. In other words, crises do not neatly conform to existing models or schemas (Perrow, 1983, Perrow, 1999). The three general dimensions of a schema (causality, valence, and inferences) proposed by Lau and Woodman (1995, pp. 538-539) have wider implications when an individual confronts a crisis. Firstly, as the scenario is unprecedented, attributing connections and understanding relationships (causality) becomes incomprehensible. Secondly, as previously discussed, crises are an amalgamation of multiple events, thus evaluating the significance of certain events (valence) is problematic, particularly as initially there may only be weak signals. Thirdly, as the context is extraordinary than it is difficult for the individual to predict the future or the probability of certain events occurring next (inference).

Consequently, as a crisis is characterised by ambiguity of cause, effect, and means of resolution, it is vital that individuals make sense of their new or altered environments to ensure the viability of the organisation. In other words, as individuals confront events, issues, and actions that are somehow surprising or confusing (i.e. an organisational crisis) (Maitlis, 2005, pp.21) with no prior experience it is imperative that an individual activates a sensemaking process (Balogun and Johnson, 2005, Brown, 2000, Gioia and Chittipeddi, 1991, Maitlis, 2005, Weick, 1988, Weick, 1993, Whiteman and Cooper, 2011, Weick, 1995).

Research on sensemaking (Garfinkel, 1967, Weick, 1969) which Weick (1995) denotes as efforts to interpret and create an order for occurrences, has invigorated our understanding of organisational theory in recent years to build a wider understanding of the complexity and ambiguity of organisations and their environment (for reviews see Maitlis and Christianson, 2014, Maitlis and Sonenshein, 2010, Weick et al., 2005). Despite crises (Weick, 1988, Weick, 1993, Weick, 2010, Weick and Sutcliffe, 2003, Brown, 2000) and strategic change (Gioia and Chittipeddi, 1991, Gioia and Thomas, 1996, Gioia et al., 1994, Balogun and Johnson, 2004, Balogun and Johnson, 2005) being studied independently in the sensemaking literature they share similarities whereby well-practiced patterns are interrupted by a change in circumstances often characterized by ambiguity, confusion, and feelings of disorientation (Maitlis and Sonenshein, 2010).

The substance of sensemaking starts with three elements; a frame, a cue, and a connection...a cue in a frame is what makes sense, not the cue alone or the frame alone (Weick, 1995, p. 110). Maitlis and Sonenshein (2010, p. 552) reaffirm this position by stating that sensemaking is about connecting cues and frames to create an account of what is going on. Consequently, the unit of meaning is an arrangement of a cue, a relation, and a frame. In other words, *“the combination of a past moment + connection + present moment of experience creates a meaningful definition of the present situation... Frames tend to be past moments of socialization and cues tend to be present moments of experience”* (Weick, 1995, p. 111).

Maitlis and Christianson (2014, pp. 63-65) compile and deconstruct various definitions of sensemaking resulting in a more contemporary definition: *“a process, prompted by violated expectations, that involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn”* (Maitlis and Christianson, 2014, p. 67). According to Maitlis and Christianson (2014, p. 70) these violations of expectations can vary greatly in magnitude, ranging, for example, from feelings of minor dissonance to “cosmology episodes” which occur when people suddenly and deeply feel that the universe is no longer a rational, orderly system (Weick, 1993, p. 633). Consequently, environmental jolts and organisational crises are what often provides powerful sensemaking triggers (Maitlis and Christianson, 2014, pp. 71-73). Therefore, sensemaking is triggered or collapses when there is a lack of prototypical past moments.

Various scholars depict sensemaking as a more individual, cognitive process (Louis, 1980, Klein et al., 2006a, Klein et al., 2006b, Starbuck and Milliken, 1988). In particular, Cornelissen and Werner (2014, p. 182) state that schemata are used to conceptualise and explain internal, self-conscious, and cognitive processes of individual sensemaking (e.g. Weick, 1995). Furthermore, individual mental models enable sensemaking and generate action by responding appropriately to a situation (Kellermanns et al., 2008, p. 121). A significant contribution towards sensemaking research came to fruition in the 1980s from the cognitive turn in organisational research which examined the cognitive underpinnings of sensemaking including how cues and stimuli are processed and how expectations are violated (Daft and Weick, 1984, Louis, 1980, Kiesler and Sproull, 1982, Porac et al., 1989, Weick, 1988). Therefore, when there is a recognised discrepancy or gap between a person's expectation and reality of an event, occurrence or situation the sensemaking process is activated.

Highlighting this integral relationship between schema theory and the sensemaking process provides a solid foundation for understanding cognitive consensus and cognitive shifts during an organisational crisis which will be the focus of the succeeding sections. During times of relative stability there is often certainty, cohesion and shared understanding about the external environment hence sensemaking is triggered infrequently. However, sensemaking is critical to organisations when this is breached, for instance in times of crisis. As individual managers' act on impoverished views of the world (Weick, 1979, p. 68), this can generate a diversity in perceptions and opinions during crises. As a result, they will either make sense of a crisis in different or similar ways. Respectively, this issue of diversity and consensus is examined further in Chapter 3. As sensemaking can fail during a crisis, it may also stimulate individuals to recover or regain sense by shifting to an alternative schema (Weick, 1993). Correspondingly, this presents the possibility of cognitive shifts during crises and are investigated in Chapter 4.

2.7 Leadership Cognition during Crises

For considerable time, researchers have recognised the importance of leaders in formulating and directing an organisation's response to crises (Mumford et al., 2007). Prior research has highlighted the critical nature of cognitive processes when noticing and constructing meaning about environmental change (Kiesler and Sproull, 1982). As schemata provide simplified representations of reality, so that individuals are not to be overwhelmed by data (Daft and Weick, 1984, Walsh, 1988), they are considered critical when leaders try to make sense of change. However, this simplification can have negative consequences as it can result in myopia with some important issues being overlooked, which, in turn, can fuel crises (Barr et al., 1992, Kiesler and Sproull, 1982).

One important initial facet of maintaining performance when faced with a crisis is issue diagnosis (Dutton and Jackson, 1987, Jackson and Dutton, 1988). Leaders can classify an issue as an opportunity or threat, for example, and this diagnosis can subsequently lead to different actions. Consequently, issue diagnosis has been the subject of considerable prior research due to its importance as a socially constructed precursor to any action (see Julian and Ofori-Dankwa, 2008, for a review). Furthermore, an external change generates a crisis for top managers but not necessarily for organisational members at the lower echelon (Kim, 1998). Nevertheless, top managers can construct a crisis internally, either in response to or in the absence of an external crisis (Kim, 1998).

However, a critical decision, directed specifically at leaders, is what to do to resolve a crisis (Dutton, 1986). Leaders' mental models are important for organisation adaptation required to resolve crises (Mumford and Strange, 2002, Mumford et al., 2007, Strange and Mumford, 2002). In particular, prior research highlights the need to modify leaders' mental models in the face of changing external environments, otherwise organisations are likely to experience inertia and organisational failure (Hodgkinson, 1997). Longitudinal empirical studies by Markóczy (2001) and Combe and Carrington (2015) confirm that consensus in how to respond to change develops slowly which is consistent with the difficulty of developing a vision for the future.

2.8 Cognitive Vision Formation Theory

A vision can be defined as a set of beliefs about how people should act, as well as interact, to attain some idealised future state (Mumford and Strange, 2002, Strange and Mumford, 2002). Cognitive vision formation theory was proposed by Mumford and Strange (2002) to explain how leaders develop a vision for the future following reflection on key issues and problems through a process of sensemaking (Weick, 1995).

Mumford et al. (2007) discuss how cognitive vision formation theory explains the likely responses of leaders in crises. They present a sequential model, which starts with the activation of descriptive mental models, which are used to interpret any externally led change. Then, over time, leaders project a vision based on their prescriptive mental model or mental template for the future (Mumford et al., 2007). Implicit is the idea that leaders undergo shifts in cognition as they make sense of what is happening and put forward a vision to resolve a crisis. However, followers can be thought of as only recipients of a vision presented by leaders or can be active participants in crisis resolution. In this latter case a vision for the future may be co-constructed involving actors at different organisational levels. Currently, empirical evidence to support either of these alternatives in crisis resolution is lacking.

CHAPTER 3 – THEORETICAL BACKGROUND: CONSENSUS

3.1 Overview of the Consensus Construct

Consensus and its value to strategy has been longstanding in academic research (Child, 1972, Tilles, 1963, Stagner, 1969). Early research on the construct by Grinyer and Norburn (1977, p. 103) define and measure consensus as a significant level of shared perception that can be calculated as the extent of agreement between executives. Subsequent research has asserted the importance of achieving consensus through aligning strategic objectives (Floyd and Wooldridge, 1992, Kellermanns et al., 2005, O'Reilly et al., 2010). To achieve these strategic objectives, forming consensus may develop a commitment among decision-makers to specific strategies (Hrebiniak and Snow, 1982). Therefore, without consensus, strategies may not be efficiently or effectively implemented, impacting on organisational performance. Consequently, consensus is important for both strategic development and strategic implementation (Joshi et al., 2003). Central to strategic consensus (Bowman and Ambrosini, 1997, Bourgeois, 1980, Dess, 1987, Dess and Priem, 1995, Homburg et al., 1999, Hrebiniak and Snow, 1982, Knight et al., 1999, Markóczy, 2001, Kellermanns et al., 2005) is a view that it improves organisational performance via enhanced coordination and cooperation (Kellermanns et al., 2005). Therefore, the significance of consensus is integral not only to the strategic decision making process but to the organisation as a whole.

Consensus requires forming an agreement in opinion which demonstrates the cognitive underpinnings of the construct (Dess and Priem, 1995). Cognitive consensus is a significant variable in decision making groups which assists the group in operating as a unified structure (Mohammed and Ringseis, 2001). Therefore, when individuals think alike, they interpret cues similarly and make compatible decisions (Kellermanns et al., 2008). As a result, strategic consensus is the overlapping of managers' mental models of the firm's strategy (Knight et al., 1999). Understanding the group perspective through individual schemas is thus central to an improved critique of the effectiveness of strategic decision-making in organisations (Clarke and Mackaness, 2001). Furthermore, in studying cognitive homogeneity, Hodgkinson and Johnson (1994) and Daniels et al. (1994) critique the aggregate

level approach of prior cognitive studies which only imply consensus. Therefore, to understand the extent of cognitive consensus among organisational actors, the perceptions of different individuals within a firm is crucial, which forms the essence of this study.

Strategic consensus enables individuals to unify more easily, communicate more clearly, collaborate more productively, and coordinate more effectively. Of paramount importance is the impact on coordination as this requires individuals to have a consistent and shared understanding of the logic behind the strategy and a common awareness of the intended action (Kellermanns et al., 2005). Likewise, strategic consensus can also develop managerial commitment which is also vital for the successful implementation of a strategy (Dooley et al., 2000, Dess and Priem, 1995). However, strategic commitment is dependent on the belief in the strategy itself, hence scepticism of its feasibility will deter any active cooperation and support (Kellermanns et al., 2005). Therefore, to build this decision commitment can then hinder the speed of strategy implementation (Dooley et al., 2000). Furthermore, groups with higher levels of consensus anticipate fewer problems with implementing decisions and are more satisfied with decision outcomes (Mohammed and Ringseis, 2001). Other research on the relationship between consensus and efficient strategy implementation has focused on broader organisational level outcomes (Kellermanns et al., 2005). Subsequently, cohesiveness, cooperativeness, coordination, and commitment all lead to a more efficient strategy implementation which results in improved performance (Kellermanns et al., 2005).

However, as with the majority of strategy research, firm-level performance is the definitive dependent variable (Meyer, 1991, p. 825) which has resulted in a dominance of consensus-performance studies much to the detriment of the aforementioned intervening variables and other key mediators. Therefore, most research into consensus has examined its relationship with performance (Bourgeois, 1980, Bourgeois, 1985, Dess, 1987, Grinyer and Norburn, 1977, Hrebiniak and Snow, 1982, West and Schwenk, 1996, Gonzalez-Benito et al., 2012). Nevertheless, findings to date have been equivocal. Table 3.1 demonstrates that the study of consensus and its relationship with performance is extremely ambiguous. Therefore, despite the earlier prescriptions as to the importance of achieving consensus within organisations, more needs to be understood about why this produces mixed findings.

Table 3.1. Key Studies into the Effect of Consensus on Improved Firm Performance

Outcome	Studies
Support	(Bourgeois, 1980, Dess, 1987, Homburg et al., 1999, Hrebiniak and Snow, 1982, Iaquinto and Fredrickson, 1997, Stagner, 1969, St. John and Rue, 1991, Rapert et al., 2002)
Partial Support	(Bourgeois, 1980, Knight et al., 1999)
No Support or Negative Relationship	(Grinyer and Norburn, 1977, West and Schwenk, 1996, Wooldridge and Floyd, 1990, Bourgeois, 1985)

This inconclusiveness has persistently dogged consensus research leading to many scholars critiquing prior consensus research due to its inadequate definitions and research types including how the construct is operationalised (Priem, 1990, Homburg et al., 1999, Dess and Origer, 1987, Markóczy, 2001, Kellermanns et al., 2005). The conceptualisation and methods used to obtain strategic consensus is a contentious one and often cited as the reason for mixed results and non-findings (Kellermanns et al., 2005, Markóczy, 2001). Other reasons behind this ambivalence include problems in measuring performance, overlooked conditional effects, and negative aspects to consensus. These limitations have guided the research agenda on consensus and form the basis for the subsequent arguments herein.

The first major issue is how the construct has been defined. Unfortunately, from the outset of research into consensus in an organisational setting there has been limited agreement on defining the construct. Consequently, as various researchers have proposed varying definitions (Bourgeois, 1980, Grinyer and Norburn, 1977, West and Schwenk, 1996, Kellermanns et al., 2005) the operationalisation of the construct and subsequent research designs have been unreliable. Prior research has cited the issues with contrasting definitions (Priem, 1990, Homburg et al., 1999, Dess and Origer, 1987). These differences in definitions are critiqued further in section 3.4.1.

Secondly, the reason prior research has produced ambivalent findings are methodological (Homburg et al., 1999, Bowman and Ambrosini, 1997), specifically the use of weak measurements (Markóczy, 2001) and poor samples (Priem, 1990) to obtain evidence of strategic consensus. This also includes different approaches to survey design such as questions on specific strategies, multiple scenarios, and organisational activities as well as more recently comparing causal cognitive maps (Kellermanns et al., 2005). Furthermore, different data collection methods (Iaquinto and Fredrickson, 1997, Amason, 1996, Bourgeois, 1980, Homburg et al., 1999, Markóczy, 2001, Wooldridge and Floyd, 1990) and data analysis methods have also been adopted (Dess, 1987, West and Schwenk, 1996).

Subsequently, there are significant limitations to the use of standard deviation scores to calculate level of consensus within a group (Bowman and Ambrosini, 1997, Kellermanns et al., 2005). Largely these scores do not differentiate the level of priority and also fail to capture the changing nature of decision-making and consensus over time (Kellermanns et al., 2005). However, there have been subsequent advancements in capturing the complexities of cognitive consensus with both Markóczy (2001) and Tarakci et al. (2013) acknowledging the previous measurement limitations and proposing new mathematical formulae to comprehensively measure consensus.

Thirdly, the conceptualisation of the consensus-performance relationship is also problematic. Specifically with how organisational performance is being conceptualised and measured. Kellermanns et al. (2005) identify that prior research has varied in its measurement of organisational performance (e.g. objectively, subjectively, evaluations, and ideals) from financial indicators such as profitability and growth, to the success of particular strategies. In other words, most studies agree on organisational performance as the relevant outcome but little consistency remains on how this is also conceptualised and measured.

Fourthly, Gonzalez-Benito et al. (2012) view this as a modelling problem citing the importance of intervening and moderating variables to gain a greater understanding of these mixed results. Intervening or mediating variables require a more comprehensive analysis as the chain from consensus to performance may be too long (Kellermanns et al., 2005). Therefore future research must be more cognizant of proximate outcomes of consensus. As argued previously these may consider non-performance related outcomes of consensus such as coordination, cooperativeness, cohesiveness, commitment, involvement, and satisfaction with decision outcomes. Additionally, more impact is gained from studies that have used moderating variables (Kellermanns et al., 2005). The vast majority of studies that have included moderators have largely focused on environmental conditions such as munificence, complexity, dynamism (Dess and Priem, 1995, Iaquinto and Fredrickson, 1997, Hrebiniak and Snow, 1982, Bowman and Ambrosini, 1997, West and Schwenk, 1996, Homburg et al., 1999). Internally related conditional variables have included organisational level variables (organisation lifecycle stage, organisational structure), organisational tenure (Carpenter, 2002, Joshi et al., 2003), years of association (Joshi et al., 2003), and hierarchical level (Kellermanns et al., 2011). The influencing effects of the

external and internal environment are comprehensively examined in section 3.6 on consensus during crises.

Fifthly, despite previous arguments, consensus isn't always advantageous (Janis, 1972, Bourgeois, 1985, Floyd and Wooldridge, 1992). For example, decision quality can diminish if alternative perspectives are not considered early on and a single-minded view of the problem develops (Mohammed and Ringseis, 2001, Kellermanns et al., 2008). This can result in 'groupthink' which is potentially disastrous for organisations facing novel and complex environments (Janis, 1972). Consequently, cognitive diversity may be more beneficial, which is examined in section 3.3.1. Furthermore, extreme levels of consensus can have detrimental effects. Therefore, there are problems in assuming a linear relationship between consensus and performance. Thus a curvilinear relationship may be more appropriate (Kellermanns and Barnett, 2008, Kellermanns et al., 2008, Mohammed and Ringseis, 2001, Kellermanns et al., 2005, Priem, 1990).

Sixthly, other reasons for mixed findings have included limited studies on different strategies and prior corporate strategies focus as oppose to SBU level strategy (Homburg et al., 1999). Furthermore, Fiol (1994) critiques prior consensus literature for not considering the explicit subjective interpretations that accompany the chosen preferences and this may be one reason as to why the results were inconsistent.

Finally, taking all of this into account, it is evident that more extensive research is required to get a better understanding of consensus in strategy. There have been repeated calls in the literature to develop the theoretical and empirical research into strategic consensus (Bourgeois, 1985, Homburg et al., 1999, Priem, 1990, Ketokivi and Castañer, 2004, Kellermanns et al., 2005). Therefore, it is imperative that future research begins to address these major flaws.

3.2 Consensus as a Multifaceted Construct

In challenging the rational-normative view, which often implies the importance of consensus (Dess, 1987), various academics have begun to delve further into the concept to achieve a greater understanding (Wooldridge and Floyd, 1989, Markóczy, 2001, Bourgeois, 1980, Priem, 1990).

Adopting the incremental-political view provides an alternative perspective on consensus in contrast to the synoptic (rational) context. Although both perspectives advocate the importance of consensus for strategic decision making, there are some fundamental differences which must be stated to form the basis of this theoretical development. Table 3.2 illustrates some of the similarities and differences between the two approaches.

Table 3.2. The Normative and Incremental Views of Consensus

Rational-Normative View of Consensus	Incremental-Political View of Consensus
Origins: (Andrews, 1971, Ansoff, 1965)	Origins: (Braybrooke and Lindblom, 1970, Quinn, 1978, Cyert and March, 1963)
<ul style="list-style-type: none"> rational decision making process (initiated by the TMT) 	<ul style="list-style-type: none"> incremental process (initiated by groups other than the TMT)
<ul style="list-style-type: none"> consensus restricted to TMT 	<ul style="list-style-type: none"> consensus beyond TMT
<ul style="list-style-type: none"> consensus forms and spreads from the TMT 	<ul style="list-style-type: none"> coalition formed to advocate their common interests in change and if they succeed consensus will spread from this group
<ul style="list-style-type: none"> strategy formed through comprehensive decision making process where TMT reach consensus on strategic issues 	<ul style="list-style-type: none"> consensus outside of coalition doesn't reach level within
<ul style="list-style-type: none"> consensus on external environment first then goals then means 	<ul style="list-style-type: none"> consensus on course of action and not environment means-ends
<ul style="list-style-type: none"> high shared understanding among TMT and commitment determined by fit between strategic goals & self-interest 	<ul style="list-style-type: none"> high degree of understanding and commitment among initiating coalition before resolution

Extracted from Wooldridge and Floyd (1989) and Markóczy (2001)

Markóczy (2001) states that prior research has had an insufficiently refined view of consensus. Particularly, early research into consensus assumed it to be a unidimensional construct (Shanley and Correa, 1992) and investigated it as either present or not. Additionally, Homburg et al. (1999) noted that much of the earlier work on consensus focused on the subject of consensus (consensus between whom) and the object of consensus (consensus about what). However, there have been repeated calls that due to its idiosyncratic nature the unidimensional assumption should be challenged (West and Schwenk, 1996). It has been found that the incremental view of strategy development and strategy implementation allows for a new conceptualisation of consensus (Markóczy, 2001).

Following the incremental approach to strategy, Wooldridge and Floyd (1989) argue that consensus is a multidimensional construct which includes degree, content, and scope of consensus. Firstly, degree or level of consensus is how strongly that consensus is held. Secondly, content of consensus refers to the object of consensus i.e. what decision makers agree about including means and

ends and other matters. Thirdly, scope considers the spread of consensus beyond the CEO and TMT to other organisational actors. This conceptualisation of consensus begins to demonstrate the consensus formation process in organisations.

Similarly, Markóczy (2001) argues that the majority of prior research on consensus has focused on the degree of consensus, whilst generating diverse views as to the content of consensus, and often ignoring the scope of consensus. However, Markóczy (2001) expands on Wooldridge and Floyd (1989) work to include another integral dimension referred to as locus of consensus which in prior research has been limited only to the TMT. Locus of consensus is understood as which members of the organisation participate in the consensus. Furthermore, despite Wooldridge and Floyd (1989) beginning to consider consensus formation, little have paid attention to change in consensus in any of the facets (Markóczy, 2001). Consequently, Markóczy (2001) offers a refined conceptualisation of consensus formation and uncovers new patterns of consensus building. Subsequently, consensus is a multifaceted construct to include degree, content, change, scope, and locus (Markóczy, 2001, Wooldridge and Floyd, 1989), which this study adopts to better understand the phenomenon during a crisis.

3.3 Degree of Consensus

Degree (or level) of consensus refers to the strength of consensus within a group i.e. how strongly that consensus is held. With the exceptions of Wooldridge and Floyd (1989) and Markóczy (2001), the degree of consensus remains the most commonly studied facet in consensus-performance research (Grinyer and Norburn, 1977, Bourgeois, 1980, Hrebiniak and Snow, 1982, Walsh and Fahey, 1986, Dess, 1987). However, the degree of consensus is also considered a multi-layered construct that is not just about shared understanding but also commitment (Wooldridge and Floyd, 1989). Subsequently, Wooldridge and Floyd (1989) classify four varying types within the degree of consensus ranging from strong consensus (high shared understanding and high commitment), well-intentioned and ill-informed (low shared understanding and high commitment), cynicism counter effort (high shared understanding and low commitment), and weak consensus (low shared understanding and low commitment). These dynamic states capture different stages of the strategic decision making process

which would produce varied results for the predominantly cross-sectional based consensus-performance research (Wooldridge and Floyd, 1989).

Another important aspect is that the degree of consensus implies a spectrum or scale. Wooldridge and Floyd (1989) allude to this in their typology which ranges from strong consensus to weak consensus. It is this notion of weak consensus which requires further investigation. Here, it is argued that shared understanding and commitment are both low. In this case, understanding and commitment amongst individuals within a group must be diverse. This variation uncovers the importance of the polar opposite to consensus; diversity. Therefore, any reconceptualisation of the consensus construct must integrate this aspect.

3.3.1 Diversity

Even though consensus and diversity are at two ends of the same continuum, they are often studied in the literature as being mutually exclusive and have developed independently (for a review of the diversity construct see Williams and O'Reilly, 1998). Therefore, theoretically prior research has treated them as dichotomous despite measuring the degree of consensus or the level of disagreement. Having presented the importance of the consensus construct, the following section reviews the literature on diversity. To uncover the importance of diversity in strategic decision making, it is once again imperative to challenge the rational-normative approach. In strategy, the rational perspective heralds the importance of executives agreeing on the goals (or objectives) as well as the means (or competitive strategy) to achieve those ends. Conversely, the adoption of the incremental-political approach has resulted in an explosion of research into the prominence of diversity in strategic decision making. As a result, goal conflict and goal ambiguity (Bourgeois, 1980, Cyert and March, 1963) as well as conflicting means (Braybrooke and Lindblom, 1970) have all received notable attention.

Cognitive diversity is expressed in relation to differences in beliefs and preferences held by executives within a firm (Miller et al., 1998, p. 41). By its very nature it can generate multiple perspectives, engender well-thought out alternatives and ultimately lead to better decisions (Olson et al., 2007). These benefits provide further justification for the negative findings in certain consensus-

performance relationship studies. Furthermore, not only is diversity valuable in providing different perspectives, skills, and knowledge, for intragroup processes but more importantly it generates the differentiation to deal with environment complexity (van de Ven et al., 2008). Therefore, van de Ven et al. (2008) perceive cognitive diversity as inherent realities of complex, changing organisations.

In addition to the impact on team processes other implications of cognitive diversity have been investigated (Jehn et al., 1999, Kilduff et al., 2000, Knight et al., 1999) including innovation, performance and affective reactions (Jackson et al., 2003). Prior research has contended that diversity in the TMT generates strategic innovation (Barkema and Shvyrkov, 2007, Van der Vegt and Janssen, 2003). In addition, innovative organisations present high levels of openness, informality, and expression of disagreement (Kellermanns et al., 2008). Barkema and Shvyrkov (2007) found that entering new geographic areas was partially influenced by TMT diversity. Whereas Van der Vegt and Janssen (2003) found that group diversity and innovative behaviour was mediated by interdependence. However, findings for this relationship between diversity and innovation have received mixed support (Miller et al., 1998, Ancona and Caldwell, 1992, Barkema and Shvyrkov, 2007). These mixed findings can be partly due to the use of demographic variables as proxies for cognition which is covered in depth in section 3.4.3.

As with the consensus literature, diversity research has also been dominated by testing its direct link with performance (Williams and O'Reilly, 1998, Lant et al., 1992, Miller et al., 1998, Wiersema and Bantel, 1992). Paradoxically, research into the effectiveness of cognitive diversity within groups and teams has also yielded positive results (Jehn et al., 1999, Kilduff et al., 2000, Polzer et al., 2002, Williams and O'Reilly, 1998, Lant et al., 1992, Wiersema and Bantel, 1992). However, as expected, like consensus this has also resulted in negative and equivocal findings (Miller et al., 1998, Wiersema and Bantel, 1992, Michel and Hambrick, 1992, Williams and O'Reilly, 1998). Despite the abundance of research on both consensus and diversity, the link to performance for either still remains ambiguous (Fiol, 1994, Gonzalez-Benito et al., 2012, Miller et al., 1998, Smith et al., 1994, West and Schwenk, 1996).

The rationale behind these mixed findings for diversity and performance follow a similar pattern to those for the consensus-performance relationship. For example, Priem et al. (1999) highlight concerns

with the definitions and operationalisation of the diversity construct in prior research. Furthermore, the ambiguous results are due to the various aspects of diversity that can be investigated (Kilduff et al., 2000) which also reveals diversity as a multidimensional construct (Olson et al., 2007). Therefore, other distinctive facets must be incorporated into the conceptualisation as well as in line with the degree, content, change, scope, and locus of consensus.

Additionally, the absence of contextual moderators beyond affective factors and task-related factors are argued as a rationale behind the ambivalent findings (van de Ven et al., 2008). Both Priem et al. (1999) and van de Ven et al. (2008) argue for the inclusion of social integration and integrative behaviour as moderating variables. Integrative behaviour in this context refers to the degree to which employees perceive that their organisation encourages different perspectives and synthesizes those perspectives in ongoing day-to-day activities (van de Ven et al., 2008). A major problem in some diversity methodologies is the use of observable dimensions of difference (demographics) and using these as proxies for cognition. Neglecting critical intervening variables as such may also go some way in explaining the mixed findings. This issue relating to demographic variables used as proxies for cognition is examined in section 3.4.3.

Finally, to highlight the reason behind the negative findings, the adverse implications of diversity must also be understood. According to van de Ven et al. (2008), cognitive diversity is necessary but insufficient for organisational adaptation as it can be prevented by silence, alienation, cliques, and stereotypes. Therefore, it can lead to creative problem solving but also social friction and failure to identify with the group. Furthermore, the extent of divergence makes it difficult to agree on problem definition, identify relevant issues, and evaluate potential solutions (Kellermanns et al., 2008). This illustrates the dangers of high levels of diversity this time and the potential for a curvilinear relationship between degree of consensus and performance (Kellermanns and Barnett, 2008, Kellermanns et al., 2008, Mohammed and Ringseis, 2001, Kellermanns et al., 2005, Priem, 1990).

A curvilinear relationship suggests that at the extremities of the degree of consensus organisational performance will be adversely effected (Kellermanns et al., 2008). As absolute consensus and absolute diversity are generally viewed as dysfunctional, a delicate balance is required to capitalise on the advantages of both states (Mohammed and Ringseis, 2001). To pinpoint this apex in the degree

of consensus, it is important to consider how diversity and consensus can be harnessed simultaneously within an organisation. Fiol (1994) has suggested that consensus forms on most issues but only certain things need to be shared for collective learning in organisations. Likewise, Cronin and Weingart (2007) present a model based on goal hierarchy, assumptions, elements, and operators whereby individuals have shared goals but also contain individual elements. Clarke and Mackness (2001) operationalise the differences and similarities between individuals within a firm as constructs that are common, partially common, and individual. Furthermore, Mohammed and Ringseis (2001) propose the need for cognitive diversity and cognitive consensus through the negotiation of shared and idiosyncratic understandings.

Kilduff et al. (2000) draws on the sensemaking perspective to examine whether cognitive diversity has a positive or negative effect. This is considered through a concept termed interpretative ambiguity which is defined as “...*a lack of clarity within the team concerning the degree to which team members share common attributions concerning, for example, organizational success and failure*” (Kilduff et al., 2000, p. 23). This is a state of equivocality where both agreement and disagreement of the environment is simultaneously possible through the same reality in different but complementary ways. Consequently, Kilduff et al. (2000) calls for future research to examine how teams foster both equivocality and mutual understanding.

However, Mohammed and Ringseis (2001, p. 313) assert that achieving these optimal levels depend on various factors, including the specific environment in which a group operates, the level of interdependence among members, the nature of the task, and where the group is in the decision-making process. Kellermanns et al. (2005) reiterate this position arguing that the inflection point in a curvilinear relationship varies from organisation to organisation and at different phases of strategy formation (Mintzberg, 1978). Furthermore, the curvilinear relationship of heterogeneity and homogeneity with performance depends on the stability of the environment (Priem, 1990). Therefore, as previously discussed, moderating variables are crucial to the consensus-performance relationship and are examined in greater detail in section 3.6 on consensus during crisis.

3.3.2 Conflict

Diversity and particularly attempting to integrate one another's information can also result in conflict within groups (Amason and Sapienza, 1997, Cronin and Weingart, 2007). Jehn and Mannix (2001) define conflict as an awareness between individuals of discrepancies, incompatible wishes, or irreconcilable desires. Consequently, Amason (1996) highlight a paradox of functional and dysfunctional conflict in strategic decision-making. Therefore, conflict has the potential of impeding or enhancing decision quality, affective relationships, and reaching consensus. Issues in prior research was due to treating conflict as a single dimensional construct but through functional cognitive conflict and dysfunctional affective conflict shows that the paradox of conflict need not exist (Amason, 1996, Olson et al., 2007).

Conflict is functional when task oriented and focused on judgemental differences about how best to achieve common objectives, this is labelled as cognitive conflict (Amason, 1996, Dooley et al., 2000). In other words, cognitive conflict is task-oriented disagreement from differences in perceptions (Amason and Sapienza, 1997). This is also referred to as task conflict in the literature (Jehn and Mannix, 2001, Olson et al., 2007, Pelled et al., 1999) and defined as "*a condition in which group members disagree about task issues, including goals, key decision areas, procedures, and the appropriate choice for action*" (Pelled et al., 1999, p. 2). Task conflict is when diverse perspectives are expressed and challenged which arises from judgmental differences about the task at hand (Olson et al., 2007). Furthermore, Jehn and Mannix (2001) describe this type of conflict as an awareness of differences in viewpoints, opinions, and ideas to a group task. Cognitive conflict should enhance understanding and commitment and not adversely affect consensus and affective acceptance. Amason and Sapienza (1997) argue that cognitive diversity should produce cognitive conflict. According to Jehn and Mannix (2001, p. 240) "*task conflict enhances performance through a synthesis of diverse perspectives and an increase in understanding.*" Cognitive conflict accounts for the improvement in decision quality as it enhances team members' degree of understanding of their decisions thus not actually harming consensus (Amason, 1996).

However, conflict is dysfunctional when emotional and focused on personal incompatibilities or dispute which is coined as affective conflict (Amason, 1996, Dooley et al., 2000). In other words,

affective conflict is individual-oriented disagreement from personal disaffection (Amason and Sapienza, 1997). In the literature this form of conflict is also referred to as relationship conflict (Jehn and Mannix, 2001, Olson et al., 2007, Jehn et al., 1999), interpersonal conflict (Knight et al., 1999), and emotional conflict (Pelled et al., 1999). Affective conflict is “*a condition in which group members have interpersonal clashes characterized by anger, frustration, and other negative feelings*” (Pelled et al., 1999, p. 2). Jehn and Mannix (2001) describe this type of conflict as an awareness of interpersonal incompatibilities e.g. feeling tension, friction, annoyance, frustration, and irritation. As affective conflict leads to tension and animosity which is dysfunctional and triggered by personality clashes (Olson et al., 2007), it is detrimental to decision quality and affective acceptance (Amason, 1996). In other words, affective conflict emerges when disagreement is perceived as personal criticism which would trigger personal, affective conflict, fostering cynicism, avoidance, or counter effort that could undermine consensus and affective acceptance and jeopardize decision quality (Amason, 1996, p. 129).

In essence, cognitive conflict is associated with positive performance and conversely affective conflict with negative performance (Amason and Sapienza, 1997, Pelled et al., 1999). Thus conflict can be beneficial rather than costly if cognitive conflict is encouraged whilst affective conflict is restrained (Amason, 1996). However, the two forms of conflict are not mutually exclusive. Amason and Sapienza (1997) found that cognitive conflict and affective conflict are positively related highlighting the risk of pursuing cognitive conflict. Additionally, prolonged cognitive conflict can cause affective conflict. The dysfunctional tension and animosity derived from affective conflict can also be triggered by continued cognitive disagreement or task conflict (Olson et al., 2007). In other words, sustained cognitive conflict may lead to affective conflict. Amason (1996) proposes that there are issues when cognitive conflict turns into affective conflict. Therefore, even theoretically positive forms of conflict can have negative consequences (Kellermanns et al., 2008, p. 120). Furthermore a meta-analysis of conflict research has shown a negative effect of what was deemed good conflict (De Dreu and Weingart, 2003). Subsequently, conflict research has examined various intervening variables to understand the positive management of conflict. This is explored in greater detail in section 3.5 on integrative processes in building consensus.

3.4 Content of Consensus

3.4.1 *Defining Consensus*

Understanding the content of consensus is critical to research yet its importance is often neglected (Bowman and Ambrosini, 1997). Earlier studies on consensus examined comparable constructs such as agreement and cohesiveness (Kellermanns et al., 2005) and whilst the research stream continues to grow, the definitions likewise have evolved. However, whilst consensus can be assumed to be some form of agreement or cohesion between individuals, the object of consensus (i.e. consensus about what) remains contentious. This has produced differing views on the content of consensus (Bourgeois, 1980, Bourgeois, 1985, Dess, 1987, Hodgkinson and Johnson, 1994, Hrebiniak and Snow, 1982, Stagner, 1969, Grinyer and Norburn, 1977, Dess and Origer, 1987, Markóczy, 2001). The content of consensus is also shaped by the definitions of the construct as illustrated in Table 3.4.1 (for a comprehensive review of definitions see Kellermanns et al., 2005).

Table 3.4.1. Definitions of Consensus

Definition	Author
<i>“the level of agreement among the TMT or dominant coalition on factors such as goals, competitive methods, and perceptions of the environment.”</i>	(Dess and Priem, 1995, p. 402)
<i>“the level of agreement among senior managers concerning the emphasis placed on a specific type of strategy”</i>	(Homburg et al., 1999, p. 340)
<i>“the shared understanding of strategic priorities among managers at the top, middle, and/or operating levels of the organization.”</i>	(Kellermanns et al., 2005, p. 721)
<i>“the degree to which individual mental models of strategy overlap”</i>	(Knight et al., 1999, p. 445)
<i>“similarity among group members regarding how key matters are conceptualized and was operationalized as shared assumptions underlying decision issues”</i>	(Mohammed and Ringseis, 2001, p. 310)
<i>“the extent to which managers from a SBU share similar perceptions of strategic priorities. Consensus is understood here as shared understanding”</i>	(Bowman and Ambrosini, 1997, p. 244)

Following the prescriptions of the rational-normative approach, early research into consensus focused on the agreement between top managers as to the corporate objectives (ends) and/or the strategy (means). According to Dess (1987), this was also in line with seminal studies in strategic management which focused on the importance of objectives and competitive methods. Consequently, initial research centred on the relationship between goal consensus, means consensus, and firm performance (Priem, 1990) but to mixed findings. The importance of consensus on goals for the organisation is frequently advocated (Ketokivi and Castañer, 2004) yet Bourgeois (1980) found that the consensus on the means is far more important for strong performance than finding agreement on the ends itself. Alternatively, consensus on either objectives (equifinality) or methods but not both is positively related to performance (Dess, 1987). Whereas strategic consensus was positively related to performance when adopting the means and ends of a differentiation strategy over a low-cost strategy (Homburg et al., 1999).

However, if there is agreement on the goals prior to a shared understanding about the nature of the environment, then any perceptions of the external environment will be biased by TMT preferences and if agreement on means occurs first then this will result in inappropriate or suboptimal strategies (Wooldridge and Floyd, 1989). Consequently, other prior research has instead focused on the consensus of top managers' perceptions of the environmental conditions (Priem, 1990, Bourgeois, 1985). Positive performance was either related to congruence of perceived environment uncertainty and volatility or diversity in environment perceptions and diversity in goals (Bourgeois, 1985). Whereas consensus as to perceived environment uncertainty and goal consensus together is associated with poor performance (Bourgeois, 1985).

Conversely, others have viewed the content of consensus as agreement on the perceptions of more internal factors such as competitive strengths and weaknesses (Ireland et al., 1987, Hrebiniak and Snow, 1982, St. John and Rue, 1991). Hrebiniak and Snow (1982) find that TMT consensus on organisational strengths and weaknesses has a positive effect on organisational economic performance. However, agreement is more important than whether something is a strength or weakness. Ireland et al. (1987) develop these approaches by focusing on strategic planning and the fit between internal perceptions (strengths and weaknesses) as well as external perceptions (environmental uncertainty). St. John and Rue (1991) studies consensus on key competitive strengths, company goals, and implementation actions. Priem (1990) acknowledged the limitations to these early studies of consensus

and called for more complex and hybrid methods (Harrigan, 1983) to study goals, methods, and environmental perceptions.

Iaquinto and Fredrickson (1997) perceive the important aspect of consensus to be more specific and focus on TMT agreement about the comprehensiveness of the strategic decision process and how firms typically make such decisions. Therefore, they are more concerned about the agreement on the strategic decision process itself and not the outcomes or desired states of the process such as goal consensus or strategy consensus as in the prior literature. They argue that a lack of agreement is most likely due to inconsistent perceptions among TMT members. Most importantly, they find that the level of TMT agreement about the process is positively related to organisational performance.

Wooldridge and Floyd (1989) argued that to obtain a better understanding of the relationship between consensus and performance, the content needs to move beyond means-ends from the strategic decision making process towards content on strategic priorities (Burgelman, 1991, Bourgeois, 1980, Dess and Origer, 1987, West and Schwenk, 1996, Hodgkinson and Johnson, 1994, Homburg et al., 1999, Wooldridge and Floyd, 1989). Bowman and Ambrosini (1997) particularly examine firm performance and consensus on perceptions of strategic priorities. Here, strategic priorities (super-functional constructs) are an intermediate level construct between vision and functional that are associated with the broad competitive strategy of the firm. Furthermore, strategic priorities can reflect both intended strategy (e.g. plans, missions, strategic intent, and visions) and realised strategy (e.g. actual and current strategic situation) (Bowman and Ambrosini, 1997, Mintzberg and Waters, 1985). Agreement on strategic priorities is more appropriate than means-ends for the content of consensus as it reflects how strategic issues are perceived at all levels of the organisation.

This evolution of the content of consensus has increasingly demonstrated the importance of cognition in the form of perception. In this vein, Knight et al. (1999) measured the degree to which the mental models of top managers overlapped with regard to the current strategy of the organisation. Therefore, strategic consensus is an outcome measure of similarity among TMT members' interpretations about the firm's strategic orientation. Additionally, others have investigated consensus in terms of agreement within managers' cognitive representations of competitive structures of markets (e.g. Hodgkinson and Johnson, 1994, Porac et al., 1989)

To address the concerns over the narrow focus on the content of consensus in prior studies, Markóczy (2001) developed a more holistic approach and studied consensus in terms of the beliefs most relevant to firms in achieving success. Her approach included beliefs about ends and means, which are a common focus in prior studies, but also included additional factors most relevant to participants. Therefore, Markóczy (2001) contributes additional variety to the operationalisation of the content of consensus by capturing beliefs in what issues are the most relevant to the organisation and beliefs in how these issues affect each other. In other words, the content of consensus is better understood through the agreement in relevance beliefs and causal relationships (Markóczy, 2001). Furthermore, Markóczy (2001) develops the content of consensus to also embrace the scope and locus of consensus which incorporates other groups and managers of all levels. Future definitions should move towards this conceptualisation to tackle the equivocal findings between strategic consensus and outcomes (Kellermanns et al., 2005).

In this current empirical study a more holistic approach is adopted when investigating the content of consensus. This offers benefits by considering the agreement on a more complete set of factors relevant when addressing change and overcoming a crisis. Consequently, due to the increased number of beliefs and additional complexity being studied, it is highly unlikely that individuals can achieve complete consensus. Therefore, in this current study the type of consensus investigated is defined as ‘similarities and differences in beliefs (including causal beliefs) about how to achieve success’. In other words, the consensus investigated here, is about what to do about adapting to a radical change and the resolution of a subsequent crisis, rather than beliefs about understanding a crisis itself. However, any resolution put forward is based on sensemaking, or understanding the nature of a radical change and its implications for the firm, which are key stages before actions taken to resolve a crisis.

3.4.2 *Defining Diversity*

Harrison and Klein (2007, p. 1200) define diversity as “*the distribution of differences among the members of a unit with respect to a common attribute, X, such as tenure, ethnicity, conscientiousness, task attitude, or pay.*” As a result, the conceptualisation of diversity consists of two distinct categories

or aspects which has influenced both the content of diversity and its definition. These two types are referred to as surface-level diversity and deep-level diversity (Harrison et al., 1998, Harrison et al., 2002, Jehn et al., 1999). Surface-level diversity pertains differences in overt demographic attributes such as gender, ethnicity, age, organisational tenure etc., whereas differences in underlying, deeper-level (psychological) attributes includes attitudes, personality, beliefs, and values. Although prior research grouped these together and treated diversity as a unitary construct (Jehn et al., 1999), future research and theory development must treat diversity (heterogeneity) as a multi-dimensional construct (Harrison and Klein, 2007).

Surface-level diversity itself consists of two distinct layers relating to demographics. The first aspect considers visible demographic attributes (e.g. gender) (Lawrence, 1997, pp. 5-6, Kilduff et al., 2000) also labelled as visible diversity to include stereotypes and social classification schema such as racio-ethnicity, age, language, and demeanour (van de Ven et al., 2008). Demographic diversity is the degree to which a unit is heterogeneous with respect to demographic attributes (Pelled et al., 1999, p. 1). This is also termed as social category diversity (Olson et al., 2007) whereby there are explicit differences among group members in social category membership (Jehn et al., 1999). Jackson et al. (2003) argues that these relations-oriented attributes are detected in the first meeting between individuals.

The second facet of surface-level diversity examines informational diversity (Olson et al., 2007) whereby there are differences in knowledge bases and perspectives that members bring to the group (Jehn et al., 1999). This has included diversity on education, experience, expertise, organisational tenure, functional background and non-redundant network ties. Lawrence (1997, pp. 5-6) and Kilduff et al. (2000) refer to this as diversity based on relational attributes. Similarly, Harrison and Klein (2007, p. 1203) label this form of diversity as 'variety' and define as a "*composition of differences in kind, source, or category of relevant knowledge or experience among unit members; unique or distinctive information.*" Jackson et al. (2003) proposes that this diversity is based on task-related attributes and operate between visible diversity and underlying attributes. In their relationship with performance, both social category diversity and informational diversity have produced mixed findings in prior research (Olson et al., 2007). For the purposes of this study, the terms surface-level diversity and demographic diversity (Kilduff et al., 2000) will be used interchangeably.

Deep-level diversity is also referred to as less readily apparent diversity (Harrison et al., 2002) which considers personal attributes (e.g. personal beliefs and perceptions) (Lawrence, 1997, pp. 5-6, Kilduff et al., 2000) and underlying attributes (e.g. personality, knowledge, values) (Jackson et al., 2003). Other academics have categorised this as value diversity which occurs when members of a workgroup differ in terms of what they think the group’s real task, goal, target, or mission should be (Jehn et al., 1999).

In conjunction with this, van de Ven et al. (2008) incorporate elements of informational diversity, to form job-related diversity which consists of different perspectives, skills, goals, information about the task, function, education, tenure, as well as the more cognitive aspects i.e. differences in mental models and values. Therefore, this form of diversity incorporates the cognitive elements of the Harrison and Klein (2007, p. 1203) ‘variety’ definition but also what they term as ‘separation’ which is defined as a “*composition of differences in (lateral) position or opinion among unit members, primarily of value, belief, or attitude; disagreement or opposition.*” This consists of diversity on opinions, beliefs, values, and attitudes, especially regarding team goals and processes. Consequently, job-related diversity consists of cognitive and competence variation relative to the task which are associated the positive effects of diversity (van de Ven et al., 2008). For the purposes of this study, the terms deep-level diversity and cognitive diversity (Kilduff et al., 2000) will be used interchangeably.

As with cognitive consensus, the definitions and content of the cognitive diversity construct has also varied over the years (see Table 3.4.2).

Table 3.4.2. Definitions of Cognitive Diversity

Definition	Author
differences in beliefs and preferences held by upper-echelon executives within a firm. More specifically, cognitive diversity refers to variation in beliefs concerning cause–effect relationships and variation in preferences concerning various goals for the organization	(Miller et al., 1998, p. 41)
differences among team members' psychological characteristics, including personalities, values, and attitudes	(Harrison et al., 2002, p. 1031)
differences of beliefs concerning cause-effect relationships relating to various goals of the organisation	(Olson et al., 2007, p. 199)
use the term diverse organizing models to refer to different mental models among employees about the priorities, values, and principles that their organization should pursue.	(van de Ven et al., 2008, p. 338)

According to Miller et al. (1998) there are two measures of cognitive diversity; preference diversity and belief diversity. Preference diversity is differences amongst group members on the preferred goals, whereas belief diversity is the differences relating to the nature of cause-effect relationships (Miller et al., 1998). This echoes the Markóczy (2001) content of consensus position in the agreement of relevance beliefs and causal relationships. Furthermore, the definition and operationalisation of cognitive diversity by Mohammed and Ringseis (2001) incorporates assumptions underlying issues (Schneider and Shrivastava, 1988). Assumptions are a system of shared meaning on perceptions, thoughts, feelings, actions that are future-oriented, present-oriented, theoretical, methodological, interpersonal, moral, and evaluative (Mohammed and Ringseis, 2001, p. 314). The structure of assumptions refers to the number of assumptions present, degree to which they are shared (pervasiveness and penetration), the intensity to which they are held, and the degree to which they are articulated (explicitness) (Mohammed and Ringseis, 2001, p. 314).

Clearly, there is a pressing research need for greater conceptual refinement and more descriptive work on what constitutes cognitive diversity and consensus in groups, not only to incorporate assumptions but also need to explore frames of reference, belief structures etc. (Mohammed and Ringseis, 2001). Olson et al. (2007) declares that there are multiple ways of defining cognitive diversity which future research must address along with limitations relating to cross-sectional studies and causality issues (Mohammed and Ringseis, 2001).

3.4.3 *Proxies for Cognition*

However, there is a widespread belief in the diversity literature that demographic attributes are effective proxies for underlying psychological characteristics (Harrison et al., 1998). Demographic researchers work under the premise that the more demographically diverse the team, the more members see the world differently, this then effects performance and outcomes (Kilduff et al., 2000). Therefore, demographics are often used as a proxy for ‘cognitive heterogeneity’ which refers to the diversity of perceptions, judgements, problem-solving strategies etc. (Priem et al., 1999). In upper echelons theory, heterogeneity and homogeneity of the TMT is studied in line with the impact they have on firm

performance nonetheless they focus on demographics as proxies (Hambrick and Mason, 1984, Carpenter, 2002). Likewise, in their review of diversity, Jackson et al. (2003) argue that relations-oriented attributes (i.e. demographic attributes) represent an individual's values, beliefs, and attitudes.

Barkema and Shvyrkov (2007) propose that cognitive diversity is rooted in different experiences in terms of tenure, education, age, etc. Through different skills, points of view, preferences, and information regarding the focal task, promotes constructive debate which leads to strategic innovation in the form of investments into new geographic areas (Barkema and Shvyrkov, 2007). Additionally, Harrison et al. (1998) adopts the similarity attraction paradigm using organisational commitment and job satisfaction as supposed deep-level attributes to argue attitudinal similarity as a major source of attraction between individuals. Furthermore, even Harrison and Klein (2007) in their theoretical development of the three distinctive types of diversity (separation, variety, and disparity) largely draw on research that uses demographic attributes as proxies.

However, research on the consequences of demographic diversity has often led to conflicting results (Harrison et al., 1998). From a cognitive lens perspective, demographic diversity leads to diverse ideas but can also create emotional conflict which can be counterproductive (Barkema and Shvyrkov, 2007). Therefore, it is important to separate in TMT diversity the positive cognitive effects and the negative social effects. The positive cognitive effects refer to task conflict and task-related debate but demographics such as age, gender, and race have a greater influence on social processes such as stereotyping, distrust, and emotional conflict (Barkema and Shvyrkov, 2007). In support of upper echelons theorists, Carpenter (2002) argues that TMT characteristics serve as proxies for deep-level characteristics. Therefore, demographic diversity (i.e. education, work experience, and tenure) has implications for TMT behaviours which subsequently effects performance. Although the author is aware of criticisms of TMT heterogeneity research using proxies for cognition they propose it is because important moderating or intervening variables such as strategic and social context have been overlooked.

Unfortunately, as readily-detectable attributes dominate the diversity literature and are used to infer underlying attributes, cognitive diversity research is underdeveloped (Jackson et al., 2003). Therefore, this overreliance on demographic attributes as proxies for cognition can partly explain the infancy of cognitive diversity research (Mohammed and Ringseis, 2001). However, the use of

demographic proxies for cognitive variety in diversity research has been strongly opposed (Priem et al., 1999) and often cited as a cause for mixed results between diversity and performance (Miller et al., 1998). Specifically, as “...*the body of literature that results is likely characterized by weak or uninterpretable findings, unexplained phenomena, and unusable prescriptions*” (Priem et al., 1999, p. 938). Recent studies have cast doubt over demographic diversity equating to cognitive diversity and that the relationship is more complex (Kilduff et al., 2000). Although TMT demographic research has showed that top managers do matter to firm outcomes, the benefits obtained do not outweigh the sacrifices that are mandated in demographics-based TMT studies (Priem et al., 1999, p. 938).

Priem et al. (1999) are highly critical of demographic TMT heterogeneity studies using proxy variables as they are debilitated by intrinsic trade-offs which sacrifice construct validity for measurement reliability, explanation for prediction, and prescription for description. Firstly, construct validity is jeopardised as the measurements of demographic data are easily obtainable and easy to measure accurately. To improve construct validity, one must measure the desired construct of cognitive diversity directly. Furthermore, as the researchers have not observed or interviewed a TMT it is not clear whether they are measuring cognitive variety (Priem et al., 1999). Secondly, the mediating cognitive variables although are assumed these remain unmeasured and untested, creating a causal gap which points to the importance of studying the ‘black box’ of organisational demographics (Priem et al., 1999). Thirdly, descriptive relevance (the degree to which the phenomena addressed by the research reflect the phenomena encountered by the practitioner) endangers operational validity (the ability of the practitioner to implement action implications of a theory by manipulating its independent variables). Consequently, changing members of the TMT to have a different demographic composition could still lead to the same perspectives or a lack of cognitive diversity (Priem et al., 1999).

The assumption in prior literature is that demographic diversity signals variation in underlying and invisible cognitive processes yet the diversity category of personal beliefs and perceptions (Lawrence, 1997) is often neglected (Kilduff et al., 2000). Therefore, the ‘black box’ between demographic diversity and performance is complex and requires further examination (Barkema and Shvyrkov, 2007, Pelled et al., 1999). Subsequently, researchers have examined this link between

demographic diversity and cognitive diversity (Wiersema and Bantel, 1992, Smith et al., 1994, Miller et al., 1998). It has been found that the demographic diversity of the TMT has a negative effect on strategic consensus (Knight et al., 1999). According to Knight et al. (1999) by demonstrating systematic relationships between demographic measures and one measure of executive cognition, they validate an important assumption of upper echelons theory. Furthermore, by directly studying the perceived differences in knowledge, values, and skills between individual team members, Van der Vegt and Janssen (2003) find cognitive and demographic group diversity to be significantly interrelated thus providing some initial empirical support for this approach. Nevertheless, as this is a modest finding the authors suggest that future research must be careful in equating both types of group diversity (Van der Vegt and Janssen, 2003).

Therefore, others have set out to theoretically differentiate between the two constructs rather than considering demographic diversity as proxies for cognitive diversity. Accordingly, Jackson et al. (2003, p. 806) argue that *“it is important to recognize that the established theoretical value of social identity theory justifies research that examines the effects of readily detectable diversity without invoking underlying diversity as the explanation for any observed results. The logic of social identity theory does not presume an empirical relationship between readily-detected and underlying attributes. To the contrary, it asserts that intergroup relations cannot be reduced to individual psychology.”* Consequently, demographics are not proxies but different constructs (van de Ven et al., 2008, Harrison and Klein, 2007).

Additionally, Kilduff et al. (2000) attempt to open the ‘black box’ of organisational demography by examining whether the higher the demographic diversity of the TMT, the higher the cognitive diversity exhibited in the team's decision-making processes. However, demographic variables (functional specialisation, national origin, and age) were not found to explain strategic cognition in this instance. Additionally, Harrison et al. (1998) find that demographics are a poor surrogate for deeper-level information.

In upper echelons theory, the quality of strategic decisions reflects the collective capacity of the TMT (Olson et al., 2007). Therefore, the psychological and cognitive characteristics of top executives are critical to decision making. Olson et al. (2007) acknowledges that prior studies into the strategic decision making process have looked at TMT demographics (proxies) but in their study they examine

the complex cognitive processes directly e.g. cognitive diversity, task conflict, and competence-based trust to assess the impact on performance. Furthermore, they argue the importance to stop studying demographics as proxies and to examine the processes directly i.e. cognition to understand the how's and why's of effective strategic decision making. Priem et al. (1999) propose that it is vital for future research to investigate substantive heterogeneity in psychographics (attitudes, interests, and opinions) which are better behaviour predictors than demographics as well as judgements (understanding of key causal relationships) which would ultimately provide the most direct and useful assessments of cognitive heterogeneity. This aligns with beliefs and causal relationships (Markóczy, 2001) as well as preference diversity and belief diversity (Miller et al., 1998).

3.5 Building Consensus

Previous research has advocated the importance of forming consensus through the aligning of strategic objectives (Ketokivi and Castañer, 2004, Kellermanns et al., 2005, O'Reilly et al., 2010). However, as cross-sectional research into the degree of consensus would neglect that the achievability and desirability of consensus may change over time, this temporal aspect has alluded many studies (Markóczy, 2001). Therefore, it is important to longitudinally investigate the changes in the degree of consensus. It has been found that moving towards consensus has positive performance implications (Kilduff et al., 2000). Furthermore, the degree of consensus within an organisation increases during strategic change initiatives (Markóczy, 2001) and during a crisis (Combe and Carrington, 2015).

This demonstrates a movement within organisations towards forming greater consensus. Therefore, an increased understanding should provide a common vision as disagreements become synthesised into alternatives and ultimately the chosen strategic decision (Olson et al., 2007, p. 203). Consensus forms from greater diversity which demonstrates superior information-processing capability resulting in an adaptive strategy (Kellermanns et al., 2005). Kilduff et al. (2000) found that successful and high performing teams did not possess strategic consensus at the beginning of their life cycle as they have multiple interpretations (early interpretative ambiguity) but then gradually move to more clarity

and consensus towards end of teams life cycle (late heedful interrelating) through ambiguity management. Interpretative ambiguity is considered a key cognitive diversity measure that differentiated successful and unsuccessful teams. Therefore, it's good to start with high interpretative ambiguity and end with low interpretative ambiguity.

Jehn and Mannix (2001) argue that the importance of time is often ignored by organisational theorists and psychologists but not philosophers, physicists, biologists, and anthropologists. This is applicable to prior research on diversity and conflict which has been predominantly static. In other words, temporal issues are often neglected due to the cross-sectional, correlation based nature of consensus-performance studies (Kellermanns et al., 2005).

Time moderates the relative impact of overt versus underlying diversity among work group members (Harrison et al., 1998). Harrison et al. (1998) propose that cognitive diversity has steadily stronger consequences for groups than demographic diversity as group members spend more time together. This is because as people interact to get to know one another, stereotypes are replaced by more accurate knowledge of each other as individuals. Harrison et al. (1998) find that the length of time group members worked together weakened the effects of demographic diversity and strengthened the effects of cognitive diversity as group members had the opportunity to engage in meaningful interactions. However, this study is limited by being cross-sectional and just takes self-reporting measures of time spent together, rather than assessing these effects longitudinally.

However, there have been more recent attempts to investigate the dynamic nature of diversity (Harrison et al., 2002) and conflict (Jehn and Mannix, 2001). Subsequently, in a longitudinal study, Harrison et al. (2002) examine the effects of time as a moderator via collaboration. Similarly they propose through identity theory and categorisation theory and the importance of first contact categorisation is based on surface level features but over time this diminishes as they collaborate because they interact more, find out more, exchange information etc. Additionally, they study the influence on task performance rather than cohesion. Harrison et al. (2002) find that as time passes, increasing collaboration weakens the effects of demographic diversity on team outcomes but strengthens those of cognitive diversity. Although, this study was longitudinal with multiple phases over a four month period, the participants were students and not managers or employees.

As previously discussed Kilduff et al. (2000) examines the movement from diversity towards consensus but the sample consisted of MBA students playing a computer business simulation. In this context Kilduff et al. (2000) argue that that these executive students are managers outside of the educational setting. Nevertheless, they only focus on two points in time; early and late in the business computer simulation. Furthermore, Jehn and Mannix (2001) specifically examine patterns of conflict as they shift and change over time. Particularly, the paradox of needing task conflict but also eventually reaching consensus. Consequently, they find that a crucial stage in this process is the midpoint where task conflict is required. Teams performing well were characterised by low but increasing levels of process conflict, low levels of relationship conflict, with a rise near project deadlines, and moderate levels of task conflict at the midpoint of group interaction (Jehn and Mannix, 2001). However, the sample also consisted of part-time MBA students, whilst these are predominantly managers, they are removed from their organisational setting.

This reinforces the view that conflict must be examined as a dynamic process, rather than as a static event (Jehn and Mannix, 2001). This condition is persistently called for in future research on consensus (Kellermanns et al., 2005, Kilduff et al., 2000). Future work should examine in greater detail the time-related effects of team diversity (Kilduff et al., 2000). Furthermore, conditions under which consensus forms are closely related to the question of when consensus forms (Kellermanns et al., 2005). Therefore, it is essential that future research designs should consider temporal effects as prior research often neglects causal inferences and lag effects (Kellermanns et al., 2005). Furthermore, it is vital that future studies examine this in an organisational setting.

Individuals can arrive with different views and/or goals but must seek reconciliation of conflicting perspectives (Mohammed and Ringseis, 2001). In their seminal work, Lawrence and Lorsch (1967) advocate that a high level of diversity coupled with strong integration results in superior performance (van de Ven et al., 2008). Upper echelons theorists (e.g. Hambrick and Mason, 1984) advise the need for behavioural integration to utilise demographic diversity as high performance occurs when diverse teams actively explored alternatives (via brainstorming, challenging ideas etc.) compared

to those without high debate (Simons et al., 1999). Therefore, to gain a greater understanding of how groups move from a diverse position to building consensus, it is important to consider some of the processes underlying this change.

Knight et al. (1999) contend that strategic consensus can form when group processes such as cohesion, communication, and conflict have been utilised to resolve differences in individual mental models of strategy to provide greater efficiency or greater effectiveness. Specifically, the group processes of interpersonal conflict and agreement-seeking.

Mohammed and Ringseis (2001) find that group members who inquire as to the reasons underlying others' decision preferences, accepting others' viewpoints as legitimate, and incorporating others' perspectives into their own interpretations of the issues was positively related to arriving at a greater degree of cognitive consensus. This finding supports the contention of Sniezek and Henry (1990) that group discussion serves a number of purposes, including altering the cognitive process of individual group members and allowing for the combination of member perceptions and opinions. However, Mohammed and Ringseis (2001) acknowledge that a major limitation with their study is that the findings are based on a two hour simulation but that cognitive consensus develops over longer periods of time. Also there is a need to conduct the research in organisational setting.

The longitudinal study by van de Ven et al. (2008) finds that the integrative methods of open communications, involvement, and conflict resolution in implementing an organisational change initiative moderate a positive relationship between cognitive diversity among employees and organisational performance. In other words, diversity provides the potential for greater and broader information for decision-making, but this potential is dependent on integration processes. Therefore, instead of seeking consensus on a singular vision of a strategic change initiative, managers are more likely to improve organisational performance by focusing their interventions on creating integrative methods for encouraging and learning from diverse and opposing views of an organisational change initiative (van de Ven et al., 2008).

Ketokivi and Castañer (2004) focus on the alignment or misalignment of employees subgroup goals with the organisational goals, examining the importance of strategic planning as an integrative device to reduce this position bias (favouring subgroup goals over organisational goals) or subgoal

pursuit. Therefore, reducing position bias enhances goal convergence. Two characteristics of strategic planning help reduce position bias and enhance goal convergence; participative planning (employee participation in strategic planning) and communicating the resulting goals and priorities to all employees; with the latter receiving little attention in prior literature (Ketokivi and Castañer, 2004). Ketokivi and Castañer (2004) find that strategic planning is effective in reducing position bias. Specifically participation and communication function as complements to jointly reduce managerial position bias and ensure convergence.

Finally, when strong norms of constructive confrontation are in place, teams are in a better position to reap the benefits of conflict due to a greater diversity of inputs without experiencing its negative consequences (Kellermanns et al., 2008). In the prior literature, other integrative mechanisms to overcome conflict and position biases have included integrating departments, collective incentives, personnel transfer, cross-training, and socialisation into common values (Ketokivi and Castañer, 2004).

Consensus can also build through longer exposure of interaction between organisational members. Clarke and Mackaness (2001) argue that based on experience and working together over time individuals are more likely to share constructs in common. Similarly, continued interaction diminishes cognitive diversity of the TMT (Barkema and Shvyrkov, 2007) and can perpetuate groupthink (Janis, 1972). Additionally, convergence would still eventually occur even if new members initially brought fresh perspectives (Barkema and Shvyrkov, 2007). However, it is possible that the longer individuals work together in a group the more comfortable and confident they are in expressing different views (Carpenter, 2002). Nevertheless, it was found that social interaction between TMT members over time significantly decreased their cognitive diversity (Barkema and Shvyrkov, 2007). Furthermore, in light of strategic change initiatives, Markóczy (2001) finds that consensus does build within the focal companies near the beginning and end of the respective strategic change. However, by only examining two data points one cannot *rule out the possibility that consensus formed without change due to organizational members working together over time, the identified pattern of consensus formation suggests otherwise*" (Markóczy, 2001, p. 1027). In other words, forming of consensus could occur due to working together over this time and not because of the change initiative itself.

Finally, as well as the temporal and integration effects, negative consequences can emerge from forming consensus if there are leader errors (Marcy and Mumford, 2010) or competitive blindspots (Audia et al., 2000, Zajac and Bazerman, 1991, Ng et al., 2009). Furthermore, homogeneity is associated with fixed mental models (Cho and Hambrick, 2006) which become inert and stable over-time through the same collaboration and membership (Skilton and Dooley, 2010). According to March and Simon (1958, pp. 152-153) the binding nature of a schema is also a result of ‘reinforcement’ via ‘in-group communication’ whereby individuals have similar schemata to their peers.

3.6 Consensus during Crises

Without cognitive consensus, strategies may not be implemented to overcome a crisis. Paramount to having cognitive consensus is the ability to make decisions and take action quickly (Eisenhardt and Bourgeois, 1988, Eisenhardt, 1989b) which is particularly important during crises. However, within stable environments homogenous teams result in quicker and more effective decisions (Hambrick and Mason, 1984). Additionally, successful TMTs only achieve strategic consensus towards the end of their lifecycle (Kilduff et al., 2000). For organisations during crises these findings could be problematic as swift strategic decisions and actions may be required. Therefore, this section focuses on the contextual implications for consensus during crises.

During a crisis as decisions may need to be made swiftly due to time pressures it may be vital that organisations adopt majority decision rules (agreement by the majority) over unanimity decision rules (agreement by all). Unanimity encourages the sharing of minority points of view and the questioning of assumptions to a greater extent than majority rule, which makes reaching a decision difficult as more discussion is required resulting in longer time demands and increased difficulty of arriving at a decision (Mohammed and Ringseis, 2001). Therefore, the majority decision rule is more efficient, less time consuming, and prevents impasses. Nevertheless, majority decision rule may not be preferred for some groups as it can often lead to compromise rather than integration and not resolve

diverse preferences (Mohammed and Ringseis, 2001) which could also be essential during crises. As expected, Mohammed and Ringseis (2001) find that unanimity decision rule groups achieve more cognitive consensus than majority rule groups. However, the implications of these during a crisis are not investigated.

Building on the previous conceptualisations of a crisis it is evident that changes in the external environment are paramount. Early studies have focused on how environmental uncertainty or volatility can breed cognitive diversity amongst managers (Lawrence and Lorsch, 1967, Hambrick, 1981, Ireland et al., 1987). In particular, seminal research by Hrebiniak and Snow (1982) examined how uncertainty in the external environment and high environmental complexity can lead to organisational diversity or dissensus (Lawrence and Lorsch, 1967). Additionally, Dess and Origer (1987) offer in their integrative framework the environmental dimensions of level of slack (munificence) and level of uncertainty (dynamism and complexity) as antecedents. Firstly, reaching consensus is especially important under resource scarcity or environmental munificence (Dess, 1987). Secondly, environmental uncertainty is a multidimensional construct which requires further exploration (Homburg et al., 1999).

In their research on strategic consensus, Homburg et al. (1999) focus on the dynamism component of environmental uncertainty. The construct of market-related dynamism is conceptualised as the frequency of major market related changes (Child, 1972). A dynamic environment increases differences in meaning (Fiol, 1994, p. 408). In other words, the rate of change in a dynamic environment may result in reduced cognitive consensus (or increased cognitive diversity), which demonstrates environmental dynamism as an integral influence (Dess and Origer, 1987). Furthermore, in situations of high environmental turbulence, managers have different views of the competitive environment (Reger and Palmer, 1996). This has implications of diversity both across and within organisations and TMTs. Reger and Palmer (1996) propose that cognitive diversity during high environmental turbulence is a fruitful area for future research.

Furthermore, cognitive diversity is particularly important where various perspectives are needed to tackle complex decisions (Olson et al., 2007) such as during crises. Importance of diversity in complex and uncertain environments (Schneider and Angelmar, 1993, Mohammed and Ringseis, 2001). Similarly, strategist theorists advise to avoid the inertia of a single dominant logic in diversified firms

which echoes the need for diverse or multiple logics (van de Ven et al., 2008). Consequently, Olson et al. (2007) propose that CEO's should welcome diverse perspectives from team members to ensure a range of ideas in solving complex issues.

However, if the high level of environmental dynamism is agreed upon, as are the goals and methods to tackle this, then environmental dynamism may have limited effect (Priem, 1990, p. 474). Additionally, whilst diversity can be valuable in complex and uncertain environments early on in the strategy development process, later on it could be detrimental particularly during strategy implementation (Mohammed and Ringseis, 2001).

van de Ven et al. (2008, p. 342) argue that organisations in complex environments must develop similar complexity in their structures and orientations in order to succeed. This advocates the law of requisite variety which states that complex strategies and multifaceted environments necessitate cognitively-heterogeneous TMTs (Priem et al., 1999). Subsequently, van de Ven et al. (2008) argue that internal variety in a social system should reflect external variety in the environment of that system. Additionally, an adaptive organisation has a repertoire of competencies and perspectives that is broad and flexible enough to sense and adapt to environmental complexity (van de Ven et al., 2008). This supports Weick (1995) on variety in processes and beliefs where it is needed to fully see a situation and solutions so more diversity results in greater accuracy. van de Ven et al. (2008) find that to deal with this complexity, the interaction of integrative methods and diversity of organizing models has a significant positive effect on performance. However, van de Ven et al. (2008) acknowledge their methodological limitations with sample size (37 clinics) and also the context was during a period of high complexity so diversity was probably needed.

In relation to firm performance, the influence of environmental dynamism and environmental munificence on cognitive consensus has also received notable attention (Dess and Priem, 1995, Bowman and Ambrosini, 1997). During a crisis environmental dynamism, complexity, and munificence are all increased dramatically which can result in a multitude of performance implications.

Priem (1990) introduces a curvilinear relationship of heterogeneity and homogeneity with performance depending also on stability of environment. Therefore, environmental dynamism is

incorporated as a consensus-performance moderator. Subsequently, they propose that in a stable environment, high levels of TMT consensus is associated with high performance; whereas in a dynamic environment, low levels of TMT consensus is associated with high performance. Despite using a more rigorous method and larger sample of firms compared to previous studies, West and Schwenk (1996) were unable to identify any significant findings when looking at the link between strategic consensus and performance in a stable industry environment compared with a dynamic one. Additionally, Jaquinto and Fredrickson (1997) did not find a statistically significant result between consensus and performance when testing environmental stability as a moderating variable.

However, Homburg et al. (1999) argue that limited moderation of environmental dynamism in prior consensus-performance research has generated the mixed results. Achieving consensus is costly and that the benefits only offset these costs in certain situations such as the type of strategy and dynamism in the environment (Homburg et al., 1999). Homburg et al. (1999) find that the consensus-performance link is stronger in situations of low market-related dynamism. More specifically, they find that strategic consensus and performance was positively related when adopting a differentiation strategy over a low-cost strategy. This relationship between consensus on a differentiation strategy and performance is negatively influenced by dynamism of the market. In other words, when pursuing a differentiation strategy, consensus is more important in stable than in turbulent environments. Therefore, achieving consensus was less important in a turbulent environment as the market may have shifted by the time consensus was reached. These findings relate and contribute to strategy implementation and consensus.

Furthermore, Gonzalez-Benito et al. (2012, p. 1707) find the consensus-performance relationship is positive for less dynamic environments, but that relationship turns negative in more dynamic environments. However, this is explained through a mediated-moderation model which examines the relationship between competitive method consensus and the degree of consensus on objectives (Gonzalez-Benito et al., 2012). Dooley et al. (2000) acknowledge that even when mediating the consensus-performance relationship with decision commitment, that things may be different in different contexts e.g. the need for speed in turbulent environments.

Therefore, it is clear from the prior research a relationship between the external environment and consensus exists. However, due to ambiguous findings this link evidently requires a detailed examination to understand this relationship further.

Finally, according to Iaquinto and Fredrickson (1997) prior research also contests that good past performance legitimates the strategic decision process (Staw et al., 1981, Bourgeois, 1980, Dess, 1987). Kilduff et al. (2000) argue that strategic consensus and firm performance have a reciprocal relationship, whereby firm performance is affected by and likewise affects strategic consensus. Subsequently, they find that cognitive diversity affects and is affected by changes in firm performance (Kilduff et al., 2000). Thus, decreasing cognitive diversity and improving performance had a reciprocal relationship. In other words, poor past performance can generate group diversity. However, TMT agreement influences performance and not reverse, thus past performance had no association with TMT agreement (Iaquinto and Fredrickson, 1997). Others have also tested performance as an antecedent of consensus (Bourgeois, 1980, Bourgeois, 1985, Dess, 1987, Hrebiniak and Snow, 1982).

3.7 Diffusion of Consensus

A commonly held view regarding both strategy and consensus is that they are initiated and influenced by the TMT or leader(s) of an organisation (Hrebiniak and Snow, 1982, Dess, 1987, Bourgeois, 1980). Consequently, much of the research on consensus has focused on the TMT. This is viewed as the rational decision making process (Markóczy, 2001, Fredrickson, 1984) which takes the position that strategy is a top-down process where those in the upper echelons of an organisation influence both the planning and execution of strategy. In deciding the direction of the organisation they then manage the implementation efforts of others directly or indirectly (Nutt, 1987, Fredrickson, 1986).

However, there is still limited knowledge on the diffusion process of strategic consensus within organisations (Kellermanns et al., 2005, p. 733). Most importantly, Kellermanns et al. (2005) calls for future research to address whether there are distinctive patterns of diffusion for strategic consensus (top-down, bottom-up, middle-up-down) that vary systematically with antecedents and outcomes. According

to (Kellermanns et al., 2005) it is important to consider where consensus emerges first and how does scope evolve? This requires the rational-normative perspective of strategy to be challenged to incorporate other important organisational actors involved in strategy formulation and implementation through considering the incremental-political approach. Consequently, it is imperative to shift the argument beyond the TMT (Wooldridge and Floyd, 1989).

Consequently, Homburg et al. (1999) express that consensus shouldn't just be with the TMT at a corporate level. This echoes previous work which has advocated the importance of non-TMT organisational actors in strategy (Ouchi, 1981, Quinn, 1978, Hutt et al., 1988, Wooldridge and Floyd, 1989) and when non-TMT organisational actors drive strategy (Fredrickson, 1983, Eisenhardt and Bourgeois, 1988, Wooldridge and Floyd, 1989, Cyert and March, 1963, Quinn, 1978, Narayanan and Fahey, 1982, Burgelman, 1991, Markóczy, 2001). In their theoretical review of strategic consensus, Kellermanns et al. (2005) consider the importance of shared understanding among managers both within and across multiple hierarchical levels which allows the examination of the scope and locus of consensus. Consequently, strategic consensus is defined as “*the shared understanding of strategic priorities among managers at the top, middle, and/or operating levels of the organization*” (Kellermanns et al., 2005, p. 721). Through adopting this alternative approach, the diffusion of consensus process can be considered through changes in the scope and locus of consensus which leads to the first set of propositions.

3.7.1 *Scope of Consensus*

Consensus is essential in both the formulation and implementation of strategy, requiring agreement at all levels on a common set of strategic priorities (Floyd and Wooldridge, 1992). Therefore, it is important to have an alignment of organisational objectives i.e. a shared vision (Bourgeois, 1980, Knight et al., 1999). Top management announcements of major organisational changes gives the impression of a clear vision, purpose, direction, and confidence that all organisational members will support (van de Ven et al., 2008). Consequently, the objective is to achieve clarity and consensus among

employees on strategic vision to build a unity of direction, cooperation, and performance in implementing the change. Likewise, strategic consensus is achieved when various levels of employees within an organisation agree on what is most important for the organisation to succeed (Boyer and McDermott, 1999, Joshi et al., 2003). Furthermore, organisationwide participation is essential in complex and uncertain environments (Mintzberg, 1978, Wooldridge and Floyd, 1989). Moving towards this position, emphasises the extent of members whom can participate in the consensus i.e. the scope of consensus (Wooldridge and Floyd, 1989, Floyd and Wooldridge, 1992, Markóczy, 2001).

However, consensus is seldom achieved as change generates diverse and conflicting views (van de Ven et al., 2008). Therefore, at different levels of the organisation, members have differing perceptions, which has an effect on how consensus spreads and where it forms. Hodgkinson and Johnson (1994) argue that different managers in different roles, face different environmental contingencies in terms of context, function, and level of responsibility (Lawrence and Lorsch, 1967), which are shaped by past experiences and material circumstances. Diversity seems to reflect differences in the roles particular actors perform within their organisations, with more complex taxonomies being elicited from managers whose jobs require deeper insights into their business environment (Hodgkinson and Johnson, 1994). Likewise, Clarke and Mackaness (2001) propose that it might be expected that chief executives will see some things in situations that their functional counterparts will not. By implication, it is hypothesised that they will demonstrate substantially different patterns of cognitive constructs than their functional counterparts.

In their study of strategy formulation processes, Ireland et al. (1987) in support of Stevenson (1976), find that perceptions of strength and weakness indicators and perceptions of environmental uncertainty vary by management level. They examine the institutional level (TMT), managerial level (MMs), and technical level (i.e. top-, middle-, and lower-level managers) and specifically find that lower-level managers perceive more environmental uncertainty than middle managers but not top managers. Additionally, lower-level managers have to have some input or involvement with the strategic planning process. Likewise, a strategy is less likely to be sabotaged if disagreements are synthesised into a common vision (Olson et al., 2007). Ireland et al. (1987) also propose that salience of events or information will be different at the various levels. Similarly, Daniels et al. (1994) find that diversity of cognition of competition exists across the industry, between functions, or even within the same company

but less diverse down this spectrum. Individuals' mental models of competition were most diverse if they belonged to different companies and different management functions but less diverse if they shared similar management functions.

Nevertheless, in some situations the scope of consensus may be more important than the degree of consensus (Wooldridge and Floyd, 1989). Consequently, these diverse perceptions at different levels must be reconciled and the scope of consensus increased. Regardless of prior literature stating the importance of organisationwide consensus (Mintzberg, 1978, Quinn, 1978, Fredrickson, 1984), scope of consensus or increase in the scope of consensus is one of the least explored facets (Markóczy, 2001, Bowman and Ambrosini, 1997). Therefore, Markóczy (2001) examines how scope of consensus changes over time, relating back to the debate between the rational and incremental model. Markóczy (2001) finds that consensus formation did occur during the strategic change within all three focal organisations in all of the investigated organisational members. However, contrary to some views, less through an increase in the degree of consensus among the initial members and more through an increase in the scope of consensus. Furthermore, the scope of consensus across leadership groups increased during a crisis (Combe and Carrington, 2015).

Joshi et al. (2003) focus on the aligning of strategic priorities at different organisational levels, connecting functional strategy with business strategy. In theory, the various levels of strategy, and strategic priorities are consistent, linked, and mutually supporting. It is found that alignment of key goals across all company employees is important for strategic development as well as strategic implementation (Joshi et al., 2003). Likewise, "*while TMT consensus is instrumental in achieving unity of command and direction, goal convergence at different levels of the organisation facilitates strategy implementation*" (Ketokivi and Castañer, 2004, p. 339). Therefore, successful implementation can be hindered through interdepartmental and hierarchical conflict due to subgoal pursuit and position bias at different organisational levels (Ketokivi and Castañer, 2004). However, Ketokivi and Castañer (2004) find that when different levels beyond the TMT participate in the strategic planning process and the resulting priorities are communicated clearly this position bias is reduced enabling strategy implementation.

Furthermore, vertical communication of strategic priorities improves the alignment of strategic priorities at functional levels of the organisation (Rapert et al., 2002).

St. John and Rue (1991) examine the importance of a common vision between functions (marketing and manufacturing) and coordinating mechanisms between them. Marketing and manufacturing oversee the critical activities of strategy implementation thus requiring reciprocal interdependency. This provides a consensus-performance link in the strategy implementation aspect as oppose to prior literature which looked at strategy formulation and from a TMT perspective (St. John and Rue, 1991). Those organisations that made more frequent use of planning techniques experienced higher levels of interdepartmental consensus.

This aspect of multilevel complexities in diversity research is a vital area that requires further development (Jackson et al., 2003). Diversity can be observed at several levels of analysis including the individual, dyad, work group, or the organisation as a whole (Jackson et al., 2003, p. 818). However, research into diversity at the organisational level is limited and horizontal peer-to-peer dyads has become more prevalent (Jackson et al., 2003). Additionally, Narayanan et al. (2011) highlight that an area in desperate need of attention is understanding strategic cognition within groups and at different levels of the organisation. Therefore, investigating consensus between multiple individuals across all hierarchical levels of an organisation provides greater insight into this aspect.

3.7.2 *Locus of Consensus*

Locus of consensus refers to which members of the organisation participate in the consensus (Markóczy, 2001). A commonly held view in the strategic management literature is that consensus is initiated by the top management team or leader(s) of an organisation (Hrebiniak and Snow, 1982, Dess, 1987, Bourgeois, 1980). This hierarchical view contends that the locus of consensus is predominantly situated at the upper echelon level, because these individuals direct the response to change (Markóczy, 2001). Bourgeois (1980) found that performance in TMTs only improved if there was agreement on

both the corporate objectives and the means or strategies used to attaining them. Consequently, much of the research on consensus has been focused on top managers. This top management centric view suggests that strategy is formulated rationally (Markóczy, 2001, Fredrickson, 1984) involving a top-down process, where those in the upper echelons of an organisation influence and direct both the planning and execution of strategy. In deciding the direction of the organisation, leaders then manage the implementation efforts of others, directly or indirectly (Nutt, 1987, Fredrickson, 1986).

However, in challenging the normative ideal, the locus of consensus can go beyond the TMT as the centre of strategic decision making and move to a more evolutionary view including the importance of operating managers and middle managers (Kellermanns et al., 2005). Markóczy (2001) examines whether consensus is primarily located (locus) in the TMT or in other interest groups during strategic change in three focal firms. Consequently, it is found that at the early stage of strategic change the primary loci of consensus didn't reside in the TMTs but in a special group of managers interested in the direction of that change, particularly those in the favoured areas such as research & development (R&D), production, and marketing and sales. This study also found that consensus formation happened through the convergence of the beliefs of other organisation members towards the initial loci of consensus. Consequently, Markóczy (2001) find patterns of locus and change in scope which run counter to the implicit assumptions of much of the literature on top management teams. Others have revealed the importance of middle managers in the process (Raes et al., 2011, Balogun and Johnson, 2005, Rouleau and Balogun, 2011). Despite finding that consensus formed within different leadership groups, Combe and Carrington (2015) didn't investigate which group was most influential or where consensus first formed.

Markóczy (2001) studied consensus in various management teams within three organisations and found that consensus did not emerge within the top management teams. Rather, consensus emerged within an interest group whose members benefited from the direction of an environmental change. In a more recent empirical study of emerging consensus over time within management teams within a single organisation during a crisis, Combe and Carrington (2015) found that consensus in beliefs emerged first within the mental models of specific leadership teams. It is possible to conclude, but based on rather limited evidence, that building consensus to resolve crises takes considerable time and is likely to first emerge at a team level. There is very limited longitudinal prior empirical research on the consensus of

managers at different levels within organisations as they respond to crises, and followers near the bottom of organisational hierarchies, have been overlooked.

Kellermanns et al. (2005) propose that future research should look more closely at this issue of locus of consensus and the different perceptions of top, middle, and lower level managers. Researchers should define the locus and content of consensus in their study to be consistent with the study context and theoretical premises. Whilst means and ends are important to consider for the TMT, beyond this group it is essential to think about strategic priorities which takes into account content, scope, and locus of consensus.

3.8 Theoretical Development (Propositions)

With the literature on strategic cognition often focusing on CEO's at the individual level and TMTs on the group level an area in desperate need of attention is understanding strategic cognition within groups and at different levels of the organisation (Narayanan et al., 2011). By also including the incremental view of the strategy process, Markóczy (2001) investigated strategy as initiated and driven by interest groups who share a common interest in change that differ from the TMT (Fredrickson, 1983, Eisenhardt and Bourgeois, 1988, Wooldridge and Floyd, 1989, Narayanan and Fahey, 1982, Burgelman, 1991, Pettigrew, 1992). Consequently, Markóczy (2001) finds that the locus of consensus in strategic change initiatives is in managers of interest groups and not in the TMT. However, this still pertains to individuals who are from management level and above, neglecting the role and influence of followers in forming consensus.

Currently, it is known that consensus development occurs in teams but how followers are influenced or even how they influence others is lacking from the present literature. Therefore, it is clear that despite all the prior research on consensus there is still very limited understanding of the locus of consensus and more importantly understanding the role of followers in this process. For instance, do followers build consensus from a particular dominant management team e.g. TMT? Or do they develop consensus due to self-interest if they may benefit from change (Markóczy, 2001). Hence, empirical

knowledge of understanding the cognition of followers (employees) in relation to strategic consensus is absent from the literature.

Ng et al. (2009, p. 364) found that the greater the distance from the TMT, the greater the difference in competitive perceptions, and thus the greater a TMT's blind spots. Although this chain stretches as far as customers and suppliers, by just focusing on managers and the upper echelons of organisations there remains missing valuable information about the cognition at the lower levels which may have more accurate perceptions. As Kellermanns et al. (2005, p. 733) conclude that there is still limited knowledge of the diffusion process of consensus within organisations, this study takes the argument one step further to include followers who are likely to have detailed knowledge of operational issues. This follows calls from Combe and Carrington (2015) that future research should investigate the role of followers (other employees) and whether their beliefs are different to that of leaders.

Consequently, limited research into cognition has looked at the influence of followers in the strategy process. To address this issue it is important to build on the newly growing follower-centric leadership research (Uhl-Bien et al., 2014, Oc and Bashshur, 2013, Tee et al., 2013, Kohles et al., 2012, Sy et al., 2005, Carsten et al., 2010) which is beginning to address earlier calls (Hollander, 1992, Lord and Hall, 1992, Lord et al., 1999, Weierter, 1997). This break from leadership dominated theory initiated a new wave of research that reversed this trend by adopting this position of followers' role in leadership.

"Followership theory is the study of the nature and impact of followers and following in the leadership process" (Uhl-Bien et al., 2014, p. 96). A deconstruction of the meaning of followership suggests that there are two sides to a follower; the passive (or accepting leaders' decisions) and the challenging (Carsten et al., 2010). This division is also discussed by Collinson (2006) who discovered that followers range in the passivity of their identities from conformist selves to resistant selves. The latter gives more agency to followers in the decision making process. Additionally, work has focused on the upward influence of followers (Ansari and Kapoor, 1987, Kipnis et al., 1980, Deluga, 1988, Deluga and Perry, 1991) and more recently, how followers' emotion and mood influences leaders (Dasborough et al., 2009, Sy et al., 2005, Meindl, 1995, Hannah et al., 2008, Tee et al., 2013).

In their leadership schema model, Lord et al. (2001) give equal weighting to followers' goals and leaders' goals. In their review of followership theory, Uhl-Bien et al. (2014) trace the history of research into followership as flowing from early follower-centric literature and role-based views in

research. Research next focused on the relational view, which examined leadership as a mutual influence process among leaders and followers. From this perspective, followers have an active role and are a source of social influence on leaders so that leadership itself is co-constructed (Oc and Bashshur (2013). However, at this stage there remains a limited understanding of its impact on consensus and strategy as well as in the contexts of novel environments e.g. crises.

To develop theory when studying the consensus in leaders and followers when responding to a crisis cognitive vision formation theory is integrated with followership theory discussed above. Integrating these two theories helps to focus the research on two important aspects when organisations respond to crises. One, the vision for the future and two, the agency required to develop a vision so an organisation can respond to a crisis. This current study maintains that it is likely that both leaders and followers will influence how firms achieve a vision for the future to resolve a crisis.

Strange and Mumford (2002) outline several mechanisms by which an articulated vision can influence followers' actions. A vision specifies direction and purpose to followers as well as providing a powerful motivational influence around a set of future goals. A vision also provides a sense of identity and gives meaning to followers as well as a framework for action by coordinating activities.

Cognitive vision formation theory helps explain the mechanism for cognitive shifts in leaders based on the different experiences and values of individuals. The theory is also associated with mechanism to influence followers as Strange and Mumford (2002) explain. However, empirical evidence is required to confirm if the mental models of followers do align with those of leaders over time, especially when an important vision is required to overcome a crisis. A key question arises when integrating the insights from cognitive vision formation theory and followership theory in the context of overcoming a crisis: Who leads the development of a vision for the future to resolve a crisis, and who follows, or are prescriptive mental models co-constructed over time? Empirical evidence is lacking to answer this question. While answering this question, fully, is beyond the scope of this thesis, it makes a start by investigating consensus in beliefs within both leaders and followers in how they respond to a crisis over time.

To summarise, prior research suggests that achieving consensus is essential to help successfully implement strategies to resolve a crisis. Although it is important to have different opinions early on

during a crisis, consensus must be reached quickly so that a unified response can occur. Therefore, the following proposition is offered:

Proposition 1. As the crisis develops, the scope of consensus will increase over time.

Similarly, much of the literature on frontline employees' (FLEs) involvement in strategy is often related to their reaction to top-down strategy being implemented (Piderit, 2000). This has resulted in considering FLEs to either resist the change being implemented by leaders (Piderit, 2000) or adapt to the change (Sonenshein and Dholakia, 2012). Nag et al. (2007) found that when an organisation attempted to implement a new market-oriented strategy, sensemaking by the organisational members failed and they reverted back to their old identity. According to Hartline et al. (2000), the dissemination of strategic orientation to align FLEs is influenced by three control mechanisms; management initiated, employee-initiated, and dual. However, it was found that employee-initiated control mechanisms had limited effect (Hartline et al., 2000). Whereas, Ye et al. (2007) found that a lack of FLE involvement in goal-setting and the decision-making processes resulted in performance loss. Nevertheless, these positions still advocate a rational-normative perspective and assume that consensus is formed within the leadership team and disseminated in a top-down diffusion process.

In sum, much prior research suggests that during a crisis the leaders of an organisation will communicate the vision for the future. As a result, there is an expectation that consensus will develop first in the leaders so they can envision the future for followers.

Proposition 2a. In response to a crisis, leaders will be the initial locus of consensus in beliefs.

Proposition 2b. As the crisis develops, leaders will be the locus of consensus in beliefs.

As the literature on strategic cognition is often focused on the CEO at the individual level or the top management team at a group level, there is express need to understand strategic cognition within other teams and at different levels of organisations (Narayanan et al., 2011). Some change initiatives can favour an interest group (Markóczy (2001) who share a common interest in change that may differ

from the TMT (Fredrickson, 1983, Eisenhardt and Bourgeois, 1988, Wooldridge and Floyd, 1989, Narayanan and Fahey, 1982, Burgelman, 1991, Pettigrew, 1992).

While prior research has widened the search for the locus of consensus to various management teams, the role and influence of followers in forming consensus is largely neglected. Followers may differ widely in their competitive perception. Ng et al. (2009, p. 364), for example, found differences in competitive perceptions within a value chain, based on overconfidence bias, thus introducing top management blind spots. Similarly, Marcy and Mumford (2010) suggest that when leaders make sense of their environment they must be cognizant of and responsive to the mental models being applied by followers or other relevant stakeholders (Maitlis, 2005). Consequently, there is support for the view that more research should be directed at widening the search for the locus of consensus and to investigate the different beliefs of top, middle, and lower level employees. Furthermore, there is still limited knowledge of the consensus diffusion process within organisations (Kellermanns et al., 2005, p. 733).

In this study, consensus and diversity is mapped in both leaders and followers. Followers are likely to possess detailed knowledge of operational issues, which may influence leaders' perceptions and beliefs when crises are cumulative. To address the impact of followers during a crisis the recently emerging follower-centric leadership research is developed (Kohles et al., 2012, Uhl-Bien et al., 2014, Sy et al., 2005, Carsten et al., 2010) which is beginning to address earlier calls for more research into the influence of followers (Hollander, 1992, Lord and Hall, 1992, Lord et al., 1999, Weierter, 1997).

In sum, the followership literature permits an alternative proposition:

Proposition 3a. In response to a crisis, followers will be the initial locus of consensus in beliefs.

Proposition 3b. As the crisis develops, followers will be the locus of consensus in beliefs.

However, more recently scholars have tracked the importance of middle managers in the strategy process (Raes et al., 2011, Balogun and Johnson, 2004, Floyd and Wooldridge, 1992, Wooldridge et al., 2008, Bowman and Ambrosini, 1997). Floyd and Lane (2000, p. 158) argue that whilst the role of the TMT is in decision-making (ratifying, directing, and recognising), the middle management role is to focus on the communication of information between levels (championing, facilitating, synthesising, and implementing). Conversely, during organisational restructuring middle

managers play a significant role in continuing shared understanding while shaping change in the absence of top management influence (Balogun and Johnson, 2004). Balogun and Johnson (2005) found that middle managers, as change recipients, are integral to understanding how intended strategies can lead to both intended and unintended consequences. Raes et al. (2011) theorised about the interaction between top and middle managers and concluded that cognitive flexibility and mutual influencing bargaining are required to improve the quality of strategic decision-making and strategy implementation. Despite the role of middle managers as mediators in the strategy implementation process, bridging the gap between top managers and frontline employees, they can also have more fully developed leadership roles within organisations as a whole.

Therefore, integrating this middle management perspective into consensus formation, the following is proposed:

Proposition 4a. In response to a crisis, the middle management group will be the initial locus of consensus in beliefs.

Proposition 4b. As the crisis develops, the middle management group will be the locus of consensus in beliefs.

CHAPTER 4 – THEORETICAL BACKGROUND: COGNITIVE SHIFTS

Forming consensus, regardless of origins, would depend on altering cognition over time on an individual level. In other words, building consensus requires a cognitive shift or cognitive reorientation in certain individuals (Barr, 1998, Barr et al., 1992, Kaplan, 2008). Both Dionne et al. (2010) and Liu et al. (2012) argue that this would require individuals' mental models to converge to form consensus. Likewise, any change in consensus or diversity would reflect cognitive shifts in certain individuals. Longitudinal empirical evidence on the development of consensus in leaders and followers in how to respond to change and resolve crises, based on cognitive shifts, is very limited.

4.1 Cognitive Rigidity

One of the greatest challenges with strategic change or dealing with crises is people's resistance or inflexibility to adapt to a new context. This has been supported through the rigidity of schemata based on an individual's prior experience (Miller and Sardais, 2013, Walsh, 1995, Starbuck and Milliken, 1988). In other words, a commonly held view regarding schemata is that events are processed through pre-existing knowledge systems that represent beliefs, theories and propositions that have developed over time based on personal experience (Ireland et al., 1987, p. 470).

Kiesler and Sproull (1982, p. 557) propose that managers operate on mental representations of the world and those representations are likely to be of historical environments rather than of current ones. For example, when an individual activates a familiar schema they generate specific expectations about their environment based on past experiences in similar situations thus information processing and perception in this case is deductive and becomes reference-dependent (Cornelissen and Werner, 2014, Thorngate, 1980). Therefore, individuals attribute cues or stimuli from the environment to an existing schema (Walsh, 1995, Starbuck and Milliken, 1988), to enable them to "comprehend, understand, explain, attribute, extrapolate, and predict" (Starbuck and Milliken, 1988, p. 51).

This issue of rigidity in the face of threats or novel environments is evidently clear in the work on ‘cognitive entrenchment’ (Dane, 2010) and ‘managerial autism’ (Muurlink et al., 2012). Dane (2010) refers to cognitive entrenchment as a high level of stability in one’s domain schemas. As individuals gain experience and become experts in a particular domain they become cognitively entrenched (Dane, 2010). Therefore, even this deeply-ingrained schematic process hinders experts in engaging with dynamic environments leading to inflexibility with problem solving, adaptation, and creative idea generation (Dane, 2010). Similarly, in their study of threat rigidity, Muurlink et al. (2012) devise the concept of ‘managerial autism’, which they signify as an inward focus, and a tendency to looped responses for managers when dealing with a crisis. They examine management responses to internal and external threats and suggest that rigidity plays a role as an independent variable as well as a consequence of crisis.

Consequently, this cognitive rigidity is reflected in belief-driven sensemaking (Weick, 1995) and can cause sensemaking to collapse or fail (Cornelissen and Werner, 2014, Nag et al., 2007, Pratt, 2000, Weick, 1988, Weick, 1993) which can have detrimental implications for organisations during a crisis or change. Although schemata makes sensemaking possible it may also lead to perceptual mistakes (Harris, 1994, p. 311). For example, as documented by Cornelissen and Werner (2014, pp. 188-189) individuals make expectations about outcomes and infer related elements as part of the same schema through a relationship of conceptual contiguity (i.e. cause and effects, roles and actions, and actions and consequences) which during a crisis can lead to disastrous consequences (Weick, 1988) due to the activation of conventional scenarios. In these instances when sense is elusive or easily normalised, events accumulate and develop into larger, more serious problems (Roux-Dufort, 2007). Therefore, difficulties with sensemaking are what mediate potentially dangerous outcomes (Weick, 2010) as the schemata of specific individuals and groups create barriers during crisis and change.

4.1.1 Cognitive Biases

More specifically, this fixed schematic structure can present cognitive biases as individuals encounter an unprecedented and ambiguous situation during an organisational crisis. These biases are discussed in the work on bounded rationality whereby the rationality of individuals is limited by the information they have and the cognitive limitations of their minds (March and Simon, 1958). Developing the work of bounded rationality suggests that ‘blind spots’ (inaccuracies) in perception could lead to problematic outcomes for firms (Zajac and Bazerman, 1991) such as when there is a sudden alteration to the environment. Research has already demonstrated that managers do not always make perfectly rational decisions especially as they possess incomplete views of the external competitive landscape which is subject to a number of biases (Eggers and Kaplan, 2013, Porac et al., 2011).

Central to this and the schema literature is that inaccuracies occur due to cognitive biases in perception (Kahneman, 2003). Therefore, when faced with a crisis individuals are often biased to revert to their pre-existing schemata which can be incompatible with the new context. This highlights the failure of the activated schema to guide inferences meaningfully in real time or, worse, its tendency to blind individuals to an alternative interpretation (Cornelissen and Werner, 2014, p. 189). This common human tendency to base judgments on prior beliefs and intuition rather than on a logical reasoning process can bias performance (De Neys, 2006, p. 428). For example, Porac et al. (1989) found that decisions relating to determining competitive boundaries ultimately reflected the intuition and cognitive constructions of managers.

4.1.2 Intuition

In this instance intuition is built up through experience and expertise and is present in experts’ decision schemata (Clarke and Mackaness, 2001, Dane and Pratt, 2007). Intuition emerges from experience and that it represents something over-and-above explanation provided by basic ‘facts’ (Clarke and Mackaness, 2001, p. 152). Porac et al. (1989) found that decisions relating to determining competitive boundaries ultimately reflected the intuition and cognitive constructions of managers

despite the availability of sophisticated methods for analysing and determining competitive boundaries. This position helps to understand how accurately individuals' views represented the underlying competitive landscape (Kaplan, 2011, p. 676). Porac et al. (2011, p. 650) found that beliefs seemed to be reinforced along the value chain because as 'Hawick' producers had a biased sample of market cues [and] tended to focus and interact with only their existing suppliers and customers, and obviously were being selective in what they heard.

According to Cornelissen and Werner (2014, p. 195), activating a schema may occur unconsciously and operate through intuitive associations that facilitate access to the schema. Consequently, intuition plays a central role when individuals employ schema as it is a means of 'going beyond' the rational data and information, by using experiences to 'cut through' to the essence of a situation, helping to make sense of it, and as a test of its validity (Clarke and Mackaness, 2001, p. 166). Therefore, intuitive thinking is an important aspect to understand both sensemaking (Jenkins and Johnson, 1997, Sonenshein, 2007, Weick, 1995, p. 88) and decision schemata (Clarke and Mackaness, 2001, Dane and Pratt, 2007). Dane and Pratt (2007, p. 40) define intuition as "affectively charged judgments that arise through rapid, non-conscious, and holistic associations." Similar to schemata, intuitive evaluations of outcomes are also reference-dependent (Kahneman, 2003). Intuition also plays a big role in sensemaking whereby intuitive judgement is required following the construction of issues to help explain and justify a situation (Sonenshein, 2007).

4.1.3 Implications of Cognitive Rigidity

There still remains a paradox within schema theory in that the inferential capacity of schematic information processing can be at once enabling whilst also crippling (Walsh, 1995, p. 282). For example, the structure of cognitive models or schemata can simplify decision making through reducing the processing of information (Fiske and Taylor, 1984). Conversely, schemata may also entrap individuals and impede their ability to be reflective and mindful in context (Cornelissen and Werner, 2014, p. 189). Consequently, in the face of threats, rigidity has both dysfunctional and functional consequences (Staw et al., 1981).

This issue of rigidity and inflexible thinking has extremely grave consequences when firms encounter dramatic environment alteration. Both Gioia (1986) and Dane (2010) argue that inflexible thinking create barriers, as well as impeding sensemaking, creative problem solving, adaptation, idea generation, and prompt one to ignore discrepant and possibly important information resulting in incomplete views of the competitive environment (Porac et al., 2011) and strategic myopia (Harris, 1994). Other liabilities of this deductive perspective include encouraging stereotypic thinking; subvert controlled information processing; fill data gaps with typical but perhaps inaccurate information; prompt one to ignore discrepant and possibly important information; discourage disconfirmation of the existing knowledge structure; and inhibit creative problem solving (Gioia, 1986, p. 346).

The preceding arguments have demonstrated that the inflexibility of schemata especially during a crisis has detrimental performance implications. Therefore, prior research demonstrates that during a crisis the stability of schematic structures impede efforts to adapt or change. From this perspective schemata rarely change and are perceived as fairly stable and rigid structures. In theory, rigidity of cognition based on prior experience (developed over-time) is coupled with in practice when individuals face a crisis or change they often resist or struggle with adaptation.

4.2 Cognitive Flexibility

The research into ‘theory-driven’ information processing is often critiqued as knowledge structures can limit an individual’s ability to understand an information domain (Walsh, 1995, p. 282). Most significantly is the view that an overreliance on a pre-existing schema can be an important source of failure in the context of novel, unprecedented, or changing circumstances (Cornelissen and Werner, 2014). This establishes a perspective whereby individuals and in turn organisations are unable to adapt to environmental changes. However, both individuals and firms can adapt and/or innovate demonstrating that change is not only possible but commonplace.

Prior research has suggested that change requires a cognitive reorientation (Barr, 1998, Barr et al., 1992, Kaplan, 2008). In other words, as crises do not neatly conform to existing mental models they

need to be restructured for adaptation to take place (Marcy and Mumford, 2010). Barr et al. (1992) find that mental models must adapt to changes in the environment. Similarly, in their commentary, Kellermanns and Barnett (2008) argue that mental models are fluid and can adapt to the changes during turbulent environments. It is this individual cognitive shift from one mental model to another (Foldy et al., 2008) which makes forming consensus possible (Ospina and Foldy, 2010). Consequently, a shift in cognition requires flexibility in thinking (flexible thinking) which can lead to organisational effectiveness particularly when facing novel environments (Gupta, 1984, Walsh, 1995). Foldy et al. (2008, p. 516) label this a cognitive shift which is a change in how an organisational audience views or understands an important element of the organisation's work. Prompting cognitive shifts can also help build consensus through creating a sense of shared interests (Ospina and Foldy, 2010).

Cognitive shifts would require flexibility in one's mental models. These can be altered depending on the novelty of the information been processed (Harris, 1994) particularly when the information environment is dramatically changed (Labianca et al., 2000). Higher levels of flexibility are likely to occur in managers who are facing decisions that are uncertain (Sharfman and Dean Jr, 1997). According to Raes et al. (2011), cognitive flexibility will increase the creativity of interpretations of information and the generation of alternatives, which may induce "cognitive shifts" that facilitate change (Foldy et al., 2008, Mom et al., 2007). Other research has demonstrated cognitive shifts from a managerial to an entrepreneurial mind-set (Wright et al., 2000) and from a business frame to a paradoxical frame (Hahn et al., 2014).

4.2.1 Schema Change

In recent years there has been a large contribution of research to look at how cognition and specifically schemas change over time (Bingham and Kahl, 2013, Benner and Tripsas, 2012, Gavetti et al., 2005, Cornelissen and Clarke, 2010). Therefore, scholars have countered this perspective by investigating situations where schemata require inferential flexibility and alternative conceptualisations (Benner and Tripsas, 2012, Levinthal and Rerup, 2006, Tripsas and Gavetti, 2000). This has

concentrated on trying to capture the process of new schemata emerging or developing, and blending or aligning existing schemata.

Both Bingham and Kahl (2013) and Labianca et al. (2000) develop models which conceptualise a process for how new schemata emerge over a substantial period of time. Bingham and Kahl (2013) identify three key processes of schemata emergence which begins with assimilation, then deconstruction which facilitates differentiating an assimilated schema to help create a new schema, and finally solidifying the new schema through unitization. They explore how an industry developed their schema for the computer between 1945 and 1975 to understand how organisations make a new (unfamiliar) schema familiar but also conceptually distinct from an existing schema. Additionally, Labianca et al. (2000) propose a change model for organisational decision-making schema which consists of four stages; motivation to change, new schema generation phase, iterative schema comparison phase, and stabilization phase. Both of these models demonstrate the plausibility of schema change albeit over long time periods.

If emergent cues turn out to violate the normal expectations associated with an activated schema, it may lead to a meaning void, which in itself may stimulate individuals to recover or regain sense by shifting to an alternative schema (Cornelissen and Werner, 2014, p. 189). According to Labianca et al. (2000, p. 237) this can occur if the information environment is dramatically altered or if a leader articulates a new vision for the organisation. As previously discussed, due to the ambiguity of cause, effect, and means of resolution, during a crisis activating schema from prior experience either disappears or is no longer adequate. Therefore, individuals must make sense of their new or altered environments. According, to Weick (1995) this is reflected in action-driven sensemaking and sensemaking can be triggered and enabled. Additionally, Balogun et al. (2014, p. 187) argue that sensemaking is central to processes of change in organisations since such change requires a ‘cognitive reorientation’; a shift in the shared interpretive schemes that govern the way the members of an organisation conceive of their organisation and their environment (Balogun and Johnson, 2004, Gioia and Chittipeddi, 1991, Mantere et al., 2012, Sonenshein, 2010).

Additionally, recent studies have investigated the modification or transformation of schemata based on analogical reasoning to support the transfer from an old context to a new one (Benner and Tripsas, 2012, Cornelissen and Clarke, 2010, Etzion and Ferraro, 2010, Gary et al., 2012, Gavetti et al.,

2005, Lovallo et al., 2012). Further research into analogical reasoning and transfer (Etzion and Ferraro, 2010, Gary et al., 2012, Lovallo et al., 2012) has expanded the debates around schemas blending and aligning (Glynn and Lounsbury, 2005).

4.2.2 *Switching Cognitive Types*

In novel instances, such as crises, people switch from automatic cognitive processing or habits of mind to active thinking (Louis and Sutton, 1991). Levinthal and Rerup (2006) make this distinction by individuals crossing between mindful and less-mindful perspectives. Therefore, once an appropriate switch to active thinking has been made, the individual revises relevant cognitive structures and accounts for discrepancy or builds new mental models in response to novelty (Louis and Sutton, 1991, p. 71). In conjunction with this, over recent years, the cognition literature has received added impetus following an explosion of interest in dual-process theories of cognition in cognitive psychology and social cognition (Hodgkinson and Healey, 2008, pp. 390-391). According to De Neys (2006, p. 428) dual-process theories generally assume that a first system (often called the heuristic system) will tend to solve a problem by relying on prior knowledge and beliefs, whereas a second system (often called the analytic system) allows reasoning according to logical standards. These systems are also referred to as type 1 and type 2 processing (Evans and Stanovich, 2013) respectively.

An important distinction in dual-process theories is that type 1 is often referred to as being intuitive whereas type 2 demonstrates a more reflective process (Evans and Stanovich, 2013). According to Kahneman (2003) ambiguity and uncertainty are suppressed in intuitive judgment (type 1) as well as in perception. Doubt is a phenomenon of type 2, an awareness of one's ability to think incompatible thoughts about the same thing. Furthermore, Type 1 does not require working memory, operates rapidly, and is autonomous, whereas type 2 is slow, requires working memory, and heavily demanding of people's computational resources (Evans and Stanovich, 2013, De Neys, 2006).

The activation of either type 1 or type 2 processing depends on the 'cognitive ease' of the task in hand which ranges from easy to strained (Kahneman, 2011). This resonates with Evans and Stanovich (2013, pp. 236-237) notion of default interventionism when type 2 processing takes over or intervenes

with type 1 intuitive thinking (Kahneman, 2011). Once again the views of Louis and Sutton (1991) are essential for understanding the process of when actors are likely to become cognitively engaged with sensemaking (Weick, 1995, pp. 90-91) and potentially develop new schema. “*First, switching to a conscious mode is provoked when one experiences a situation as unusual or novel...second, switching is provoked by discrepancy...third condition exists of a deliberate initiative, usually in response to an internal or external request for an increased level of conscious attention*” (Louis and Sutton, 1991, p. 60).

This alternative perspective differs to the rational agent of economic theory which would be described, in the language of the present treatment, as endowed with a single cognitive system that has the logical ability of a flawless type 2 and the low computing costs of type 1 (Kahneman, 2003, p. 1469). However, it is evident in much of the information processing literature that this is not the case as irrational decision-making occurs frequently. Individuals are susceptible to various errors in logical reasoning as often their objective risk judgment is biased by the vividness of their recollection of past experience (De Neys, 2006). The presence of biases in decision-making demonstrates type 1 processing (Evans and Stanovich, 2013, De Neys, 2006, Kahneman, 2011).

4.2.3 *Temporal Nature of Flexibility*

Although, new cues or stimuli can guide information processing in a ‘bottom-up’ or ‘data driven’ approach, the development of amended schemata will be subsequently used later in a top-down process (Walsh, 1995). This occurs as the process lessens the frequency with which inconsistent information is discovered and made conscious so the very nature of schemata acts to ensure that drastic challenges to their validity seldom arise (Harris, 1994, p. 311). As a result, it becomes extremely difficult for individuals to shift from their existing schemata (Benner and Tripsas, 2012).

However, new espoused schemata are influenced by action particularly how routines become sources of schema change through trial-and-error learning, even in ordinary circumstances (Rerup and Feldman, 2011). Therefore, Rerup and Feldman (2011, p. 605) argue that schema change is not a one-

off ‘strategic’ event but an on-going process that requires understanding of the everyday and repeated aspects of organisational behaviour. This is contrary to the arguments that despite being capable of schemata emergence or modification the construct is largely stable. Consequently, Harris (1994, p. 310) defines schemata as the *dynamic*, cognitive knowledge structures regarding specific concepts, entities, and events used by individuals to encode and represent incoming information efficiently.

Therefore, current information context guides information processing which can be viewed as ‘bottom-up’ or ‘data-driven’ (Bingham and Kahl, 2013, Benner and Tripsas, 2012, Rerup and Feldman, 2011). This stream of research presents an alternative perspective that during a crisis individuals can modify or create new schemata to help adapt to shifts in the environment. Following this schemata are viewed as being flexible and changeable.

4.3 Degree of Cognitive Shift

To date, how individuals process information remains a contentious debate with two contrasting approaches dominating the literature (Ocasio, 2011, Walsh, 1995). The two previous positions have demonstrated the common divide in the literature regarding how the schemata of individuals operate during a crisis. Currently, the literature demonstrates a dichotomy, that during a crisis schemata are discussed as being either stable (unchanged) or flexible (emerge or modify). However, these two states are often considered or studied independently. Therefore, it is important to reflect that during a crisis individuals react and adapt differently which should highlight that both these perspectives are plausible during a crisis or change.

At present the only research to begin to look at the dynamics of both rigid and flexible schemata is the work of Dane (2010). Although this is cited in the literature as a possible explanation for why different individuals within an organisation can have rigid (experts) or flexible (novices) schemata empirical evidence is lacking. However, if both states are plausible, then in this instance schemata have the potential to be dynamic and information conflicting with a schema will either be ignored as an

aberration, be cognitively recast to fit current schemata, or generate either schema modification or the addition of a schema subcategory (Harris, 1994, p. 311). Likewise, schemata have the capacity to change in three different orders; first-order change, or incremental changes occur within particular schemata already shared by members of a client system; second-order change, or modifications in the shared schemata themselves; and third-order change, or the development of the capacity of the client system to change the schemata as events require (Bartunek and Moch, 1987, p. 483).

“Taken together, these observations can be analysed to reveal three kinds of situations in which actors are likely to become consciously engaged. First, switching to a conscious mode is provoked when one experiences a situation as unusual or novel - when something ‘stands out of the ordinary’, ‘is unique,’ or when the ‘unfamiliar’ or ‘previously unknown’ is experienced. Second, switching is provoked by discrepancy - when ‘acts are in some way frustrated,’ when there is ‘an unexpected failure’, ‘a disruption’, ‘a troublesome... situation,’ when there is a significant difference between expectations and reality. A third condition exists of a deliberate initiative, usually in response to an internal or external request for an increased level of conscious attention - as when people are ‘asked to think’ or ‘explicitly questioned’ when they choose to ‘try something new” (Louis and Sutton, 1991, p. 60).

Therefore, once an appropriate switch to active thinking has been made, the individual revises relevant schema or other cognitive structures and accounts for discrepancy or builds new schema in response to novelty (Louis and Sutton, 1991, p. 71).

What is starting to emerge from the literature is a drive towards understanding cognition not as two dichotomous states but more holistically. Leana and Barry (2000) argue that some level of tension between stability and change is an inevitable part of organisational life and that this tension must characterise future research. Similarly, rigidity and flexibility are not polar terms and Rosenblatt and Mannheim (1996) call for a re-evaluation of the meaning of organisational rigidity. Furthermore, as Evans and Stanovich (2013, p. 229) argue in their critique of the extant literature on dual-processing that there isn't two discrete types but a continuum of processing styles.

To empirically test the stability or flexibility of mental models i.e. the degree of cognitive shifts, longitudinal evidence is required which is limited in the extant literature. A limited stream of empirical research has started to address the need for longitudinal evidence regarding schemata change (Barr et al., 1992, Bingham and Kahl, 2013, Benner and Tripsas, 2012). However, to date this support has been predominantly through secondary data using documentary evidence (i.e. letters to shareholders, trade

publications, annual reports and other archival data). This approach not only assumes consensus within organisations but also problems relating to authorship of schemata. Consequently, this current study seeks to provide a more complete account of the degree of an individuals' cognitive shift during an organisational crisis.

4.5 Theoretical Development (Propositions)

Building consensus, regardless of its origins, would depend on altering cognition in at least some organisational members over time at an individual level. Kaplan (2008) as well as others (Barr, 1998, Barr et al., 1992) suggested that responding to radical change involves cognitive re-orientations or a change in mental models. Foldy et al. (2008, p. 516) label this a 'cognitive shift' which is a change in how an organisational audience views or understands an important element of the organisation's work. Prompting cognitive shifts can also help build consensus through creating a sense of shared interests (Ospina and Foldy, 2010).

Cognitive shifts would require flexibility in an individual's mental models. These can be altered depending on the novelty of the information being processed (Harris, 1994), particularly when the information environment is dramatically changed (Labianca et al., 2000). Higher levels of flexibility are likely to occur in managers who are facing decisions that are uncertain (Sharfman and Dean Jr, 1997). In novel instances, such as crises, people switch from automatic cognitive processing, or habits of mind, to active thinking (Louis and Sutton, 1991). Levinthal and Rerup (2006) make this distinction as individuals cross between less-mindful to a mindful perspective. Once an appropriate switch to active thinking has been made, the individual revises relevant cognitive structures and accounts for discrepancy or builds new mental models in response to novelty (Louis and Sutton, 1991, p. 71). This is most probable during a crisis. Therefore, the following proposition is offered:

Proposition 5. In response to a crisis, a higher degree of cognitive shift is expected initially than at a later stage.

Barr et al. (1992) found that the mental models of leaders must adapt to changes in the environment for organisations to successfully adapt. Similarly, Kellermanns and Barnett (2008) argued that top managers' mental models are fluid and can adapt to the changes during turbulent environments. Raes et al. (2011) discussed the importance of cognitive flexibility between top and middle managers in generating alternatives, which may prompt cognitive shifts that facilitate organisational adaptation. Other research has demonstrated cognitive shifts in an entrepreneurial context (Wright et al., 2000) and in relation to corporate sustainability (Hahn et al., 2014).

Conversely, in theory, rigidity of cognition based on prior experience (developed over-time) suggests that individuals often resist or struggle with cognitive shifts. This issue of rigidity in the face of threats or novel environments is evident in the work on 'cognitive entrenchment' (Dane, 2010) and 'managerial autism' (Muurlink et al., 2012). Both Gioia (1986) and Dane (2010) argue that inflexible thinking creates barriers, as well as impeding sensemaking, idea generation, adaptation, and prompts individuals to ignore discrepant and possibly important information. The consequences result in incomplete views of the competitive environment (Porac et al., 2011) and strategic myopia (Harris, 1994).

Much research on cognition takes the view that events are processed through pre-existing knowledge systems that represent beliefs, theories and propositions that have developed over time based on personal experience (Ireland et al., 1987, p. 470). As individuals have particular cognitive predispositions that influence how they interpret the information from the environment, cognition also directs what actions individuals take in their engagement with particular initiatives (Kaplan, 2008, p. 736). Kiesler and Sproull (1982, p. 557) proposed that managers operate on mental representations of the world and those representations are likely to be of historical environments rather than of current ones. Longitudinally, individual cognitions are susceptible to cognitive inertia as they can remain highly stable (Hodgkinson, 1997).

At present the research into cognition at an individual level (micro-level) focuses largely on either top managers or leaders (Clarke and Mackaness, 2001, Kiesler and Sproull, 1982). However,

responding to change and overcoming crises requires cognitive shifts in both leaders and followers. Leaders can strategise to overcome crises but unless followers also shift their beliefs consensus will not materialise. In particular, individual cognition (schemata) at all levels of the firm are imperative as organisational change initiatives and responding to organisational crises are not restricted to the upper echelons. Furthermore, according to Rerup and Feldman (2011) even in the development of organisational schemata, the role of people throughout organisations (Labianca et al., 2000) and the role of middle managers (Balogun and Johnson, 2004) are just as important. Therefore, this empirical study looks to address this by examining individual cognitive shifts at all levels of an organisation during a crisis.

Conversely, much of the research relating to cognitive shifts focuses on the leaders within and across organisations or takes the organisationwide position based on publicly available information. Therefore, a considerable amount of research indicates the potential for cognitive shifts in leaders particularly during novel circumstances such as crises. There is limited knowledge of the cognitive shifts in followers and whether they act similarly or differently to leaders in these situations. *“Since strategic change depends on the cognition of organizational employees, the impact of managerial sensegiving efforts is measured by their effect on employee sensemaking”* (Mantere et al., 2012, p. 174). Furthermore, at the organisational level, the link between lower level sensemaking and strategic action that requires coordination is a murky one (Narayanan et al., 2011, p. 337). Currently, two distinct positions are known about frontline employees (FLE) responses to strategic change; resistance (Piderit, 2000) or adaptation (Sonenshein and Dholakia, 2012).

In summary, a significant amount of prior research highlights the importance of cognitive shifts in leaders particularly during novel circumstances such as crises. However, most prior research relating to cognitive shifts has tended to focus on only the leaders within and across organisations. Some prior research also assumes consensus by taking an organisationwide position, such as by assuming the views of the CEO represent the views of the whole organisation. There is limited discussion and knowledge of the cognitive shifts experienced by followers and their alignment or otherwise with the beliefs of their leaders in these situations.

Consequently, it is assumed that leaders will make sense of a radical environmental change first and therefore change their thinking. Therefore, the following proposition is put forward:

Proposition 6. As the crisis develops, leaders will initially have a higher degree of cognitive shift than followers.

Clarke and Mackaness (2001) find partial support for the causal maps of chief executives to be less factually based and thus more intuitive than those of functional managers because of their relative remoteness from the day-to-day business. Furthermore, Raes et al. (2011) discuss the importance of cognitive flexibility between TMT and MMs in generating alternatives which may prompt cognitive shifts that facilitate change. In their study of sensemaking and schemata change, Balogun and Johnson (2004, p. 525) propose that schemata act as data reduction devices enabling individuals to negotiate a complex and confusing world. Their findings provide that different change processes lead to different patterns of schema development based on middle manager sensemaking of restructuring. Therefore, to differentiate between these the TMT and the middle management group, the following is proposed:

Proposition 7a. As the crisis develops, the TMT will initially have a higher degree of cognitive shift than other groups.

Proposition 7b. As the crisis develops, the middle management group will initially have a higher degree of cognitive shift than other groups.

Finally, Dane (2010) argues that as individuals become experts in a particular domain they become cognitively entrenched which he refers to as a high level of stability in one's domain schemata. In this instance intuition is built up through experience and expertise and is present in experts' decision schemata (Dane, 2010). Therefore, even this deeply-ingrained schematic process hinders experts in engaging with dynamic environments leading to inflexibility with problem solving, adaptation, and creative idea generation. Consequently, experts and novices solve problems differently (Cronin and Weingart, 2007). Dane (2010) begins to address this by theoretically proposing that experts' domain schemata are more cognitively entrenched than that of novices' which results in an inflexibility to adapt.

Where schema change is required, novices may react more flexibly to new information than experts (Rousseau, 2001), indicating a lower degree of cognitive shift in experts.

This low degree of cognitive shift is further supported by König et al. (2013) who argue that a top manager's tenure at an organisation freezes their mental model which results in a form of 'tunnel vision' and a reinforcement to the commitment of the status quo (Finkelstein and Hambrick, 1990, Gomez-Mejia et al., 2001, p. 86). Consequently, the longer an individual is at an organisation, the lower their degree of cognitive shift via the commitment to perpetuating the status quo (Hambrick et al., 1993). However, experience and expertise of a particular domain could be acquired from previous organisations and situations. Therefore, experience and expertise could be reflected in the age of an individual. Although age and cognitive shifts has received notable attention in the psychology literature (Salthouse, 2011, Salthouse, 2012), there remains scant empirical research into this in an organisational setting.

In sum, this presents the view that within organisations there is potential for individuals to have high or low degrees of cognitive shift based on organisational tenure and age. Therefore, the following are proposed:

Proposition 8a. During a crisis, age is expected to have a negative effect on the degree of cognitive shift.

Proposition 8b. During a crisis, organisational tenure is expected to have a negative effect on the degree of cognitive shift.

CHAPTER 5 – METHODOLOGY

5.1 Case Study

To investigate cognitive consensus, a research design that can examine the richness and complexities of similarities and differences in cognition at an individual level is required (see Bougon et al., 1977, Hodgkinson and Johnson, 1994, Markóczy, 1997, Wacker, 1981, Walsh, 1988, Weick, 1979, Combe and Carrington, 2015). This is also applicable in being able to study cognitive shifts. Therefore, it was decided that a single case study method (see Yin, 2013) would be most suitable as it would allow an in-depth investigation into the individual perceptions and responses to a crisis at all levels of an organisation.

This study aims to address the request from Priem et al. (1999) that the ‘black box’ of organisational demography research be illuminated via fine-grained research. To examine the richness and complexity of cognition in the strategic decision making process, they call for the need for in-depth case analyses to provide new insights into complex social processes. Furthermore, prior literature on the implications of crises in organisational settings, predominantly focus on single firms, such as Hyundai (Kim, 1998), Nissan (Witcher and Chau, 2012), Union Carbide India Limited (Weick, 2010, Weick, 1988), Bristol Royal Infirmary (Weick and Sutcliffe, 2003), the National Aeronautics and Space Administration (Dunbar and Garud, 2009), and the Baltimore & Ohio Railroad Museum (Christianson et al., 2009).

Furthermore, Homburg et al. (1999) highlight that in previous research on consensus there is a trade-off between the total number of firms and the number of respondents within each firm. Consequently, when sample size is known to be small, the most appropriate method is the case study. A single case study method in this context is also important as it addresses on-going calls to bridge the levels of analysis as currently research is focused on top managers (leaders) and middle management groups. Therefore, individual mental representations at all levels of the firm are imperative during organisational crisis not just the upper echelons.

Therefore, this research follows a single case study method (see Yin, 2013) as it allows investigating phenomena such as individuals’ cognition within the same organisational context. Single

case study method allows for an in-depth investigation of a single or small number of units over a period of time. This is classified as a Type 2 design as there are also multiple units of analysis within a single case (Yin, 2013). According to Yin (2013), case study design is a research strategy for examining a contemporary phenomenon in its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident. Additionally, case studies are the most suitable method to challenge traditional theories, which is a cornerstone of the research propositions developed earlier. Subsequently, case studies often lead to new theories about psychological phenomena.

However, with all research it is essential to establish the domain to which a study's findings can be generalised. The gains made here in internal validity compromise the external validity of the research. With the case study method, particularly with a single case, ensuring external validity proves difficult. This is mainly due to it being isolated within one organisation and utilising a small sample size despite being longitudinal. Therefore, it is important to note that generalisation must be performed analytically as it cannot be done statistically. Additionally, it is vital that the research design uses theory within the single case study to generalise (Eisenhardt, 1989a). The aim of this research is not to generalise to other settings but to deeply understand the phenomena within a single setting. To ensure construct validity (correctness of operational measures) within the case study design multiple sources of evidence are incorporated into the research design as well as key informants reviewing drafts of the case study in written and verbal reports. To establish that the research is reliable during data collection a case study protocol is used and a case study database developed. This helps demonstrate that if the study was to be replicated it could yield the same results.

Tracking changes in cognitive consensus and mapping cognitive shifts during crises requires a case study design which is also longitudinal. This is justified because the adequacy of cross-sectional studies has been questioned when investigating highly complex inter-related phenomena (Hodgkinson and Sparrow, 2002). Therefore, the focus of this research design is on a longitudinal detailed contextual approach to data collection as opposed to a cross-sectional study because of the difficulty in attempting to attribute causality due to the need to control for potentially a large number of context dependent variables when using the latter design. Consequently, the data collection for this study was conducted

over three phases. This allowed for a wider and more comprehensive understanding of consensus and cognitive shifts over time when facing crises. These three phases nearly spanned a four year period. With the first phase starting in the autumn of 2011 and the final phase in the summer of 2015. There was approximately a 15 month gap between the first two phases and a 19 month gap between the final two phases.

Longitudinal research is advantageous in this context as it enables the possibility of attributing causality unlike in cross sectional studies (which is questioned when investigating highly complex inter-related phenomena). Also it addresses the limited longitudinal empirical research into cognitive shifts which to date predominantly uses secondary data with documentary evidence. Developments can be studied over time to pick up any long-term changes. By studying the same group the researcher can be confident that any changes in attitudes and behaviour are not simply due to changes in the composition of the sample. By making comparisons between groups over time, a possible cause can be identified. Furthermore, longitudinal data is high in validity as people usually do not remember past events and if they were asked about their past, they would not remember thus a longitudinal design doesn't require respondents to recall from their long-term memory.

However, following Lee and Lings (2008, pp. 198-200) there are two issues to be aware of regarding longitudinal data collection. One will be on whether the same individuals can be used from the first phase as some may be unavailable or left the organisation (sample attrition). Sample attrition is important to ensure the validity of the longitudinal data. Secondly, what will the respondents' memory of the first phase be like and whether this would influence or bias the results (conditioning effect).

Other concerns relating to longitudinal research include demographic changes in the research population which may mean that the original sample is no longer representative. Furthermore, the Hawthorne effect may occur, i.e. those in the sample may act differently as a result of the prolonged attention they receive through being in the study.

Furthermore, Priem et al. (1999) propose that future research into cognitive consensus requires qualitative research to support quantitative research and vice versa. "*Improvements to future research include integrating qualitative research with the quantitative as a base for developing research questions that are more informed, salient, and interesting*" (Priem et al., 1999). Consequently, the

richness of a case study design permits a triangulation of the data with quantitative and qualitative research.

To triangulate the data, an interview protocol with different stages was developed to include a variety of data collection techniques to support the investigation of cognition during crises. This helps corroborate findings and gives greater prominence to the strengths of data collection and data analysis. Each method can facilitate the other and complementarity can be achieved as one method fills in the gaps which the other method is incapable of capturing data on (Lee and Lings, 2008, p. 379). Detailed cognitive data is not easily obtained by quantitative methods thus qualitative techniques are required (Calori et al., 1994, Clarke and Mackaness, 2001) either during the design of the research protocol or data collection. Unveiling mental representations cannot be obtained just by asking for them. The approach in this research aims to conduct the mixed methods with multi-phase combination timing which includes sequential and concurrent data capture over the designated period of study (Creswell and Plano Clark, 2011). As with the case study design, using mixed methods also exposes problems relating to external validity (generalisability) and construct validity. It is important that the findings are generalised to theory through analysis. Mixed methods focuses on theory development as oppose to theory testing. Construct validity, which looks at the correctness of operational measures, can be improved during the data collection stages by using multiple sources of evidence which will establish a chain of evidence. One major issue with mixed methods is around incommensurability and that integration can only occur on the superficial level (Bryman, 2012).

However, the cognitive mapping technique and subsequent quantitative analysis adopted in this current study follows a structured and standardised research protocol positioning the research as post-positivist (Gephart, 2004). Therefore, any issues around incommensurability are lessened as the qualitative aspects of the research design are approached with a post-positivist perspective. *“Postpositivism requires methods of collecting and analyzing factual depictions of the world that reveal singular truths or realities and that can be used to evaluate (falsify) hypotheses”* (Gephart, 2004, p. 457). As a result, the propositions presented in Chapters 3 and 4 are examined in subsequent sections. Furthermore, the data gathered from the interviews provide access to facts about the social world.

5.1.1 *Focal Company: 'Health Change UK'*

The empirical research was conducted within a single not-for-profit organisation anonymously named 'Health Change UK' which operates in the health sector in the United Kingdom. This follows other consensus research which has also focused on the health sector as an important context (Dooley et al., 2000, van de Ven et al., 2008). Furthermore in this not-for-profit context there is the added complexity of multiple stakeholders (Dooley et al., 2000) and customers from those who pay for the services such as donors/funders and those who use the service such as beneficiaries/clients (Bruce, 1995, Shapiro, 1973, Vázquez et al., 2002).

As the purpose of the research is to understand individual cognition when facing a crisis it is essential to provide a detailed context of 'Health Change UK'. Therefore, the following information documents the crisis that initially faced the organisation in 2011 prior to the first phase of data collection.

The health sector in the U.K. at the start of data collection was undergoing dramatic changes following the 2008 financial crisis and economic recession. As a result, major political reforms to the healthcare system transformed the commissioning of healthcare contracts (the sector's principle public funding source). Fundamentally, the deregulation of these contracts allowed for increased competition from the private sector whilst also making substantial efficiency savings.

'Health Change UK' and many other similar service providers in their sector are predominantly funded by taxpayers via various government contracts. The Department of Health are the main government department who have overall responsibility for this funding. At the time, a large majority of these contracts were commissioned in partnership between the local government commissioning teams and the Primary Care Trusts (PCTs) of the National Health Service (NHS). For many years commissioners' requirements remained stable and specific contracts rolled over based on the satisfaction of service delivery with minimal switching between providers. However, due to changes in the external political environment in 2010 the funding and tendering process for these contracts altered significantly based on the plans introduced by the new U.K. government.

The most significant alterations related to the proposals to reform the healthcare system. Under the plans, General Practitioners and other clinicians were to be given greater budgetary responsibility in England, while greater competition with the private sector and third sector was to be encouraged. Furthermore, from the Comprehensive Spending Review of 2010 it was apparent that not only substantial efficiency savings would be required from all areas of public funding but also some budgets would face dramatic cuts. Despite the NHS budget being protected, it was not immune from the need to make these efficiency savings. As a result of these major reforms 'Health Change UK' were facing extreme uncertainty as it was not clear how the new funding environment would impact the company.

Additionally, the industry which 'Health Change UK' operates in had become highly competitive due to the aforementioned changes in the macro-environment. One important remit for the funding bodies was to ensure that services be competitively tendered and rewarded with transparency of performance and payment by results (i.e. money following success). Competition between national and local third sector organisations grew with the larger organisations better able to cover overheads and reduce unit costs. These bigger organisations having the financial backing with some competitors generating financial income ten times that of 'Health Change UK'. As a result, these providers could cover the costs during funding constraints and continue their market dominance. Furthermore, some of these larger organisations could run their services more efficiently with lower prices and reduced unit costs, improved business processes, and the eradication of wasteful resources. Operating with this business model permits larger organisations to be cost-leaders when tendering for new contracts. Consequently, these large national providers grew rapidly as they diversified their operations to significantly increase their financial income.

In summary, at the beginning of data collection 'Health Change UK' were confronting a severe crisis evoked by an economic recession, government imposed reforms, and superior competition (Kim, 1998). This pending situation seriously threatened the viability of 'Health Change UK' supporting its classification as a crisis (D'Aveni and MacMillan, 1990). While the government reforms were sudden or abrupt, due to the preceding context and the subsequent implications the crisis itself can be described as leaning more towards the smoldering and cumulative type (Hwang and Lichtenthal, 2000, James and Wooten, 2005). While this sort of crisis is likely to be common in organisations, the complexity of

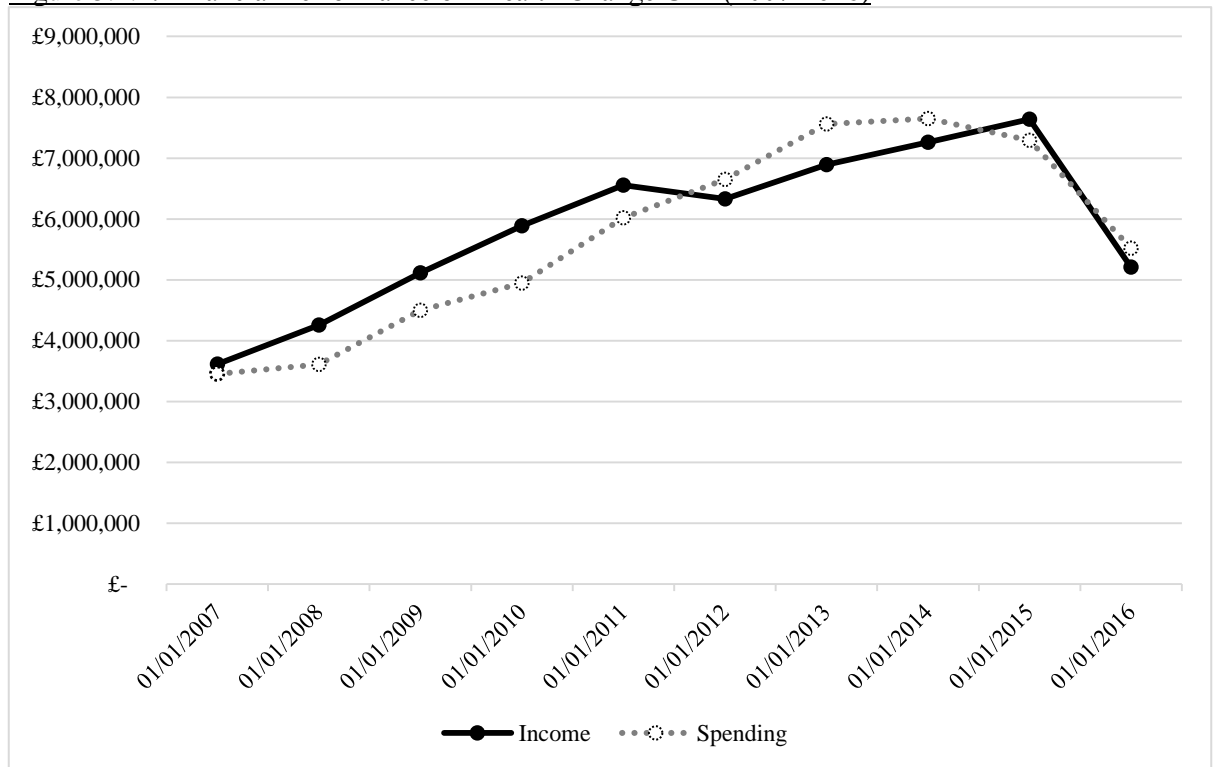
dealing with cumulative crises suggests that the findings are limited to this context. Cumulative crises can raise the importance of particular events at different organisational levels within organisations at different times and this can impact on the attention given to these by leaders and followers. This context highlights the importance of mental representations to performance over time in both leaders and followers but followers' mental representations are likely to be more important in cumulative organisational crises than in more abrupt type of crises. Therefore, this case study is based on a cumulative type of crisis and the implications over a four year period, which was initiated by a radical external change event. Moreover, the crisis changed and evolved (Stachowski et al., 2009, p. 1537) over this period as illustrated in the timeline of key events in Table 5.1.1 and financial performance in Figure 5.1.1.

Table 5.1.1. Timeline of Key Events 2008-2015

Year	Event
2008	Global Financial Crisis and U.K. Economic Recession
2010	New U.K. Minority/Coalition Government
	Government Funding Cuts / Efficiency Savings
	Health White Paper
2011	Funding Cuts to XXX Contract (Service A – 55% of turnover*)
	Lost XXX Contract (Service B – 21% of turnover*)
	<i>Data Collection – Phase 1</i>
2012	Lost XXX Contract (Service C – 6% of turnover*)
	Won XXX Contract (Service D – 19% of turnover*)
	Won XXX Contract (Service E – 5% of turnover*)
	Retained XXX Contract (Service F – 6% of turnover*)
	Won XXX Contract (Service G – 2% of turnover*)
2013	<i>Data Collection – Phase 2</i>
2014	Lost XXX Contract (Service H – 8% of turnover*)
	Lost XXX Core Contract (Service A – 40% of turnover*)
	Formed partnership with Large National Service Provider
2015	New U.K. Majority Government
	Lost XXX Contract (Service D – 15% of turnover*)
	<i>Data Collection – Phase 3</i>

** Approximate % of turnover at the time contract was won or lost*

Figure 5.1.1. Financial Performance of ‘Health Change UK’ (2007-2016)



5.2 Sample Selection

The case study firm was identified through a previous collaboration with Aston University which made accessibility and knowledge of the organisation and the sector easier. At the beginning of the research project, ‘Health Change UK’ had 165 full time equivalent employees and an annual turnover of £6.56m. Consequently, the organisation are classified as a medium sized business within the U.K.

The population in this case study would be all 165 full-time employed members of staff. However, due to the complexities of the research design particularly requiring longitudinal data a sample of 40 respondents were utilised in the initial first phase. These 40 permanent members of staff represented approximately 25% of the organisation staff base in 2011.

Stratified sampling method was chosen as it ensures that specific groups are represented, even proportionally, in the sample(s), by selecting individuals from strata list. This provides greater precision and guards against an “unrepresentative” sample (e.g., a sample of predominantly new members of

staff). This also allows for sufficient sample points to support a separate analysis of any subgroup such as leaders (top managers and middle managers) and followers.

As stratified sampling is more complex than simple random sampling it requires greater effort particularly in clearly defining each strata. The respondents were chosen randomly in each strata based on their position in the organisation (from all levels and job classifications), the period spent at the company (well established and newer staff) and their service locations (full range of staff locations).

However, it wasn't always possible to use simple random sampling within each strata. This sometimes depended on availability which would mean interviewing a colleague from a similar position and location. Additionally, accessibility to attend a research session was also a factor in deciding certain participants. Furthermore, simple random sampling did not occur within the leadership team as it was important to ensure all managers (leaders) were interviewed. Therefore, all four top managers (including the CEO) and all seven middle managers took part in the first phase of research. Whereas, only three of the nine trustees (executive committee) were available for interview in the first phase but this did include the chair of trustees and the treasurer. The other 26 respondents in the sample were classified as followers as they were either head office support staff or frontline employees (e.g. client facing staff which includes senior practitioners, practitioners, and support workers) spread over six service locations. Therefore, despite every effort to uphold stratified sampling in certain cases quota sampling was utilised.

The second phase of data collection followed up on the same respondents from Phase 1. However, due to sample attrition this reduced to 31 permanent members of staff. The third phase was also hampered by sample attrition ($n = 20$). However, two individuals were not present in Phase 2 ($n = 18$). All four top managers were available for interview in all three phases. Only six middle managers were available for the second phase and five in the third. Executive committee respondents reduced to two in Phase 2 and only the chair of trustees was available to interview in the third phase. Followers reduced to 19 in Phase 2 and ten in Phase 3. This sample attrition over the three phases is illustrated in Table 5.2. The main causes of sample attrition over the four year period were largely due to long-term sick leave, loss of service delivery contract, resignation, or unavailability to attend research session. The average age of respondents at the beginning of data collection was 43 years old and the average organisational tenure was 6 years.

Table 5.2. Sample – Descriptive Statistics

	Phase 1	Phase 2	Phase 3
No. of Interviewees	40	31	18 (20)
Period Conducted	Autumn 2011	Winter 2013	Spring 2015
Leaders	14	12	10
TR - Trustees (Executive Committee)	3	2	1
TM - Senior Managers (Top Managers inc. CEO)	4	4	4
MM - Service Managers (Middle Managers)	7	6	5
Followers	26	19	8 (10)
HO - Head Office Staff	6	6	4
PR - Practitioners (Client Facing Staff)	20	13	4 (6)
Female	25	19	10 (11)
Male	15	12	8 (9)

5.3 Research Protocol

The majority of the methods used in this design occur in a face-to-face interview setting. However, a triangulation of various techniques within this setting helps provide a more detailed understanding of the organisation and its external environment. Over all three phases, the 91 interviews were conducted by the same interviewer using an identical interview protocol in each case. The same protocol was followed for the second and third phases.

The research protocol consisted of four distinct stages per interview. These stages that the researcher and respondent went through during the interview process are as follows and are discussed in greater detail throughout this section. *Stage 1* consisted of a standardized sorting technique (Markóczy and Goldberg, 1995) to identify each participant's beliefs about important factors for success and to compile the ten most important in rank order. This included designing the pool of factors as well as a pilot stage. *Stage 2* built on the sorting and rank order task to generate cognitive maps of the ten most important factors for success. *Stage 3* followed the mapping procedure with an in-depth interview to develop a more detailed understanding. From the 91 interviews (all phases) a total of 474 pages of A4 transcriptions were produced for the first two phases. *Stage 4*, a short questionnaire was completed to provide information on age, gender, job role, location of work, time spent at the company, stakeholder focus, and objectives for the company.

5.3.1 Stage 1: Standardised Sorting Technique

Due to the need to compare individuals' cognition, sorting technique which is a common psychological research method (Rosenberg, 1982) was adopted. This formed the basis of the standardised procedure for developing cognitive maps outlined by Markóczy and Goldberg (1995). The essence of the technique is that a large identical pool of factors is consistently presented to a variety of respondents for them to sort out which are the most important. This technique is used to standardize the production of cognitive maps which is vital when they are to be compared and contrasted. Sorting technique is also used to reduce interview bias because there is no communication between researcher and respondent during the sorting process (Walsh, 1988).

Consequently, each participant was given a pack of fifty-four randomly ordered cards. Each card was labelled with one of fifty-four factors related to the success of their organisation. In framing the task in this way would activate schemata relating to company success as well the organisation itself and its environment. Two additional cards were printed with the labels 'Factors Important for Success' and 'Factors Not Important for Success'. These cards were then used as headings to initiate the sorting procedure. Each respondent was then initially asked to sort the cards under the headings. Sorting technique is designed to identify each participant's beliefs about important factors for success so a standard aim is introduced in each interview; that of factors 'important or not important for success of the organisation'. The factors deemed to be not important for success were eliminated at this stage. The interviewer documented all the factors that were eliminated.

Next, each respondent was asked to choose the ten most important factors from the cards they had placed under the heading 'Factors Important for Success'. Subsequently, the participants would then be required to rank order these factors from most important (rank order 1) down to the least important (rank order 10) which was then noted by the interviewer. These ten factors were then used to generate cognitive maps in real time during the rest of the interview. This approach was taken, as it is possible to verify the accuracy of the cognitive maps produced by the participants during the interviews and it alleviates the need for any post hoc interpretation by the researcher (see Hodgkinson et al., 2004).

The pool of constructs that represented individuals' beliefs about the organisation were derived from the literature (Buzzell et al., 1975, Combe et al., 2012, Hambrick, 1981, Miles, 1980, Markóczy and Goldberg, 1995, Walsh, 1988) and also adapted through a consultation of preliminary interviews and a pilot study with six employees of the company. This pilot was designed to investigate organisational success at all levels of the organisation and not just in the leadership. These six individuals were not part of the final sample but this small scale evaluation helped test the validity and robustness of the interview process and the items chosen. As a result, the CEO or TMT could not be involved in this process as they were essential to the main study. Primarily, this stage helped identify any major flaws with the suitability and structure of the research design at an early stage. The main problem highlighted was the terminology used for the factors in the sorting task. They were based on prior research in the profit sector, therefore these had to be altered to a more commonly accepted language used in this non-profit sector. As no further modifications were required during this pilot study, 54 factors were promoted to be used in the main study (see Appendix 1). Additionally, during each interview in the first phase of the main study all participants were offered the chance to write down any additional factors they believed were important to the success of their organisation but no one contributed any additional factors.

5.3.2 *Stage 2: Generating Cognitive Maps*

Hodgkinson and Healey (2008, p. 405) argue, that going forward the greatest challenge for managerial and organisational cognition research is one of measurement, particularly how best to capture, represent, and interpret conscious and non-conscious forms of cognition within and between organisations, as unobtrusively as possible in a time-sensitive manner. A big development in this research stream has been the use of cognitive mapping or causal mapping (Walsh, 1995). Cognitive mapping has been used for investigating managers and decision makers since Axelrod (1976) introduced it to management studies. Since then, many varieties and usages have appeared (Bougon et al., 1977, Markóczy and Goldberg, 1995). Management and individual cognition has been synonymous with cognitive mapping as a key methodology over the last few decades (for overviews see Eden, 1992, Huff,

1990). Cognitive maps can be seen as the visual representation of an individual's cognition, although it is important to note that this not a complete representation. Fundamentally, true cognitive maps cannot be captured as they reside only in the mind of the individual but a network of causal relationships asserted by an individual can be represented in a revealed cognitive map (Nelson et al., 2000, p. 481).

Cognitive mapping has been used to explore individual perceptual schema (Clarke and Mackaness, 2001). "*These cognitive structures, frequently called cognitive maps, are defined as concepts about aspects of the decision environment and beliefs about cause-and-effect relationships between them*" (Dess and Priem, 1995, p. 409). Cronin and Weingart (2007) theoretically propose that when individuals are conducting cognitive mapping they are in essence problem-solving, starting with the problem state (current situation) and moving towards the goal state (success). Furthermore, learning is the process of modifying ones cognitive maps of understanding (Fiol, 1994).

Clarke and Mackaness (2001) argue that cognitive mapping highlights intuitive thinking. They examine the structure and content of the intuitive elements of decision schemata through the construction of managers' cognitive maps. Additionally, cognitive mapping picks up the perceptions of cause and effect which is an inherent component of intuition and schema theory. Furthermore, cause and effect relationships can only be established through past experiences. Cognitive maps also demonstrate how people operate these in practice on a day-to-day basis. Research by Hill and Levenhagen (1995) provides further insight into intuition through mental models. Here the entrepreneur develops a 'vision' or mental model of how the environment works (sensemaking). According to Hill and Levenhagen (1995, p. 1058), entrepreneurs typically operate somewhat intuitively in relatively uncertain and ambiguous environments. Therefore, entrepreneurial and more innovative organisations may use more intuitive models which not only trigger the mental model development process but also lead in-part directly to action, which can feedback to further intuitive models (Hill and Levenhagen, 1995).

However, Cornelissen and Werner (2014, pp. 193-194) propose that when individuals are forced to *a priori* cognitively map out the decision scenario (Hodgkinson et al., 1999) it will allow decision-makers to think about the parameters of the decision in a rational and unbiased manner (i.e. allowing them to activate system 2). This is consistent with the suggestion of Kahneman and Tversky (1984, p. 344) that decision-makers might limit the effect of the framing bias with procedures such as cognitive mapping. According to Kahneman (2003, p. 1450), reasoning (type 2) is done deliberately and

effortfully, but intuitive thoughts (type 1) seem to come spontaneously to mind, without conscious search or computation, and without effort. Therefore, when individuals physically generate causal maps that represent their schema it challenges type 1 processing.

Conversely, Kahneman (2011, p. 98) advises that the technical definition of *heuristic* is a simple procedure that helps find adequate, though often imperfect, answers to difficult questions. Furthermore, intuition and reasoning are alternative ways to solve problems, that intuition resembles perception, that people sometimes answer a difficult question by answering an easier one instead, that the processing of information is often superficial, that categories are represented by prototypes (Kahneman, 2003, pp. 1469-1470). This is the case during cognitive mapping when respondents are asked the question about what is important for success for their organisation.

However, prior research has generated a multitude of different methods as a means to elicit cognition from individuals and groups. Table 5.3.2.1, adapted from Walsh (1995, pp. 309-310) demonstrates some of the most common in the literature.

Table 5.3.2.1. Methods for Managerial and Organisational Cognition

Types	Examples
Self-reports	repertory grid, means-ends analyses, pairwise comparisons, object sorting, self-Q technique, policy capturing procedure
Interactive reports	grounded theory ethnography, strategic assumption surfacing technique, unstructured interviews, semi-structured interviews, questionnaires
Hidden observers	speech act analysis, videotape analysis, linguistic analysis
Researcher inference	imagery analysis
Public behaviour	analyses of written statements, analyses of verbal statements
Archives	archival data analysis, photograph analysis

Adapted from Walsh (1995, pp. 309-310)

Social representation and repertory grid are two of the most common methods for investigating cognition. On one hand, social representations (Farr, 1987) are a cognitive system at the social level which enable reality to be grasped and organised. It can be defined as the elaboration of an object by a community which enables its members to behave in a comprehensible manner and to communicate. This method makes use of open-ended interviews and analysis of similarity (co-occurrence of textual data) occurs on content of written and oral texts. According to Nicolini (1999) the type of in-depth research

being conducted in this current study would make cognitive mapping more suitable than social representation.

On the other, repertory grid (Reger and Huff, 1993) operationalises Personal Construct Theory (Kelly, 1955) and is only used to capture constructs. Therefore, it does not focus on causality making it problematic with the objectives of this current research. Furthermore, repertory grid is time consuming. According to Brown (1992) cognitive mapping is preferable to repertory grid as it reduces annoyance-avoidance, the cognitive maps are lower risk, and incomplete grids are useless. Additionally, Clarke and Mackaness (2001) argue that cognitive mapping is more favourable due to simplicity.

Cognitive mapping also provides an ideal methodology to investigate how individuals make sense of their organisational environments. Ring and Rands (1989, p. 342) support this by describing sensemaking as a process by which individuals develop cognitive maps of their environment. Moreover, Weick (1988, p. 307) states that when individuals enact their environment they form a plausible map by which observed actions produced observed consequences and since the summary map contains if-then assertions, it is called a cause map (Weick and Bougon, 1986) and is the source of expectations for future action. Therefore, cause maps affect the construction of new experience through the mechanism of expectations and it means that cause maps affect the interpretation of old experience through the mechanism of labelling (Weick, 1988, p. 307).

Weick (1995, p. 61) compare stories like cause maps which are important as they act as templates of previous efforts at sensemaking. Subsequently, they show patterns that may already exist in the puzzles an actor now faces, or patterns that could be created anew in the interest of more order and sense in the future. Therefore, cognitive maps can be seen as the visual representation (albeit reduced by schemata) of the individuals enacted environment. It is surprising that despite all these claims of cognitive mapping as a method to understand the processes of sensemaking until Combe and Carrington (2015) this was neglected in the research. However, this current research applies new methods and approaches to investigating sensemaking which Maitlis and Christianson (2014) call for.

According to Huff (1990, pp. 406-407) there are two main methods for developing cognitive maps in research; post-hoc and interactive. Other forms of mapping strategic thought have included content analysis, argument mapping, and narrative semiotics.

In the post-hoc approach, the researcher constructs the cognitive map based on an analysis of the original data source (e.g. interview transcript or documentary evidence). Therefore, the drawing of the map occurs after the event whether this be the original interview or the publication of a document. This method is useful as it can deal with large numbers of cases, factors, and causal relationships. It can also consider data sources over a longer period (longevity). Through this approach access to data is more readily available as the analysis is secondary which also makes it more economical. Finally, it eradicates any of the negatives aspects that can be generated from an interactive approach. However, there are some clear disadvantages to this approach which renders it inappropriate for the aims of this research. Predominantly and most concerning is that the post-hoc method does not examine true beliefs. Additionally, the purpose of the original data source differs and it is difficult to check with the subject due to biases from 'then' versus 'now'. The two most common forms of post-hoc cognitive causal mapping are based on the unstructured (or loosely structured) interviews and archive data. The advantages and disadvantages of these two are illustrated in Table 5.3.2.2.

Table 5.3.2.2. Post-hoc Cognitive Causal Mapping

Technique	Comments AND Advantages	Disadvantages	Author / Study
Unstructured or loosely structured interviews	<ul style="list-style-type: none"> • Drawn post-interview by researcher based on interpretation of interview transcripts • No restrictions for the participant on the scope of discussion • Includes laddering technique (Jenkins and Johnson, 1997) 	<ul style="list-style-type: none"> • Different inconsistent questioning leads to irresolvable validity problems • Independent coding of responses • Biases due to interaction • Difficult to make comparisons 	(Calori et al., 1994, Jenkins and Johnson, 1997, Nadkarni and Narayanan, 2005)
From archive data	<ul style="list-style-type: none"> • Coding documentary sources • Coding the causal association of concepts 	<ul style="list-style-type: none"> • Authorship • Validity 	(Axelrod, 1976, Barr et al., 1992, Barr and Huff, 1997)

In the interactive approach, validity is increased as the cognitive maps are created in real-time between the researcher and the respondent (Huff, 1990). This is advantageous as it can clarify complexity, detail, comprehensiveness, improved understanding, and be more revealing. Consequently, several different interactive techniques to cognitive mapping have emerged within prior empirical research with differing philosophical underpinnings. The most common forms of interactive methods are the 'Self-Q' technique, the idiographic approach, and the sorting technique.

The 'Self-Q' technique (Bougon, 1983, Nicolini, 1999, Ambrosini and Bowman, 2001) was one of the earlier interactive methods designed to overcome some of the validity issues in elicitation that emerged from the post-hoc approach to constructing cognitive maps. Here, participants would develop their own questions on a topic (hence the name 'Self-Q') using their own language and expressions. However, the issue of analysis of cognitive maps was not the focus of the improvements made through the Self-Q approach. Therefore, an analysis of the similarities and differences between these cognitive maps is challenging. Furthermore, despite giving the respondent the freedom to use their own language and expressions around a topic, the elicitation of the cognitive map is restricted through following a highly structured approach to interviewing with set stages that prevent further elaboration on causal links as well as imposing a ranking exercise on the key issues (Jenkins, 1998, p. 238).

In contrast, the idiographic approach (Ackermann and Eden, 2011, Eden, 1992, Eden and Ackermann, 2004, Eden et al., 1992, Eden and Ackermann, 1998) adopts an open and unstructured method to interviewing and elicitation. This form of cognitive mapping draws on Personal Construct Theory (Kelly, 1955) by allowing participants to use their own personal constructs about how they make sense of a situation and their world. Through this theoretical lens the previous work using repertory grids (Reger and Huff, 1993) is extended to allow constructs to be developed from causal links (Eden and Ackermann, 2004). From an interpretivist epistemology this approach examines how individual cognition is distinctively different through the social construction of reality (Eden et al., 1992). This gives complete acknowledgement to the idiosyncrasies and richness of an individual's subjective world. Consequently, a cognitive map elicited from this technique is personalised and should be more accurate as valuable information is not lost (Eden and Ackermann, 1998).

However, following the idiographic approach both the elicitation and analysis of the cognitive maps can be prone to introducing research bias. To construct a cognitive map the researcher can be

required to interpret and code meaning from the statements or arguments provided by the participant (Eden and Ackermann, 2004). Here, meaning is transmitted through the context of the linked constructs as well as the constructs themselves. It is also the researcher who uses cognitive mapping to elicit the beliefs, values and expertise of decision makers (Eden and Ackermann, 2004, p. 616). The involvement of the researcher in the analysis to determine shared meaning is also prone to bias. In comparing idiosyncratic maps to explore shared meaning, a process of merging similar constructs (statements or arguments) is often required through resolving synonyms (Eden and Ackermann, 1998). Consequently, various problems can emerge when similar labels may have a different meaning and different labels might have a similar meaning (Ackermann and Eden, 2011). Furthermore, in the idiographic approach maps can range from containing six constructs to 2,000 constructs (Eden et al., 1992). This large variation also makes an analysis of comparing differences extremely difficult. Additionally, the larger and more complex the maps, the more challenging the analysis of content becomes, thus analysis is often simplified to measuring complexity within map structures (Eden et al., 1992). However, this provides little insight into comparing the content of cognition within and between groups over time which is a key aim of this study.

Despite these biases, the 'Self Q' technique and the idiographic approach are favourable for the elicitation of detailed and complex causal maps. However, it is their idiosyncratic nature to include the participant's own words, language, jargon, and shorthand vocabulary (Eden and Ackermann, 1998, p. 196) which makes analysis of multiple cognitive maps increasingly difficult. Particularly, comparing differences between individuals and measuring individual change on a large scale (Langfield-Smith and Wirth, 1992) which is needed for the research aims herein. Consequently, the work by Langfield-Smith and Wirth (1992) who focus on measuring the similarities and differences in content between individuals and their cognitive maps is paramount to this study. This move towards a nomothetic approach of comparing cognitive maps allows for a more statistical analysis of the differences between individuals' cognitive maps. As a result, a distance ratio between two maps can be calculated based on formula (12) by Langfield-Smith and Wirth (1992). This approach aligns with the post-positivist position of this study (Gephart, 2004).

Moreover, the aforementioned issues surrounding elicitation and comparison of maps are avoided by having a pool of constructs that participants can select from to elicit their cause map (Eden

and Ackermann, 1998). Markóczy and Goldberg (1995) are strong proponents of this approach and advance the work of Langfield-Smith and Wirth (1992) to formulate a more standardised method of both the elicitation and analysis of similarities and differences between cognitive maps. Therefore, the sorting technique (Markóczy and Goldberg, 1995, Markóczy, 1997, Markóczy, 2001) allows for a systematic and consistent procedure produced by a larger pool of constructs. This standardised elicitation procedure can also allow for a faster response than other methods thus potentially alleviating respondents' fatigue which could compromise that accuracy of the data. Although this can produce a standardisation bias that may not occur in reality, it is reduced as best as possible through a larger pool of constructs (54 in this case). Whilst in advance the researcher can introduce biases through the development of the pool of constructs, there is no interaction between the researcher and the respondent in the elicitation of the cognitive map which reduces the biases that could emerge when using the other interactive methods. Additionally, due to the aims of this research, simplification has to be accepted when reducing complexity in the maps and mitigated against where possible.

Finally, it is also important to be aware of some of the minor disadvantages that exist within the interactive approach more generally. For example, respondents may tend to impose an order on recollection which makes the cognitive maps overly rational and they also might provide a tendency to demonstrate that everything is related. However, in this study subsequent methodological modifications were incorporated to try and tackle the aforementioned issues.

Therefore, based on a review of different methods to measure cognition and develop cognitive maps, it is clear that the method outlined in Markóczy (2001) provides both a rich source of data to analyse the complexity of cognitive consensus (Hodgkinson and Healey, 2008) but also allows systematic and standardised approach to analysis on a large scale. Therefore, eliciting causal maps based on the sorting technique is most suitable for the task in hand.

This resulted in individual face-to-face interviews with the same interviewer using an identical interview protocol in each case. Cognitive maps were developed in real time as they were hand-written by the respondent. This was a development of elicitation procedure outlined by Markóczy and Goldberg (1995). However, it is usual to present two factors at a time to respondents so that they can rate the strength of the relationship between each pair of factors (Markóczy and Goldberg, 1995). Nevertheless,

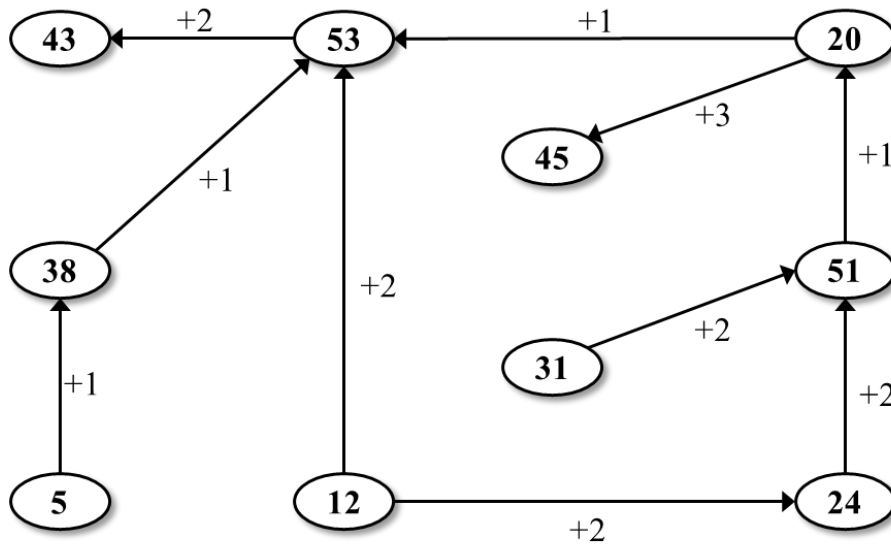
this increases the number of links that may not be there. In other words, the pairwise comparison technique yielded relatively elaborate maps, but participants found the task more difficult, less engaging, and less representative than the freehand approach (Hodgkinson et al., 2004). Furthermore, the pairwise technique is inevitably time consuming and extends the interview process considerably. To reduce interview time a modification to this procedure was adopted in this study.

The production of cognitive maps was standardised to aid later analysis. Additionally, it was important to reduce interview bias of the reflexivity of the researcher because there is no communication between researcher and respondent during the sorting process. Inferences about the structure of cognitive maps also become more reliable as based directly on respondents' choices. Furthermore, the visual nature of the cognitive map is directly available to interviewer and participants allowing it to be refined, discussed and any anomalies clarified during the remainder of the interview. This approach was taken, as it is possible to verify the accuracy of the cognitive maps produced by the participants during the interviews and alleviates the need for any post hoc interpretation by the researcher (see Hodgkinson et al., 2004). One shortcoming with this method is the different memory demands of recalling organisational success when mapping in real-time.

Consequently, in this current study respondents were asked to arrange their ten most important factors on an A3 sheet of blank white paper in a way to represent their way of thinking about organisational success. The ten factors were placed on the sheet by each respondent who was then asked to draw lines with arrows between the factors to indicate any causal relationships and the direction of such relationships. It is usual to construct a causal map of each individual respondent by getting the respondent to assess the influence of each factor on the others selected in the sorting task. Respondents are asked to assess the strength of the causal relationships (positive and negative) between factors by rating the strength of relationships from 1 to 3, with 1 being a weak relationship to 3 being a strong relationship. For example, respondents are asked to assign + 3 to strong positive relationships and - 3 to strong negative relationships. A positive relationship signifies that an increase in the strength of one factor leads to an increase in the strength of another factor, whereas a negative relationship signifies that an increase in the strength of one factor leads to a decrease in the strength of another factor. The whole sorting technique and development of each cognitive map to produce a visual representation of strategy

belief structures took approximately twenty-five minutes to complete with each respondent. An example of a causal map with the constructs and causal relationships is displayed in Figure 5.3.2 along with the matrix with relative indegrees and outdegrees.

Figure 5.3.2. An Example of a Causal Map



5.	Competitor analysis
12.	Detailed information / data on customers
20.	Helping clients achieve 'recovery'
24.	Knowledge of customers
31.	Motivation of staff
38.	Price differentiation from competitors
43.	Responsibility to funders / commissioners
45.	Service quality
51.	Supporting clients with their problems
53.	Target focussed

	5.	12.	20.	24.	31.	38.	43.	45.	51.	53.
5.	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
12.	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	2.00
20.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	1.00
24.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
31.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
38.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
43.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51.	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53.	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00

5.3.3 Stage 3: In-Depth Interview

The cognitive mapping exercise was immediately followed up by a recorded interview. Here, the cognitive map drawn by the respondent is discussed in-depth. This provided the participant the opportunity to explain the rationale behind their decisions and maps. Flexibility with the approach was required to ensure that the respondent had enough time and the platform to articulate their cognitive map without interference until required. Subsequently, the respondents were encouraged to explain each factor chosen, clarify the concepts, why they felt certain factors were most important, get them to explain and interpret the relationships, and provide examples. This drew upon a mix of question types such as introductory, follow-up, probing, specifying, structuring, and interpreting.

The recorded interview is largely unstructured as it is dependent on what the respondent has provided in their cognitive exercises and in particular their cognitive map. One of the main advantages with this is it allowed to capture the richness about the individual's cognition but to also verbally explain some areas of complexity. However, this was not an ethnographic interview (non-standardised, open-ended, and in-depth). Therefore, there was an element of the interview being semi-structured as for example, if the same factor or causal relationship is chosen by two or more respondents, the question asked would be identical or similar, demonstrating some structure to the interview questions. Consequently, *a priori* categorization is used to an extent as only 54 factors could be discussed which could slightly limit field of inquiry. However, there are 1,431 possible paired relationships and with the subjective nature of these relationships and factors that could lead to multiple interpretations, the depth resulting from these interviews was immeasurable.

On a technical level, there is a need to consider interviewer bias and effects, accuracy of respondents' memories, people's response tendencies, dishonesty, self-deception, social desirability, and correspondence between verbal responses and behaviour (adapted from Silverman, 2013).

Due to the audio recording, the confidentiality and anonymity of what was to be discussed was advised from the outset so that the respondent would feel less anxious and be comfortable to reveal confidential information. This was also documented in the information and confidentiality sheets (see

Appendix 2) as well as in the consent forms (see Appendix 3). Additionally, as they were recorded via audio and that notes were not needed to be taken, the interviewer could concentrate on the process of using non-verbal communication and maintaining eye-contact. All of this allowed the interviewer to gain trust and establish a rapport with the respondent.

Laddering technique was also used during this recorded interview in an attempt to create further means–ends chains, this also allowed certain values of the individuals being exposed (means–consequence–values). Laddering was used to investigate antecedents and consequences based on means–end theory (Gutman, 1982, Reynolds and Gutman, 1988). This technique was used to explore the main factors in further detail. This is a consistent technique which reduces bias as the same question is asked repeatedly but can trigger different responses. Laddering-up examines consequences (i.e. why is this important?) whilst laddering-down investigates antecedents (i.e. how is this important?). However, it is important to manage the interview effectively when it becomes more personal (e.g. peoples values). Jenkins and Johnson (1997) also used laddering technique to construct cognitive maps.

For the second and third phases a reflective stage was added to the recorded interview. At the end of each of these interviews respondents were presented their map from previous phases to discuss any similarities or differences with what they had just produced. Most importantly the respondent could reflect on their own cognitive shift and discuss why things may have changed or not changed on an individual level. This reflection also gave the interviewee the opportunity to talk about any other changes that may have occurred internally or externally to the organisation since the first data capture. Furthermore, this gave the respondent the opportunity to reflect on the strategic direction of the organisation (Balogun and Johnson, 2004, p. 527). Although this may present some recall memory effects having the respondents preceding cognitive maps helped aid discussion and comparison.

Verbatim transcriptions of all the recorded interviews from the first two phases were produced by a professional transcribing service resulting in a total of 474 pages of A4.

5.3.4 Stage 4: Questionnaire

Finally, each respondent was given a short exploratory questionnaire to complete during the interview process. Initially, this would provide key background information on their age, gender, job role, location of work and time spent at the company. The remainder of the survey captured data on individual perceptions of stakeholder focus, objectives for the company, and market orientation. The stakeholder focus provided a percentage to be distributed between common external stakeholders (e.g. clients, commissioners, partners, competitors, government, and local authorities) and key internal stakeholders (e.g. managers, colleagues, and trustees). In addition, three open-ended organisational objectives were listed by each respondent. These self-reported organisational objectives provide further triangulation with the data from the cognitive maps and interviews. Finally, an adapted market orientation scale (Deshpandé and Farley, 1998) to consider the nuances of the customer-divide in a not-for-profit setting (e.g. donors and beneficiaries) was administered. The information obtained in this questionnaire is an important aspect to understand potential antecedents of cognitive consensus and cognitive shifts during crisis as well as providing additional detail to the case study.

CHAPTER 6 – DATA ANALYSIS AND FINDINGS

To aid in the detailed analysis, each hand-drawn map was transferred to ‘Cognizer’ which is a statistical software package (Clarkson and Hodgkinson, 2005). This package allows for various calculations of standardised causal cognitive maps that are first presented by Markóczy and Goldberg (1995) which allows for further statistical analysis of consensus similar to Markóczy (2001).

To investigate consensus within the organisation individual differences between pairs of maps were analysed (see Markóczy and Goldberg, 1995). The calculation for the distance ratios given by Markóczy and Goldberg (1995) is a development of formula 12 by Langfield-Smith and Wirth (1992). This provides a statistical value between individual maps so each participant’s cognitive map was individually compared to the other participants. For example, the sample of 40 participants in phase 1 there are 780 pairs of distances calculated. Figure 6.1 shows a small excerpt taken from the distance ratio matrix for Phase 1 for illustrative purposes. Following Markóczy and Goldberg (1995), if a value of 0 is present then the maps are exactly identical whereas a value of 1 represents a completely different cognitive map (maximum difference). A zero value is nearly impossible because this represents identical causal cognitive maps. It is only evident on the matrix when compared with the participants’ own map. The value of 1 can be quite common and occurs several times in the dataset as various participants chose a completely different set of 10 factors to another participant.

Figure 6.1. An Extract of a Distance Ratio Matrix

	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18
P9	0.000									
P10	0.971	0.000								
P11	0.667	0.797	0.000							
P12	0.903	0.780	0.805	0.000						
P13	0.889	0.771	0.682	0.560	0.000					
P14	0.889	0.809	0.603	0.670	0.809	0.000				
P15	0.523	0.801	0.459	0.686	0.805	0.540	0.000			
P16	0.971	0.889	0.674	0.678	0.689	0.587	0.771	0.000		
P17	0.583	0.898	0.670	0.805	0.889	0.689	0.667	1.000	0.000	
P18	0.907	0.822	0.587	0.689	0.587	0.801	0.907	0.809	0.889	0.000

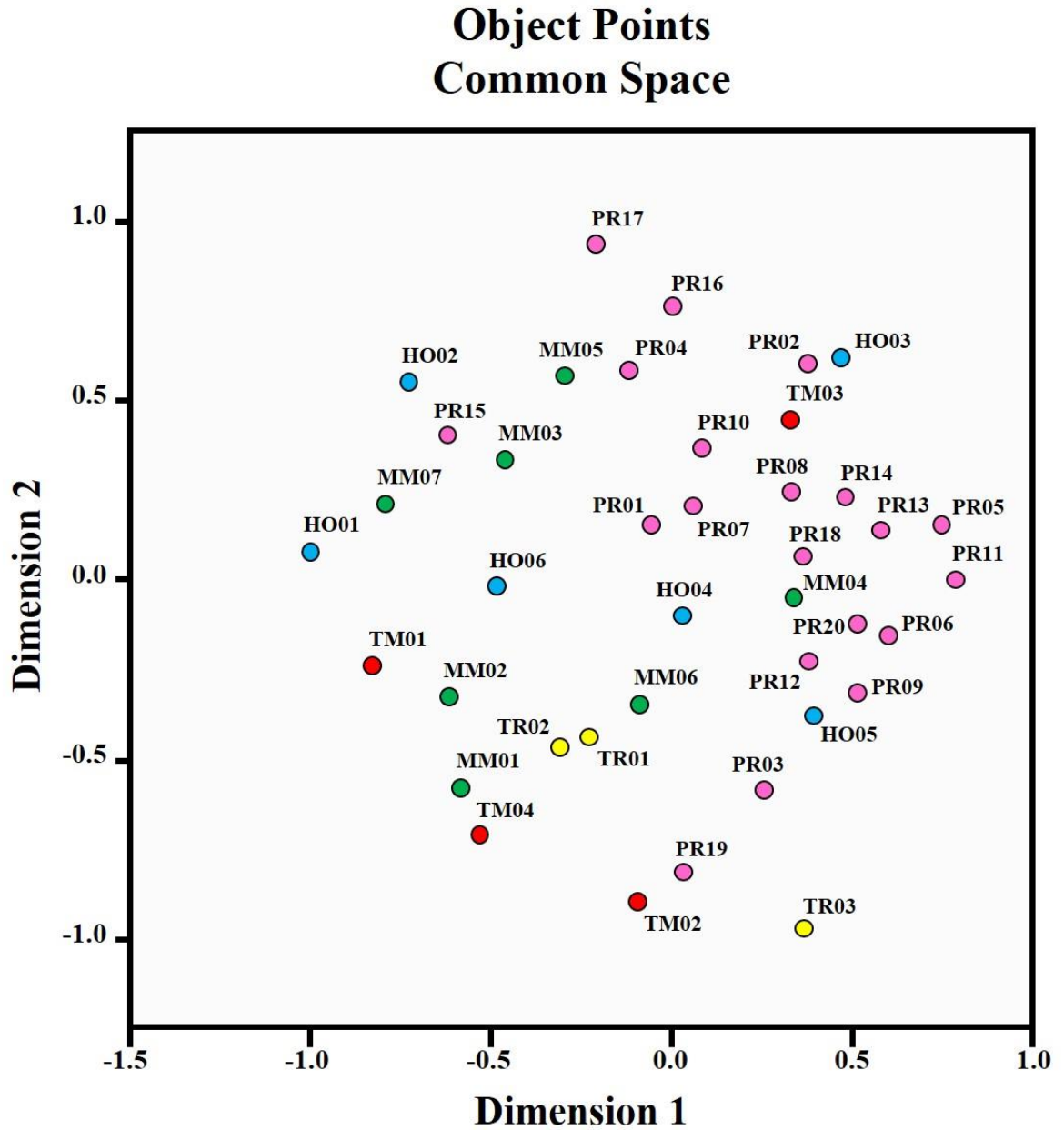
6.1 Study 1 – Phase 1

The first study focuses on the initial data capture as the crisis started to unfold in 2011. This concentrates on the full sample from the first phase of 40 organisational members.

6.1.1 Distance Ratios and Multidimensional Scaling (MDS)

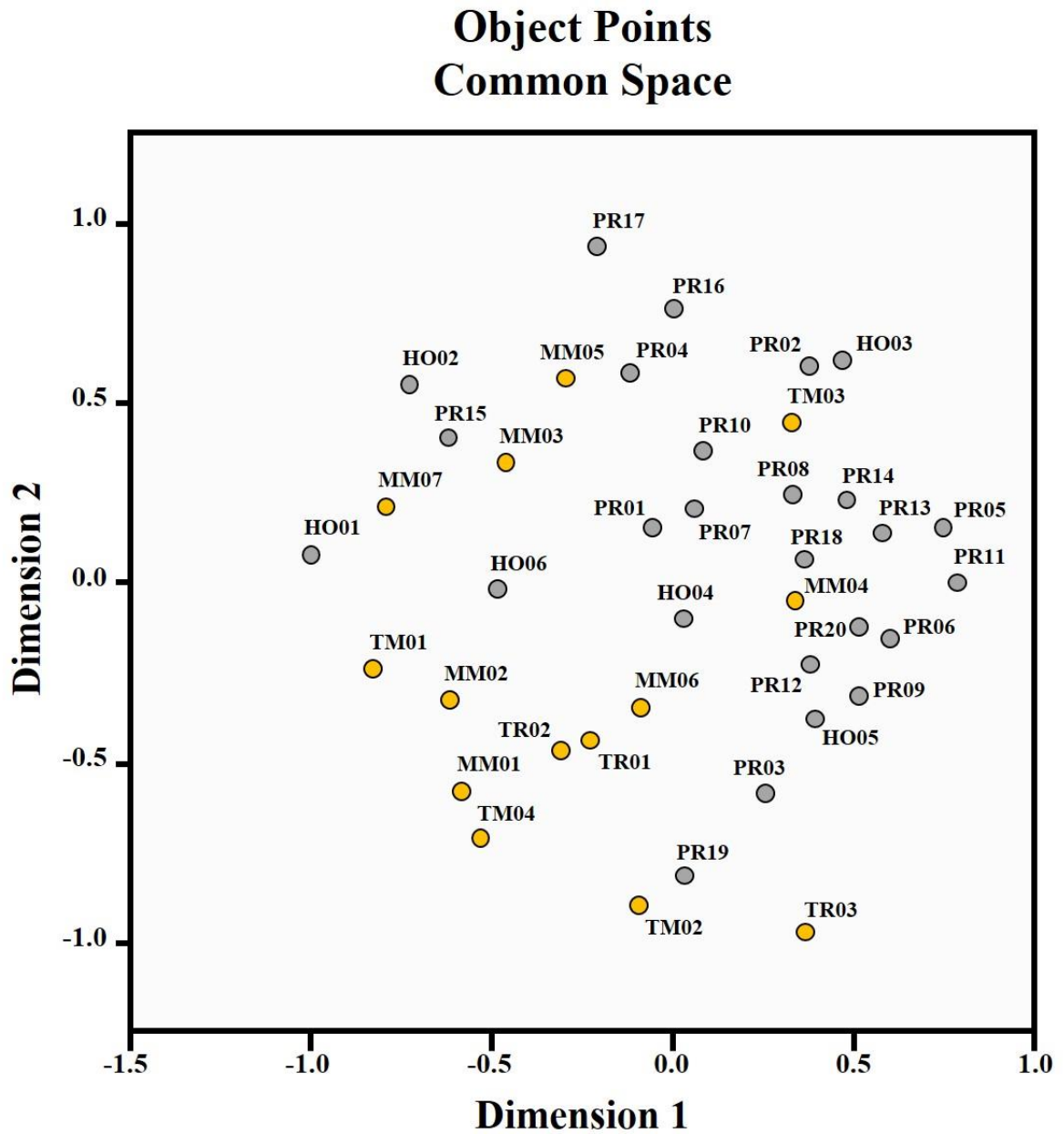
The distance ratio matrices for this dataset are too large to be presented here. However, for ease of interpretation, they have been illustrated here visually through multidimensional scaling (MDS). MDS was applied to the dataset to provide an initial overview of the first phase of data. The settings were modified using 'PROXSCAL' with 'Proximities = Dissimilarities', 'Proximity Transformations = Interval' and 'Initial Configuration = Torgerson'. The stress values in this study are found to be quite high (S-Stress = 0.221) but are expected due to the complexities around dimensionality when analysing this type of dataset (Markóczy and Goldberg, 1995, p. 317). This technique allowed the data to be presented in a two-dimensional space so that the positioning of respondents with respect to each other could be evaluated indicating similarities and differences in their cognitive maps. Figure 6.1.1.1 illustrates the distances between organisational members near the beginning of the crisis based on their job position. Figure 6.1.1.2 shows the same distances but differentiates between leaders and followers.

Figure 6.1.1.1. MDS Output of Phase 1 (Job Role)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Figure 6.1.1.2. MDS Output of Phase 1 (Leaders)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

6.1.2 Locus and Scope of Consensus

Although MDS aids the visual understanding of consensus and diversity within and between groups it lacks statistical inference as it is limited by complexity around the potential number of dimensions and the high stress values. Consequently, it is imperative to conduct further statistical analysis on the distance ratios to overcome these limitations.

Therefore, to start, Table 6.1.2.1 highlights statistical tests on the distance ratios regarding similarities (consensus) and dissimilarities (diversity) between leaders and followers as well as the organisation as a whole. Consequently, all pairs of maps are compared within groups and between groups using independent samples t-tests.

This first calculation allows for the examination of the locus of consensus in Phase 1. Following, Markóczy (2001) this is calculated by comparing the degree of consensus (the closer to zero, the higher the degree of consensus) within the leadership group with the degree of agreement between each leader and each follower. The former calculates the degree of consensus within groups whilst the latter calculates the degree of consensus across groups. Comparing within group against across group scores demonstrates the locus of consensus (Markóczy, 2001). If the degree of consensus is lower within a subgroup compared to across subgroups and the difference is statistically significant then that respective subgroup is viewed as being the locus of consensus.

Table 6.1.2.1. Intra-subgroup Distances

<i>Phase 1</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	40	780	-	0.768	-	0.144	-	-
Leaders	14	91	364	0.799	0.797	0.127	0.131	0.080
Followers	26	325	364	0.727	0.797	0.153	0.131	-6.483

M = number of maps, *N_w* = number of distances between the maps within subgroups. *N_a* = number of distances across subgroups. \bar{x}_w = mean distance between maps within subgroups. \bar{x}_a = mean distance across members within and outside subgroups. σ_w = standard deviation within groups. σ_a = standard deviation across groups. *t* = t-value comparing means through an independent samples t-test

At this stage leaders remain diverse in their opinion and understanding of the crisis and how to overcome this. Consequently, there is no significant difference between the two means of within the group and across groups ($t = 0.080$; $p = .936$). However, it is evident that at the beginning of the crisis the followers are regarded as the locus of consensus ($t = -6.483$; $p = .000$). Furthermore, when comparing the means of leaders ($\bar{x} = 0.799$) with followers ($\bar{x} = 0.727$), a significant difference ($t = 4.546$; $p = .000$) is also found. This once again demonstrates the diversity within the leadership team near the beginning of the crisis. As a result, this begins to show support for Proposition 3a that in response to a crisis, followers will be the locus of consensus. Therefore, as the leadership group are not the initial locus of consensus, Proposition 2a is not supported.

However, the locus of consensus can be examined within specific hierarchical levels and roles through conducting further independent samples t-tests. Of particular interest is whether the locus of consensus may reside specifically within the TMT or within middle managers. Table 6.1.2.2 illustrates the same calculations but for each level.

Table 6.1.2.2. Intra-subgroup Distances (Specific Roles)

<i>Phase 1</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	40	780	-	0.768	-	0.144	-	-
TR	3	3	111	0.810	0.807	0.219	0.119	0.036
TM	4	6	144	0.856	0.810	0.119	0.136	0.824
MM	7	21	231	0.810	0.780	0.087	0.134	1.404
HO	6	15	204	0.784	0.783	0.119	0.141	0.044
PR	20	190	400	0.696	0.788	0.150	0.138	-7.368

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

However, the locus of consensus is found within practitioners ($t = -7.368$; $p = .000$) which demonstrates the importance of practitioners within the followership group and that they share the most similar views at the beginning of the crisis. Despite there being differences between the within and across means for other subgroups, none of these are found to be significant and furthermore \bar{x}_w is never lower than \bar{x}_a , which indicates that none of the other hierarchical levels at this stage of the crisis are the locus of consensus. In other words, only negative t -values can illustrate the potential for certain subgroups to be the locus of consensus. Therefore, Proposition 4a is also groundless as neither the middle management nor the TMT group are found to be the locus of consensus at the beginning of the crisis. Instead, the locus of consensus resides in the dominant group within the followers; the practitioners i.e. the client facing staff (or frontline employees).

In Table 6.1.2.3, further independent samples t-tests looked at whether there was any differences in consensus between groups.

Table 6.1.2.3. T-tests Comparing Different Hierarchical Groups

<i>Phase 1</i>		TR	TM	MM	HO	PR
	\bar{x}_w	0.810	0.856	0.810	0.784	0.696
TR	0.810	-				
TM	0.856	-0.428	-			
MM	0.810	-0.001	1.067	-		
HO	0.784	0.296	1.253	0.744	-	
PR	0.696	1.296	2.593	5.212	2.227	-

t-values for within group comparisons

This demonstrates that the most diverse group at the beginning of the crisis was the TMT ($\bar{x} = 0.856$) and the least diverse were practitioners ($\bar{x} = 0.696$). However, when comparing groups, significant differences were only found between practitioners with top managers ($t = 2.593$; $p = .010$), middle managers ($t = 5.212$; $p = .000$), and head office staff ($t = 2.227$; $p = .027$). Again this adds further weight to the locus of consensus residing within the practitioners whilst the TMT and middle managers demonstrated high levels of cognitive diversity at the onset of the crisis.

6.1.3 Content of Consensus

Whilst the previous analysis has demonstrated the similarities and differences between and among groups little is known about the content of this consensus. Therefore, to examine what makes these individuals similar or different, the content of the cognitive maps are examined to gain a greater understanding of beliefs and strategic priorities at different levels. The factors within the cognitive maps have been coded short hand to make the following analysis more succinct and manageable. Table 6.1.3.1 demonstrates the chosen factors and their respective codes in line with appendix 1.

Table 6.1.3.1. Factors and Their Respective Codes

Code	Factor
access	Accessibility
barriers	Barriers to change within the organization
buildres	Building resources for the future – financial / equipment / human
brand	Company brand image
competanalysis	Competitor analysis
controlcosts	Control of service costs
coop	Cooperation across all departments and service locations
coordops	Co-ordinating operations
currentres	Current resources – financial / equipment / human
delegate	Delegating tasks to others
analysisfinance	Detailed analysis of company finances
infocust	Detailed information / data on customers
devstaff	Developing staff
diffcompetit	Differentiation of services from competitors
econom	Economic conditions
empflex	Employee flexibility
emprelat	Employee relationships
geograph	Geographical position of services
government	Government policy
clientsrecovery	Helping clients achieve 'recovery'
innovative	Innovative services
intefficiency	Internal efficiency
kncompetit	Knowledge of competitors
kncustomer	Knowledge of customers
knintops	Knowledge of internal operations
layout	Layout of services
learningimpr	Learning to improve
lvlfunding	Level of funding
mgmtintuition	Management intuition
meascustomerach	Measuring customer achievements
motivstaff	Motivation of staff
opencomms	Open communication
persleader	Personal leadership style
persmotiv	Personal motivation
personnelto	Personnel turnover
planahead	Planning ahead
predictchange	Predictable change
pricediffcompetit	Price differentiation from competitors
promo	Promoting the service
pr	Public relations
rangeextserv	Range of extra services
relpartner	Relationships with partner agencies / organisations / services
respfunders	Responsibility to funders / commissioners
resptrustees	Responsibility to trustees
servqual	Service quality
servspace	Service space
shcorpulture	Shared corporate culture

Code	Factor
speedrespust	Speed of response to change in customers' needs
staffincome	Staff income
supportho	Support from head office
clientsproblem	Supporting clients with their problems
risksindm	Taking risks in decision making
targetfocus	Target focussed
targnewfund	Targeting new funders

Each map can be analysed to examine how respondents' belief systems are constructed. Therefore, an understanding of the causal effects and relationships between specific beliefs was considered. To provide a more detailed analysis the standard method of calculating indegrees (or the number of links leading into a factor) and outdegrees (or the number of links leading out of a factor) for all factors in all the cognitive maps was used (see Bougon et al. (1977)). Calculating the indegrees of the different factors helped identify the objectives or end states and also the 'means' or strategies believed to achieve these objectives. 'Etiographic' representation of indegrees was used so that the total number of indegrees per factor was divided by the sample size for each group (see Bougon et al., 1977). Additionally, the accumulated rank order of chosen concepts was collated to support this analysis. To keep a simplified scoring system a conventional ordinal ranking model was used (Cook and Kress, 1985, p. 26) but without any intensity of preference (so 1st = 10pts to 10th = 1pt).

The mean values of the etiographic representations and rank order scores for leaders and followers in Phase 1 are represented in Table 6.1.3.2.

Table 6.1.3.2. Etiographic Representations and Accumulated Rank Order - Phase 1

All	ID	Rk	Leaders	ID	Rk	Followers	ID	Rk
clientsrecovery	6.70	5.13	clientsrecovery	7.36	5.14	clientsrecovery	6.35	5.12
motivstaff	4.75	3.90	targetfocus	4.79	2.93	motivstaff	5.96	4.69
servqual	4.65	4.40	planahead	4.36	2.57	servqual	4.92	4.46
clientsproblem	3.60	3.00	servqual	4.14	4.29	clientsproblem	4.12	4.08
relpartner	3.13	2.78	relpartner	3.64	2.50	relpartner	2.85	2.92
<i>planahead</i>	<i>2.45</i>	<i>1.95</i>	<i>targnewfund</i>	<i>2.79</i>	<i>2.50</i>	<i>promo</i>	<i>2.31</i>	<i>2.12</i>
<i>access</i>	<i>2.15</i>	<i>1.55</i>	<i>clientsproblem</i>	<i>2.64</i>	<i>1.00</i>	<i>rangeextserv</i>	<i>2.19</i>	<i>0.65</i>
<i>targetfocus</i>	<i>1.95</i>	<i>1.63</i>	<i>access</i>	<i>2.57</i>	<i>0.71</i>	<i>meascustomerach</i>	<i>2.08</i>	<i>0.77</i>
<i>meascustomerach</i>	<i>1.93</i>	<i>0.88</i>	<i>motivstaff</i>	<i>2.50</i>	<i>2.43</i>	<i>devstaff</i>	<i>2.00</i>	<i>1.77</i>
			<i>emprelat</i>	<i>2.50</i>	<i>2.07</i>			
Bold Font Type = Ends (Objectives); Italic Font Type = Means ID = Aggregated indegrees divided by sample or subgroup size Rk = Aggregated rank order score divided by sample or subgroup size								

It is clear that at the start of the crisis both leaders and followers have the same key objective, ‘helping clients achieve recovery’, which is the driving philosophy of the organisation. This is also supported through the rank order score. Similarly they share the importance of service quality and relationships with partner organisations. However, beyond this many other objectives and their means within these two groups differ. Whilst leaders prioritise the importance of being target focussed and planning ahead, followers feel that the motivation of staff is integral to the success of the organisation during this period.

To examine this more closely, the etiographic representations and rank order scores for the different roles in Phase 1 are represented in Table 6.1.3.3.

Table 6.1.3.3. Etiographic Representations and Accumulated Rank Order - Phase 1 (Roles)

All	ID	Rk	TR	ID	Rk	TM	ID	Rk
clientsrecovery	6.70	5.13	barriers	7.00	4.00	clientsrecovery	11.75	5.00
motivstaff	4.75	3.90	targnewfund	6.00	2.67	planahead	8.25	4.00
servqual	4.65	4.40	planahead	4.33	4.00	targetfocus	7.00	4.25
clientsproblem	3.60	3.00	shcorpulture	4.00	4.67	servqual	6.75	3.00
relpartner	3.13	2.78	clientsproblem	3.67	1.00	learningimpr	6.00	1.25
<i>planahead</i>	<i>2.45</i>	<i>1.95</i>	<i>motivstaff</i>	<i>3.00</i>	<i>3.00</i>	<i>intefficiency</i>	<i>5.25</i>	<i>3.25</i>
<i>access</i>	<i>2.15</i>	<i>1.55</i>	<i>brand</i>	<i>3.00</i>	<i>3.00</i>	<i>clientsproblem</i>	<i>5.00</i>	<i>1.25</i>
<i>targetfocus</i>	<i>1.95</i>	<i>1.63</i>	<i>servqual</i>	<i>3.00</i>	<i>5.67</i>	<i>emprelat</i>	<i>5.00</i>	<i>3.75</i>
<i>meascustomerach</i>	<i>1.93</i>	<i>0.88</i>	<i>persmotiv</i>	<i>2.67</i>	<i>3.33</i>	<i>motivstaff</i>	<i>4.75</i>	<i>3.75</i>
			<i>innovative</i>	<i>2.67</i>	<i>2.00</i>	<i>meascustomerach</i>	<i>3.75</i>	<i>1.00</i>
			<i>access</i>	<i>2.67</i>	<i>0.33</i>			
MM	ID	Rk	HO	ID	Rk	PR	ID	Rk
clientsrecovery	7.14	6.00	motivstaff	8.17	4.50	clientsrecovery	6.90	5.10
targetfocus	5.14	2.43	infocust	5.00	2.33	motivstaff	5.30	4.75
relpartner	5.14	3.14	clientsproblem	5.00	3.50	servqual	5.10	4.65
servqual	3.14	4.43	clientsrecovery	4.50	5.17	clientsproblem	3.85	4.25
opencomms	3.00	2.00	servqual	4.33	3.83	relpartner	3.45	2.90
<i>access</i>	<i>2.71</i>	<i>1.00</i>	<i>intefficiency</i>	<i>3.83</i>	<i>2.17</i>	promo	3.00	2.75
<i>respfunders</i>	<i>2.14</i>	<i>3.43</i>	<i>meascustomerach</i>	<i>3.67</i>	<i>1.83</i>	<i>rangeextserv</i>	<i>2.40</i>	<i>0.50</i>
<i>targnewfund</i>	<i>2.14</i>	<i>3.00</i>	<i>kncustomer</i>	<i>2.17</i>	<i>3.17</i>	<i>devstaff</i>	<i>2.35</i>	<i>1.95</i>
<i>diffcompetit</i>	<i>2.14</i>	<i>1.86</i>	<i>respfunders</i>	<i>2.00</i>	<i>3.00</i>	<i>opencomms</i>	<i>2.25</i>	<i>2.60</i>
<i>planahead</i>	<i>2.14</i>	<i>1.14</i>	<i>buildres</i>	<i>2.00</i>	<i>0.50</i>	<i>access</i>	<i>2.20</i>	<i>2.35</i>
<i>emprelat</i>	<i>2.14</i>	<i>2.00</i>	<i>planahead</i>	<i>2.00</i>	<i>1.33</i>			

Bold Type = Ends (Objectives); Italic Type = Means

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

This again demonstrates more diversity between groups in relation to the content of consensus. Again the followers (head office staff and practitioners) prioritising staff motivation and helping clients recover. However, varied priorities are evident within the leadership groups (trustees, the TMT, and middle managers). Trustees and the TMT place an emphasis on planning ahead, whilst the TMT and middle managers placing an emphasis on helping clients recover, service quality, and being target focused. At this stage targeting new funders was an objective for the trustees, a means for the middle managers, and less essential for the TMT.

To obtain an in-depth understanding of the contribution of leaders and/or followers to consensus in responding to a crisis, central maps of both groups were developed to aid a comparison of the two groups (see Markóczy and Goldberg, 1995, Markóczy, 1997). Central maps should help understand where beliefs are similar to one another based on groups. The process and calculations to identify the central map is taken from Markóczy and Goldberg (1995) and Markóczy (2001). However, instead of getting drawn into the issues surrounding cluster analysis, the same process is taken but to look at central maps for leaders as a whole and followers as whole. Central maps are produced by choosing the nodes (or factors important for success), that are present in over half of the individual's cognitive maps in the relative sample or subgroup in the subsequent analysis. The arcs (or links) between the nodes and their averages are then elicited to form a central map. This central map is used as a new map, to represent the respective sample, so that it can be compared with other individuals using the distance ratio formula outlined previously. Then the central maps for leaders as a whole and followers as a whole were compared. Followed by central maps for the different hierarchical groups. As these precise central maps were not directly drawn by respondents only the matrices are illustrated.

These central maps support some of the previous findings in Tables 6.1.3.2 and 6.1.3.3. Central maps for leaders in Phase 1 are presented in matrix form in Figure 6.1.3.1 and for followers in Figure 6.1.3.2.

Figure 6.1.3.1 demonstrates a weak mental model (central map) for the leadership as a whole. With only three nodes been selected by more than half of the leadership group it is evident that at the beginning of the crisis there was limited consensus within the leadership apart from agreement on these three factors important for success. However, these three factors were critical because this agreement occurred around the organisation's strategic objectives, but there wasn't any consensus on the strategies (means) that should be adopted to achieve these objectives. Although, this is a limited vision for the rest of the organisation to follow during the crisis, it is possible that the importance of service quality and relationships with partner organisations may be viewed as the basic means to achieving this objective. However, the etiographic representations for this group have demonstrated these to also be objectives. This reflects the issues that the leadership had at the beginning of the crisis to try to understand what changes were relevant and significant. It is unlikely, therefore, that the leadership could present a unified vision on how to resolve the crisis due to this substantial lack of agreement. These implications are evident in Bourgeois (1980) study. Therefore, the diversity on means establishes some ambiguity across the leadership and possibly followership. Particularly when the means identified within the etiographic representations are not present in this central map. Consequently, this cognitive diversity provides further justification for not finding support for leaders being the initial locus of consensus (Proposition 2a).

6.1.3.1. Central Map for Leaders in Phase 1

	Leaders	1	2	3
1)	clientsrecovery	0.00	2.50	3.00
2)	relpartner	2.50	0.00	3.00
3)	servqual	3.00	2.50	0.00

Although consensus was limited in the leadership group, the followers appeared to have a stronger consensus around five main factors important for success in phase 1 of data collection, near the onset of the crisis (see Figure 6.1.3.2). These are also reflected in the objectives from the etiographic representations. Furthermore, this supports the earlier finding of the followers being the locus of consensus at the beginning of the crisis and adds further weight for supporting Proposition 3a.

Figure 6.1.3.2. Central Map for Followers in Phase 1

	Followers	1	2	3	4	5
1)	motivstaff	0.00	2.88	3.00	1.80	3.00
2)	clientsrecovery	3.00	0.00	3.00	3.00	3.00
3)	relpartner	2.67	2.86	0.00	2.75	2.00
4)	servqual	3.00	1.00	3.00	0.00	3.00
5)	clientsproblem	3.00	3.00	3.00	3.00	0.00

Whilst it is evident that there is great diversity among the leadership at the beginning of the crisis it is worth noting again that the leadership is composed of different levels. Therefore, it is important to examine the central maps for the trustees, the TMT, and the middle managers. Likewise, the job roles of the followers are divided between head office support staff and practitioners. The central maps for all these roles are presented in Figures 6.1.3.3 - 6.1.3.7.

Fig. 6.1.3.3 reflects the central map for trustees in Phase 1. As there are only three trustees in the initial sample it is clear that at least two of them share many similarities in what is important to overcome this crisis. This is an extremely strong central map bringing in planning ahead to focus on the external environment of partners and funders (customers / donors) with the internal issues such as barriers to change, employee flexibility, culture, service quality and innovation.

Figure 6.1.3.3. Central Map for Trustees in Phase 1

	TR	1	2	3	4	5	6	7	8
1)	barriers	0.00	3.00	0.00	0.00	0.00	0.00	3.00	0.00
2)	empflex	3.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
3)	innovative	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
4)	planahead	0.00	0.00	2.00	0.00	0.00	0.00	0.00	2.00
5)	relpartner	0.00	0.00	3.00	2.00	0.00	0.00	0.00	2.00
6)	servqual	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
7)	shcorpulture	3.00	2.00	3.00	3.00	0.00	3.00	0.00	0.00
8)	targnewfund	0.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00

However, it is evident that the four members of the TMT have a very diverse perspective on making sense of the onset of the crisis and how to overcome it (see Fig. 6.1.3.4). They all vary in their priorities except for around the need to plan ahead which is clearly their main cause for concern at this

stage. Therefore, there is some agreement to the importance of putting in place a strategy to overcome this crisis but at this stage there is no agreement on what that should look like.

Figure 6.1.3.4. Central Map for the TMT in Phase 1

	TM	1
1)	planahead	0.00

It is clear in Fig. 6.1.3.5, that the middle managers reflect the leaders' central map with the same three factors. Therefore, it emerges at this early stage that the middle management group are dominant within the leadership group as a whole. However, likewise as a group they do not find any significant consensus on how to tackle the crisis. This demonstrates that at the beginning of the crisis, the two integral leadership groups in the strategy literature, the TMT and the middle managers, are in extremely diverse positions with all having divergent views. Thus, Propositions 4a remains unsubstantiated as the middle management group is not the initial locus of consensus.

Figure 6.1.3.5. Central Map for Middle Managers in Phase 1

	MM	1	2	3
1)	clientsrecovery	0.00	2.50	3.00
2)	relpartner	3.00	0.00	0.00
3)	servqual	3.00	2.00	0.00

The head office support staff only find consensus on four factors (see Fig. 6.1.3.6) which is not surprising due to the nature of their functions ranging from human resources (HR), information technology (IT), finance, admin and business development. However, differing from the leadership they prioritise the importance of staff motivation and being target focused in getting through this climate.

Figure 6.1.3.6. Central Map for Head Office Staff in Phase 1

	HO	1	2	3	4
1)	motivstaff	0.00	0.00	0.00	-1.00
2)	clientsrecovery	3.00	0.00	0.00	0.00
3)	relpartner	0.00	3.00	0.00	0.00
4)	targetfocus	1.00	3.00	0.00	0.00

In Fig. 6.1.3.7., Staff motivation is also integral to practitioners whom as previously discussed are an important locus of consensus at the beginning of the crisis. This is echoed through consensus around six factors which are also strongly present in the followers' central map.

Figure 6.1.3.7. Central Map for Practitioners in Phase 1

	PR	1	2	3	4	5	6
1)	clientsrecovery	0.00	3.00	3.00	3.00	2.50	3.00
2)	motivstaff	2.88	0.00	3.00	1.50	3.00	3.00
3)	relpartner	2.83	2.67	0.00	2.67	3.00	0.00
4)	servqual	0.00	3.00	3.00	0.00	2.67	3.00
5)	promo	2.50	0.00	2.67	2.80	0.00	3.00
6)	clientsproblem	3.00	3.00	3.00	3.00	3.00	0.00

6.2 Study 2 – Phases 1 and 2

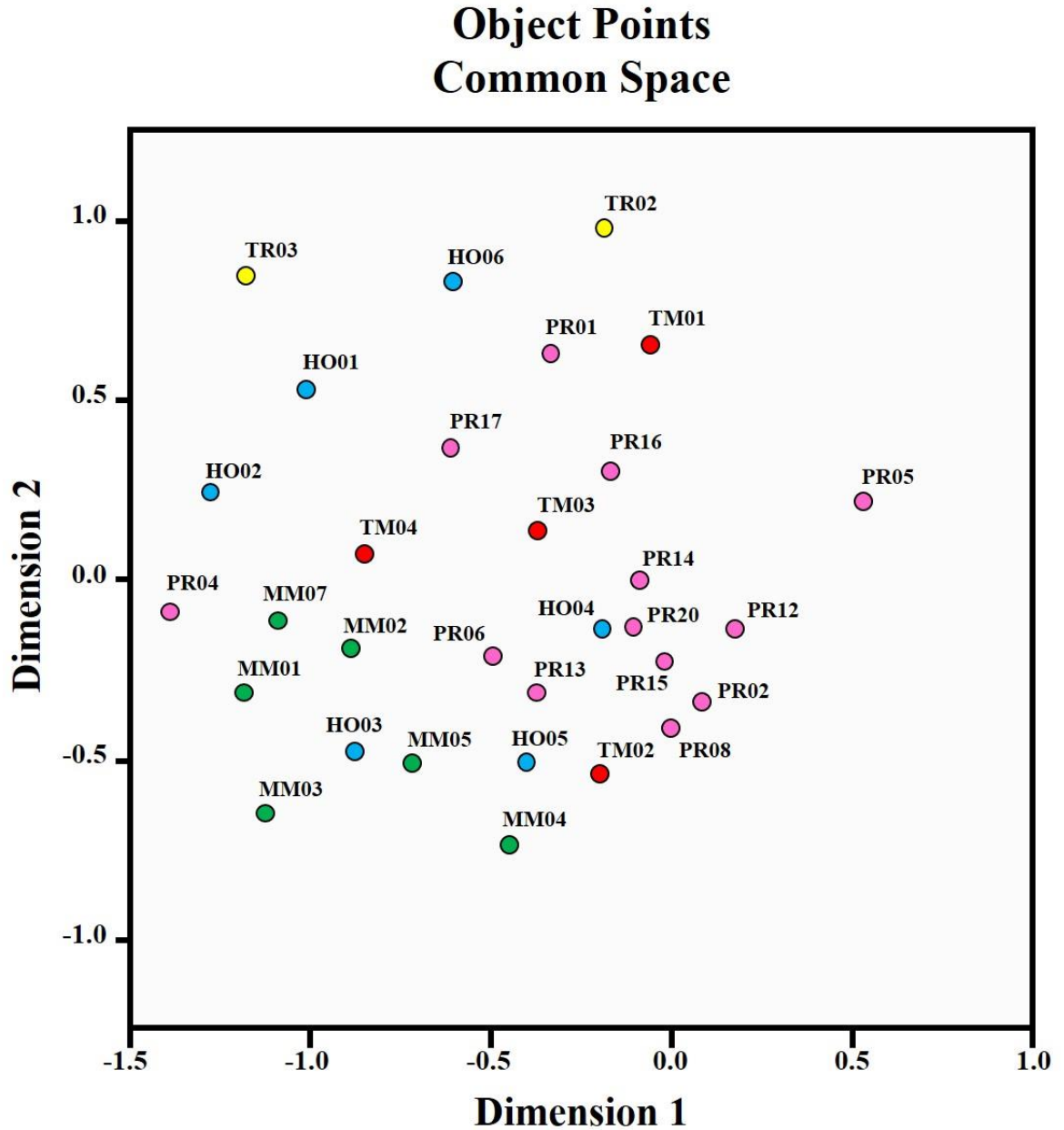
This second study examines the midpoint of the longitudinal case study. It focuses around 2013 when the sample size was at 31 organisational members. Consequently, a longitudinal comparison can now be made between 2011 (Phase 1) and 2013 (Phase 2). This examines the original two samples of Phase 1 (n = 40) and Phase 2 (n = 31). However, in this study the sample attrition is also taken into consideration through comparing the same 31 organisational members from Phase 2 with Phase 1 (n = 31).

6.2.1 Distance Ratios and MDS

Firstly, Figure 6.2.1.1 illustrates the distances between organisational members in the second phase based on their job position conveyed through MDS. Figure 6.2.1.2 shows the same distances but

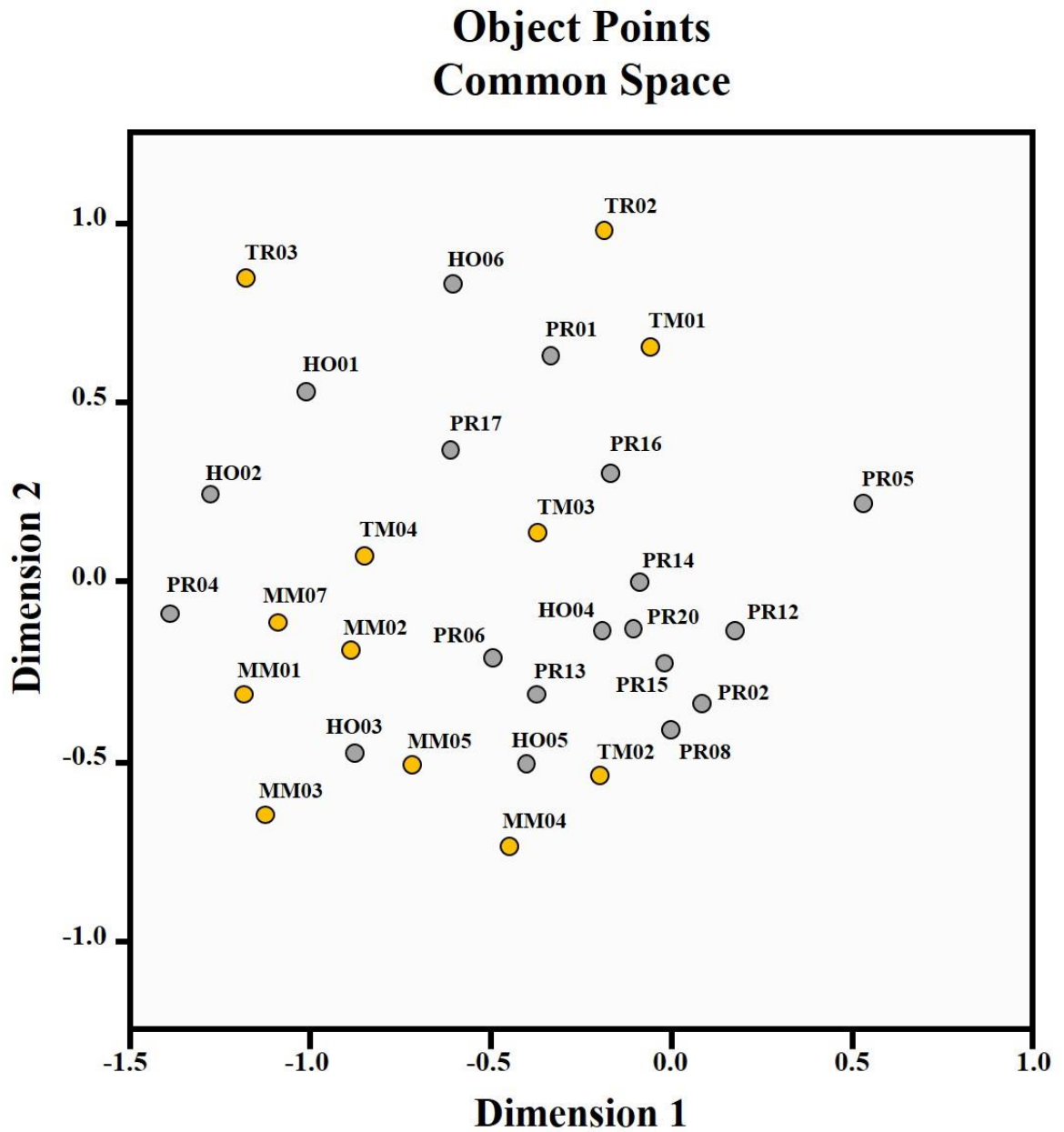
differentiates between leaders and followers. As expected the stress values in this study were again found to be quite high (S-Stress = 0.214).

Figure 6.2.1.1. MDS Output of Phase 2 (Job Role)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Figure 6.2.1.2. MDS Output of Phase 2 (Leaders)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

6.2.2 Locus and Scope of Consensus

Secondly, these distance ratios are examined again using independent samples t-tests, starting with investigating the locus of consensus in Phase 2. Table 6.2.2.1 shows the intra-subgroup distances within and across leaders and followers in Phase 2.

Table 6.2.2.1. Intra-subgroup Distances for Phase 2

<i>Phase 2</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	31	465	-	0.710	-	0.147	-	-
Leaders	12	66	228	0.735	0.724	0.139	0.137	0.567
Followers	19	171	228	0.682	0.724	0.160	0.137	-2.829

Although the leadership group have converged in their consensus between Phases 1 ($\bar{x} = 0.799$) and 2 ($\bar{x} = 0.735$), within the group compared to across the rest of the organisation there is still limited difference ($t = 0.567$; $p = .571$). However, what remains evident even by Phase 2 is that followers remain the locus of consensus ($t = -2.829$; $p = .005$). This demonstrates the strength of followers and their shared understanding of the crisis as it unfolded. Additionally, when comparing the means of leaders ($\bar{x} = 0.735$) and followers ($\bar{x} = 0.682$) a significant difference is also found ($t = 2.374$; $p = .018$). As a result, support is found for Proposition 3b in that as the crisis develops to the midpoint of data collection, followers remain as the locus of consensus in beliefs. Therefore, no support is found for Proposition 2b as leaders to this point are still not the locus of consensus, despite their degree of consensus increasing.

Table 6.2.2.2 highlights the same information regarding similarities (consensus) and dissimilarities (diversity) between leaders and followers as well as the organisation as a whole. However, Phase 1 is now taken into consideration based on the reduced sample of 31. To see whether those excluded from the sample affected the findings in Study 1.

Table 6.2.2.2. Intra-subgroup Distances for Phases 1 and 2 (n = 31)

Phase 1	M	N_w	N_a	\bar{x}_w	\bar{x}_a	σ_w	σ_a	t
All	31	465		0.779		0.146		
Leaders	12	66	228	0.819	0.805	0.123	0.132	.817
Followers	19	171	228	0.730	0.805	0.159	0.132	-4.982
Phase 2								
All	31	465		0.710		0.147		
Leaders	12	66	228	0.735	0.724	0.139	0.137	.567
Followers	19	171	228	0.682	0.724	0.160	0.137	-2.829

M = number of maps, N_w = number of distances between the maps within subgroups. N_a = number of distances across subgroups. \bar{x}_w = mean distance between maps within subgroups. \bar{x}_a = mean distance across members within and outside subgroups. σ_w = standard deviation within groups. σ_a = standard deviation across groups. t = t-value comparing means through an independent samples t-test

In Table 6.2.2.2, the independent samples t-test demonstrates significant differences between followers (within groups) and when each follower was compared to leaders (across groups) in Phase 1 ($t = -4.982$; $p = .000$) and in Phase 2 ($t = -2.829$; $p = .005$). However, significant differences were not found between leaders (within groups) and when each leader was compared to followers (across groups) in Phase 1 ($t = .817$; $p = .168$) and in Phase 2 ($t = .567$; $p = .645$). Therefore, it is evident that followers have more consensus than their leaders during these two phases. It is also evident that followers are significantly different when compared to their leaders. However, leaders are just as likely to be different to fellow leaders as they are to their followers (e.g. Phase 1 within groups $\bar{x} = 0.819$ and $\bar{x} = 0.805$ across groups). Therefore, even taking into consideration the sample attrition followers are found to be the locus of consensus in both phases further supporting Propositions 3a and 3b.

The next analysis is to examine the locus of consensus for the different hierarchical levels using independent samples t-tests (Table 6.2.2.3).

Table 6.2.2.3. Intra-subgroup Distances for Phase 2

<i>Phase 2</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	31	465	-	0.710	-	0.147	-	-
TR	2	1	58	0.667	0.848		0.095	-1.896
TM	4	6	108	0.688	0.695	0.150	0.135	-0.122
MM	6	15	150	0.647	0.726	0.110	0.132	-2.232
HO	6	15	150	0.734	0.720	0.109	0.142	0.379
PR	13	78	234	0.628	0.727	0.164	0.141	-4.777

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

By this second phase the loci of consensus is again situated within the practitioners ($t = -4.777$; $p = .000$) but for the first time also within middle managers ($t = -2.232$; $p = .027$). This begins to demonstrate the importance of middle managers as the crisis unfolds and provides support for Proposition 4b, in that they emerge as a locus of consensus but just not from the outset. Therefore, despite the leadership as a whole being disjointed, when the different leadership groups are examined on their own, middle managers have become the locus of consensus as the crisis unfolds. Although the trustees ($t = -1.896$; $p = .063$) and the TMT ($t = -0.122$; $p = .903$) produce negative t-values which would also indicate loci of consensus, the findings are non-significant.

Whilst significant differences between leaders and followers have been found in both phases, further independent samples t-tests look at whether there were any differences in consensus between hierarchical groups (see Table 6.2.2.4).

Table 6.2.2.4. T-tests Comparing Different Hierarchical Groups

<i>Phase 2</i>		TR	TM	MM	HO	PR
	\bar{x}_w	0.667	0.688	0.647	0.734	0.628
TR	0.667	-				
TM	0.688	-0.131	-			
MM	0.647	0.176	0.700	-		
HO	0.734	-0.602	-0.795	-2.194	-	
PR	0.628	0.232	0.860	0.544	3.145	-

This demonstrates that the most diverse group at the midpoint of the crisis was the head office staff ($\bar{x} = 0.734$) and the least diverse were again the practitioners ($\bar{x} = 0.628$). However, when comparing groups significant differences were only found between head office staff with middle managers ($t = -2.194$; $p = .037$) and practitioners ($t = 3.145$; $p = .004$). This further supports the previous finding of middle managers (Proposition 4b) and practitioners been the loci of consensus at the midpoint of the crisis.

6.2.3 Change in Consensus

Thirdly, using paired samples t-tests, Table 6.2.3.1 presents further analysis on how consensus within the groups changed over time. This is imperative to understand how consensus forms during a crisis and initiates the understanding of cognitive shifts.

Table 6.2.3.1. Longitudinal Intra-subgroup Distances (Leaders)

	N_1	N_2	\bar{x}_1	\bar{x}_2	t	σ_1	σ_2	$\Delta\bar{x}/\sigma$
All	31	31	0.779	0.710	8.596	0.146	0.147	0.469
Leaders	12	12	0.819	0.735	3.655	0.123	0.139	0.604
Followers	19	19	0.730	0.682	3.577	0.159	0.160	0.300
Across	-	-	0.805	0.724	7.300	0.132	0.137	0.591

N_1 = number of maps in phase 1. N_2 = number of maps in phase 2. \bar{x}_1 = mean distance between maps within subgroups in phase 1. \bar{x}_2 = mean distance between maps within subgroups in phase 2. t = t-value comparing means through a paired samples t-test. σ_1 = standard deviation within groups in phase 1. σ_2 = standard deviation within groups in phase 2. $\Delta\bar{x}/\sigma$ = shows how many standard deviations away is the new mean from the previous one, calculated as $(\bar{x}_1 - \bar{x}_2) / \sigma_2$.

The initial results in Table 6.2.3.1 highlight consensus was built, not only across the organisation as a whole but also within both leaders and follower groups. The means for all pairs of distances in Phase 1 reduces from $\bar{x} = 0.779$ to $\bar{x} = 0.710$ in Phase 2. Therefore, some organisationwide consensus has developed as the radical environmental change has begun to be understood. This finding is consistent with prior longitudinal cognitive research into the scope of consensus conducted by Markóczy (2001). An increase in the scope of consensus refers to an increase in the number of individuals that agree on the factors important for success within the organisation. The paired sample t-test provides a t -value of

8.596 ($p = .000$) demonstrating that the means are significantly different. Consequently, support is found for Proposition 1 in that scope of consensus increases across the first two phases in response to the crisis.

Table 6.2.3.1 also indicates that there are changes in the degree of consensus, or how strong individuals agree, as the mean within groups significantly decreases over the 18 months for both leaders from $\bar{x} = 0.819$ to $\bar{x} = 0.735$ ($t = 3.655$; $p = .001$) and followers from $\bar{x} = 0.730$ to $\bar{x} = 0.682$ ($t = 3.577$; $p = .000$), even across groups when leaders are compared with followers from $\bar{x} = 0.805$ to $\bar{x} = 0.724$ ($t = 7.300$; $p = .000$). This reflects the increased scope of consensus in that consensus also forms within both leaders and followers as the crisis develops.

The t -values when comparing means between the leadership group ($\bar{x} = 0.819$) and the followership ($\bar{x} = 0.730$) group for Phase 1 based on the sample of 31, $t = 4.610$ ($p = .000$), equal variances not assumed. Additionally, comparing leaders ($\bar{x} = 0.735$) and followers ($\bar{x} = 0.682$) in phase 2, $t = 2.374$ ($p = .018$) equal variances assumed. This finding indicates that at Phase 1 of the data collection, at the onset of the crisis, there is a significant difference in consensus between leaders and followers. This within group mean indicates the degree of consensus within groups (Markóczy, 2001). There was far more consensus amongst followers than leaders (hence the lower scores). However, this difference has reduced by the second phase of data collection but still remains significant. Table 6.2.3.1 also highlights that in all cases the followers possess more consensus than their leaders. Therefore, further support is found for Proposition 3b and not for Proposition 2b.

Independent sample t -tests were also conducted to longitudinally compare the means of these groups but including the full sample ($n = 40$) from Phase 1 (Table 6.2.3.2). Therefore, the sample sizes of the two phases varied.

Table 6.2.3.2. Longitudinal Intra-subgroup Distances (Leaders)

	N_1	N_2	\bar{x}_1	\bar{x}_2	t	σ_1	σ_2	$\Delta\bar{x}/\sigma$
All	40	31	0.768	0.710	6.811	0.144	0.147	0.394
Leaders	14	12	0.799	0.735	2.973	0.127	0.139	0.457
Followers	26	19	0.727	0.682	3.058	0.153	0.160	0.281
Across	-	-	0.797	0.724	6.517	0.131	0.137	0.535

Again this produces similar results, in that consensus builds not only in terms of scope ($t = 6.811$; $p = .000$) but also within the leadership group ($t = 2.973$; $p = .003$) and the followership group ($t = 3.058$; $p = .002$). Even when each leader is compared with each follower (across) the consensus also builds ($t = 6.517$; $p = .000$). Again, as this produces similar results it is not evident that those missing from the second phase made any significant difference to the first phase findings. Therefore, this further supports Proposition 1 in that the scope of consensus increases across the first two phases in response to the crisis.

As it is evident that consensus forms during the initials phases of the crisis both within and between leaders and followers, little is known about specifically amongst the different hierarchical levels. Table 6.2.3.3 demonstrates how consensus within specific hierarchical levels (role) changed over time. As the sample remains consistent ($n = 31$), paired samples t-tests are conducted.

Table 6.2.3.3. Longitudinal Intra-subgroup Distances (Roles)

	N_1	N_2	\bar{x}_1	\bar{x}_2	t	σ_1	σ_2	$\Delta\bar{x}/\sigma$
All	31	31	0.779	0.710	8.596	0.146	0.147	0.469
TR	2	2	0.971	0.667	-	-	-	-
TM	4	4	0.856	0.688	2.153	0.119	0.150	1.124
MM	6	6	0.808	0.647	4.260	0.097	0.110	1.465
HO	6	6	0.784	0.734	1.196	0.119	0.109	0.458
PR	13	13	0.686	0.628	2.230	0.156	0.164	0.348

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Although it is evident that consensus forms within all five groups, the only significant differences are within middle managers ($t = 4.260$; $p = .000$) and practitioners ($t = 2.230$; $p = .027$). This again shows the prominence of these two groups by the midpoint of the crisis. Some partial support is also found for the building of consensus within the TMT ($t = 2.153$; $p = .057$).

These findings are further supported when using independent samples t-tests to make the comparisons between the full sample from Phase 1 with the reduced sample in Phase 2 (see Table 6.2.3.4).

Table 6.2.3.4. Longitudinal Intra-subgroup Distances (Roles)

	N_1	N_2	\bar{x}_1	\bar{x}_2	t	σ_1	σ_2	$\Delta\bar{x}/\sigma$
All	40	31	0.768	0.710	6.811	0.144	0.147	0.394
TR	3	2	0.810	0.667	0.565	0.219	-	-
TM	4	4	0.856	0.688	2.153	0.119	0.150	1.124
MM	7	6	0.810	0.647	4.968	0.087	0.110	1.485
HO	6	6	0.784	0.734	1.196	0.119	0.109	0.458
PR	20	13	0.696	0.628	3.237	0.150	0.164	0.409

The significant differences remain within middle managers ($t = 4.968$; $p = .000$) and practitioners ($t = 3.237$; $p = .001$) as well as some support for the building of consensus within the TMT ($t = 2.153$; $p = .057$).

6.2.4 Content of Consensus

Fourthly, how the content of consensus within groups changes during these first two phases of the crisis is examined. Table 6.2.4.1 illustrates the etiographic representations and rank order scores in Phase 2 for both leaders and followers. Beyond the key objective of helping clients achieve recovery it is clear that the importance of service quality has come to the fore by the Phase 2 and begins to demonstrate further what beliefs the consensus is forming around. As part of this the importance of

motivation of staff also has become more important for leaders than in Phase 2. However, many of the objectives for the followers remain consistent with the first phase.

Table 6.2.4.1. Etiographic Representations and Accumulated Rank Order - Phase 2

All	ID	Rk	Leaders	ID	Rk	Followers	ID	Rk
servqual	7.94	6.06	servqual	10.58	7.50	clientsrecovery	8.42	6.63
clientsrecovery	7.16	5.68	clientsrecovery	5.17	4.17	servqual	6.26	5.16
motivstaff	4.29	4.13	motivstaff	4.83	4.58	clientsproblem	5.47	4.53
clientsproblem	3.48	2.87	relpartner	3.75	3.33	motivstaff	3.95	3.84
relpartner	3.42	3.13	<i>innovative</i>	2.58	1.50	relpartner	3.21	3.00
<i>respfunders</i>	2.06	2.48	<i>targetfocus</i>	2.50	2.58	<i>respfunders</i>	1.95	1.63
<i>innovative</i>	1.94	1.19	<i>respfunders</i>	2.25	3.83	<i>promo</i>	1.95	2.16
<i>targetfocus</i>	1.81	2.23	<i>targnewfund</i>	2.08	1.00	<i>kncustomer</i>	1.84	1.47
<i>devstaff</i>	1.65	2.48				<i>devstaff</i>	1.79	3.05
<i>targnewfund</i>	1.61	1.52						

Bold Type = Ends (Objectives); Italic Type = Means

In Table 6.2.4.2 the content of consensus based on etiographic representations and rank order scores is examined again but for the different hierarchical groups in Phase 2. Again the prevalence of service quality permeating each group as a key objective is evident. This is also the case for the importance of staff motivation. However, only the two trustees do not see the latter as a key objective nor do they include the importance helping clients recover. Despite this the building of consensus throughout the rest of the organisation is evident as the crisis unfolds and how they believe to deal with this successfully. Therefore, the content of consensus becomes much clearer.

Table 6.2.4.2. Etiographic Representations and Accumulated Rank Order - Phase 2 (Roles)

All	ID	Rk	TR	ID	Rk	TM	ID	Rk
servqual	7.94	6.06	servqual	13.50	10.00	servqual	11.25	8.25
clientsrecovery	7.16	5.68	resptrustees	9.50	6.00	motivstaff	8.50	6.00
motivstaff	4.29	4.13	intefficiency	4.50	5.00	clientsrecovery	8.00	4.75
clientsproblem	3.48	2.87	targetfocus	3.00	4.00	innovative	4.50	3.00
relpartner	3.42	3.13	<i>kncompetit</i>	2.00	1.50	relpartner	4.25	2.00
<i>respfunders</i>	2.06	2.48	<i>diffcompetit</i>	2.00	0.50	<i>speedrespcust</i>	3.50	1.25
<i>innovative</i>	1.94	1.19	<i>competanalysis</i>	2.00	4.00	<i>devstaff</i>	3.00	4.00
<i>targetfocus</i>	1.81	2.23	<i>respfunders</i>	1.50	3.50	<i>infocust</i>	2.75	0.50
<i>devstaff</i>	1.65	2.48	<i>analysisfinance</i>	1.50	2.50	<i>targnewfund</i>	2.75	1.50
<i>targnewfund</i>	1.61	1.52	<i>lvlfunding</i>	1.50	3.00	<i>analysisfinance</i>	2.50	1.75
			<i>controlcosts</i>	1.50	2.00			
MM	ID	Rk	HO	ID	Rk	PR	ID	Rk
servqual	9.17	6.17	clientsrecovery	9.00	6.33	clientsrecovery	8.15	6.77
clientsrecovery	5.00	5.17	servqual	6.50	5.50	clientsproblem	6.62	5.23
relpartner	4.67	3.83	respfunders	5.67	2.33	servqual	6.15	5.00
motivstaff	4.00	5.17	motivstaff	4.83	4.33	relpartner	4.23	3.62
targetfocus	4.00	3.83	kncustomer	3.00	2.67	motivstaff	3.54	3.62
respfunders	4.00	6.50	clientsproblem	3.00	3.00	<i>promo</i>	2.62	2.62
<i>targnewfund</i>	2.33	1.00	<i>targetfocus</i>	2.17	4.00	<i>devstaff</i>	2.38	3.69
<i>empflex</i>	2.17	2.17	<i>meascustomerach</i>	2.00	3.17	<i>innovative</i>	2.23	1.46
<i>innovative</i>	2.17	1.00	<i>lvlfunding</i>	2.00	1.50	<i>planahead</i>	2.08	2.15
<i>planahead</i>	1.83	1.50	<i>controlcosts</i>	1.83	1.00	<i>opencomms</i>	2.08	2.54

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Similarly, the corresponding central maps are presented in Figure 6.2.4.1 - 6.2.4.2. Two years on from Phase 1 it was clear that the leadership had a much stronger understanding of the current situation and had formed more consensus around that (see Fig. 6.2.4.1). Beyond their limited mental model from Phase 1, leaders had now placed further emphasis on the importance of staff motivation and the responsibility to funders (customer / donor). In other words, at Phase 2 of data collection, leaders displayed more consensus, because five factors (instead of three previously) they thought important for success were shared by more than half of the leadership group.

Figure 6.2.4.1. Central Map for Leaders in Phase 2

	Leaders	1	2	3	4	5
1)	servqual	0.00	2.25	3.00	2.75	2.25
2)	relpartner	2.00	0.00	2.50	2.00	3.00
3)	clientsrecovery	3.00	2.50	0.00	3.00	0.00
4)	motivstaff	3.00	2.50	3.00	0.00	-1.00
5)	respfunders	2.00	1.00	-0.50	-1.00	0.00

Additionally, two years on for the followers they had built even stronger consensus (see Fig. 6.2.4.2.). They now shared consensus around an additional two factors; developing staff and promoting the service. In other words, in Phase 2 of data collection followers displayed considerable consensus, because seven factors (instead of five previously) they thought important for success were shared by more than half of the follower group. This strong central map also reflects why they remain as the locus of consensus by Phase 2, further supporting Proposition 3b.

Figure 6.2.4.2. Central Map for Followers in Phase 2

	Followers	1	2	3	4	5	6	7
1)	clientsrecovery	0.00	3.00	2.50	0.50	0.00	0.00	2.00
2)	servqual	3.00	0.00	2.50	3.00	3.00	3.00	0.00
3)	relpartner	2.50	3.00	0.00	0.00	2.00	0.00	0.00
4)	motivstaff	3.00	3.00	0.00	0.00	3.00	0.00	0.00
5)	clientsproblem	0.00	0.00	2.00	-2.00	0.00	0.00	2.00
6)	devstaff	0.00	0.00	0.00	3.00	0.00	0.00	0.00
7)	promo	2.00	0.00	0.00	0.00	2.00	0.00	0.00

Next, the central maps for the different hierarchical levels are investigated (Figures 6.2.4.3 - 6.2.4.7). It is evident that by Phase 2 when the trustees sample is reduced to just two individuals that they only share four constructs to form the central map (see Fig. 6.2.4.3.). The importance of service quality, internal efficiency, and the responsibility to trustees all demonstrating the importance of the internal environment with the importance of competitor analysis demonstrating their focus in the external environment.

Figure 6.2.4.3. Central Map for Trustees in Phase 2

	TR	1	2	3	4
1)	competanalysis	0.00	0.00	2.00	0.00
2)	intefficiency	0.00	0.00	0.00	3.00
3)	resptrustees	0.00	0.00	0.00	3.00
4)	servqual	0.00	3.00	3.00	0.00

Compared to Phase 1, the TMT by Phase 2 demonstrate a great deal more consensus with their central map moving from agreement on just one factor (planning ahead) to six factors (see Fig. 6.2.4.4.). Here, it is possible to start to see what they view as being essential to actually overcome this crisis successfully. The content focuses on many internal service delivery factors such as service quality, staff motivation and development, and innovation. A focus on clients (customers / beneficiaries) and partner organisations exhibits the external focus.

Figure 6.2.4.4. Central Map for the TMT in Phase 2

	TM	1	2	3	4	5	6
1)	servqual	0.00	3.00	3.00	3.00	3.00	2.00
2)	devstaff	3.00	0.00	3.00	2.00	2.50	0.00
3)	clientsrecovery	3.00	3.00	0.00	0.00	3.00	3.00
4)	innovative	3.00	0.00	3.00	0.00	0.00	3.00
5)	motivstaff	3.00	3.00	3.00	3.00	0.00	2.50
6)	relpartner	2.00	0.00	2.50	3.00	2.00	0.00

Likewise the content of consensus for middle managers becomes more consistent moving from three to six factors (see Fig. 6.2.4.5.). As the crisis unfolds middle managers prioritise responsibility to funders (customers / donors), staff motivation, and target focussed, in addition to service quality, relationships with partner organisations, and helping clients recover from Phase 1. This strong central map also reflects why middle managers become a locus of consensus by Phase 2, further supporting Proposition 4b.

Figure 6.2.4.5. Central Map for Middle Managers in Phase 2

	MM	1	2	3	4	5	6
1)	respfunders	0.00	1.00	1.00	-0.50	-1.00	3.00
2)	relpartner	3.00	0.00	2.00	2.50	0.00	0.00
3)	servqual	2.00	2.33	0.00	3.00	2.50	3.00
4)	clientsrecovery	0.00	2.00	3.00	0.00	3.00	0.00
5)	motivstaff	-1.00	0.00	3.00	3.00	0.00	-1.00
6)	targetfocus	2.50	0.00	-1.00	-1.00	-1.00	0.00

The degree of consensus within the head office remains similar sharing four factors again in their central map of Phase 2 (see Fig. 6.2.4.6.). However, this time target focused and relationships with partner organisations make way for the importance of service quality and targeting new funders.

Figure 6.2.4.6. Central Map for Head Office Staff in Phase 2

	HO	1	2	3	4
1)	motivstaff	0.00	3.00	3.00	0.00
2)	servqual	2.50	0.00	3.00	0.00
3)	clientsrecovery	0.00	0.00	0.00	0.00
4)	targnewfund	2.00	0.00	3.00	0.00

As previous analysis has highlighted practitioners in Phase 2 remain fairly consistent with their consensus from Phase 1. Although they now have seven factors compared to six (see Fig. 6.2.4.7.). This additional factor is centred on the importance of staff development whilst the other six remain the same. This strong map also demonstrates why practitioners remain as a locus of consensus by the second phase with middle managers.

Figure 6.2.4.7. Central Map for Practitioners in Phase 2

	PR	1	2	3	4	5	6	7
1)	clientsrecovery	0.00	3.00	2.00	2.80	0.00	0.00	3.00
2)	relpartner	3.00	0.00	2.00	3.00	0.00	3.00	0.00
3)	servqual	2.50	2.00	0.00	3.00	2.00	3.00	3.00
4)	clientsproblem	2.75	3.00	3.00	0.00	0.00	0.00	3.00
5)	devstaff	3.00	0.00	3.00	2.50	0.00	0.00	3.00
6)	promo	2.00	3.00	3.00	0.00	0.00	0.00	3.00
7)	motivstaff	3.00	0.00	1.33	3.00	3.00	3.00	0.00

6.2.5 Cognitive Shifts

The cognitive shifts of individuals and whether leaders are more prone to cognitive shifts than followers or vice versa are reported. To examine cognitive shifts each individual's cognitive map from Phase 1 was compared to their cognitive map from Phase 2 of data collection. Due to the longitudinal data collection each pair of maps was used to calculate for similarity and dissimilarity following (Markóczy and Goldberg, 1995). When comparing the maps from both phases, the closer the distance ratio is to the value of 1 (maximum difference) then the higher the level of cognitive shift.

Table 6.2.5.1 indicates the individual cognitive shifts within leaders and followers. This demonstrates that on average leaders ($\bar{x} = 0.640$) have a higher cognitive shift during the first two phases compared to followers ($\bar{x} = 0.513$). However, an independent samples t-test comparing the difference in mean values of cognitive shifts between the two groups (leaders and followers) produced a *t*-value of 1.898 ($p = .068$). Therefore, only partial support was found for Proposition 6 which expected the initial cognitive shift of leaders when confronting a crisis would be higher than the followers.

Table 6.2.5.1. Individual Cognitive Shifts within Leaders and Followers

	n	\bar{x}	σ
All	31	0.562	0.189
Leaders	12	0.640	0.175
Followers	19	0.513	0.186

n = number of maps. \bar{x} = mean. σ = standard deviation.

Despite the small within group sample sizes, it is important to still examine the differences in average cognitive shifts between hierarchical levels (groups). These calculations can be found in Table 6.2.5.2 along with the respective t-values in Table 6.2.5.3.

Table 6.2.5.2. Individual Cognitive Shifts within Groups

	n	\bar{x}	σ
All	31	0.562	0.189
Trustees	2	0.839	0.071
TMT	4	0.697	0.140
Middle Managers	6	0.536	0.153
Head Office	6	0.523	0.139
Practitioners	13	0.508	0.209

n = number of maps. \bar{x} = mean. σ = standard deviation.

Table 6.2.5.3. T-values for Comparing Individual Cognitive Shifts within Groups

Cognitive Shifts		TR	TM	MM	HO	PR
	\bar{x}	0.839	0.697	0.536	0.523	0.508
TR	0.839	-				
TM	0.697	1.291	-			
MM	0.536	2.600	1.677	-		
HO	0.523	2.955	1.925	0.160	-	
PR	0.508	2.156	1.672	0.292	0.153	-

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Table 6.2.5.3 demonstrates that the cognitive shifts within trustees are significantly higher than middle managers ($t = 2.600$; $p = .041$) and head office support staff ($t = 2.955$; $p = .025$) practitioners ($t = 2.156$; $p = .050$). Although there are differences between the mean values for the TMT with trustees ($t = 1.291$; $p = .266$), middle managers ($t = 1.677$; $p = .132$), head office support staff ($t = 1.925$; $p = .090$), and practitioners ($t = 1.672$; $p = .115$), these are all found to be non-significant. Therefore, partial support is found for Proposition 7a but no support is found for middle managers having a high degree of cognitive shifts (Proposition 7b)

6.2.6 Explaining Cognitive Shifts

Due to not finding a significant t -value between the two means it is clear that something else may be explaining the cognitive shifts between leaders and followers. The next phase of data analysis

looked at the sample of the 31 participants to explore specific bivariate correlations with individual cognitive shifts.

Table 6.2.6.1 demonstrates how the degree of cognitive shift in an individual correlates with their distance in a particular phase from either a leader mental model or follower mental model from Phase 1 or Phase 2. In other words, positive values show the higher the cognitive shift the further from a central map. However, it is worth noting that in the study by Markóczy (1997) these were recalculated to consider closeness to central maps.

Table 6.2.6.1. Bivariate Correlations: Cognitive Shifts and Distances from Central Maps

	Phase 1	Phase 2
<i>Pearson</i>	CogShiftAB	CogShiftAB
Central Map Leaders (Phase 1)	.321	.243
Central Map Followers (Phase 1)	.453*	.507**
Central Map Leaders (Phase 2)	.223	.407*
Central Map Followers (Phase 2)	.497**	.497**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShiftAB = Cognitive Shift from Phase 1 to Phase 2

For organisational members during Phases 1 and 2, the higher the initial cognitive shift, the further these individuals were from the followers' central maps of Phase 1 and 2. For organisational members during Phase 2, the higher the initial cognitive shift, the further these individuals were from the leaders' central map of Phase 2.

Of most importance here are the significant correlations between cognitive shifts and followers central maps. Therefore, the further one's cognitive map is from the followers' central map in Phase 1 and Phase 2 is related to a higher degree of cognitive shift. This provides additional support for Proposition 6 in that as the crisis develops, leaders have a higher degree of cognitive shift.

For organisational members during Phase 1, the higher the initial cognitive shift, the further these individuals were from the TMT's central map of Phase 2 (see Table 6.2.6.2). For organisational members during Phases 1 and 2, the higher the initial cognitive shift, the further these individuals were from the practitioners' central maps of Phases 1 and 2. For organisational members during Phase 2, the higher the initial cognitive shift, the closer these individuals were to the trustees' central map of Phase 2.

Table 6.2.6.2. Bivariate Correlations: Cognitive Shifts and Distances from Central Maps

	Phase 1	Phase 2
<i>Pearson</i>	CogShiftAB	CogShiftAB
Central Map Trustees (Phase 1)	.066	-.164
Central Map TMT (Phase 1)	-.166	-.213
Central Map Middle Managers (Phase 1)	.296	.227
Central Map Head Office Staff (Phase 1)	.111	.463**
Central Map Practitioners (Phase 1)	.489**	.549**
Central Map Trustees (Phase 2)	-.200	-.430*
Central Map TMT (Phase 2)	.424*	.275
Central Map Middle Managers (Phase 2)	.144	.331
Central Map Head Office Staff (Phase 2)	.428*	.443*
Central Map Practitioners (Phase 2)	.522**	.480**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShiftAB = Cognitive Shift from Phase 1 to Phase 2

For organisational members during Phase 2, the higher the initial cognitive shift, the further these individuals were from the head office support staff's central map of Phases 1 and 2. For organisational members during Phase 1, the higher the initial cognitive shift, the further these individuals were from the head office support staff's central map of Phase 1.

Table 6.2.6.3. Bivariate Correlations: Cognitive Shifts and Demographics

<i>Pearson</i>	CogShiftAB
Job Group	.441*
Tenure	-.051
Age	.488**

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShiftAB = Cognitive Shift from Phase 1 to Phase 2

Table 6.2.6.3 demonstrates that the older an organisational member, the higher their initial cognitive shift. However, the hierarchical level (job role) also had a positive relationship with the initial cognitive shift. Therefore, those in higher positions tended to be older in age. This contradicts what was expected from Proposition 8a. It was expected that the younger the individual the higher the degree of cognitive shift. However, the opposite was found in that the older the individual the higher their cognitive shift at the beginning. At this stage no support is found for a relationship between organisational tenure and cognitive shift (Proposition 8b).

6.2.7 Cognitive Shifts: Sample Size Challenges

Prior to presenting the findings on individual cognitive shifts it is important to discuss the challenges relating to small sample size in conducting the following analysis. Firstly, due to the size of the population, the sample size was limited by the size of the case organisation. Throughout all three phases all top managers and middle managers (excluding sample attrition) were counted for. Therefore in relation to the population these samples catered for all of the leadership except a few trustees. Secondly, the procedure to elicit and analyse cognitive maps from the sorting technique can be highly time consuming. With each interview taking a minimum of twenty five minutes and the researcher needing to be present at all times, large samples were further constrained. This was particularly the case in requiring longitudinal data. Therefore obtaining large sample sizes can be challenging when needing to extract rich cognitive data (see Table 6.2.7.1. for sample sizes in seminal research on cognitive mapping). Finally, the objective with the research into cognitive shifts is to support theory development

as oppose to testing theory. Consequently, at this stage the results remain preliminary for the aim of further development into the area as a future research direction.

Table 6.2.7.1. Sample Sizes in Key Cognitive Mapping Research

Study	n =
Bougon et al. (1977)	19
Budhwar and Sparrow (2002)	48
Clarke and Mackaness (2001)	3
Clarkson and Hodgkinson (2005)	200
Combe et al. (2012)	40
Combe and Carrington (2015)	12
Cossette and Audet (1992)	1
Hodgkinson et al. (2004)	36
Jenkins and Johnson (1997)	30
Langfield-Smith and Wirth (1992)	3
Markóczy (1997)	91
Markóczy and Goldberg (1995)	22
Nicolini (1999)	18

6.3 Study 3 – Phases 1, 2, and 3

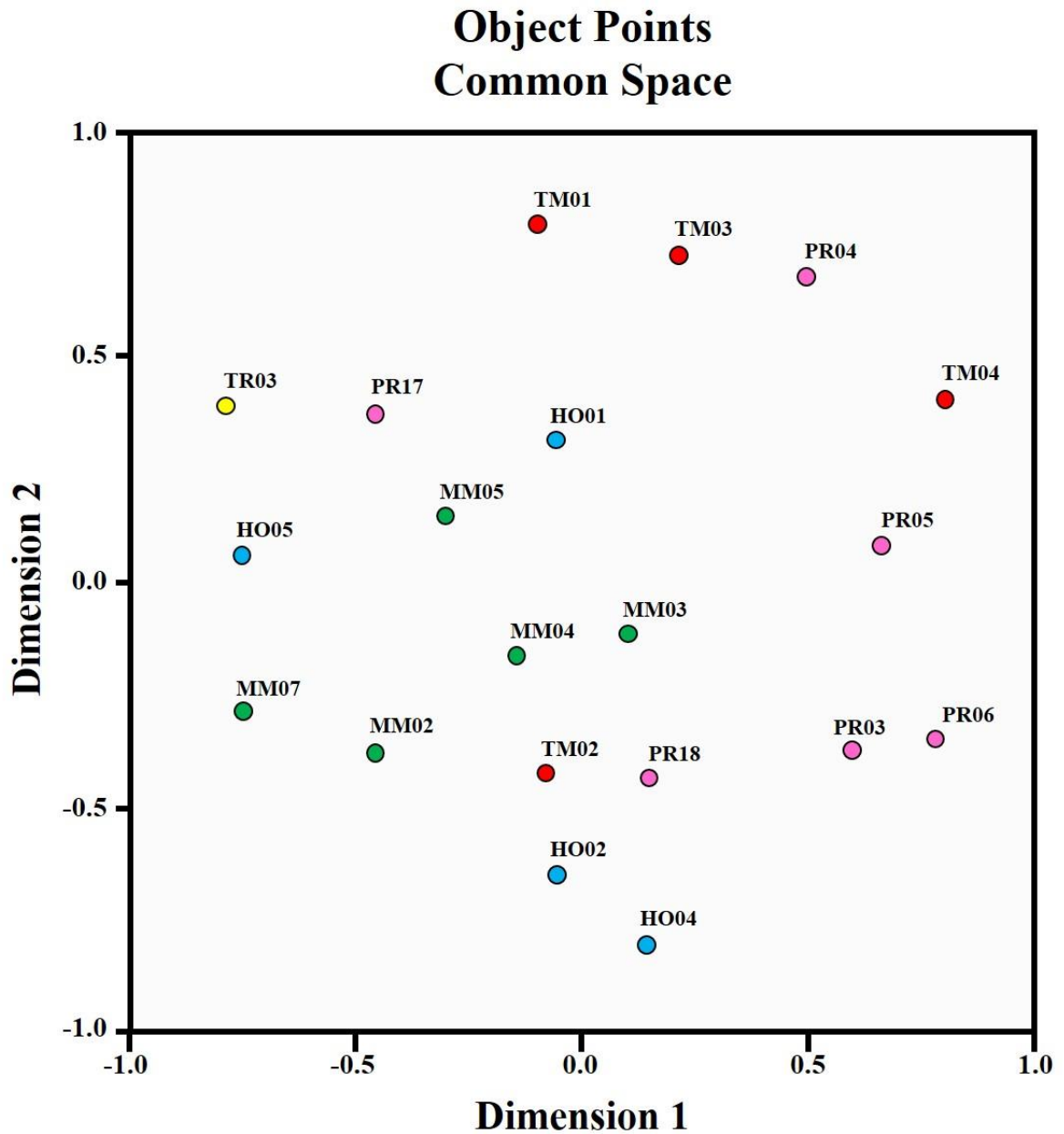
The third study focuses on the third and final phase of the longitudinal case study. It concentrates on 2015 when the sample size was reduced to 20 organisational members due to sample attrition. However, only 18 of those respondents were present in all three phases. A longitudinal comparison is also made between all three phases of data capture from 2011 (Phase 1) to 2013 (Phase 2) and 2015 (Phase 3). This study examines the original three samples of Phase 1 (n = 40), Phase 2 (n = 31), and Phase 3 (n = 20). This study also takes into consideration the sample attrition and compares the same 18 organisational members that were present in all three phases of data collection (n = 18).

6.3.1 Distance Ratios and MDS

Firstly, Figure 6.3.1.1. illustrates the distances between organisational members in the third phase based on their job position. Figure 6.3.1.2 shows the same distances but differentiates between

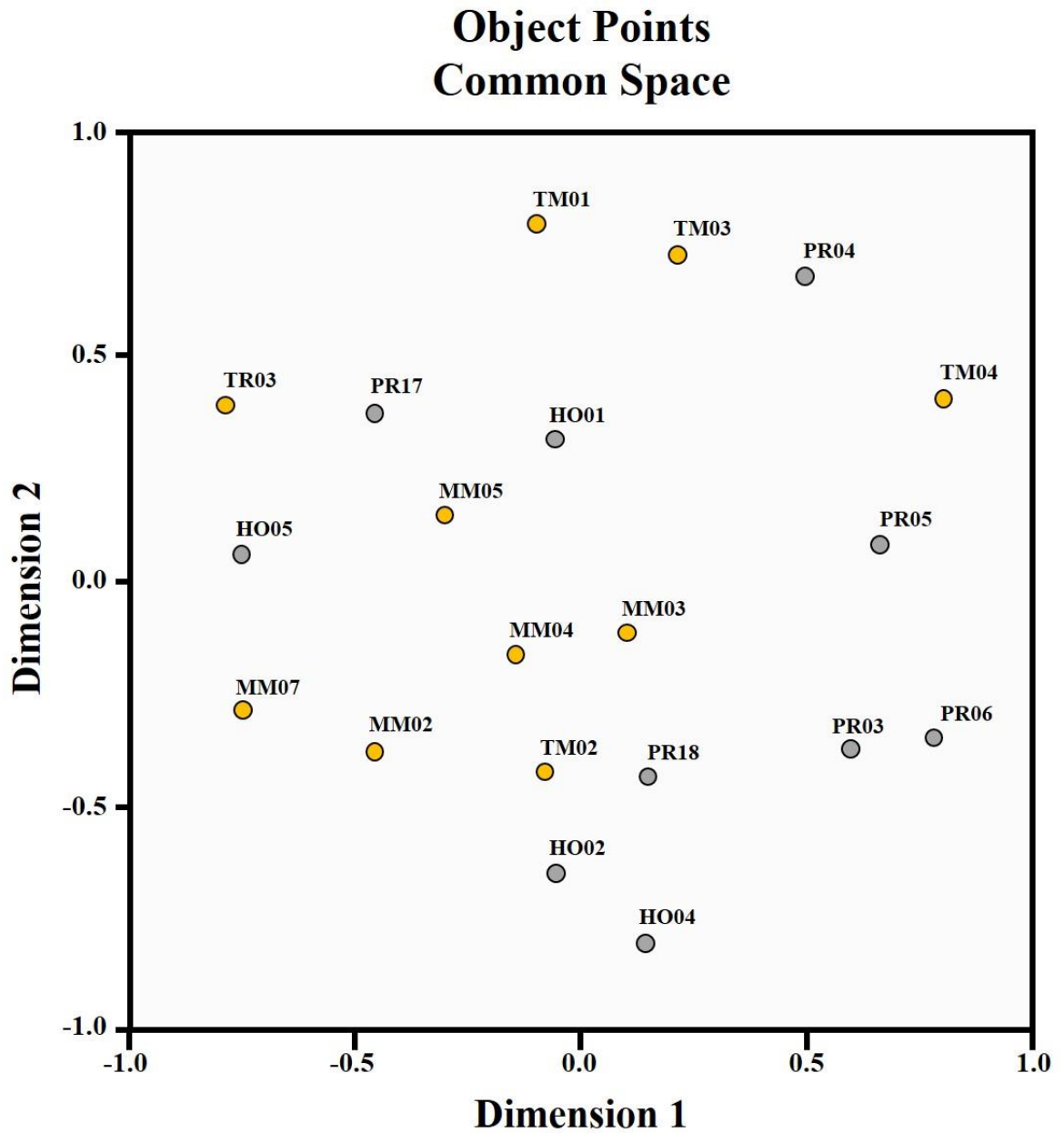
leaders and followers. As expected the stress values in this study were also found to be quite high (S-Stress = 0.196).

Figure 6.3.1.1. MDS Output of Phase 3 (Job Role)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Figure 6.3.1.2. MDS Output of Phase 3 (Leaders)



TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

6.3.2 Locus and Scope of Consensus

Secondly, to start to statistically examine these distance ratios, independent samples t-tests were used to calculate the locus of consensus in Phase 3. Consequently, Table 6.3.2.1 shows the intra-subgroup distances between leaders and followers for Phase 3.

Table 6.3.2.1. Intra-subgroup Distances for Phase 3

<i>Phase 3</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	20	190	-	0.785	-	0.133	-	-
Leaders	10	45	100	0.783	0.781	0.135	0.134	0.085
Followers	10	45	100	0.796	0.781	0.129	0.134	0.602

The above table shows that by the third phase neither leaders nor followers yielded negative *t*-values nor produced any significant findings. In other words, by this point neither leaders ($t = 0.085$; $p = .932$) nor followers ($t = 0.602$; $p = .548$) were found to be the locus of consensus. In addition, when comparing the *t*-values of leaders and followers the difference was also non-significant ($t = -0.441$; $p = .660$). Consequently, diversity in strategic priorities were just as much common within groups as well as between. Therefore, by the third phase there was no support found for either Proposition 2b or 3b.

Further independent samples t-tests were conducted to examine the locus of consensus for different hierarchical levels (see Table 6.3.2.2).

Table 6.3.2.2. Intra-subgroup Distances for Phase 3

<i>Phase 3</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	20	190	-	0.785	-	0.133	-	-
TR*	1	0	19	-	0.835	-	0.128	
TM	4	6	64	0.835	0.801	0.054	0.133	1.221
MM	5	10	75	0.673	0.773	0.134	0.131	-2.267
HO	4	6	64	0.798	0.777	0.192	0.121	0.395
PR	6	15	84	0.759	0.806	0.145	0.126	-1.296

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

*Trustees do not produce a *t*-value as there is only one member within this group in the final sample.

However, in this more detailed analysis, the locus of consensus in the third phase is found within the middle management team again ($t = -2.267$; $p = .026$). This continues to demonstrate the importance of this group as the crisis has unfolded further which supports Proposition 4b. For the first time

practitioners are no longer a locus of consensus as the difference found is non-significant ($t = -1.296$; $p = .198$). Members of the TMT and head office sample are just as likely to have more agreement with members outside of their subgroups than they would within their own. Consequently, throughout all three phases the TMT are never found to be a loci of consensus.

Further independent samples t-tests examined whether there were any differences in consensus between these groups (see Table 6.3.2.3).

Table 6.3.2.3. T-tests Comparing Different Hierarchical Groups

Phase 3		TR	TM	MM	HO	PR
	\bar{x}_w	-	0.835	0.673	0.798	0.759
TR	-	-				
TM	0.835	-	-			
MM	0.673	-	2.802	-		
HO	0.798	-	0.447	-1.546	-	
PR	0.759	-	1.753	-1.495	0.516	-

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Table 6.3.2.3 demonstrates that the most diverse group at the final phase collected during the crisis was the TMT ($\bar{x} = 0.835$) and the least diverse were the middle managers ($\bar{x} = 0.673$). Consequently, when comparing groups significant differences were only found between the TMT and the middle managers ($t = 2.802$; $p = .014$). This adds further weight to the previous finding of middle managers as the locus of consensus at the final phase during the crisis and support of Proposition 4b.

Based on this reduced sample of 18 organisational members who are ever present throughout all three phases it is important to assess the locus of consensus again for the earlier phases (see Table 6.3.2.4).

Table 6.3.2.4. Intra-subgroup Distances for Phases 1, 2, and 3

Phase 1	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	18	153	-	0.815	-	0.131	-	-
Leaders	10	45	80	0.831	0.818	0.109	0.131	0.575
Followers	8	28	80	0.779	0.818	0.159	0.131	-1.260
Phase 2								
All	18	153	-	0.720	-	0.135	-	-
Leaders	10	45	80	0.715	0.709	0.146	0.134	0.232
Followers	8	28	80	0.762	0.709	0.112	0.134	1.858
Phase 3								
All	18	153	-	0.790	-	0.133	-	-
Leaders	10	45	80	0.783	0.782	0.135	0.133	0.052
Followers	8	28	80	0.824	0.782	0.130	0.133	1.433

Consequently, using independent samples t-tests it is evident that there are no longer any significant findings for the loci of consensus for either leaders or followers in any of the three phases. If anything contradictory evidence can be observed in that followers are no longer the locus of consensus in Phases 1 and 2 but that by Phases 2 and 3 they actual share more similarities with leaders than their peers. Additionally, there are no significant differences when comparing leaders to followers in Phase 1 ($t = 1.516$; $p = .137$), Phase 2 ($t = -1.443$; $p = .154$), and Phase 3 ($t = -1.257$; $p = .213$).

Using independent samples t-tests to examine this reduced sample over the three phases but for the different hierarchical levels in Table 6.3.2.5 a slightly different pattern emerges.

Table 6.3.2.5. Intra-subgroup Distances for Phases 1, 2, and 3

<i>Phase 1</i>	<i>M</i>	<i>N_w</i>	<i>N_a</i>	\bar{x}_w	\bar{x}_a	σ_w	σ_a	<i>t</i>
All	18	153	-	0.815	-	0.131	-	-
TR	1	-	17	-	0.900	-	0.083	
TM	4	6	56	0.856	0.827	0.119	0.114	0.605
MM	5	10	65	0.809	0.803	0.066	0.139	0.222
HO	4	6	56	0.785	0.798	0.173	0.137	-0.221
PR	4	6	56	0.773	0.815	0.187	0.139	-0.694
<i>Phase 2</i>								
All	18	153	-	0.815	-	0.131	-	-
TR	1	-	17	-	0.836	-	0.115	
TM	4	6	56	0.688	0.710	0.150	0.139	-0.373
MM	5	10	65	0.620	0.714	0.111	0.134	-2.109
HO	4	6	56	0.698	0.713	0.134	0.132	-0.260
PR	4	6	56	0.746	0.752	0.088	0.130	-0.093
<i>Phase 3</i>								
All	18	153	-	0.815	-	0.131	-	-
TR	1	-	17	-	0.823	-	0.130	
TM	4	6	56	0.835	0.804	0.054	0.130	1.106
MM	5	10	65	0.673	0.778	0.134	0.132	-2.335
HO	4	6	56	0.798	0.780	0.192	0.124	0.319
PR	4	6	56	0.775	0.823	0.175	0.120	-0.896

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Once again the importance of middle managers in Phases 2 and 3 is observed. This is evidenced through the significant difference in a higher level of consensus within middle managers than when compared with other organisational members in these phases. Consequently, the middle managers are the loci of consensus, from the midpoint of data collection ($t = -2.109$; $p = .038$) and towards the end ($t = -2.335$; $p = .022$). This continues the support for Proposition 4b.

The reduced sample (n=18) for Phase 1 does not demonstrate any significant differences when comparing the different hierarchal levels amongst each other using independent samples t-tests (see Table 6.3.2.6).

Table 6.3.2.6. T-tests Comparing Different Hierarchical Groups

<i>Phase 1</i>		TR	TM	MM	HO	PR
	\bar{x}_w	-	0.856	0.809	0.785	0.773
TR	-	-				
TM	0.856	-	-			
MM	0.809	-	1.046	-		
HO	0.785	-	0.831	0.319	-	
PR	0.773	-	0.924	0.453	0.120	-

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Although the TMT are the most diverse ($\bar{x} = 0.856$) and practitioners the least ($\bar{x} = 0.773$), there are high degrees of diversity at every level with no significant differences.

This is a similar case in Phase 2 where although there are lower levels of diversity within each hierarchical level the majority of differences between them are also non-significant (see Table 6.3.2.7). However, with practitioners being the most diverse group this time ($\bar{x} = 0.746$) and middle managers the least diverse group ($\bar{x} = 0.620$), using independent samples t-tests this is the only significant finding obtained ($t = -2.368$; $p = .033$).

Table 6.3.2.7. T-tests Comparing Different Hierarchical Groups

<i>Phase 2</i>		TR	TM	MM	HO	PR
	\bar{x}_w	-	0.688	0.620	0.698	0.746
TR	-	-				
TM	0.688	-	-			
MM	0.620	-	1.040	-		
HO	0.698	-	-0.127	-1.267	-	
PR	0.746	-	-0.827	-2.368	-0.739	-

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Table 6.3.2.8 looks at this conducting similar independent samples t-tests on the reduced sample but comparing hierarchical levels within Phase 3. Here, the diversity within each group increases again but this time it is found that the difference between the TMT (most diverse) $\bar{x} = 0.835$ and the middle managers (least diverse) $\bar{x} = 0.673$ is significant ($t = 2.802$; $p = .014$). Therefore, these findings continue the support for Proposition 4b in that middle managers become a locus of consensus in Phase 2 and remain the locus of consensus by Phase 3.

Table 6.3.2.8. T-tests Comparing Different Hierarchical Groups

<i>Phase 3</i>		TR	TM	MM	HO	PR
	\bar{x}_w	-	0.835	0.673	0.798	0.775
TR	-	-				
TM	0.835	-	-			
MM	0.673	-	2.802	-		
HO	0.798	-	0.447	-1.546	-	
PR	0.775	-	0.803	-1.320	0.221	-

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

6.3.3 *Change in Consensus*

As with the first two studies, the next examination looks at the data longitudinally to investigate the change in consensus over the three phases. Using paired samples t-tests, Table 6.3.3.1 examines the longitudinal data between leaders and followers who are present in all three phases of data collection (n=18).

Table 6.3.3.1. Longitudinal Intra-subgroup Distances

	N_1	N_2	N_3	\bar{x}_1	\bar{x}_2	\bar{x}_3	σ_1	σ_2	σ_3	t_{1-2}	t_{2-3}	t_{1-3}	$\Delta\bar{x}/\sigma_{1-2}$	$\Delta\bar{x}/\sigma_{2-3}$	$\Delta\bar{x}/\sigma_{1-3}$
All	18	18	18	0.815	0.720	0.790	0.131	0.135	0.133	6.860	-5.044	1.594	0.700	-0.524	0.185
Leaders	10	10	10	0.831	0.715	0.783	0.109	0.146	0.135	4.372	-2.861	1.709	0.795	-0.507	0.353
Followers	8	8	8	0.779	0.762	0.824	0.159	0.112	0.130	0.529	-2.113	-1.377	0.158	-0.478	-0.341
Across	-	-	-	0.818	0.709	0.782	0.131	0.134	0.133	6.212	-3.568	1.627	0.812	-0.550	0.269

N_1 = number of maps in phase 1. N_2 = number of maps in phase 2. N_3 = number of maps in phase 3. \bar{x}_1 = mean distance between maps within subgroups in phase 1. \bar{x}_2 = mean distance between maps within subgroups in phase 2. \bar{x}_3 = mean distance between maps within subgroups in phase 3. t = t-value comparing means through a paired samples t-test. σ_1 = standard deviation within groups in phase 1. σ_2 = standard deviation within groups in phase 2. σ_3 = standard deviation within groups in phase 3. $\Delta\bar{x}/\sigma$ = shows how many standard deviations away is the new mean from the previous one, calculated as $(\bar{x}_1 - \bar{x}_2) / \sigma_2$. (1-2 = Phases 1 and 2; 2-3 = Phases 2 and 3; 1-3 = Phases 1 and 3)

The initial finding from Table 6.3.3.1 is that the scope of consensus builds from $\bar{x} = 0.815$ to $\bar{x} = 0.720$ over the first two phases ($t = 6.860$; $p = .000$) as the crisis becomes understood and made sense of. This echoes the previous support for Proposition 1, in that the scope of consensus increases as the crisis begins to unfold. However, after the midpoint, divergence occurs between phases two and three ($t = -5.044$; $p = .000$) from $\bar{x} = 0.720$ to $\bar{x} = 0.790$. This demonstrates that consensus does not continue to build, instead after the midpoint the opposite occurs. This begins to contradict Proposition 1 and leads to an unexpected finding that demonstrates the fluctuation between consensus and diversity at different stages. Furthermore, as there is no significant difference with the scope of consensus at the beginning of the crisis (Phase 1) and towards the end (Phase 3) ($t = 1.594$; $p = .153$) then it becomes further evident that around Phase 1 and Phase 3 there are similar high levels of diversity across the organisation, whilst around Phase 2 there are lower levels of diversity. Consequently, it is important to note that as there is no significant differences when comparing Phase 1 with Phase 3, it highlights the importance of a midpoint in the data collection. Therefore, if this study was conducted by just two phases the findings would be very limited and show little change over the four years.

This trend is also reflected within the leadership group moving from diversity towards consensus ($t = 4.372$; $p = .000$) and back towards diversity ($t = -2.861$; $p = .006$). However, followers make no significant shift between the first two phases ($t = 0.529$; $p = .601$) but become most diverse towards the end ($t = -2.113$; $p = .044$). No significant change within followers between the first two phases contradicts what was found in study 2. Therefore, perhaps due to sample attrition there may be something particular about the followers who remained in the sample throughout all three phases. The changes in across group consensus mimics that of the scope moving from convergence ($t = 6.212$; $p = .000$) then later divergence ($t = -3.568$; $p = .001$).

Looking at the same analysis but for the full sample in each phase using independent samples t-tests a similar pattern emerges (see Table 6.3.3.2).

Table 6.3.3.2. Longitudinal Intra-subgroup Distances

	N_1	N_2	N_3	\bar{x}_1	\bar{x}_2	\bar{x}_3	σ_1	σ_2	σ_3	t_{1-2}	t_{2-3}	t_{1-3}	$\Delta\bar{x}/\sigma_{1-2}$	$\Delta\bar{x}/\sigma_{2-3}$	$\Delta\bar{x}/\sigma_{1-3}$
All	40	31	20	0.768	0.710	0.785	0.144	0.147	0.133	6.811	-6.085	-1.485	0.393	-0.566	-0.129
Leaders	14	12	10	0.799	0.735	0.783	0.127	0.139	0.135	2.973	-1.820	0.646	0.457	-0.359	0.113
Followers	26	19	10	0.727	0.682	0.796	0.153	0.160	0.129	3.058	-4.992	-3.277	0.281	-0.881	-0.534
Across	-	-	-	0.797	0.724	0.781	0.131	0.137	0.134	6.517	-3.501	1.086	0.535	-0.426	0.120

Firstly, the scope of consensus indicates convergence during Phases 1 and 2 ($t = 6.811; p = .000$) and divergence during Phases 2 and 3 ($t = -6.085; p = .000$). Once more, no significant difference is found between Phase 1 and Phase 3 ($t = -1.485; p = .138$). This further supports the unexpected finding around Proposition 1 with the scope of consensus fluctuating over the three phases from a state of convergence towards a state of divergence. This pattern also occurs again when each individual leader is compared with every follower.

Secondly, convergence occurs within the leaders at the beginning ($t = 2.973; p = .003$) but towards the end the movement towards diversity is found to be non-significant ($t = -1.820; p = .071$) as well as the difference between Phases 1 and 3.

Thirdly, most notably this time there is a significant difference between all three phases for followers. They too move from diversity ($\bar{x} = 0.727$) towards consensus ($\bar{x} = 0.682$) ($t = 3.058; p = .002$) but with the most radical shift occurring between phases 2 ($\bar{x} = 0.682$) and 3 ($\bar{x} = 0.796$) ($t = -4.992; p = .000$). There is also a significant difference between the diversity at the end of the data collection compared to at the beginning ($t = -3.227; p = .002$) which shows that towards the end of the crises the views of followers had become especially diverse.

As in the previous studies paired samples t-tests are ran at specific hierarchical levels to understand more about how consensus changes and forms over all three phases. Table 6.3.3.3 demonstrates this on the reduced sample ($n=18$).

Table 6.3.3.3. Longitudinal Intra-subgroup Distances

	N_1	N_2	N_3	\bar{x}_1	\bar{x}_2	\bar{x}_3	σ_1	σ_2	σ_3	t_{1-2}	t_{2-3}	t_{1-3}	$\Delta\bar{x}/\sigma_{1-2}$	$\Delta\bar{x}/\sigma_{2-3}$	$\Delta\bar{x}/\sigma_{1-3}$
All	18	18	18	0.815	0.720	0.790	0.131	0.135	0.133	6.860	-5.044	1.594	0.700	-0.524	0.185
TR	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-
TM	4	4	4	0.856	0.688	0.835	0.119	0.150	0.054	2.103	-2.360	0.393	1.124	-2.736	0.402
MM	5	5	5	0.809	0.620	0.673	0.066	0.111	0.134	4.252	-0.951	3.520	1.693	-0.396	1.014
HO	4	4	4	0.785	0.698	0.798	0.173	0.134	0.192	1.370	-1.347	-0.149	0.649	-0.520	-0.070
PR	4	4	4	0.773	0.747	0.775	0.187	0.088	0.175	0.301	-0.341	-0.040	0.298	-0.163	-0.013

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

However, this produces limited significant findings. Nevertheless, of particular note is that there is a significant building of consensus within the middle management group between the initial two phases ($t = 4.252$; $p = .002$) which supports the findings in Study 2. Furthermore, there is a significant difference for middle managers between Phase 1 ($\bar{x} = 0.809$) and Phase 3 ($\bar{x} = 0.673$) so at the beginning and end of data capture ($t = 3.520$; $p = .007$). No longer evident is the significant movement towards consensus within practitioners between Phases 1 and 2 ($t = 0.301$; $p = .775$). Additionally, partial support is found within the TMT for the building of consensus between Phases 1 and 2 ($t = 2.103$; $p = .089$) and a movement towards diversity between Phases 2 and 3 ($t = -2.360$; $p = .065$).

Running independent samples t-test on the full sample for each phase produces similar results regarding the different hierarchical roles (see Table 6.3.3.4).

Table 6.3.3.4. Longitudinal Intra-subgroup Distances

	N_1	N_2	N_3	\bar{x}_1	\bar{x}_2	\bar{x}_3	σ_1	σ_2	σ_3	t_{1-2}	t_{2-3}	t_{1-3}	$\Delta\bar{x}/\sigma_{1-2}$	$\Delta\bar{x}/\sigma_{2-3}$	$\Delta\bar{x}/\sigma_{1-3}$
All	40	31	20	0.768	0.710	0.785	0.144	0.147	0.133	6.811	-6.085	-1.485	0.393	-0.566	-0.129
TR	3	2	1	0.810	0.667	-	0.219	-	-	0.565	-	-	-	-	-
TM	4	4	4	0.856	0.688	0.835	0.119	0.150	0.054	2.153	-2.260	0.403	1.124	-2.736	0.401
MM	7	6	5	0.810	0.647	0.673	0.087	0.110	0.134	4.968	-0.535	3.430	1.485	-0.196	1.023
HO	6	6	4	0.784	0.734	0.798	0.119	0.109	0.192	1.196	-0.976	-0.207	0.458	-0.333	-0.074
PR	20	13	6	0.696	0.628	0.759	0.150	0.164	0.145	3.237	-2.866	-1.572	0.409	-0.899	-0.436

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

A significant difference of consensus building within practitioners between Phases 1 and 2 ($t = 3.237$; $p = .001$) obviously echoes the findings of Study 2. However, a movement towards more cognitive diversity between Phases 2 and 3 within practitioners is a new finding ($t = -2.866$; $p = .005$). Beyond this there are no significant differences for any specific group between Phases 2 and 3, unlike within the scope of consensus.

It is also evident that within middle managers the diversity faced at the beginning by middle managers ($\bar{x} = 0.810$) is also significantly different to that at the midpoint ($\bar{x} = 0.647$) which mirrors Study 2 ($t = 4.968$; $p = .000$) as well and at the end ($\bar{x} = 0.647$) which is a new finding ($t = 3.430$; $p = .002$). Therefore, as a significant difference in the level of consensus between the middle managers in Phases 2 and 3 is not found ($t = -0.535$; $p = .598$), they do not revert back to a diverse position unlike with the scope of consensus. In other words, middle managers exclusively maintain a level of consensus between Phases 2 and 3. This continues to demonstrate the importance of this group as the crisis has unfolded from the midpoint and provides some additional support to Proposition 4b.

6.3.4 *Content of Consensus*

Next, how the content of consensus within groups changes by this third phase is examined. Table 6.3.4.1 illustrates the etiographic representations and rank order scores in Phase 3 for both leaders and followers. It is evident that once again the content of consensus has shifted for the leaders by the third phase. Planning ahead returns to become an imperative objective as in the first phase. This starts to symbolise the turbulent nature of the external environment once more and firm performance. Staff motivation, helping clients recover, and innovation remain key objectives. However, there is much

bigger focus on targeting new funders which is echoed by the followers whose content also changes by this third phase compared to the stability in Phases 1 and 2. Overall, targeting new funders and planning ahead become vital in the full sample for the first time.

Table 6.3.4.1. Etiographic Representations and Accumulated Rank Order - Phase 3

All	ID	Rk	Leaders	ID	Rk	Followers	ID	Rk
clientsrecovery	7.15	3.55	planahead	5.70	4.70	clientsrecovery	8.70	3.00
targnewfund	4.90	3.75	clientsrecovery	5.60	4.10	servqual	5.50	4.40
servqual	3.65	3.05	targnewfund	4.80	4.20	targnewfund	5.00	3.30
planahead	3.55	3.80	motivstaff	3.80	2.30	clientsproblem	3.90	2.40
<i>innovative</i>	<i>2.95</i>	<i>3.00</i>	innovative	3.60	2.40	relpartner	3.20	2.20
<i>motivstaff</i>	<i>2.80</i>	<i>2.10</i>	<i>devstaff</i>	<i>2.80</i>	<i>1.60</i>	<i>respfunders</i>	<i>2.60</i>	<i>2.50</i>
<i>clientsproblem</i>	<i>2.75</i>	<i>1.55</i>	<i>promo</i>	<i>2.70</i>	<i>1.80</i>	<i>learningimpr</i>	<i>2.60</i>	<i>2.10</i>
<i>relpartner</i>	<i>2.65</i>	<i>2.55</i>	<i>pricediffcompetit</i>	<i>2.30</i>	<i>1.50</i>	<i>innovative</i>	<i>2.30</i>	<i>3.60</i>
<i>devstaff</i>	<i>2.50</i>	<i>1.30</i>	<i>relpartner</i>	<i>2.10</i>	<i>2.90</i>	<i>devstaff</i>	<i>2.20</i>	<i>1.00</i>
<i>promo</i>	<i>2.40</i>	<i>1.55</i>	<i>buildres</i>	<i>2.00</i>	<i>1.60</i>	<i>intefficiency</i>	<i>2.10</i>	<i>1.40</i>
						<i>promo</i>	<i>2.10</i>	<i>1.30</i>

Bold Type = Ends (Objectives); *Italic Type = Means*

Table 6.3.4.2 looks at the same data but is segregated based on hierarchical levels (roles) in Phase 3. Targeting new funders becomes a priority for the TMT, middle managers, and head office support staff. Innovative service remains important across three groups including practitioners. Trustees remain cognizant of the competitive landscape as well as internal efficiency and company finances. However, this sample only draws on one trustee. Whilst the importance of staff motivation remains in most groups the importance of service quality from Phase 2 no longer remains prevalent two years later. Additionally, many of the objectives for middle managers in Phase 3 remain consistent with their priorities in the second phase with innovation replacing service quality.

Table 6.3.4.2. Etiographic Representations and Accumulated Rank Order - Phase 3 (Roles)

All	ID	Rk	TR	ID	Rk	TM	ID	Rk
clientsrecovery	7.15	3.55	intefficiency	7.00	4.00	planahead	11.25	7.00
targnewfund	4.90	3.75	analysisfinance	5.00	8.00	targnewfund	8.00	6.50
servqual	3.65	3.05	pricediffcompetit	4.00	6.00	motivstaff	5.25	1.25
planahead	3.55	3.80	diffcompetit	4.00	7.00	innovative	5.25	2.50
<i>innovative</i>	2.95	3.00	<i>targetfocus</i>	3.00	5.00	<i>devstaff</i>	4.50	1.50
<i>motivstaff</i>	2.80	2.10	<i>planahead</i>	3.00	3.00	<i>pricediffcompetit</i>	4.25	2.00
<i>clientsproblem</i>	2.75	1.55	<i>controlcosts</i>	3.00	9.00	<i>clientsproblem</i>	4.00	1.75
<i>relpartner</i>	2.65	2.55	<i>relpartner</i>	2.00	2.00	<i>promo</i>	4.00	1.50
<i>devstaff</i>	2.50	1.30				<i>buildres</i>	3.75	3.75
<i>promo</i>	2.40	1.55				<i>pr</i>	3.50	0.25
MM	ID	Rk	HO	ID	Rk	PR	ID	Rk
clientsrecovery	8.80	7.20	clientsrecovery	9.50	3.00	clientsrecovery	8.17	3.00
motivstaff	3.40	3.60	targnewfund	8.25	3.75	servqual	5.67	4.83
targnewfund	3.20	3.20	clientsproblem	5.75	2.25	learningimpr	4.33	3.50
innovative	3.00	2.80	servqual	5.25	3.75	innovative	3.33	5.33
targetfocus	2.80	2.20	<i>relpartner</i>	4.00	4.00	<i>targnewfund</i>	2.83	3.00
respfunders	2.60	5.00	<i>promo</i>	3.00	2.75	<i>clientsproblem</i>	2.67	2.50
<i>lvlfunding</i>	2.20	2.60	<i>devstaff</i>	3.00	0.75	<i>relpartner</i>	2.67	1.00
<i>promo</i>	2.20	2.40	<i>intefficiency</i>	2.75	1.25	<i>respfunders</i>	2.50	2.50
<i>relpartner</i>	2.00	4.80	<i>respfunders</i>	2.75	2.50	<i>coordops</i>	2.50	1.50
<i>devstaff</i>	2.00	2.00						

Bold Type = Ends (Objectives); Italic Type = Means

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Similarly, the corresponding central maps are presented in Figure 6.3.4.1 - 6.3.4.2. The central map in Fig. 6.3.4.1. for leaders in the third phase remains fairly consistent with the objectives from the etiographic representations.

Figure 6.3.4.1. Central Map for Leaders in Phase 3

	Leaders	1	2	3	4
1)	targnewfund	0.00	0.00	3.00	0.00
2)	clientsrecovery	0.00	0.00	3.00	3.00
3)	planahead	3.00	2.50	0.00	3.00
4)	relpartner	0.00	2.00	3.00	0.00

However, it can start to be observed that the followers by the third phase have become extremely diverse in their sensemaking (see Fig. 6.3.4.2.). By this stage agreement is only evident in helping clients recover and the importance of service quality. This is in sharp contrast to the two previous phases where followers have been largely consistent in both their degree of consensus and content of consensus.

Figure 6.3.4.2. Central Map for Followers in Phase 3

	Followers	1	2
1)	clientsrecovery	0.00	0.00
2)	servqual	3.00	0.00

These two limited central maps for leaders and followers in Phase 3 have also demonstrated why there is little support for Propositions 2b and 3b in that neither are found to be the locus of consensus.

Moving onto the central maps for the different hierarchical levels (roles) in Figures 6.3.4.3 - 6.3.4.7. As only one trustee from the original sample was available in the third phase, Figure 6.3.4.3 presents the cognitive map matrix of that individual. However, this cannot be considered a central map.

Figure 6.3.4.3. Central Map for the Trustee in Phase 3

	Trustees	1	2	3	4	5	6	7	8	9	10
1)	barriers	0.00	0.00	0.00	-2.00	-2.00	0.00	0.00	0.00	0.00	0.00
2)	controlcosts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
3)	analysisfinance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
4)	diffcompetit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00
5)	intefficiency	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
6)	lvlfunding	0.00	3.00	3.00	0.00	2.00	0.00	3.00	0.00	0.00	0.00
7)	planahead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8)	pricediffcompetit	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9)	relpartner	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
10)	targetfocus	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00

Similar to at the start of the crisis the TMT have very diverse perspectives (see Fig. 6.3.4.4.). Once again planning ahead comes to the fore but this time the importance of targeting new funders accompanies this. However, beyond this there is very little agreement within the team on how to tackle the current situation.

Figure 6.3.4.4. Central Map for the TMT in Phase 3

	TM	1	2
1)	targnewfund	0.00	3.00
2)	planahead	3.00	0.00

By the third phase the middle managers remain consistent with a high degree of consensus within the group (see Fig. 6.3.4.5.). Sharing an additional factor compared to the second phase. Nevertheless, there are some changes within the content of their consensus. The importance of service quality and target focussed make way for targeting new funders, innovative services, and staff development. This strong central map provides additional support for Proposition 4b in that middle managers remain the locus of consensus in Phase 3.

Figure 6.3.4.5. Central Map for Middle Managers in Phase 3

	MM	1	2	3	4	5	6	7
1)	clientsrecovery	0.00	0.00	2.50	0.00	3.00	2.50	0.00
2)	relpartner	1.67	0.00	0.00	0.00	0.00	0.00	0.00
3)	resp funders	3.00	0.00	0.00	0.00	0.00	0.00	2.00
4)	devstaff	2.00	0.00	0.00	0.00	2.00	3.00	0.00
5)	innovative	3.00	0.00	0.00	0.00	0.00	2.00	0.00
6)	motivstaff	3.00	0.00	0.00	3.00	0.00	0.00	0.00
7)	targnewfund	0.00	0.00	0.00	0.00	3.00	0.00	0.00

In Figure 6.3.4.6 Head office staff also become very diverse and only share two factors; relationship with partner organisations and targeting new funders. This has seen helping clients recover, staff motivation, and service quality become less of a priority in the current climate for head office support staff.

Figure 6.3.4.6. Central Map for Head Office Staff in Phase 3

	HO	1	2
1)	relpartner	0.00	2.00
2)	targnewfund	0.00	0.00

Practitioners' degree of consensus has reduced significantly by this stage (see Fig. 6.3.4.7.). This has also meant a big change in the content of consensus. Only helping clients recover and service quality remain from what was a very dominant central map in previous years. Additionally, the importance of innovative services and learning to improve comes to the fore. Of particular note is that staff motivation and development, supporting clients' problems, and promoting the service have all been undervalued. This is a big shift from previous phases of data capture where this group were very dominant in setting the tone for the first two years of dealing with the crisis.

Figure 6.3.4.7. Central Map for Practitioners in Phase 3

	PR	1	2	3	4
1)	clientsrecovery	0.00	3.00	3.00	0.00
2)	innovative	3.00	0.00	0.00	3.00
3)	learningimpr	2.50	3.00	0.00	3.00
4)	servqual	3.00	0.00	0.00	0.00

6.3.5 *Distance Ratios and Central Maps*

Next, the central maps of leaders and followers between phases 1, 2, and 3 were compared to find similarities and differences. Table 6.3.5. illustrates the distance ratios between these central maps were calculated based on Markóczy and Goldberg (1995).

Table 6.3.5. Distance Ratios Between Central Maps of Leaders and Followers in all 3 phases

	Leaders Phase 1	Followers Phase 1	Leaders Phase 2	Followers Phase 2	Leaders Phase 3	Followers Phase 3
Leaders Phase 1	-					
Followers Phase 1	0.280	-				
Leaders Phase 2	0.246	0.220	-			
Followers Phase 2	0.426	0.299	0.366	-		
Leaders Phase 3	0.439	0.594	0.596	0.716	-	
Followers Phase 3	0.276	0.578	0.533	0.696	0.750	-

Leaders Phase 1 refers to the central map of leaders in phase 1. Likewise, Followers Phase 1 refers to the central map of followers in phase 1 and so on.

The findings from Table 6.3.5 demonstrate several key observations about leaders and followers during the crisis.

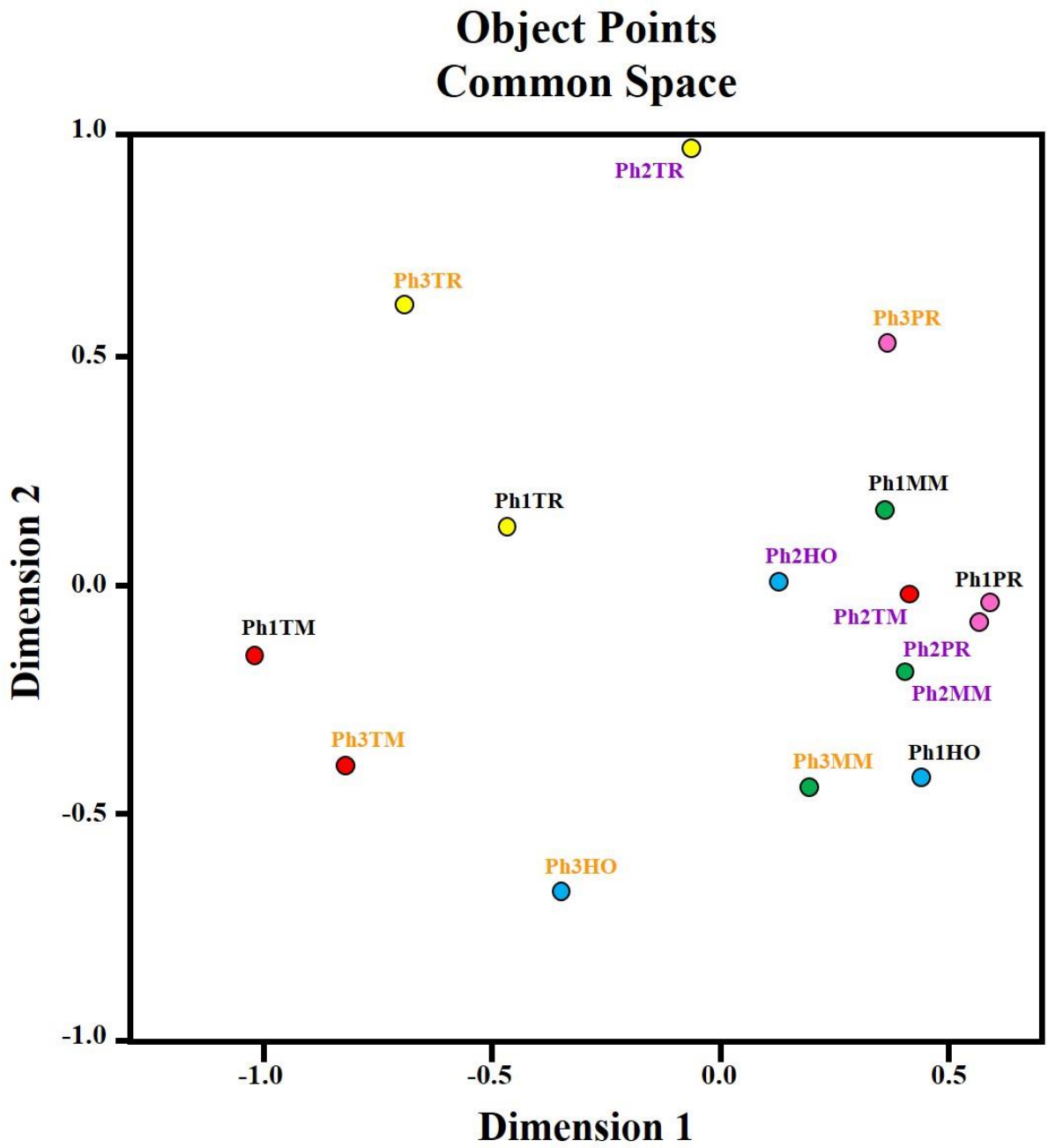
Firstly, the leaders' central map in Phase 2 is more like the followers' central map in Phase 1 (0.220). This contradicts what would be expected in that followers from Phase 2 would be more like leaders in phase 1 as the vision and strategy is communicated, diffused and implemented. However, followers in Phase 2 are even less like leaders in Phase 1 (0.426). This not only triangulates the data to further support Propositions 3a and 3b but also starts to possibly demonstrate the direction of diffusion during the onset of the crisis. Therefore, followers are not just the loci of consensus in both phases but also may influence the position of leaders by Phase 2. Likewise, again it would be expected that the followers' central map in Phase 3 would be influenced by the leaders' central map from Phase 2. However, here a low level of similarity is observed (0.533). Alternatively, although the leaders' central map may be influenced by the followers' central maps early on in the crisis, by the Phase 3 the leaders' central map is extremely different to the followers' map from Phase 2 (0.716). Therefore, there has been a change in direction from the leaders whom no longer converge towards the followers as in previous years.

Secondly, as the crisis unfolds, the difference between the leaders' central map and the followers' central map increases from 0.280 in Phase 1, 0.366 in Phase 2, and 0.750 in Phase 3. Subsequently, despite this gap between leaders and followers increasing, it is observed that the followers' central map by Phase 3 is closely aligned to the leaders' central map of Phase 1 (0.276). Either this demonstrates the strategy and vision finally being adopted, issues with sample attrition with followers, or both central maps being limited by lack of consensus within groups.

Thirdly, there is a radical change in the followers' central maps over the three phases. Between Phases 1 and 2 the followers' central maps are fairly similar (0.299). However, between Phases 2 and 3, there is a much bigger difference (0.696). A similar pattern emerges for the leaders' central maps over the three phases. Between Phases 2 and 3 there is a radical difference between the leaders' central maps (0.596), compared to between Phases 1 and 2 (0.246).

The distance ratios (DR) for the central maps of all the different hierarchical levels (groups) for each phase were also calculated. However, the DR Matrix for central maps of roles is too large for inclusion here so it is displayed via MDS in Figure 6.3.5. The original matrix can be found in the appendices. Again, as expected a relatively high stress value is identified (S-Stress = 0.105) albeit it is lower than previous calculations in this research.

Figure 6.3.5. MDS Output of All Central Maps (Job Role and Phase)



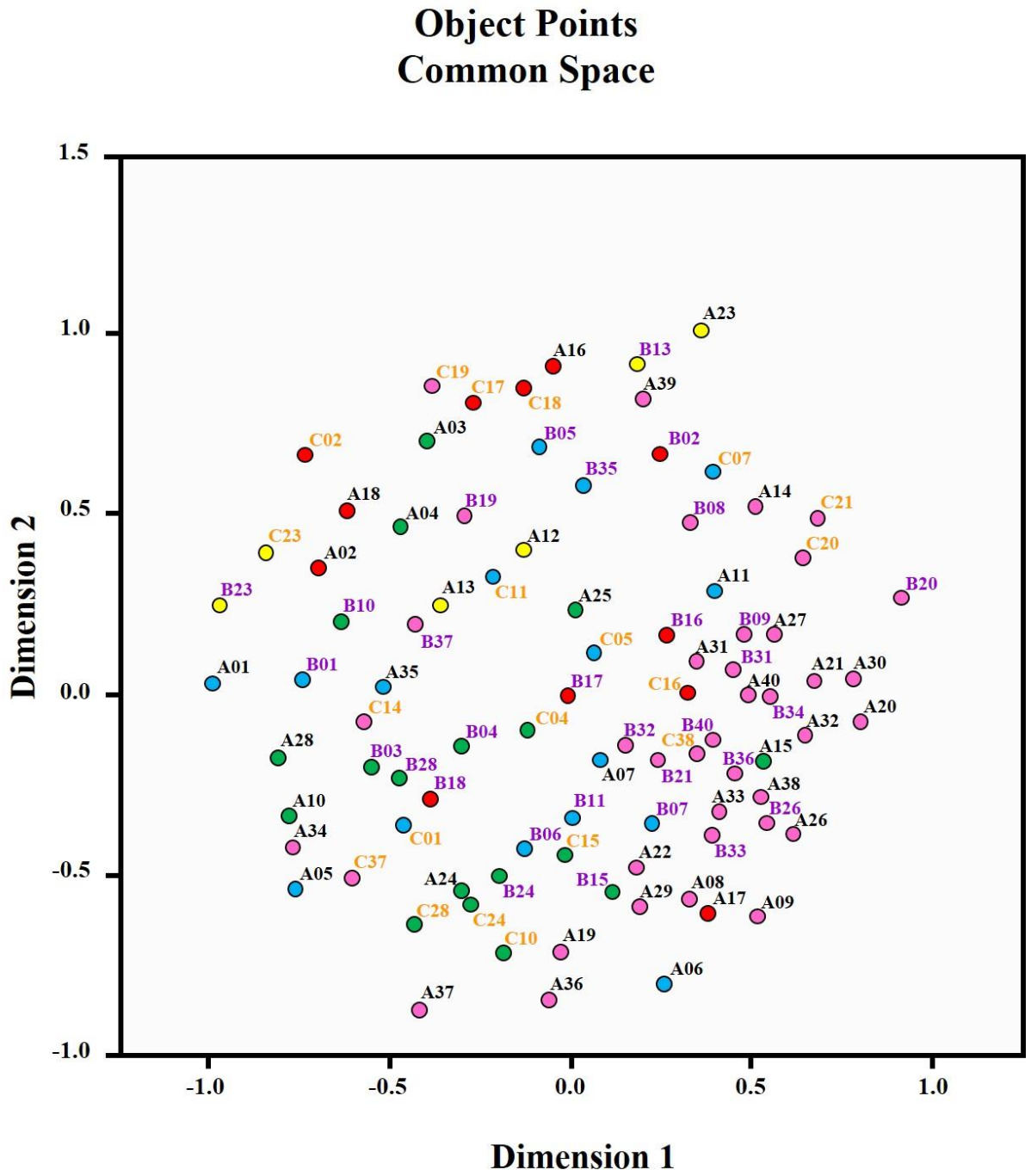
Ph1 = Phase 1; Ph2 = Phase 2; Ph3 = Phase 3
TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

Figure 6.3.5 supports some of the previous findings in the changes of degree and content of consensus within and between groups. Of particular note is the shift by the TMT reverting back to a similar position from Phase 1 to Phase 3. Whilst during Phase 2 they are very closely aligned with the middle managers, practitioners, and head office support staff at the time. Another observation is the similarity in practitioners between Phases 1 and 2 and when they are the locus of consensus but then move away by the third phase. The positioning of middle managers also reflects the link between TMT and front line staff but also how these are found to be the loci of consensus in Phases 2 and 3.

6.3.6 *Aggregated DR, MDS, and Cluster Analysis*

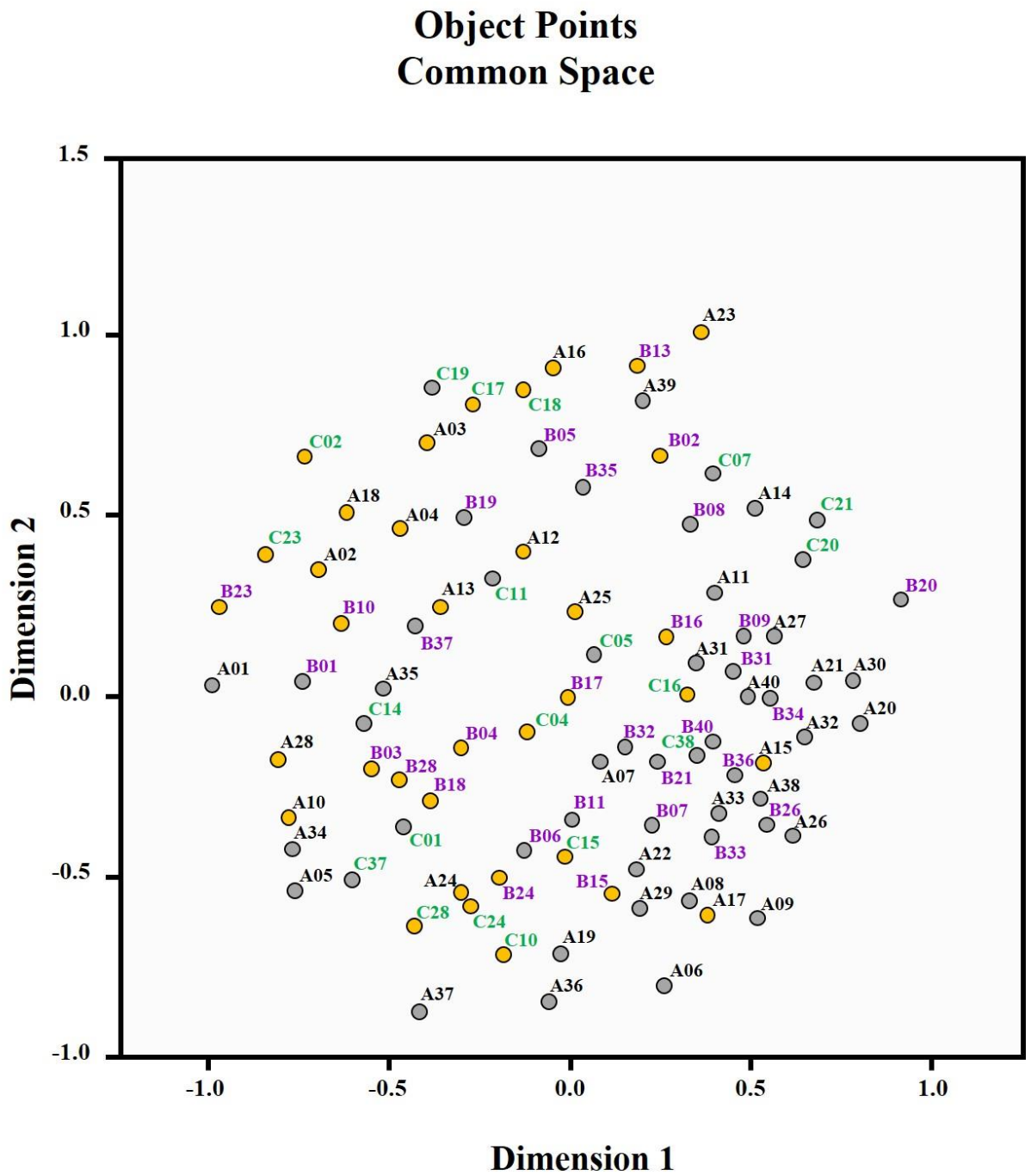
To this point, the analysis has focused on examining consensus phase by phase. Next, the three phases are aggregated to begin to look at the changes over the four years of data capture. Therefore, the distance ratios for all 91 maps are calculated i.e. 4,095 pairs. Again for the ease of interpretation, the distance ratios are presented visually using MDS. Here it starts to become evident how certain individuals and groups may have changed over time. Figure 6.3.6.1 presents all 91 maps for the three phases based on their respective job role. Whereas Figure 6.3.6.2 displays the same information but based on leaders and followers. As expected the stress values in this analysis were again found to be high (S-Stress = 0.248).

Figure 6.3.6.1. MDS Output of All 3 Phases (Job Role and Phase)



A = Phase 1; B = Phase 2; C = Phase 3

Figure 6.3.6.2. MDS Output of All 3 Phases (Leaders and Phase)



Subsequently, from this data clusters can be calculated to ascertain how individuals and groups have moved over time. According to Markóczy and Goldberg (1995, p. 318) it is important to combine MDS with cluster analysis so that one can see if the grouping of cognitive maps is logical (Breiger et al., 1975, p. 103). The data was triangulated using *between-methods* (Ketchen and Shook, 1996) by performing several modes of cluster analysis. This procedure addresses limitations such as reliance on

researcher judgment (Ketchen and Shook, 1996, p. 442), problems determining the appropriate measure of similarity and the appropriate number of clusters (Green et al., 1967, Frank and Green, 1968). Researchers advise that clusters should exhibit two properties (Cormack, 1971, Punj and Stewart, 1983, pp. 136-137). One, external isolation or that objects in one cluster are separated from objects in another cluster by fairly empty space. Two, internal cohesion or that objects within the same cluster are similar to each other.

The clustering criterion to analyse the data was based on which individuals shared factors to a point where there was a significant difference to other individuals in different clusters. Furthermore, reverting back to the detailed individual data such as cognitive maps, interview transcripts and rank order data helped triangulate the data by cross-checking that clusters didn't contain respondents who had dissimilar cognitive maps. Additionally, to provide assurance and additional confidence that the findings are not driven by researcher judgement and to deal with the issue of high stress values a further technique was included which does not rely solely on such interpretations (Ketchen and Shook, 1996, p. 453). Thus hierarchical cluster analysis in SPSS was performed which produced a dendrogram, using Ward's minimum variance method with squared Euclidean distance and standardised Z scores, to cross-check the clustering statistically. These multiple techniques produced very similar results so the analysis addressed single method bias (Ketchen and Shook, 1996, p. 453).

Identifying and drawing the boundaries of clusters and cross-checking the different datasets ensured that type I and type II errors were alleviated (Markóczy and Goldberg, 1995, pp. 318-320). Inferences could then be made about the different clusters, how they are characterised and to check for similarities and differences between and within groups. Based on multiple methods of analysis, five different clusters were identified within the organisation over the three phases. Figures 6.3.6.3 - 6.3.6.7 indicates that there are considerable differences in the beliefs contained within the causal cognitive maps of members of staff and that different clusters of beliefs exist within the organisation.

Figure 6.3.6.3 Central Map for Cluster 1

	Cluster 1	1	2	3	4	5	6	7
1)	relpartner	0.00	2.77	2.50	2.67	3.00	3.00	2.60
2)	clientsrecovery	2.71	0.00	2.54	2.75	2.75	3.00	2.88
3)	motivstaff	3.00	3.00	0.00	2.08	2.80	3.00	3.00
4)	servqual	2.71	2.43	2.29	0.00	2.67	3.00	3.00
5)	promo	2.89	2.57	2.50	2.83	0.00	0.00	2.67
6)	devstaff	3.00	3.00	2.94	3.00	0.00	0.00	2.75
7)	clientsproblem	2.60	2.89	1.75	3.00	2.67	0.00	0.00

Figure 6.3.6.4. Central Map for Cluster 2

	Cluster 2	1	2	3	4
1)	respfinders	0.00	1.60	1.00	-0.25
2)	clientsrecovery	2.50	0.00	2.50	2.67
3)	relpartner	1.00	2.17	0.00	3.00
4)	motivstaff	-1.00	2.83	2.00	0.00

Figure 6.3.6.5. Central Map for Cluster 3

	Cluster 3	1	2	3	4	5	6	7	8
1)	opencomms	0.00	2.00	3.00	3.00	3.00	0.00	0.00	3.00
2)	devstaff	0.00	0.00	0.00	3.00	3.00	0.00	0.00	2.00
3)	innovative	0.00	0.00	0.00	3.00	3.00	3.00	0.00	0.00
4)	learningimpr	0.00	3.00	3.00	0.00	3.00	0.00	0.00	0.00
5)	servqual	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00
6)	clientsproblem	0.00	0.00	0.00	3.00	3.00	0.00	3.00	0.00
7)	clientsrecovery	0.00	0.00	0.00	3.00	3.00	0.00	0.00	0.00
8)	motivstaff	2.00	0.00	0.00	3.00	2.50	1.00	0.00	0.00

Figure 6.3.6.6. Central Map for Cluster 4

	Cluster 4	1	2	3	4
1)	targnewfund	0.00	2.00	0.00	0.00
2)	planahead	2.75	0.00	3.00	2.50
3)	servqual	1.00	3.00	0.00	2.00
4)	meascustomerach	0.00	3.00	3.00	0.00

Figure 6.3.6.7. Central Map for Cluster 5

	Cluster 5	1	2	3	4
1)	relpartner	0.00	2.33	0.00	2.00
2)	servqual	2.33	0.00	3.00	2.50
3)	intefficiency	0.00	2.80	0.00	2.80
4)	targetfocus	2.00	0.75	3.00	0.00

Subsequently, the central maps of these clusters are compared with the central maps of leaders and followers over the three phases. Table 6.3.6.1 demonstrates the distance ratios between the central maps. Of particular note is that the leaders' central map from Phase 1 are spread between Clusters 1, 2, and 5. Most importantly, there is great similarity between Cluster 1 and the central map of followers in Phase 1. In support of previous findings leaders gravitate towards Cluster 1 in Phase 2 but are most similar to Cluster 2. The followers in this phase remain most like Cluster 1 although start to share some similarity with Cluster 3. Finally by the third phase neither the central maps of leaders nor followers are very similar to any of the five clusters.

Table 6.3.6.1. Distances between Central Maps (CM) of Cluster and Leaders

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5
Phase 1 - Leaders' CM	0.445	0.423	0.730	0.793	0.435
Phase 1 - Followers' CM	0.176	0.336	0.481	0.867	0.598
Phase 2 - Leaders' CM	0.343	0.178	0.622	0.867	0.586
Phase 2 - Followers' CM	0.221	0.541	0.394	0.913	0.714
Phase 3 - Leaders' CM	0.717	0.514	0.929	0.526	0.833
Phase 3 - Followers' CM	0.700	0.750	0.750	0.750	0.750

More specifically, the central maps of these clusters are compared with the central maps of the different hierarchical levels over the three phases. Table 6.3.6.2 demonstrates the distance ratios between the central maps.

Table 6.3.6.2. Distances between Central Maps (CM) of Cluster and Leaders

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5
Phase 1 - TR - CM	0.856	0.929	0.854	0.627	0.799
Phase 1 - TM - CM	1.000	1.000	1.000	0.714	1.000
Phase 1 - MM - CM	0.475	0.435	0.730	0.793	0.480
Phase 1 - HO - CM	0.583	0.375	0.781	1.000	0.583
Phase 1 - PR - CM	0.117	0.419	0.524	0.893	0.662
Phase 2 - TR - CM	0.913	1.000	0.929	0.833	0.504
Phase 2 - TM - CM	0.256	0.419	0.400	0.893	0.657
Phase 2 - MM - CM	0.422	0.290	0.654	0.893	0.461
Phase 2 - HO - CM	0.535	0.559	0.595	0.521	0.833
Phase 2 - PR - CM	0.111	0.533	0.428	0.913	0.712
Phase 3 - TR - CM	0.961	0.950	1.000	0.950	0.672
Phase 3 - TM - CM	1.000	1.000	1.000	0.368	1.000
Phase 3 - MM - CM	0.527	0.356	0.579	0.913	0.913
Phase 3 - HO - CM	0.895	0.750	1.000	0.750	0.750
Phase 3 - PR - CM	0.745	0.833	0.434	0.833	0.833

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

A similar pattern emerges when examining these distance ratios for the different roles. The key similarity is around Cluster 1 with the practitioners' central map of phases 1 and 2 and become less like the other clusters by Phase 3. However, in support of previous findings the central maps of middle managers in phases 2 and 3 MM become more similar to Cluster 2. After being split in the first phase, the TMT gravitate towards Cluster 1 by the second phase. Then towards the third phase of data collection the TMT are most similar to Cluster 4. Finally, both the central maps of trustees and head office support staff remain fairly divided over all three phases. Only at the beginning to head office support staff share some similarity with one of the clusters, Cluster 2.

6.3.7 Cognitive Shifts

The subsequent analyses investigate the cognitive shifts based on all 3 phases of data collection. Only 18 organisational members were present for all three phases to conduct these analyses. Therefore, the previous justifications of the small sample size withstand particularly as the analyses now examines three different periods of cognitive shifts. Firstly, it examines the cognitive shifts between the start (Phase 1) and the midpoint (Phase 2) of the data collection as in Study 2 but with the reduced sample. Secondly, the cognitive shifts between the midpoint (Phase 2) and the end (Phase 3) of data collection are investigated. Thirdly, with the midpoint data capture removed, the cognitive shift between the beginning and end of data collection is also studied.

Table 6.3.7.1. Individual Cognitive Shifts within Leaders and Followers

	n	\bar{x}_{1-2}	σ_{1-2}	\bar{x}_{2-3}	σ_{2-3}	\bar{x}_{1-3}	σ_{1-3}
All	18	0.611	0.169	0.605	0.164	0.676	0.176
Leaders	10	0.652	0.165	0.609	0.188	0.668	0.202
Followers	8	0.559	0.171	0.599	0.141	0.686	0.151

n = number of maps. \bar{x} = mean. σ = standard deviation. 1-2 = cognitive shift between Phases 1 and 2. 2-3 = cognitive shift between Phases 2 and 3. 1-3 = cognitive shift between Phases 1 and 3.

To start with independent samples t-tests are conducted to investigate whether there are any differences between the degree of cognitive shifts between leaders and followers. Between Phases 1 and 2, due to a non-significant finding ($t = 1.169$; $p = .260$) not even partial support was found this time despite a higher mean value ($\bar{x} = 0.652$) in leaders compared to followers ($\bar{x} = 0.559$). However, under this reduced sample, Proposition 6 of leaders having initially a higher cognitive shift than followers becomes unsubstantiated. Furthermore, even less support is found comparing the levels of cognitive shifts in leaders and followers between Phases 2 and 3 ($t = 0.139$; $p = .891$), and Phases 1 and 3 ($t = -2.03$; $p = .042$). Therefore, even at the later stages of the crisis when one would expect higher cognitive shifts in followers when aligning themselves with the new vision prescribed by leaders, no significant results are found. Consequently, although there may be some partial support for leaders initially having

a higher degree of cognitive shift at the beginning, throughout the remainder of the crisis neither leaders nor followers are any different in terms of their degrees in cognitive shift.

However, when conducting paired samples t-tests to see when leaders or followers are more prone to higher levels of cognitive shift, a significant difference is found when comparing, the average cognitive shift for followers between Phases 1 and 2 ($\bar{x} = 0.559$) compared to the beginning (Phase 1) and the end (Phase 3) ($\bar{x} = 0.686$) ($t = -2.651$; $p = .033$). This starts to demonstrate that at the initial stages of the crisis, followers responded with low levels of cognitive shift, particularly when they are compared with the degree of change they made from the beginning to the end. It emerges here that it may be possible that followers take a longer period of time to shift their cognition in response to a crisis.

Moreover, paired samples t-tests are conducted to examine whether overall across the organisation during which period the highest cognitive shift occurs. However, there is no significant difference found when comparing the level of the initial cognitive ($\bar{x} = 0.611$) between Phases 1 and 2 with the level of the latter cognitive shift ($\bar{x} = 0.605$) between Phases 2 and 3 ($t = .103$; $p = .919$). Therefore, there is no support for Proposition 5 that throughout the organisation the initial response to the crisis would be met with a higher cognitive shift than later on. This begins to demonstrate that just as much cognitive shift occurred during convergence between phases 1 and 2, than during divergence between phases 2 and 3. However, partial support was found when comparing the degree of initial cognitive shift ($\bar{x} = 0.611$) between phases 1 and 2 with the overall cognitive shift ($\bar{x} = 0.676$) between phases 1 and 3 without the midpoint ($t = -1.853$; $p = .081$). Therefore, Proposition 5 can start to be revisited to consider that in response to a crisis higher degrees of cognitive shifts take place over longer periods of time more so than they do initially. This is further supported by finding no significant difference when comparing the latter cognitive shift and the overall cognitive shift ($t = -1.506$; $p = .150$).

In Table 6.3.7.2, the same analysis is carried out but to examine the cognitive shifts at the different hierarchical levels and groups. In addition to Study 2, between phases 2 and 3, the TMT ($\bar{x} = 0.659$) and practitioners ($\bar{x} = 0.669$) had the highest degrees of cognitive shifts compared to their

counterparts. Additionally, from the immediate response to the crisis until the end, the TMT demonstrated the highest amount of cognitive shift ($\bar{x} = 0.800$). Consequently, Proposition 7a can be revisited to show that the TMT having an initially high degree of cognitive shift is unfounded but that there are some indications that at the latter stages and overall the cognitive shifts within this group were high. Furthermore, middle managers consistently demonstrate lower levels of cognitive shift during the crisis which eliminates Proposition 7b (middle managers having initially high degrees of cognitive shifts in response to the crisis) but does show further support for Proposition 4b in that the group remain as the locus of consensus as the crisis develops. However, the sample sizes here were too small to conduct any significant t-tests thus the results must be treated with caution in this analysis.

Table 6.3.7.2. Individual Cognitive Shifts within Groups

	n	\bar{x}_{1-2}	σ_{1-2}	\bar{x}_{2-3}	σ_{2-3}	\bar{x}_{1-3}	σ_{1-3}
All	18	0.611	0.169	0.605	0.164	0.676	0.176
Trustees	1	0.889		0.517		0.686	
TMT	4	0.697	0.140	0.659	0.210	0.800	0.146
Middle Managers	5	0.568	0.146	0.588	0.202	0.560	0.209
Head Office	4	0.560	0.164	0.529	0.165	0.687	0.118
Practitioners	4	0.558	0.203	0.669	0.077	0.684	0.199

n = number of maps. \bar{x} = mean. σ = standard deviation.

To further develop the analysis on whether leaders or followers are more prone to cognitive shifts, an aggregation of all cognitive shifts between every data point was taken. Therefore, the cognitive shifts between Phases 1 and 2 were combined with the cognitive shifts between Phases 2 and 3, and Phases 1 and 3. Subsequently, the data was segregated based on whether the individual was a leader or follower (Table 6.3.7.3) or based on hierarchical level and role (Table 6.3.7.4). Once again, a higher average cognitive shift for leaders ($\bar{x} = 0.639$) is found compared to followers ($\bar{x} = 0.572$). However, only partial support is found when the means are compared using an independent samples t-test ($t = 1.521$; $p = .133$). Therefore, some support for Proposition 6 that during a crisis leaders have a higher cognitive shift than followers is observed, albeit with accumulated data over three phases rather than the initial cognitive shift.

Table 6.3.7.3. Individual Cognitive Shifts within Leaders and Followers

	n	\bar{x}	σ
All	67	0.604	0.183
Leaders	32	0.639	0.183
Followers	35	0.572	0.179

n = number of maps. \bar{x} = mean. σ = standard deviation.

In Table 6.3.7.4 based on hierarchical level and role using independent samples t-tests support is found for the differences between the TMT and the middle managers ($t = 2.431$; $p = .022$), head office support staff ($t = 2.377$; $p = .026$), and practitioners ($t = 2.147$; $p = .040$). Although no other significant differences are found there is some partial support for the differences between trustees and middle managers ($t = 1.657$; $p = .115$), head office support staff ($t = 1.718$; $p = .105$), and practitioners ($t = 1.387$; $p = .179$). In these instances the TMT and the trustees are demonstrating higher levels of cognitive shifts throughout the four years and may partially support the higher level of cognitive shifts in the leaders than in the followers. Consequently, Proposition 7a can be revisited to consider whether the TMT in the latter stages of the crisis demonstrated higher levels of cognitive shift.

Table 6.3.7.4. Individual Cognitive Shifts within Groups

	n	\bar{x}	σ
All	67	0.604	0.183
Trustees	4	0.720	0.159
TMT	12	0.719	0.165
Middle Managers	16	0.560	0.176
Head Office	14	0.571	0.151
Practitioners	21	0.572	0.200

n = number of maps. \bar{x} = mean. σ = standard deviation.

Table 6.3.7.5. T-values for Comparing Individual Cognitive Shifts within Groups

<i>Cognitive Shifts</i>		TR	TM	MM	HO	PR
	\bar{x}	0.720	0.719	0.560	0.571	0.572
TR	0.720	-				
TM	0.719	0.015	-			
MM	0.560	1.657	2.431	-		
HO	0.571	1.718	2.377	-0.192	-	
PR	0.572	1.387	2.147	-0.199	-0.015	-

6.3.8 *Explaining Cognitive Shifts*

Again due to not finding significant differences in the cognitive shifts between leaders and followers in any of the three cognitive shift periods studied, the next set of analyses examines the bivariate correlations. Table 6.3.8.1 examines the cognitive shift correlations based on leaders and followers' central maps, whereas Table 6.3.8.2 investigates the cognitive shift correlations with the central maps for specific roles.

Table 6.3.8.1. Bivariate Correlations: Cognitive Shifts and Distances from Central Maps

	Phase 1			Phase 2			Phase 3		
<i>Pearson</i>	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC
CMLD1	.437	.162	.450	.291	-.226	.099	.086	.609**	.318
CMFL1	.351	.215	.272	.493*	-.200	.146	.128	.521*	.229
CMLD2	.395	.145	.175	.458	-.102	.324	.021	.475*	.297
CMFL2	.353	.237	.329	.596**	.077	.365	.173	.572*	.330
CMLD3	.222	.111	.131	.179	.184	-.195	.000	.239	.035
CMFL3	.175	.469*	.428	.229	-.239	-.026	.256	.489*	.296

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShift AB = Cognitive Shift from Phase 1 to Phase 2; CogShiftBC = Cognitive Shift from Phase 2 to Phase 3; CogShiftAC = Cognitive Shift from Phase 1 to Phase 3.

CMLD1 = Central Map Leaders (Phase 1); CMFL1 = Central Map Followers (Phase 1)...(Phase 2)...(Phase 3)

For organisational members during Phase 2, the higher the initial cognitive shift, the further these individuals were from the followers' central maps of Phase 1 and 2. This corroborates with the findings from Study 2 and the support for Proposition 6, that leaders would have a higher initial cognitive shift.

For organisational members by Phase 3, the higher their latter cognitive shift, the further these individuals were from the followers' central maps of all three phases as well as the leaders' central maps from Phases 1 and 2. This begins to demonstrate that the early perceptions and responses in phases 1 and 2 of both the leadership and followership had limited effect on the position by Phase 3.

Table 6.3.8.2. Bivariate Correlations: Cognitive Shifts and Distances from Central Maps

	Phase 1			Phase 2			Phase 3		
<i>Pearson</i>	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC
CMTR1	.311	.053	.326	-.019	.059	-.322	-.236	-.171	-.242
CMTM1	-.132	-.233	-.145	-.191	.366	-.264	-.189	-.387	-.242
CMMM1	.376	.231	.434	.270	-.184	.085	.050	.629**	.294
CMHO1	.196	.100	.001	.515*	-.066	.384	-.170	.360	.061
CMPR1	.366	.167	.216	.535*	-.076	.268	.029	.533*	.092
CMTR2	-.305	-.124	-.352	-.474*	-.033	-.195	.311	.036	.338
CMTM2	.409	.249	.507*	.387	-.054	.127	.208	.551*	.487*
CMMM2	.361	.051	.100	.396	-.115	.341	-.034	.366	.222
CMHO2	.268	.460	.186	.228	.117	-.060	.094	.518*	.053
CMPR2	.370	.245	.350	.583*	.006	.296	.179	.606**	.350
CMTR3	-.063	-.244	-.010	-.499*	.148	-.035	-.373	.137	.036
CMTM3	.007	.153	-.103	-.288	.352	-.512*	-.072	-.267	-.314
CMMM3	.361	.230	.305	.517*	.059	.199	.092	.337	.314
CMHO3	.503*	.198	.286	.114	.096	-.282	.025	.326	.038
CMPR3	.197	.247	.354	.137	-.145	-.087	.333	.327	.357

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShift AB = Cognitive Shift from Phase 1 to Phase 2; CogShiftBC = Cognitive Shift from Phase 2 to Phase 3; CogShiftAC = Cognitive Shift from Phase 1 to Phase 3.

TR = Trustees; TM = Top Managers; MM = Middle Managers; HO = Head Office Staff; PR = Practitioners (Client Facing Staff)

For organisational members during Phase 2, the higher the initial cognitive shift, the further these individuals were from the Phase 1 head office support staff and practitioners' central maps, Phase 2 practitioners' central map, and Phase 3 middle managers' central map. Furthermore, for organisational members during Phase 2, the higher the initial cognitive shift, the closer these individuals were to the trustees' central maps of Phases 2 and 3.

For organisational members during Phase 3, the higher the latter cognitive shift, the further these individuals were from the Phase 1 middle managers and practitioners' central maps and the central maps of the TMT, head office support staff, and practitioners in Phase 2.

For organisational members during Phases 1 and 3, the higher the overall cognitive shift, the further these individuals were from the TMT's central map in Phase 2. Conversely, for organisational members during Phase 2, the higher the overall cognitive shift, the closer these individuals were to the TMT's central map of Phase 3.

Finally, for organisational members during Phase 1, the higher the initial cognitive shift, the further these individuals were from the Phase 3 head office support staff's central map.

Table 6.3.8.3. Bivariate Correlations: Cognitive Shifts and Demographics

<i>Pearson</i>	CogShiftAB	CogShiftBC	CogShiftAC
CogShiftAB	1	-.060	.624**
CogShiftBC	-.060	1	.303
CogShiftAC	.624**	.303	1
Job Group	.428	-.047	.109
Tenure	-.048	.479*	.034
Age	.622**	-.222	.324

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShift AB = Cognitive Shift from Phase 1 to Phase 2; CogShiftBC = Cognitive Shift from Phase 2 to Phase 3; CogShiftAC = Cognitive Shift from Phase 1 to Phase 3.

The initial cognitive shift positively correlates with the overall cognitive shift. Therefore, the degree of the initial cognitive shift in response to the crisis has a positive effect on the degree of cognitive shift demonstrated overall. However, as no significant relationship is found between the latter cognitive shift and the overall cognitive shift, then what happens at this initial stage is vitally important for how individuals deal with the crisis over a longer period. Subsequently, Proposition 5 can be revisited to consider this relationship between these two states.

Furthermore, as no relationship is found between the initial cognitive shift and the latter cognitive shift, it becomes further evident that certain individuals may not be more susceptible to higher degrees of cognitive shifts than others. Additionally, following Proposition 5, it was expected that initially there would be a higher degree of cognitive shifts and then later on a lower degree of cognitive shifts. Although, a negative relationship was found this was infinitesimal and non-significant.

Finally, when the latter cognitive shift is examined with Proposition 8b, a positive relationship is found with organisational tenure. Therefore, those who have been at the focal organisation for longer demonstrate a higher cognitive shift in the latter stages but this contradicts the expected negative relationship. Again a positive relationship between age and the initial cognitive shift is observed but not between any other stages. As a result, this again contradicts Proposition 8a which also expected a negative relationship.

Table 6.3.8.4. Bivariate Correlations: Cognitive Shifts and Distances from Clusters (n = 31)

	Phase 1	Phase 2
<i>Pearson</i>	CogShiftAB	CogShiftAB
Cluster1	.505**	.493**
Cluster2	.027	.516**
Cluster3	.425*	.267
Cluster4	.187	-.127
Cluster5	.034	-.323

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShiftAB = Cognitive Shift from Phase 1 to Phase 2

For organisational members during Phases 1 and 2, the higher the initial cognitive shift, the further these individuals were from the central map of Cluster 1. For organisational members during Phase 2, the higher the initial cognitive shift, the further these individuals were from the central map of Cluster 2. For organisational members during Phase 1, the higher the initial cognitive shift, the further these individuals were from the central map of Cluster 3

Table 6.3.8.5. Bivariate Correlations: Cognitive Shifts and Distances from Clusters (n = 18)

	Phase 1			Phase 2			Phase 3		
<i>Pearson</i>	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC	CogShiftAB	CogShiftBC	CogShiftAC
Cluster1	.348	.206	.312	.563*	-.045	.259	.125	.582*	.268
Cluster2	.226	.099	-.032	.598**	-.063	.435	-.055	.326	.199
Cluster3	.349	.232	.428	.303	-.022	.104	.412	.275	.431
Cluster4	.203	-.099	.004	-.310	.075	-.589*	.018	-.152	-.130
Cluster5	.255	-.228	.107	-.335	-.199	-.230	-.131	.201	.170

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

CogShift AB = Cognitive Shift from Phase 1 to Phase 2; CogShiftBC = Cognitive Shift from Phase 2 to Phase 3; CogShiftAC = Cognitive Shift from Phase 1 to Phase 3.

For organisational members during Phase 2, the higher the overall cognitive shift, the closer these individuals were to the central map of Cluster 4. For organisational members during phase 3, the higher the latter cognitive shift, the further these individuals were from the central map of Cluster 1

CHAPTER 7 – DISCUSSION AND CONCLUSIONS

7.1 Theoretical Implications

This section considers the substantial and original contributions emerging from the research. To begin with it is important to highlight the contributions that are made across all three studies before going into the contributions from the individual studies.

The studying of cognitive consensus and diversity directly unlocks the ‘black-box’ of cognition (Pelled et al., 1999, Olson et al., 2007, Lawrence, 1997) and contributes to the growing field that has moved beyond using demographics as proxy variables for cognitive consensus and cognitive diversity. Additionally, this contribution makes advances to upper echelons theory in studying the cognition of executives directly (Hambrick, 2007) which increases construct validity (Priem et al., 1999).

This research has provided a deeper conceptualisation of cognitive consensus (Gonzalez-Benito et al., 2012, Kellermanns et al., 2005), with the findings providing further evidence that consensus is a multi-faceted concept acknowledging degree, content, change, scope, and locus of consensus (Markóczy, 2001).

The studies started to address the concerns that prior research has neglected to bridge between different hierarchical and individual/group levels in organisations in the domains of cognition (Hodgkinson and Healey, 2008), strategic cognition (Narayanan et al., 2011), and cognitive frames (Cornelissen and Werner, 2014). Kellermanns et al. (2005) also recommended that research should investigate the locus of consensus and its diffusion through various hierarchical levels within firms. All three studies have contributed towards this research agenda.

The empirical studies demonstrate that consensus is not just about aligning strategic objectives and priorities (Knight et al., 1999, Kellermanns et al., 2005) but also other supporting beliefs with key causal relationships (Markóczy, 2001) relevant to the situation in hand. Likewise, this has permitted the investigation into substantive heterogeneity by measuring psychographics (attitudes, interests, and opinions) with judgements (understanding of key causal relationships) (Priem et al., 1999) which is akin to preference diversity and belief diversity (Miller et al., 1998).

Subsequently, this has contributed to cognitive vision formation theory (Mumford et al., 2007) in examining the cognitive interplay between leaders as well as followers (Uhl-Bien et al., 2014) throughout a crisis.

Finally, the need for studying longer time-scales (i.e. years instead of weeks) in relation to cognitive convergence (Dionne et al., 2010) and leader cognition (Marcy and Mumford, 2010) has been addressed to obtain a more comprehensive understanding of what happens when individuals respond to crises. Additionally, this study has contributed further by investigating cognitive convergence of executives in their real-life organisational setting rather than through business simulations or even just sampling students (Harrison et al., 2002, Kilduff et al., 2000, Jehn and Mannix, 2001)

Subsequently, to examine the original contributions from the specific empirical studies this theoretical implications section is divided into two distinct sections; cognitive consensus and cognitive shifts. Firstly, it examines cognitive consensus from the beginning to the midpoint of data collection as well as over all three phases covering a four year period from the onset of the crisis. Secondly, cognitive shifts are considered over the same periods.

7.1.1 Cognitive Consensus

The first two studies (phases) produced several key theoretical contributions regarding cognitive consensus as the crisis first unfolded for the organisation.

The first key finding demonstrates that as this crisis initially developed, followers as a group were the main locus of consensus and did not follow their leaders' vision of how to resolve the crisis.

This finding emphasised that cognitive diversity in the leadership group at the beginning of the crisis caused confusion over time. Followers are likely to have experienced difficulty concurring with the leaders' vision for the future when the leadership were unclear of their own prescriptive mental

model². Based on the lack of consensus it is likely that different leaders put over different visions for the future, which caused confusion for followers. The followers by Phase 2 were more closely aligned to their mental model from Phase 1, showing that they may have been more influenced by their own reference group than by the leadership.

However, the data also indicated that leaders changed considerably between phases 1 and 2 with these first two studies. This builds on the research by Combe and Carrington (2015) to show that consensus emerges not only in leadership teams but also in followers' teams. Most interestingly, the data highlighted the extent of possible influence between the leadership and their followers during a cumulative crisis. The findings point to the notion that the prescriptive mental model of leaders in Phase 2 is much more similar to followers from Phase 1, than to their own reference group from Phase 1. The expectation that leaders in Phase 1 influenced followers in Phase 2 as the crisis developed, did not materialise. In sum, leaders have converged in thinking potentially towards followers than vice versa. Consequently, the data shows the possibility that in times of cumulative crisis followers are just as important as leaders in determining a prescriptive mental model for the future.

It is possible to conclude that initially, as there was little consensus in leaders thinking on how to resolve this cumulative crisis, followers had conflicting visions presented to them. Consequently, leaders' mental models shifted to be closer to followers than vice-versa. This finding has to be viewed with some caution because it is based on only two points in time, but it does reflect that during the initial stages of organisational crises followers can play a central role in the process of forming consensus. This finding can be contrasted with the treatment of consensus in research which has historically, apart from a few exceptions (Markóczy, 2001, Balogun and Johnson, 2004, Burgelman, 1991), been studied from a TMT perspective (Bourgeois, 1980, Dess, 1987).

More specifically, it was found that the practitioners (client facing staff) were the locus of consensus in Phase 1 and also the least cognitive diverse group at the beginning. As the practitioners are the dominant group amongst followers this finding came as no surprise when understanding the followers' teams. However, the cognitive diversity within the leadership is also mirrored by the finding

² The term prescriptive mental model is used by Strange and Mumford (2005, pp. 122-123) to reflect the system as it might be and provides the basis for vision formation which occurs as a prescriptive mental model is articulated and refined to provide personal meaning for the leader and interpersonal meaning for followers. Like mental representations, here mental models are conceptual representations used both to understand system operations and guide actions within this system (Strange and Mumford, 2005, p. 122).

that neither the TMT nor middle managers were the loci of consensus at the beginning which contrasts with the normative-rational perspective of strategic consensus.

There are several possible mechanisms as to why consensus would develop in the mental models of followers before leaders as cumulative crises develop. One possible explanation is that followers are closer to customers and can articulate change from a customers' perspective, first to each other, and then to leaders. In cumulative crises, interaction with customers is likely to take up a major part of followers' time in their job roles and be influential in their thinking about overcoming crises. Follower-follower interaction in day-to-day communication is also likely to be much more common than leader-leader interaction, which gives more opportunity for followers to influence each other. Additionally, after interacting with customers and other stakeholders, followers may be more willing to criticise each other's thinking than leaders, so that critical reflection and cross understandings occurs more in followers than leaders during cumulative crises (Huber and Lewis, 2010).

The involvement of follower teams is likely to be only possible during cumulative organisational crises. A typical cumulative organisational crisis might be due to the loss of large contracts, a major reduction in sales or a large unpaid debt resulting in a financial crisis for the firm. Cumulative organisational crises can raise the importance of particular events at different organisational levels within organisations at different times and this can impact on the attention given to these by leaders and followers. This context highlights the importance of mental models over time in both leaders and followers but followers' mental models are likely to be more important in cumulative organisational crises than in more abrupt type of crises. As individuals have some time to think through the issues, there is likely to be different interpretations of events and different solutions put forward by individuals to resolve this type of crisis. In other words, in a slowly emerging cumulative organisational crisis, different follower teams may also be affected by the crisis at different times thus contributing to diverse perspectives.

This is unlikely to be viable when crises develop abruptly, such as can occur in some military situations, where they can emerge in hours and require an immediate response (Hwang and Lichtenthal, 2000, James and Wooten, 2005). Therefore, abrupt and sudden crises may require a different organisational response. Despite occurring quickly and unpredictably, the causes of abrupt crises are

clearer with far fewer factors being misaligned with the environment compared to the ambiguity of cumulative crises (Hwang and Lichtenthal, 2000, p. 134). Therefore, mental models of both leader and follower teams are likely to attain higher levels of consensus during abrupt crises rather than cumulative ones. This is particularly important as leaders develop prescriptive mental models through a process of sensemaking on similar key issues and problems being faced (Weick, 1995, Mumford et al., 2007). However, during cumulative crises the implications can be staggered and in line with the ambiguity faced, both leaders and followers make sense of its causes and possible resolutions differently making the adoption of a prescriptive mental model more difficult.

Second, integrating cognitive vision formation theory (Mumford and Strange, 2002, Strange and Mumford, 2002) with followership theory (Uhl-Bien et al., 2014, Hollander, 1992, Carsten et al., 2010) has unearthed the key findings from this study. In analytically generalising the findings to theory it is highlighted that followers play an active role in consensus building during the outset of a crisis.

According to Stam et al. (2010) vision communication is vital for leaders to mobilise followers. Developing a prescriptive mental model for the future would require leaders to have a substantial cognitive capacity to simplify events in such a way that effective plans and a viable vision can be formulated (Partlow et al., 2015, p. 466). However, as a lack of consensus is found in the leadership, the findings question whether a coherent shared prescriptive mental model was in place in the upper echelons of the organisation shortly after the onset of the crisis (Combe and Carrington, 2015, Mumford et al., 2007).

It seems more likely from the data that during the crisis the leaders strategised to involve followers in the vision formation process (Stam et al., 2010, Kohles et al., 2012). In other words, followers can engage and influence their leaders to form consensus (Oc and Bashshur, 2013). The findings suggest that a prescriptive mental model, as the basis of vision formation, is likely to have been either co-created by both leaders and followers or at least followers are likely to have had a considerable input into its development. Consequently, strategic planning fails when those involved in the implementation are excluded thus participatory planning to include those beyond the TMT becomes essential (Ketokivi and Castañer, 2004). Particularly, as these other groups have *“detailed and valuable information about the organisation, its competitive position, and the relationship between the*

organisation and key external actors such customers, suppliers, and regulators” (Ketokivi and Castañer, 2004, p. 341). This also contributes to recent work that examines the strategy process becoming more open and transparent within organisations (Birkinshaw, 2017).

The findings concur with prior research by Carsten et al. (2010) who also confirm that followers can be challenging and should not be viewed as just passive and obedient. This view contradicts much of the historical work on strategic consensus that presumes a linear top-down process (Bourgeois, 1980, Dess, 1987). Consequently, this study has contributed to the burgeoning field of followership theory and follower-focused research.

Third, the findings raise serious concerns about the influence of cognitive diversity in change situations. *“These are not mere differences of opinions on simple and insignificant matters but are divergent views on highly important matters that would have substantial ramifications for the organization”* (Olson et al., 2007, p. 200). Previous studies have found that diversity is beneficial at the early stages of planning (Tegarden et al., 2009) and is favourable for high performing teams (Kilduff et al., 2000). However, in this study, the findings point to early cognitive diversity in the leadership being problematic during a crisis because followers could not rely on consensus on how to resolve the crisis due to contradictory thinking by their leaders. Decisions need to be made quickly during crises, even cumulative ones in organisations, which requires both commitment and consensus (Eisenhardt and Bourgeois, 1988, Eisenhardt, 1989a, Dooley et al., 2000). Consequently, the findings suggest that the lack of consensus from the leadership about how to resolve the crisis, potentially caused followers to suggest resolutions themselves.

Fourth, when followers were once more uncovered as a loci of consensus in the second phase, a more detailed investigation found that again it was the dominant practitioners within this followership group that strengthened this position. However, the key finding by this second phase was that middle management also emerged as a loci of consensus. Not only are these two groups found to be the loci of consensus by the midpoint but that also the degree of cognitive consensus has increased. Therefore, a pattern begins to surface of how this organisation responded to the onset of this crisis. Initially, the practitioners were clearly the locus of consensus but as the crisis developed this also spread to include

middle managers. This finding starts to demonstrate that from the onset of the crisis that the diffusion of consensus may have followed a bottom-up process (Schilit and Paine, 1987). Although there was partial support for consensus building within the TMT they were still far from being a locus of consensus up to this point. This building of within group consensus, particularly in the TMT and middle management supports Combe and Carrington (2015) finding of consensus forming within different leadership groups.

Subsequently, it is vital to consider the role that middle managers may have fulfilled as the crisis developed (Raes et al., 2011, Balogun and Johnson, 2004, Floyd and Wooldridge, 1992, Wooldridge et al., 2008). In support of Balogun and Johnson (2004) when the influence of top management diminishes it becomes increasingly evident that middle managers play a significant role in continuing shared understanding while shaping change. Consequently, not only do middle managers act as sense-makers during crises but also sense-givers. In the traditional top-down view of the strategy process, middle managers' key role is in the implementation of strategy and have the ability to prevent TMT initiatives (Ketokivi and Castañer, 2004). However, as Ireland et al. (1987) find that lower-level managers perceive more environmental uncertainty than middle managers but not top managers, it questions the accuracy of middle managers perceptions as the crisis develops.

The third study within this research presented additional insights into the dynamics of cognitive consensus over all three phases.

First, after the midpoint of data collection, a reversal in the momentum of the scope of consensus is unearthed as perceptions of how to deal with the ongoing crisis possibly begin to diverge. Therefore, over the three phases following the crisis there is convergence (building of consensus) early on followed by a divergence in thinking later on. The research highlights that in 2011 (Phase 1) and 2015 (Phase 3) there was a higher degree of diversity across the organisation but a movement towards consensus in between in 2013 (Phase 2). This research provides for serious questioning of earlier longitudinal studies that observed the development of cognitive consensus over time (Markóczy, 2001, Combe and Carrington, 2015, Kilduff et al., 2000). These studies were hindered by only capturing data points from two points in time; beginning and end. Furthermore, the inclusion of a midpoint in the data collection

has allowed for a more detailed understanding of longitudinal analysis of convergence (Jehn and Mannix, 2001). Likewise, as there was found to be no significant difference in the degree of diversity at the beginning and at the end of data collection, this research has demonstrated again the importance of a midpoint in data collection as this fluctuation in cognitive consensus would not have been observed. However, these observed fluctuations between three phases over four years must be met with some caution. Particularly, as between these phases there were large uncaptured gaps where it is not possible to identify alternative patterns of change. Additionally, as this was an ongoing crisis identifying its beginning and end is hugely problematic.

Likewise, both leaders and followers ensue a similar pattern to the scope of consensus over the three phases whereby it is observed that they originally converge and then later diverge. However, the initial convergence for both leaders and followers is less radical of a change than the movement towards diversity after the midpoint. This is particularly the case for the followers and specifically the practitioners that remain in the study within that group. For the first time in the study a highly diverse follower group is noted which could demonstrate that the FLEs are subject to holding different models of their interpretation of customer service (Di Mascio, 2010). Consequently, by the third phase, neither leaders nor followers are found to be locus of consensus increasing the possible ambiguity in the direction of the organisation by this stage. This demonstrates some significant challenges that faced the organisation towards the end of data collection. Furthermore, this may contribute a cognitive lens to the negative implications of strong faultlines within subgroups which can hinder constructive debate (Barkema and Shvyrkov, 2007).

Next, two potential and interrelated explanations of these cognitive diversity fluctuations are provided. Firstly, these levels of higher and lower diversity may be indicative of the context surrounding each phase. As documented in the research, the first phase is shrouded by a chaotic external environment that is both highly complex and highly dynamic. At this stage, the crisis for the organisation is in its earlier stages and the effects of such being felt across the leadership of the organisation. This may result in diverse perspectives and possible responses to the unfolding crisis. Secondly, as well as the environmental uncertainty at this time, the financial performance of the organisation was declining and the viability of the organisation placed in threat. In other words, this finding may start to indicate that

the turbulence of the environment and the fall in revenue through the loss of contracts and reduction in funding is closely aligned with the initial cognitive diversity.

Prior research has demonstrated how the degree of cognitive diversity can be generated by either complex and dynamic environments (Hrebiniak and Snow, 1982, Homburg et al., 1999, Dess and Origer, 1987, Olson et al., 2007) or recent poor past performance (Kilduff et al., 2000). However, it is difficult to differentiate which of the two are effecting the levels of diversity or whether it is combination of both as they are not mutually exclusive. The stabilising of the industry and better understanding of the crisis by the second phase may have resulted in a possible movement towards building consensus. This is coupled with stronger financial performance through the winning of additional contracts. However, after that midpoint the external environment destabilises further and also financial revenue falls more sharply. At the same time the data shows cognitive divergence as diverse perspectives emerge of how to deal with the subsequent fallout from the crisis. Therefore, although this organisation may have reached a situation of stability and heightened consensus by the midpoint, it becomes clear that this was only temporary and that not all the after-shocks of the crisis may be fully understood within the organisation. Additionally, this provides further evidence that crises are not static one of events but perpetuating cascading situations that have lasting implications.

Although the performance link is not investigated as a consequence of cognitive consensus in this research, an analysis of alternative relationships between cognitive consensus, organisational performance, and environmental dynamism is considered (Gonzalez-Benito et al., 2012, Homburg et al., 1999). Furthermore, in capturing stable as well as dynamic environments the work of van de Ven et al. (2008) is potentially developed to examine the interaction between internal and external structures.

Second, although neither leaders nor followers are found to be the locus of consensus by the third phase of this study, middle managers remain the locus of consensus and the least diverse group whilst diversity was high in all other groups. Most importantly, beyond the significant initial convergence in middle managers between Phases 1 and 2 as previously discussed, there is no significant difference between 2 and 3. Therefore, in contrast to the pattern in other groups and the scope of consensus, middle managers are found to converge and then sustain their degree of consensus which is further reflected in the significant difference between Phases 1 and 3.

This exclusive trend coupled with enduring as the locus of consensus continues to demonstrate the importance of this group (Raes et al., 2011, Balogun and Johnson, 2004, Floyd and Wooldridge, 1992, Wooldridge et al., 2008) particularly as the crisis matures. Furthermore, it demonstrates how middle managers prolong shared understanding whilst shaping change (Balogun and Johnson, 2004). This either adds more weight to the continuation and protracting of the bottom up diffusion process (Schilit and Paine, 1987), or indicates a possible middle-up-down approach. However, it is also possible that middle managers by the third phase were less cognizant of the environmental uncertainty compared to other groups (Ireland et al., 1987). Alternatively, it is also possible that the three phases of data capture didn't include the TMT's dominance and their influence in setting this direction. Consequently, the consensus within the middle managers may be due to the implementation of strategy set out by the TMT between phases.

Third, the inclusion of a third phase of data capture provided the potential for further insights into the diffusion of consensus process. Conventionally, it is expected that leaders would be initially the locus of consensus and subsequently influence their followers with their vision to allow for the successful implementation of the strategy (Mumford and Strange, 2002, Strange and Mumford, 2002, Mumford et al., 2007). However, the initial two studies have seriously questioned this and indicated that in the early responses to the crisis leaders converge towards followers (Oc and Bashshur (2013). For example, as observed earlier, leaders in Phase 2 were more similar to followers in Phase 1 than followers were similar to leaders in Phase 1. Following this trend within this context it would be expected for this continue between phases 2 and 3. Conversely, by the third phase, leaders have become extremely different compared to the followers from the second phase as a low level of similarity is observed. Therefore, the possible influence of followers after the midpoint of data collection may have subsided significantly.

Following the rational-normative perspective of consensus it would be expected that the followers in the third phase would be influenced by their leaders from the second phase. However, this does not emerge either. Most interestingly, followers by the third phase are more likely to be closely aligned to the leaders from the initial onset of the crisis in the first phase. There are several potential

reasons for this finding. Firstly, this could be related to late vision adoption of the narrow prescriptive mental model around a vision for the future that was originally set out by the leaders at the beginning of the crisis (Mumford and Strange, 2002, Strange and Mumford, 2002, Mumford et al., 2007). This would be difficult to identify if only two points of data capture were included. However, a third subsequent phase starts to allow for this to be visited. Secondly, due to significant sample attrition within followers by the third phase the group had decreased from 26 in the beginning to finally eight members. This consisted of only four practitioners, two of which had become team leaders by this stage taking on some managerial responsibility thus their perceptions may have altered in line with leaders. Thirdly, as the central maps of leaders in Phase 1 and followers in Phase 3 demonstrate weak mental models if core organisational objectives are shared then the possibility of similarity is increased.

7.1.2 Cognitive Shifts

Over all three phases, the cognitive shifts of organisational members from the onset of the crisis and between the midpoint and end of data collection were monitored and also provided key findings.

First, the findings develop the knowledge of cognitive shifts and how these shifts vary within firms at different organisational levels. Following Foldy et al. (2008) and Ospina and Foldy (2010) has demonstrated that during a crisis individuals have varying degrees of cognitive shift. In particular, the findings offer partial support that initially higher cognitive shifts can occur in leaders during a cumulative crisis.

To support this partial finding a bivariate relationship was also found in those that were further from the followers' central maps in these early stages had higher cognitive shifts at the onset of the crisis. Subsequently, as it was documented that leaders moved towards the position of followers by the midpoint, the further an individual was from the leaders' central map of Phase 2 to begin with was also met with a higher initial cognitive shift. This again supports the observation that in the earlier stages,

leaders moved more towards a position closer to the followers than vice versa. Support was also found for a bivariate correlation between hierarchical level and initial cognitive shift. Therefore, those in higher positions also demonstrated a greater degree of cognitive shift initially. Additionally, as the central map of Cluster 1 was similar to followers in Phases 1 and 2, the further an individual was from this cluster, the higher their initial cognitive shift. Furthermore, examining the initial cognitive shift more closely found that the trustees had the highest degrees of cognitive shift compared to middle managers, head office support staff, and practitioners. The TMT were also found to have higher degrees than these groups but only partial support was found. Therefore, again during the initial two phases of the crisis those further up the organisation demonstrate higher degrees of initial cognitive shift. This triangulation of findings provides additional support that leaders are more likely to have a higher initial cognitive shift during the onset of the crisis.

However, when examining the cognitive shift from the midpoint of data collection to the end no significant difference was found between leaders and followers. This was also the case when comparing the cognitive shifts of leaders and followers at the beginning and at the end (overall cognitive shift). Therefore, in the latter stages of the crisis neither leaders nor followers presented higher cognitive shifts than each other. This adds further weight to the importance of these two groups in the initial stages of the crisis. Comparing the combined cognitive shifts at all different stages it was found that the TMT were significantly different to the middle and lower levels of the organisation. Therefore, regardless of the stage of the crisis, top managers were likely to be more prone to changing their mental models of how to respond to the unfolding crisis (Barr et al., 1992). This provides an alternative perspective to the inability of the top management to change schemata in the study of Polaroid by Tripsas and Gavetti (2000). Therefore, it is plausible that top management teams can have different dominant logics (Tripsas and Gavetti, 2000, p. 1158) and how these may emerge and diffuse throughout the organisation (Purdy and Gray, 2009).

By the third phase, those that were less like the previous central maps of followers appeared to have a higher latter cognitive shift. Additionally, the further from the leaders' central maps near the beginning and midpoint of the crisis also the further they moved in the latter cognitive shift. Therefore, it becomes evident that the movement towards the end may have entirely switched the focus of the organisation. This is also supported by the further one is from Cluster 1 (and less client focussed) in

Phase 3 then they are more likely to have had a higher cognitive shift. Therefore, there is a radical movement away from this position of consensus that was found in Phase 2. Perhaps it was found that this was possibly the wrong course of action. However, as diversity has returned in the sample there is limited understanding of what course of action to take once again. However, this time there is no dominant group within the followers to steer this direction.

These findings around the degrees of cognitive shifts may be due to errors, cognitive inertia, myopia, and competitive blind spots (Skilton and Dooley, 2010, Ng et al., 2009, Marcy and Mumford, 2010). The findings point to additional complexity in understanding cognitive shifts. Individuals may have multiple frames that they utilise in different circumstances (Narayanan et al. (2011) to reflect the complexity of individuals' belief structures which can lead to diverse actions (Kiss and Barr, 2015). Individuals may also change peripheral values and beliefs yet share core stable ones (Narayanan et al., 2011, Fiol, 1994, van Rekom et al., 2006). Furthermore, with the absence of consensus from leadership about what was important during the crises possibly makes it difficult for followers to shift their cognition as there is no salience to what is being communicated (Ireland et al., 1987).

Second, it was expected that the initial cognitive shift would be higher than the cognitive shift later on. This was due to as individuals made sense of the impending crisis they would have to shift their cognition to be closer in line to the new reality that they were facing. However, this was not found in the data as the initial cognitive shift had no relationship with the latter cognitive shift nor was there any difference between the mean values of these periods. In other words, on average the initial cognitive shift towards convergence in response to the crisis was no higher than the average latter cognitive shift towards divergence as the crisis developed further.

However, most interestingly, it was found that in response to a crisis higher degrees of cognitive shifts take place over longer periods of time more so than they do initially. This supports earlier research that cognitive shifts (or schema change) take considerable time to develop. In other words, a permanent cognitive shift may take longer. Nevertheless it is noted that over this period individuals potentially change differently which challenges this static slow changing perspective of cognitive shifts. This contributes to the call from Clarke and Mackaness (2001) that future research should look longitudinally

at how managers' insights may change under different environment conditions (Reger and Palmer, 1996).

Third, related to this finding is the possibility that this degree of the initial cognitive shift in response to the crisis has a positive effect on the degree of cognitive shift demonstrated overall. In other words, it is this initial cognitive shift rather than the latter cognitive shift which acts as a potential indicator of the overall cognitive shift. Therefore, it is evident that in response to the crisis the first two years could be most crucial in shaping the overall cognitive shift of an individual. As there is no relationship between the initial and latter cognitive shifts, it becomes further evident that certain organisational members may not be more susceptible to higher degrees of cognitive shifts than others. As a result, flexible thinking in certain individuals is not found consistently over the three phases. This potentially questions the view that certain individuals have particular cognitive predispositions that affect how they interpret the information from the environment which also influences what actions individuals take in their engagement with particular initiatives (Kaplan, 2008, p. 736). Although, cognitive predispositions can exist the variation in cognitive shifts reflects other factors that can influence this phenomenon.

Consequently, organisational members with an initially low cognitive shift appear to return or remain with their original perception or near it, otherwise overall the cognitive shift would be high. Therefore, initially if a low cognitive shift is made they seem to either stay fixed to that perception or change but remain in the vicinity of keeping fairly similar to their original perception. In other words, as no correlation is found with the latter cognitive shift it is evident that some of these may have changed considerably and then reverted back or just not changed at all. Those that don't change their understanding (content) in the first couple of years may have a similar thinking to the crises then they did at the beginning.

Similarly, organisational members with an initially high cognitive shift appear to not revert back to their original perception or near it, otherwise overall the cognitive shift would be low. Therefore, if a high cognitive shift is made initially they seem to either stay fixed to that new position or change again but not back to their original state. In other words, as no correlation is found with the latter cognitive shift it is evident that some of these individuals may hold their new understanding of the environment

or continue to change notably without taking up their original perception. Likewise, organisational members with an initially medium cognitive shift appear to partly change to begin with but may change radically, slightly or somewhere in between to finally reach a position of medium change overall.

Therefore, those who appeared to be originally flexible do not revert back to their original perception (by either shifting again or remaining stable to the new position) and those who seemed to be originally stable (remained rigid throughout or temporarily flexible and reverted back). Subsequently, as a crisis develops four potential types of cognitive shifts are proposed based on the different responses by individuals; cognitive entrenchment, temporary cognitive shift, permanent cognitive shift, and continuous cognitive shift (see Table 7.1.2).

Table 7.1.2. Framework for Cognitive Shifts during a Crisis

		Latter Cognitive Shift	
		Low	High
Initial Cognitive Shift	Low	Cognitive Entrenchment	Temporary Cognitive Shift
	High	Permanent Cognitive Shift	Continuous Cognitive Shift

Cognitive Entrenchment. Low initial cognitive shift → fixed → low overall cognitive shift

Temporary Cognitive Shift. Low initial cognitive shift → change → low overall cognitive shift

Permanent Cognitive Shift. High initial cognitive shift → fixed → high overall cognitive shift

Continuous Cognitive Shift. High initial cognitive shift → change → high overall cognitive shift

Fourth, the final key findings relate to the effect of age and organisational tenure on the degree of individual cognitive shifts. This contributes to the work of Dane (2010) whom proposes that as individuals become experts or gain experience in a particular domain they become cognitively entrenched which he refers to as a high level of stability in one's domain schemata. As deeply-ingrained schematic process hinders experts in engaging with dynamic environments this would lead to inflexibility with problem solving and adaptation demonstrated through low levels of cognitive shifts (Dane, 2010).

It was found that the older an organisational member, the more potential of a higher initial cognitive shift. However, the hierarchical level (job role) also had a positive relationship with the initial

cognitive shift. Therefore, those in higher positions tended to be older in age. It was expected that the younger the individual the higher the degree of cognitive shift (Salthouse, 2012) due to the assumption of limited experience and expertise (Dane, 2010). However, the opposite was found in that the older the individual the higher their cognitive shift at the beginning. Prior research had indicated that those with little experience and expertise i.e. novices would not suffer from cognitive entrenchment and would be more flexible with their schemata (Dane, 2010, Rousseau, 2001). However, what was found in this situation, those who were older appeared to be more prone to higher cognitive shifts at the beginning of the crisis.

Additionally, when the latter cognitive shifts were examined, a positive relationship is found with organisational tenure. Therefore, those who have been at the focal organisation for longer seemed to demonstrate a higher cognitive shift in the latter stages but this also contradicts the expected negative relationship (König et al., 2013). Again organisational tenure relates to the experience and expertise that individuals have within the organisation. It was expected that from prior research those who had been at the organisation longer would suffer from cognitive entrenchment and struggle to shift their cognition unlike novices (Dane, 2010, König et al., 2013). However, again the opposite was found in this situation and that as the crisis deepened those who may have changed their cognition in the latter divergent stages were those who had been at the organisation longer.

7.2 Methodological Implications

This study has also extended the knowledge of methods for investigating cognitive consensus and cognitive shifts.

Primarily it supports the methodology in standardising the elicitation and analysis of cognitive mapping (Markóczy and Goldberg, 1995, Markóczy, 1997, Markóczy, 2001) as well as advancing this with central maps for pre-defined groups to allow for comparison. Central maps were considered for specific groups as oppose to clusters adding further understanding of how to capture the mental models of leaders, TMTs, and middle managers.

This study has continued to show the importance of cognitive mapping to examine the complexities and ambiguities in cognition. This research also expands the methods to consider means and ends (objectives) to analyse the strategic priorities of different groups. Allowing a between group comparison based on etiographic representations. Furthermore, a new rank score method was added to support this analysis further.

This research also contributes a novel method to investigate individual cognitive shifts which is adapted from (Markóczy and Goldberg, 1995). Although this approach is in its infancy, being able to measure this variable is critical to future studies and acts as a foundation for further statistical analysis.

Finally, the pool of constructs that were developed and tested can also be applicable to similar organisations within this health recovery sector.

7.3 Managerial Implications

Leaders need to be aware that in certain conditions such as organisational crises that a limited amount of consensus in the upper-echelons can lead to followers forming their own consensus based on different strategic objectives. It is important that managers deal with the ambiguity and diversity in their interpretations of the environment as rapidly as possible in order to achieve buy-in to new strategic directions when implementing with the rest of the organisation. Consequently, managers need to be aware of when cognitive diversity is more favourable than consensus. Leaders need to also be aware of the insights that followers can bring to resolving crises and that understanding the evolving mental models of followers is a key task for leaders in responding to cumulative crises.

As leaders are more susceptible to shift their cognition during crises it is important that it aligns with the objectives they deem important for the future of the organisation. Although in some instances followers influence in consensus can be useful, managers need to recognise when this could be detrimental for the organisation as may conflict with the achievement of profitability or survival. Managers need to pay attention to cognitive inertia and rigidity in followers which can make it harder to achieve consensus with the lower-echelons if they need to dramatically shift their cognitions.

Therefore, leaders should be conscious that individuals and groups respond very differently to radical environmental change.

Organisations may benefit from receiving training and development in causal analysis to help prepare for crises (Marcy and Mumford, 2010). It may be that cognitive mapping itself and other cognitive decision aids could improve decision quality. This is something that could be tested in future research as cognitive mapping can help overcome biases and limitations (Narayanan et al. (2011). In line with this Gurtner et al. (2007) find that guided reflection and reflexivity enhances performance.

More generally, the research holds significant practical importance as it assesses how an organisation confronts drastic changes in market forces, in particular changes to specific customer groups, government, economic conditions and consequential effects on a newer, more intense competitive landscape. It details how leaders and followers understand radical environmental turbulence and strategic change and how they act on it. This can provide leadership and management with a process to make sense of changes to structure and stakeholder groups and how to deal with them to keep resistance low, reach cognitive consensus and eradicate division. As one of the greatest challenges with change or dealing with crisis is people's resistance or inflexibility to adapt to a new context.

7.4 Limitations and Directions for Future Research

Despite aiming for a highly rigorous and robust research design, there were some limitations that must be noted. Subsequently, potential directions for future research to contribute to this field are also presented.

First, the findings are based on a small longitudinal sample size of 91 (40 in Phase 1, 31 in Phase 2, and 20 in Phase 3). Due to the longitudinal research design the initial sample of 40 individuals did suffer some sample attrition over the 18 months from Phase 1 to Phase 2 of data collection and further sample attrition between Phase 2 and 3. Increasing the initial sample size would have alleviated this problem to some extent. However, high personnel turnover is often a consequence of radical change and

crises so sample attrition is difficult to eliminate from longitudinal studies into crises. Additional respondents in Phases 2 and 3 may have maintained the sample size but would have moved the research into a different direction particularly in relation to examining individual cognitive shifts. However, a potential focus in future research could be on changes in team membership and the effects of this. Gorman and Cooke (2011) point to some of the benefits of mixed teams over intact teams such as membership change in terms of newcomers and old-timers (Lewis et al., 2007).

Furthermore, with small reduced sample sizes of 31 and then 18 in the second and third phases respectively it is important to show some caution from the significant bivariate correlations as documented in Markóczy and Goldberg (1995). However, as previously discussed in section 6.2.5, the small sample size was unavoidable in this context due to the population size, longitudinal cognitive mapping technique, and preliminary research objectives.

Second, the findings are based on a single in-depth case study when leaders and followers confront a cumulative crisis, so the study only offers analytical generalisation (generalisation to theory) rather than statistical generalisation. Statistical generalisation was compromised as the research required a rich understanding of complex issues related to consensus across multiple respondents within an organisation. By having a single case study the levels of diversity and consensus as well as the cognitive shifts are difficult to determine whether they are unnaturally high compared to other organisations facing a similar situation. However, by drawing on Markóczy (2001) where the same method is used it is evident that fairly similar degrees are being reported in the building of consensus from diverse positions. Furthermore, in light of the cognitive shifts data, future research could investigate whether in more stable industries or periods the cognitive shifts values would be even lower. Furthermore, single case studies also increase the likelihood of vested interests and generate issues surrounding falsification (Yin, 2013). However, every effort was made by the researcher to remain objective in both the collection and analysis of data.

Additionally, the case study is based on a cumulative type of crisis and its implications over a four year period, which was initiated by a radical external change event. While this sort of crisis is likely to be common in organisations, the complexity of dealing with cumulative crises suggests that the findings are limited to this context. Cumulative crises can raise the importance of particular events at

different organisational levels within organisations at different times and this can impact on the attention given to these by leaders and followers. This context highlights the importance of mental models to performance over time in both leaders and followers but followers' mental models are likely to be more important in cumulative organisational crises than in more abrupt type of crises.

Future research could also investigate the influence of followers in multiple case studies to cross reference or embark on a large-scale quantitative research design exploring different industries, sectors, and contexts such as stable and turbulent environments exploring different types of crises.

Third, a focus on cognition has meant that other effects have not been studied. Through identifying hierarchical levels and their impact in these domains opens up further research streams. Antecedent effects such as the influence of power dynamics on cognition during the crisis were not studied (Dess and Priem, 1995). Therefore, further studies into sensemaking could examine in more detail power and politics in relation to strategy discourse (Balogun et al., 2014, Weick et al., 2005).

Consequently, one aspect of diversity which is underdeveloped in research is classified as diversity based on status attributes (e.g. marital status) (Kilduff et al., 2000, Lawrence, 1997). Harrison and Klein (2007, p. 1203) terms this as 'disparity' which they define as a "*composition of (vertical) differences in proportion of socially valued assets or resources held among unit members; inequality or relative concentration.*" This consists of diversity on pay, income, prestige, status, decision-making authority, social power based on foundational theories including distributive (in)justice and (in)equity, status hierarchy, tournament, and social stratification. Therefore, "*...organisational diversity definitions emphasise on different perspectives, agendas, power structures that coexist within a given organisational unit, typically in a contested balance that maintains some legitimacy for multiple parties*" (van de Ven et al., 2008, p. 338). Furthermore, social and political pressures mediate individual cognitive diversity (Hodgkinson and Johnson, 1994, p. 546). Particularly, future research could focus on the role and influence of the CEO (Bromiley and Rau, 2016). As a result, additional data would help to understand power dynamics.

Additional data would also help understand any gap between strategic thinking and strategy implementation. It is possible that the implementation of a particular strategy during the crisis was reflected initially in the cognitive maps. However, due to the research design this cannot be confirmed

or any modifications to any strategic plan signifying emergent strategy (Mintzberg, 1978, Mintzberg and Waters, 1985) commented on.

Fourth, causality was not fully investigated. The findings do highlight that the expected causal link; that leaders develop beliefs around a vision to successfully resolve a crisis and followers catch up, did not materialise. To strengthen the evidence of causality three alternative research designs could be considered. One, an experimental research design could potentially isolate the causal effect. However, conducting this in a naturalistic setting with control groups could be problematic and compromise its external validity. Two, a research agenda that incorporates longitudinal participant observational data from meetings as well as documentary evidence to back up claims of influence could add to the initial work set out in this study. Three, developing on the longitudinal research design, capturing pre-crisis data would allow us to identify whether the cognitive maps before the onset of the crisis contained similar beliefs to those found in phase 2 of this study, when the crisis was resolved. However, to identify a suitable focal organization(s) before a crisis occurs could be extremely difficult due to the unpredictable nature of crises. Furthermore, the causality between market turbulence, performance, and consensus requires further detailed investigation.

Additionally, despite the cognitive diversity in the leadership as a whole it might be the case that a specific single leader was very influential to followers (Combe and Carrington (2015). For instance, this leader could have had a similar identity to followers forming a binding relationship (Steffens et al., 2014) which could represent a bidirectional influence. Alternatively, the leaders' central mental map in the second phase may have been more representative of the original organisational identity which leaders reverted back to Nag et al. (2007). Future research would need to examine some of these potentially alternative influential effects.

Fifth, while the cognitive shifts in leaders and followers and the locus of consensus were traced over time as a crisis developed, the performance implications of similarities and differences in mental models were not. Leader performance is key during crises (Mumford et al., 2007, Barrett et al., 2011) but tracing the links between mental models and performance at different organisational levels was beyond the scope of this study. Consequently, the purpose of this research wasn't to replicate the

countless studies that have tested the link between consensus and performance. However, future research could now look at how consensus formed by followers has an effect on performance at the individual, group and organisational level.

Sixth, future research could also investigate the potential antecedents to the cognitive shifts found in this study. Personality and cognitive style might provide interesting precursors to the study of high levels of cognitive shifts. Dane (2010) suggests that investigating personality traits, such as openness to experience and cognitive styles, may act as antecedents to cognitive flexibility. Another increasingly important area of research is the role of emotion in cognition. Emotion is likely to play a significant role, particularly in times of crisis and radical environmental change (Kaplan et al., 2013). Therefore, it could be important to study whether cognitive shifts are effected by hot and cold cognition (Fiol and O'Connor, 2002) or by an individual's moral cognition (Hannah et al., 2011). Consequently, the work into emotion from both schema theory and sensemaking is growing (Liu and Maitlis, 2014, Maitlis et al., 2013).

Seventh, as the current study investigated leaders' and followers' cognition at an individual level, interaction and streams of communication (Ocasio et al., 2015) between individuals and groups were not studied. Therefore, further research could look at the process of sensegiving and mechanisms of influence. In practice, organisational actors attempt to not only make sense of ambiguous situations but also, through sensegiving, influence others by disseminating the future vision in an attempt to reach consensus (Fiss and Zajac, 2006, Gioia and Chittipeddi, 1991, Maitlis, 2005, Maitlis and Lawrence, 2007). According to Werner and Cornelissen (2014) research into cognition on the individual level just looks at priming (activation of frames), content etc. but does not look at how the meso-level and macro-level creates 'framing' which is the social construction of frames. They identify this as a detrimental split in the literature and that more needs to be done in future studies to establish these two constructs as recursively related. Furthermore, future research could integrate insights into individual beliefs based on sensemaking with cognitive shifts based on influence through sensegiving.

Finally, although not the objective of this study, by identifying five different clusters within the organisation over the four years opens the possibility of cognitive subcultures existing within the organisation which could be a fruitful area for future research. Bloor and Dawson (1994) argue that organisational subcultures are formed based on shared factors relating to location, functional focus, and professional background. This idea of cognitive subcultures demonstrates both diversity and consensus (within and across) in beliefs and values. However, which subcultures exist within organisations and their characteristics in differentiating from each other and the organisational culture requires further research. To explore organisational subcultures using a cognitive perspective would require developing work of Harris (1994) in how individuals make sense of their organisation and in particular its culture based on individual experiences of cultural sharing, subcultural boundaries, and psychological attachment. Further investigation could find support for the typology of distinct mental models of organising as proposed by van de Ven et al. (2008). This consists of the system bureaucratic model, the market model, the profession-occupation model, and the community model.

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APPENDICES

Appendix 1: Pool of Constructs

- 1 Accessibility
- 2 Barriers to change within the organization
- 3 Building resources for the future – financial/equipment/ human
- 4 Company brand image
- 5 Competitor analysis
- 6 Control of service costs
- 7 Cooperation across all departments and service locations
- 8 Co-ordinating operations
- 9 Current resources – financial/equipment/ human
- 10 Delegating tasks to others
- 11 Detailed analysis of company finances
- 12 Detailed information/data on customers
- 13 Developing staff
- 14 Differentiation of services from competitors
- 15 Economic conditions
- 16 Employee flexibility
- 17 Employee relationships
- 18 Geographical position of services
- 19 Government policy
- 20 Helping clients achieve 'recovery'
- 21 Innovative services
- 22 Internal efficiency
- 23 Knowledge of competitors
- 24 Knowledge of customers
- 25 Knowledge of internal operations
- 26 Layout of services
- 27 Learning to improve
- 28 Level of funding
- 29 Management intuition
- 30 Measuring customer achievements
- 31 Motivation of staff
- 32 Open communication
- 33 Personal leadership style
- 34 Personal motivation
- 35 Personnel turnover
- 36 Planning ahead
- 37 Predictable change
- 38 Price differentiation from competitors
- 39 Promoting the service
- 40 Public relations
- 41 Range of extra services
- 42 Relationships with partner agencies / organisations /services
- 43 Responsibility to funders/commissioners
- 44 Responsibility to trustees

45	Service quality
46	Service space
47	Shared corporate culture
48	Speed of response to change in customers' needs
49	Staff income
50	Support from head office
51	Supporting clients with their problems
52	Taking risks in decision making
53	Target focussed
54	Targeting new funders



Interview Participant Information Sheet

Longitudinal Study into Cognitive Mapping of [REDACTED] and its Environment

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

Should you decide to participate, this participant information sheet is for you to keep and you will be asked to sign a consent form.

Research Purpose:

For this research I aim to collect a third set of cognitive mapping from the staff who contributed to the original study conducted by myself in 2011 and 2013. Again it will focus on how individuals view the organisation and its environment.

It will involve a few cognitive tasks (exact same as before) leading to a cognitive map being produced. This will be followed by an interview to discuss the map, the organisation and the current environment. This will probably also include discussions around change over the last four years (when the research started).

Data Collection and Confidentiality:

In this research, I will be asking you to provide your beliefs, opinions, and information on [REDACTED] and its environment.

The data in your interview will be collected anonymously. It will be stored in a secure server separate from any database that will make reference to your identity. [REDACTED] will not have access to this data. In the storage, all the anonymous data will be secured by password that can only be accessed by me and my supervisors. Should any reference be made to your data in the research report, it will be made using pseudonym to protect your anonymity, without specific reference to your unique identity.

Herewith, I would like to request your approval for this interview to be recorded using a voice recorder. This voice recording is used so that more accurate data can be documented. If you are not comfortable for me to record this interview, I would like to request your approval to take notes of your answers.

The physical audio recording and/or notes will be kept for the period of two years and electronic audio files will be put into storage on a secure server for a period of five years, after which they will subsequently be destroyed. This is part of the requirement for the academic audit of research.

This research protocol has been reviewed and given a favourable opinion by Aston University's Ethics Committee.

Research Output:

The research output will be presented as a PhD thesis, presented at conferences, published in academic publications, and potentially presented to [REDACTED] for improvement in future operations.

Your Rights:

As this research is voluntary, you may choose not to participate in this interview. Rest assured that your cooperation or non-cooperation in this interview will not be affecting your position. The interview will only be recorded upon your acceptance. If required, you can ask for the recording of this interview which will be provided to you in the form of a digital copy.

If you decide to participate in this interview, please kindly provide your consent by signing the consent form provided. Should you require any clarification on the study, you can ask me directly or send your question to my e-mail, which will be provided herein. You can withdraw your participation up to the end of November, after which the data will be used in analysis.

If you have any concerns about the way in which the study has been conducted, you can contact the Secretary of the University Ethics Committee at Aston University.

Thank you very much for your time and participation.

Doctoral Researcher:

David J. Carrington
Marketing Group
Aston Business School
Aston University
Birmingham
B4 7ET
Email: [REDACTED]
Mobile : [REDACTED]

Research Supervisor:

Dr Ian A. Combe
Marketing Group
Aston Business School
Aston University
Birmingham
B4 7ET
Email: [REDACTED]



Personal Interview
PARTICIPATING PARTIES CONSENT FORM

On behalf of the interviewed party:

I agree to be interviewed by David J. Carrington for the purposes of academic research and consent to the collection and use of my beliefs, opinions and information. I am also aware that the findings derived from this study will be published.

I have been informed of the purposes of the research and the confidentiality conditions. I understand that none of the opinions or statements that I make during the interview will be attributed to me personally, and that I may withdraw from the research at any stage.

Name: _____

Signed: _____ Date: _____

- Yes, I would like a copy of the final research paper sent to me
(please tick)

On behalf of the interviewer:

I agree that the information collected during the interview will only be available to the researcher, David J. Carrington. At the conclusion of the research project the interview tapes and transcriptions will be destroyed.

Name: David J. Carrington

Signed: _____ Date: _____

Appendix 4: Participant Identification for Cognitive Maps and Distance Ratios

<u>PHASE ID</u>	<u>PHASE</u>	<u>PARTICIPANT</u>	<u>ROLE ID</u>
A1	1	1	HO01
A2	1	2	TM01
A3	1	3	MM01
A4	1	4	MM02
A5	1	5	HO02
A6	1	6	HO03
A7	1	7	HO04
A8	1	8	PR01
A9	1	9	PR02
A10	1	10	MM03
A11	1	11	HO05
A12	1	12	TR01
A13	1	13	TR02
A14	1	14	PR03
A15	1	15	MM04
A16	1	16	TM02
A17	1	17	TM03
A18	1	18	TM04
A19	1	19	PR04
A20	1	20	PR05
A21	1	21	PR06
A22	1	22	PR07
A23	1	23	TR03
A24	1	24	MM05
A25	1	25	MM06
A26	1	26	PR08
A27	1	27	PR09
A28	1	28	MM07
A29	1	29	PR10
A30	1	30	PR11
A31	1	31	PR12
A32	1	32	PR13
A33	1	33	PR14
A34	1	34	PR15
A35	1	35	HO06
A36	1	36	PR16
A37	1	37	PR17
A38	1	38	PR18
A39	1	39	PR19
A40	1	40	PR20
B1	2	1	HO01
B2	2	2	TM01
B3	2	3	MM01
B4	2	4	MM02

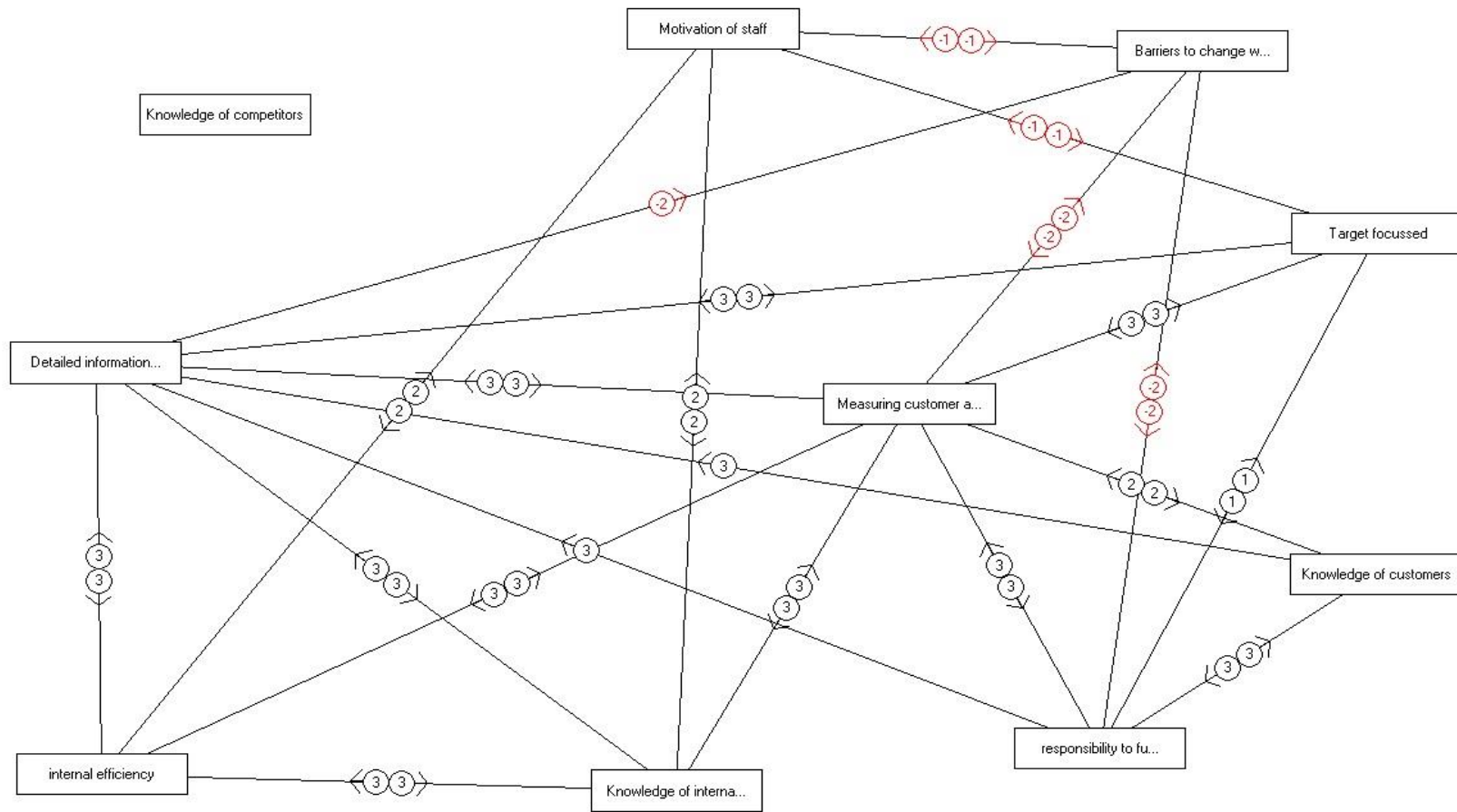
<u>PHASE ID</u>	<u>PHASE</u>	<u>PARTICIPANT</u>	<u>ROLE ID</u>
B5	2	5	HO02
B6	2	6	HO03
B7	2	7	HO04
B8	2	8	PR01
B9	2	9	PR02
B10	2	10	MM03
B11	2	11	HO05
B13	2	13	TR02
B15	2	15	MM04
B16	2	16	TM02
B17	2	17	TM03
B18	2	18	TM04
B19	2	19	PR04
B20	2	20	PR05
B21	2	21	PR06
B23	2	23	TR03
B24	2	24	MM05
B26	2	26	PR08
B28	2	28	MM07
B31	2	31	PR12
B32	2	32	PR13
B33	2	33	PR14
B34	2	34	PR15
B35	2	35	HO06
B36	2	36	PR16
B37	2	37	PR17
B40	2	40	PR20
C1	3	1	HO01
C2	3	2	TM01
C4	3	4	MM02
C5	3	5	HO02
C7	3	7	HO04
C10	3	10	MM03
C11	3	11	HO05
C14	3	14	PR03
C15	3	15	MM04
C16	3	16	TM02
C17	3	17	TM03
C18	3	18	TM04
C19	3	19	PR04
C20	3	20	PR05
C21	3	21	PR06
C23	3	23	TR03
C24	3	24	MM05
C28	3	28	MM07
C37	3	37	PR17
C38	3	38	PR18

Appendix 5: Short-hand Versions of Constructs on Cognizer

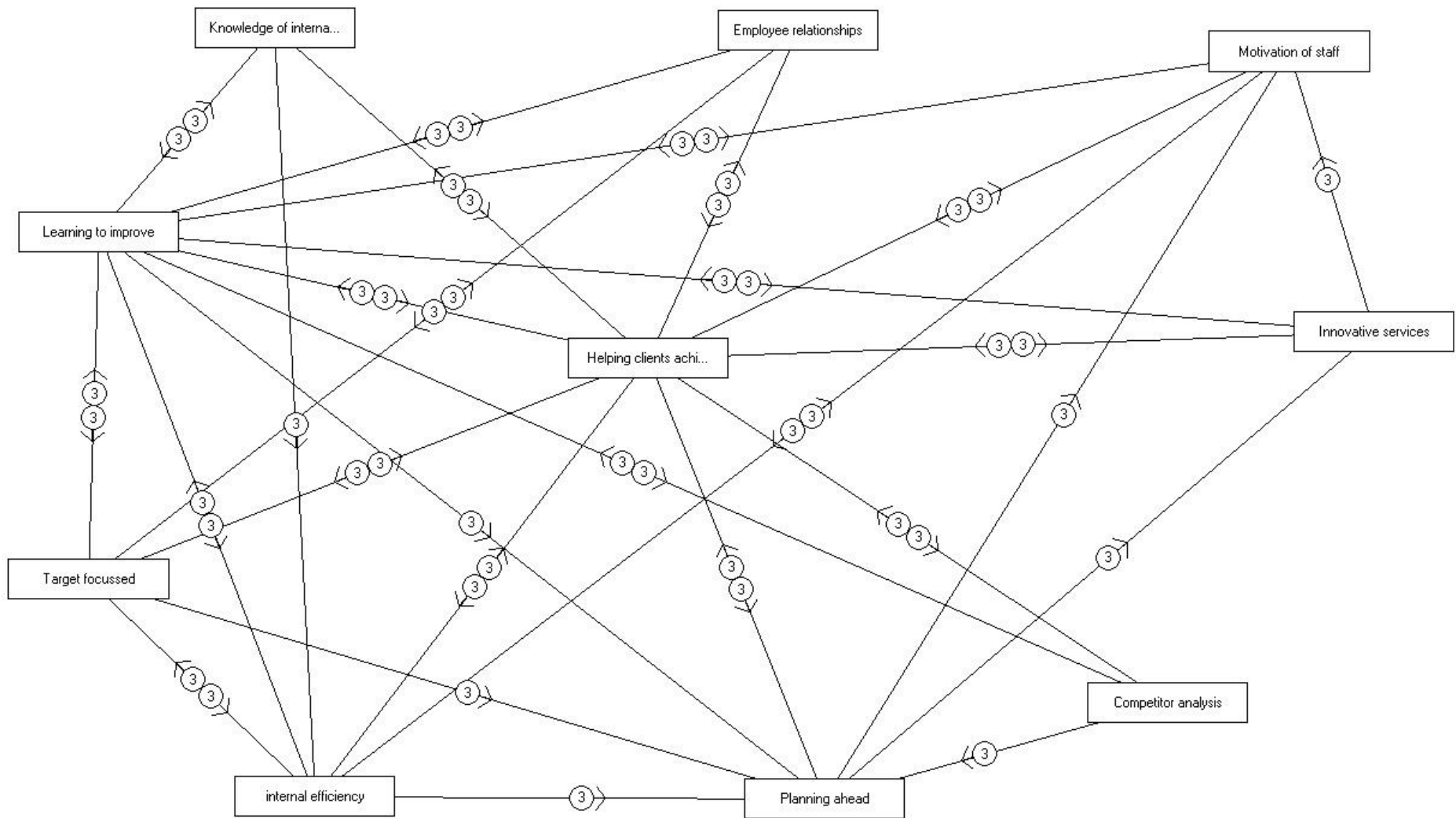
<u>Complete Construct Name</u>	<u>Short-hand Version on Cognizer</u>
Accessibility	Accessibility
Barriers to change within the organization	Barriers to change w...
Building resources for the future – financial/equipment/ human	Building resources for ...
Company brand image	Company brand image
Competitor analysis	Competitor analysis
Control of service costs	Control of service costs
Cooperation across all departments and service locations	Cooperation across all ...
Co-ordinating operations	Co-ordinating operations
Current resources – financial/equipment/ human	Current resources – fin ...
Delegating tasks to others	Delegating tasks to others
Detailed analysis of company finances	Detailed analysis of com ...
Detailed information/data on customers	Detailed information/data ...
Developing staff	Developing staff
Differentiation of services from competitors	Differentiation of serv ...
Economic conditions	Economic conditions
Employee flexibility	Employee flexibility
Employee relationships	Employee relationships
Geographical position of services	Geographical position ...
Government policy	Government policy
Helping clients achieve 'recovery'	Helping clients achieve ...
Innovative services	Innovative services
Internal efficiency	Internal efficiency
Knowledge of competitors	Knowledge of competit ...
Knowledge of customers	Knowledge of customers
Knowledge of internal operations	Knowledge of internal ...
Layout of services	Layout of services
Learning to improve	Learning to improve
Level of funding	Level of funding
Management intuition	Management intuition
Measuring customer achievements	Measuring customer a ...
Motivation of staff	Motivation of staff
Open communication	Open communication
Personal leadership style	Personal leadership st ...
Personal motivation	Personal motivation
Personnel turnover	Personnel turnover
Planning ahead	Planning ahead
Predictable change	Predictable change
Price differentiation from competitors	Price differentiation fr ...
Promoting the service	Promoting the service
Public relations	Public relations
Range of extra services	Range of extra services
Relationships with partner agencies / organisations /services	Relationships with part ...
Responsibility to funders/commissioners	Responsibility to fund ...
Responsibility to trustees	Responsibility to trust ...
Service quality	Service quality
Service space	Service space

<u>Complete Construct Name</u>	<u>Short-hand Version on Cognizer</u>
Shared corporate culture	Shared corporate culture
Speed of response to change in customers' needs	Speed of response to ...
Staff income	Staff income
Support from head office	Support from head off ...
Supporting clients with their problems	Supporting clients wi ...
Taking risks in decision making	Taking risks in decisio ...
Target focussed	Target focussed
Targeting new funders	Targeting new funders

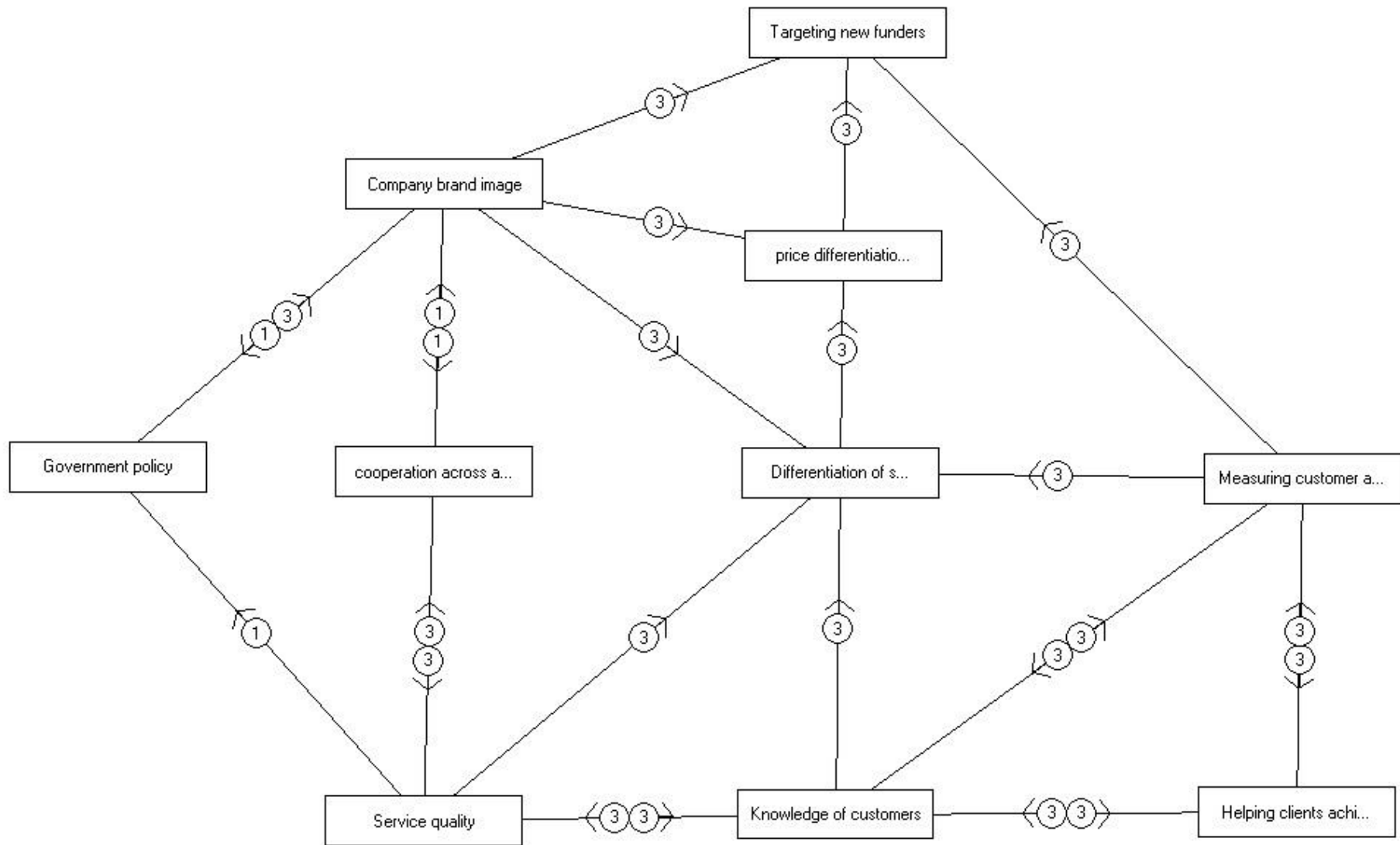
Appendix 6: Cognitive Maps of All Respondents



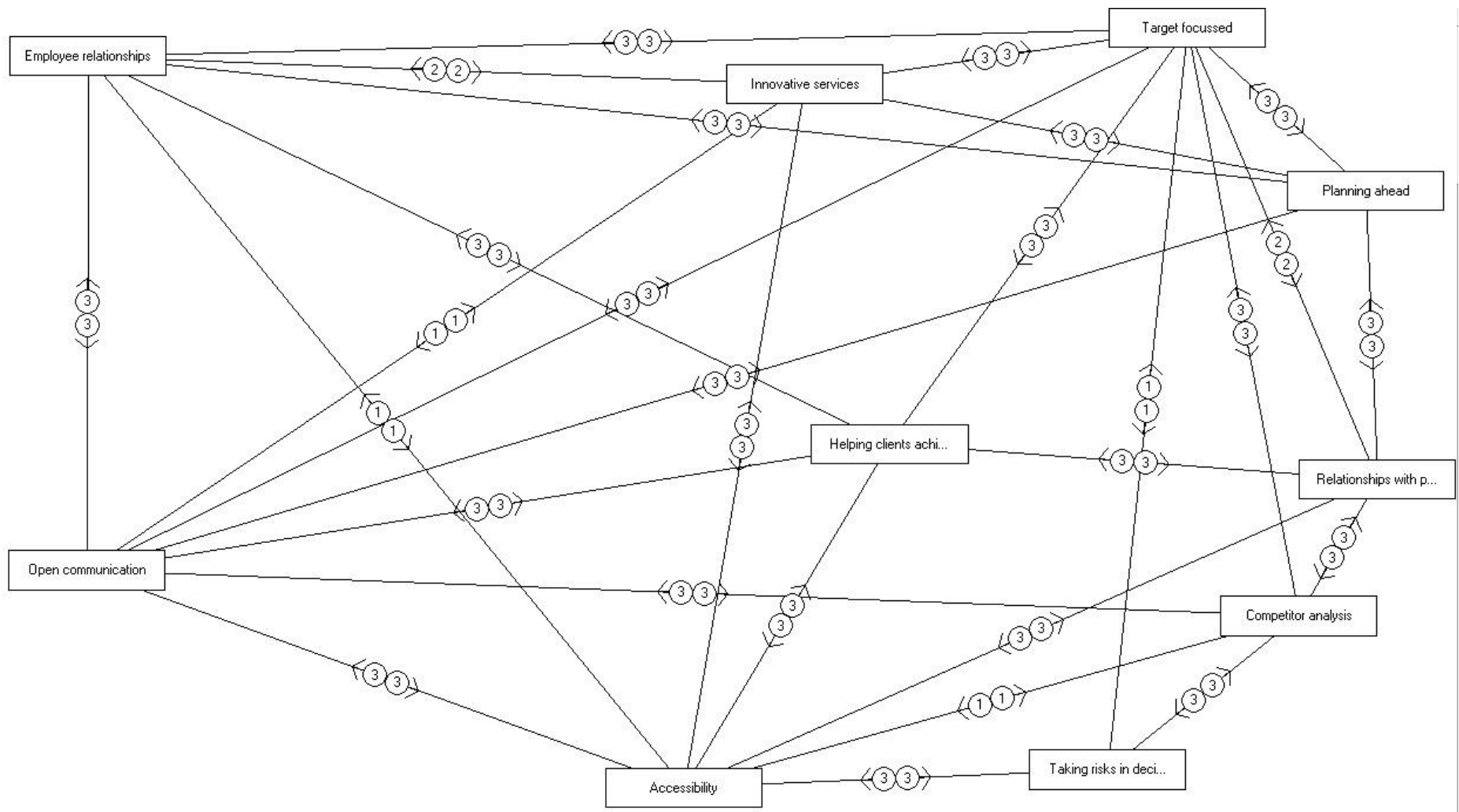
Cognitive Map of Respondent A1



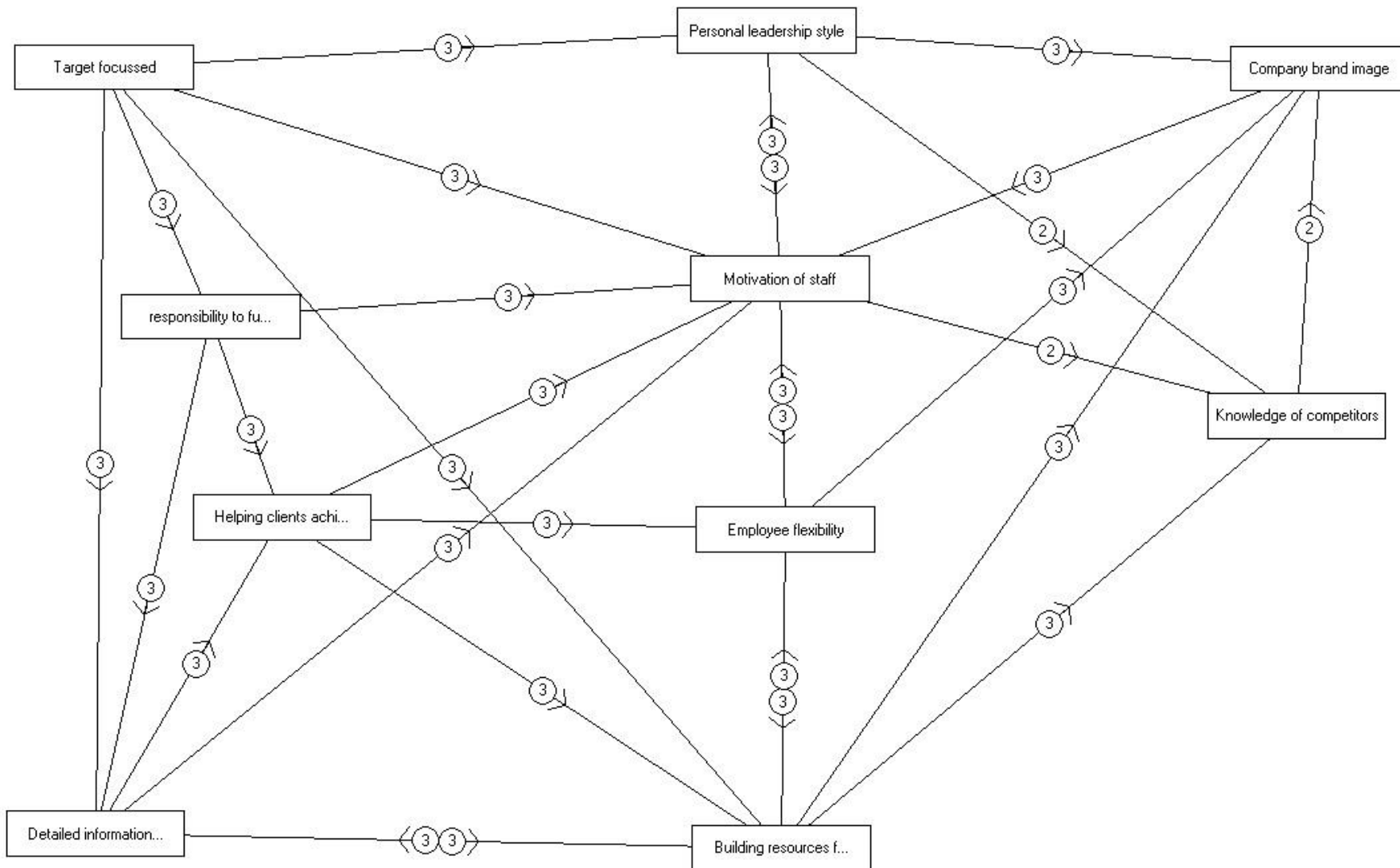
Cognitive Map of Respondent A2



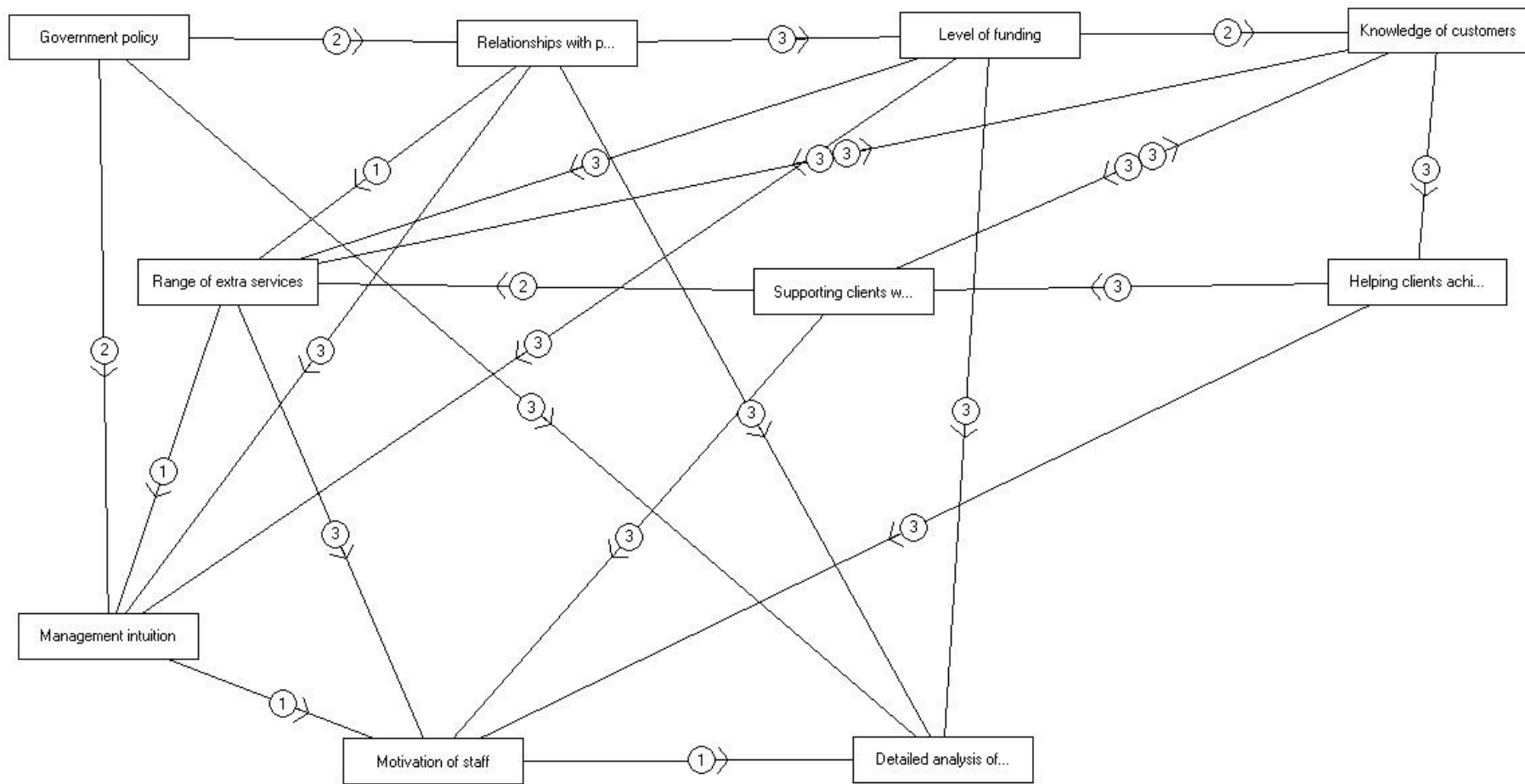
Cognitive Map of Respondent A3



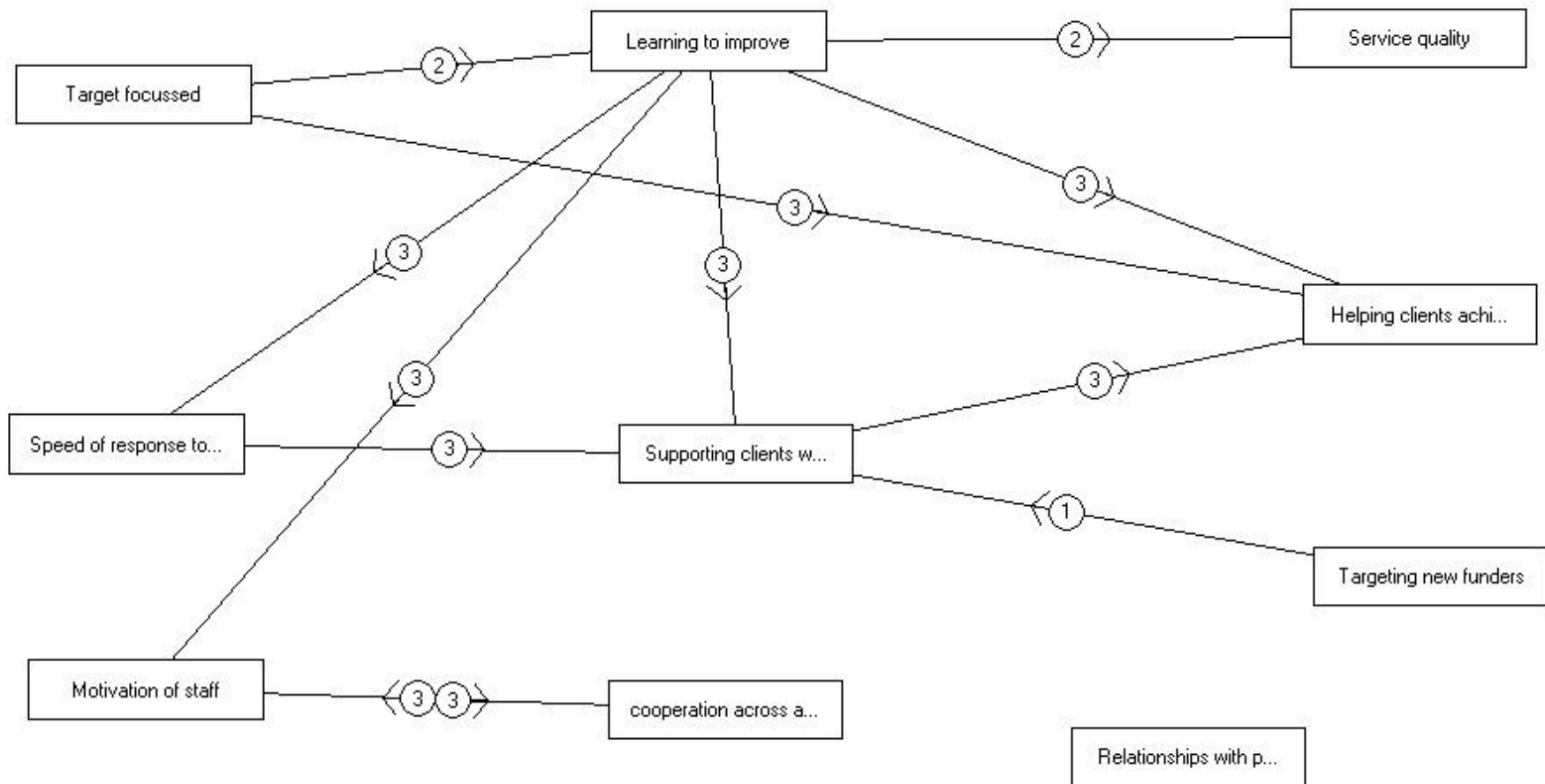
Cognitive Map of Respondent A4



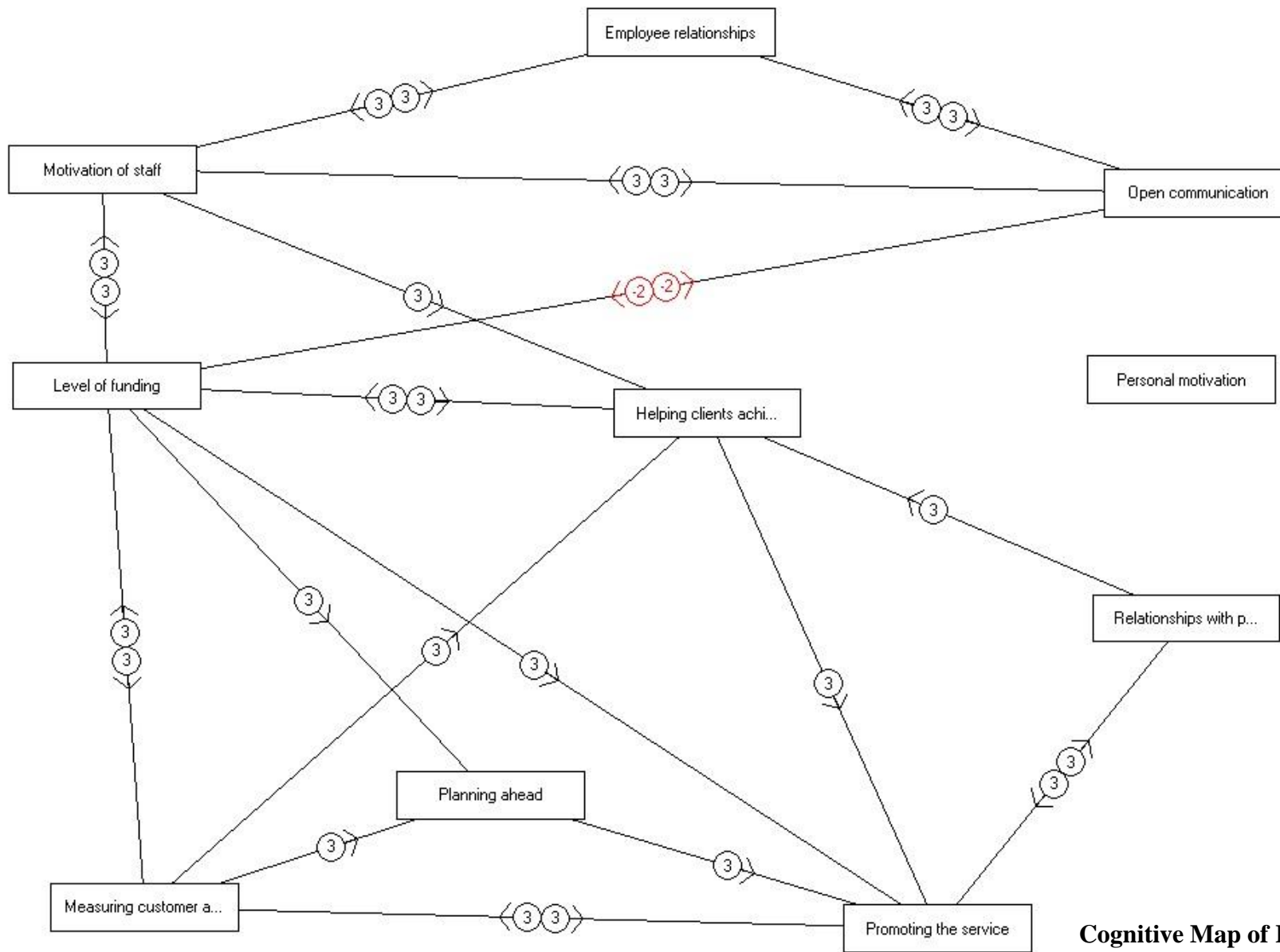
Cognitive Map of Respondent A5



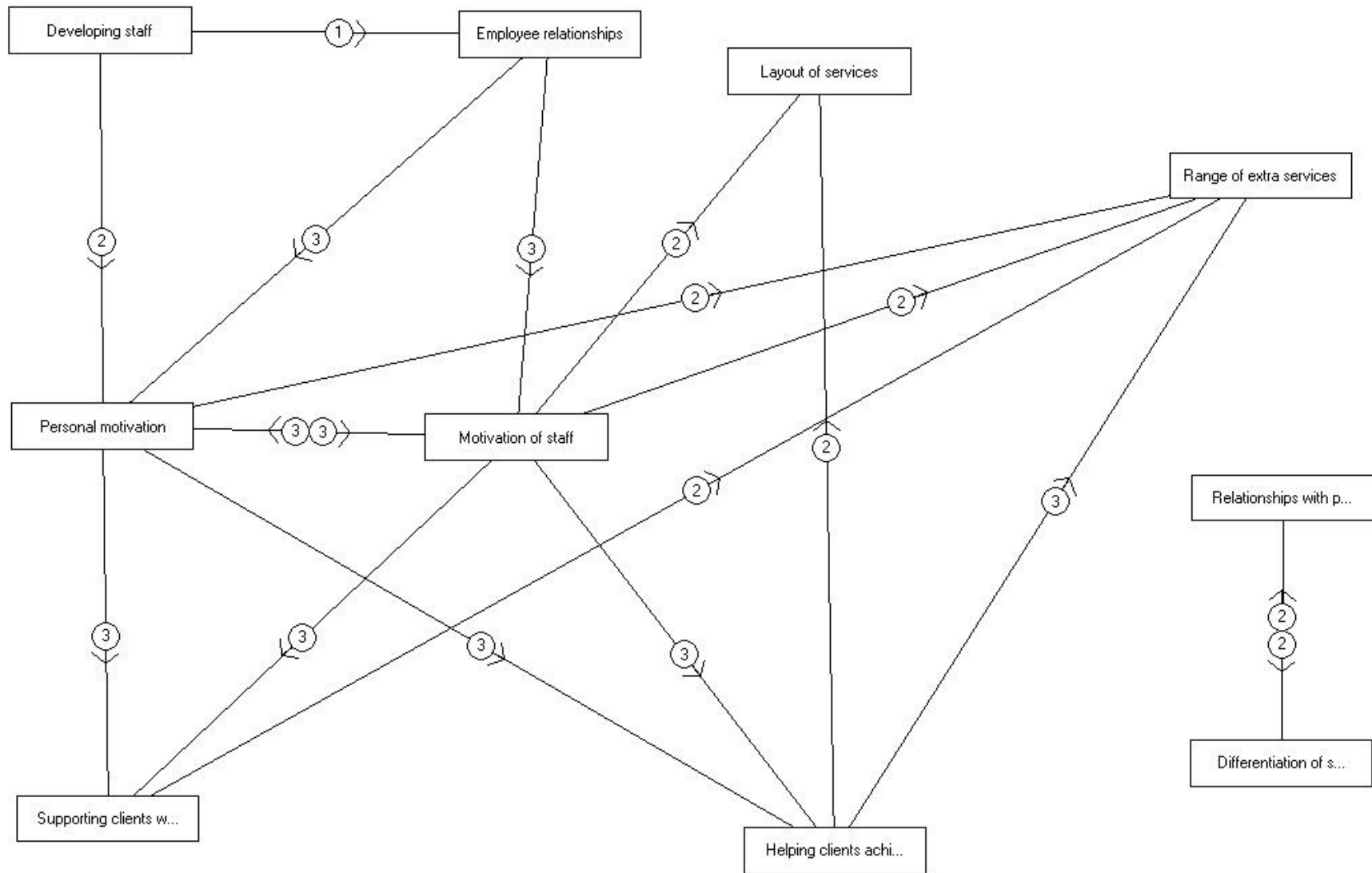
Cognitive Map of Respondent A6



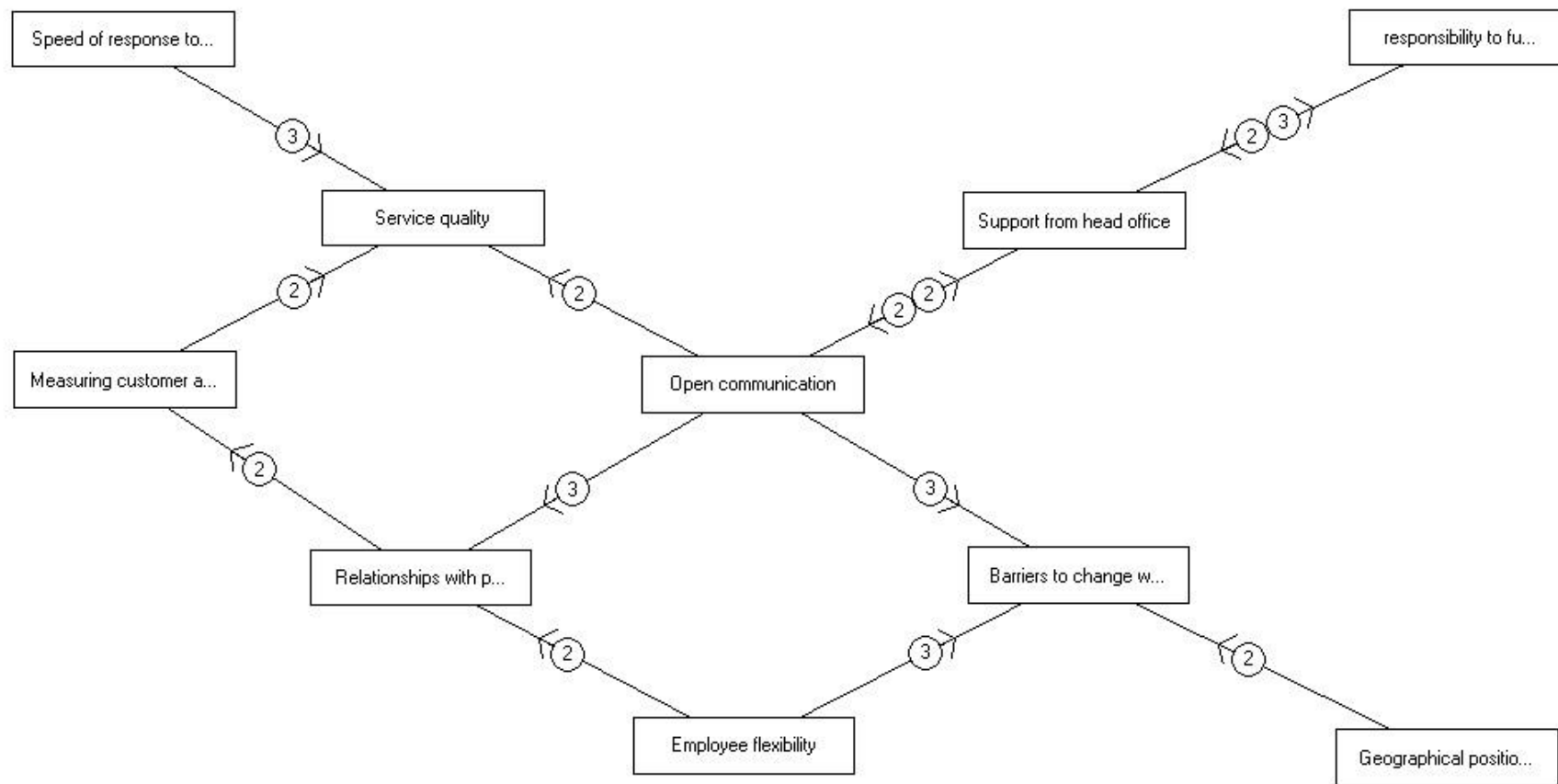
Cognitive Map of Respondent A7



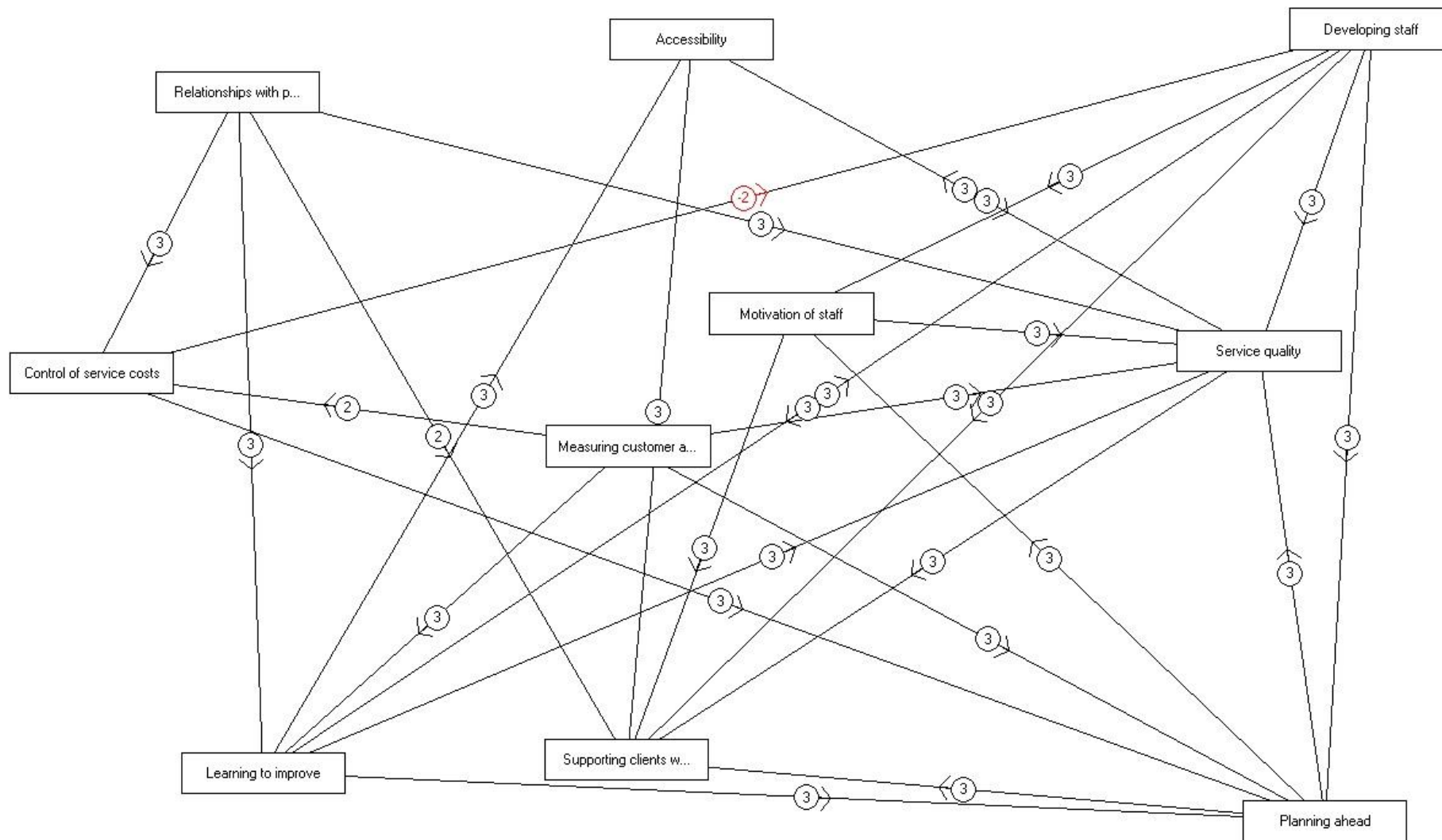
Cognitive Map of Respondent A8



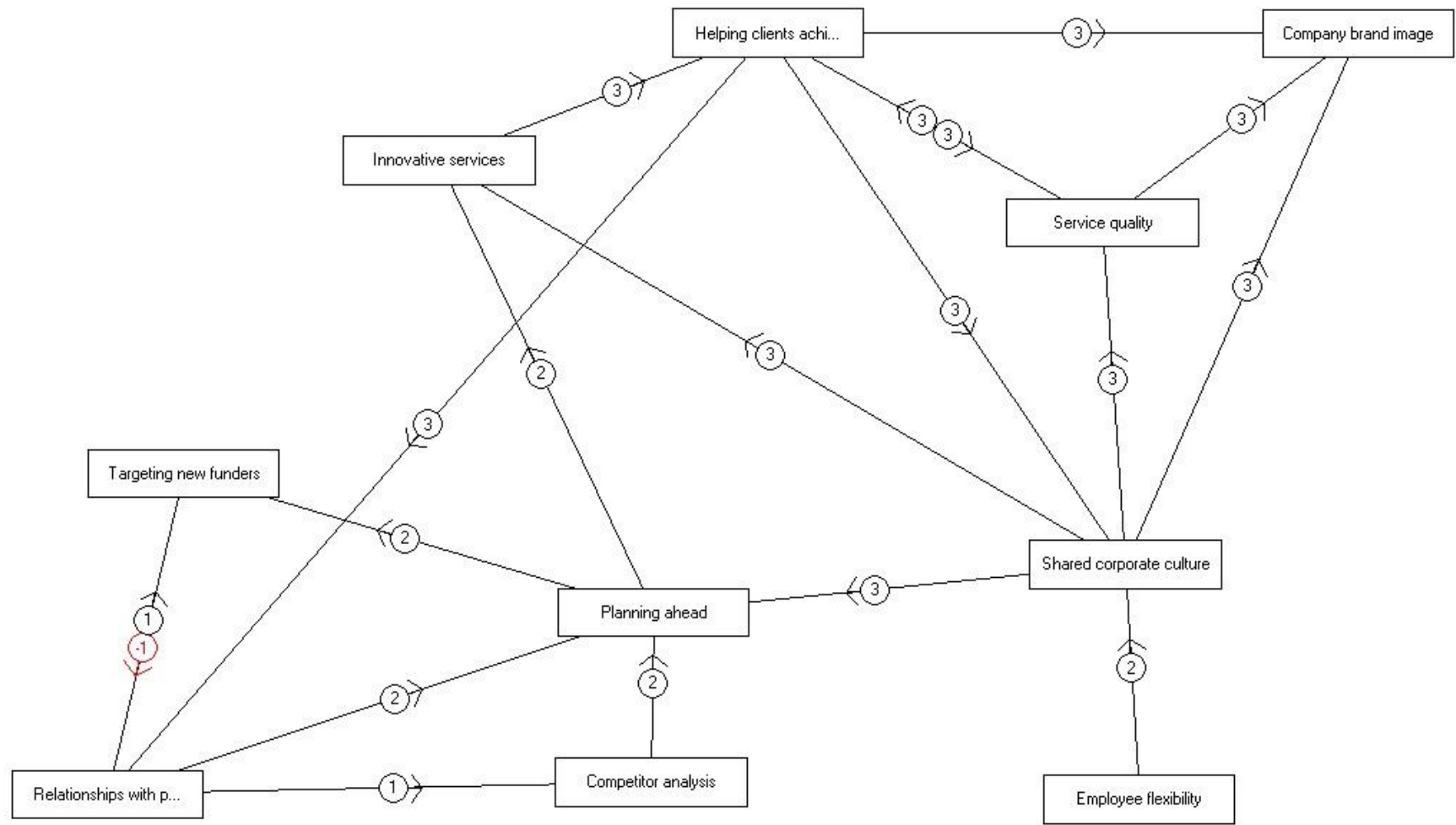
Cognitive Map of Respondent A9



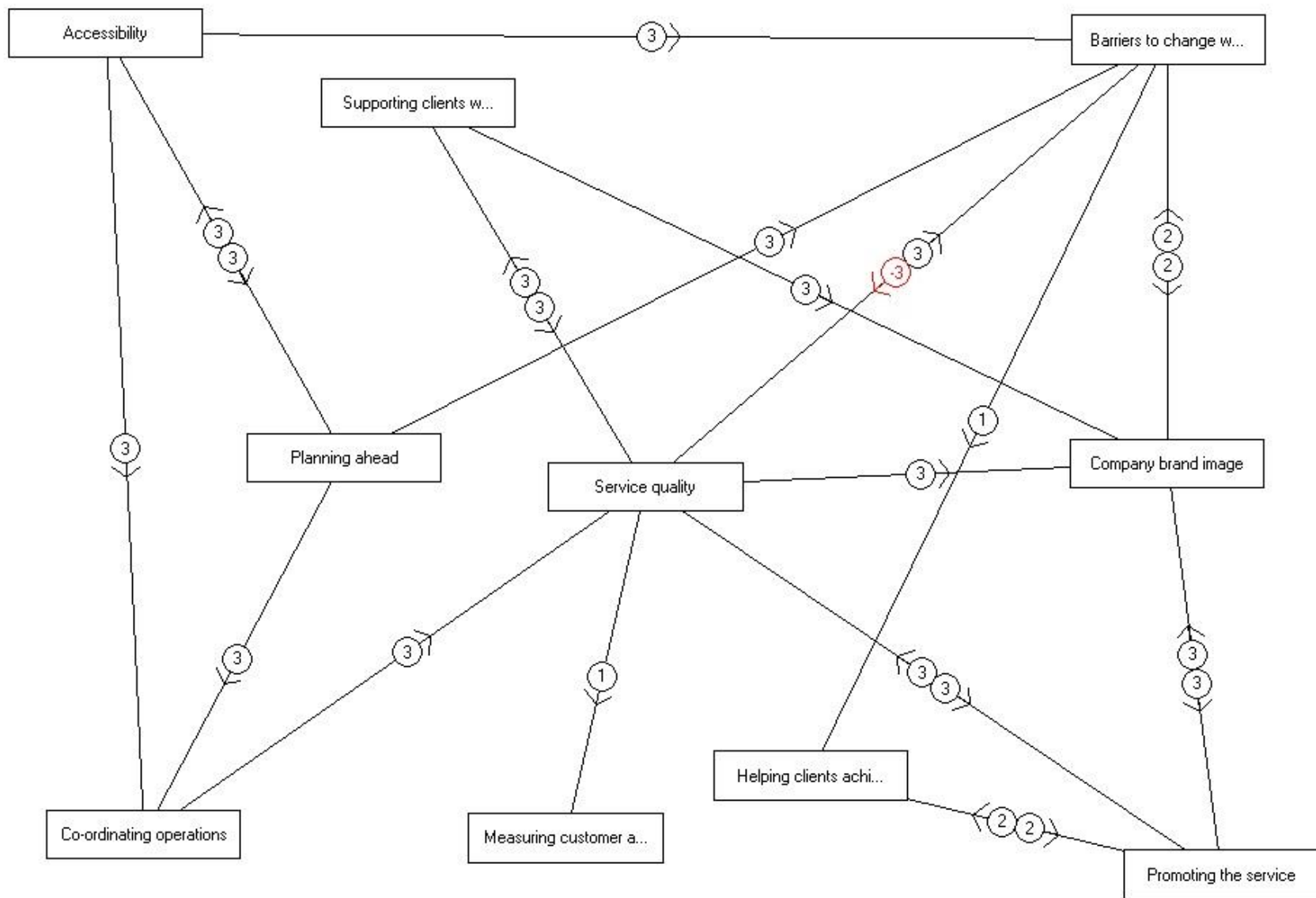
Cognitive Map of Respondent A10



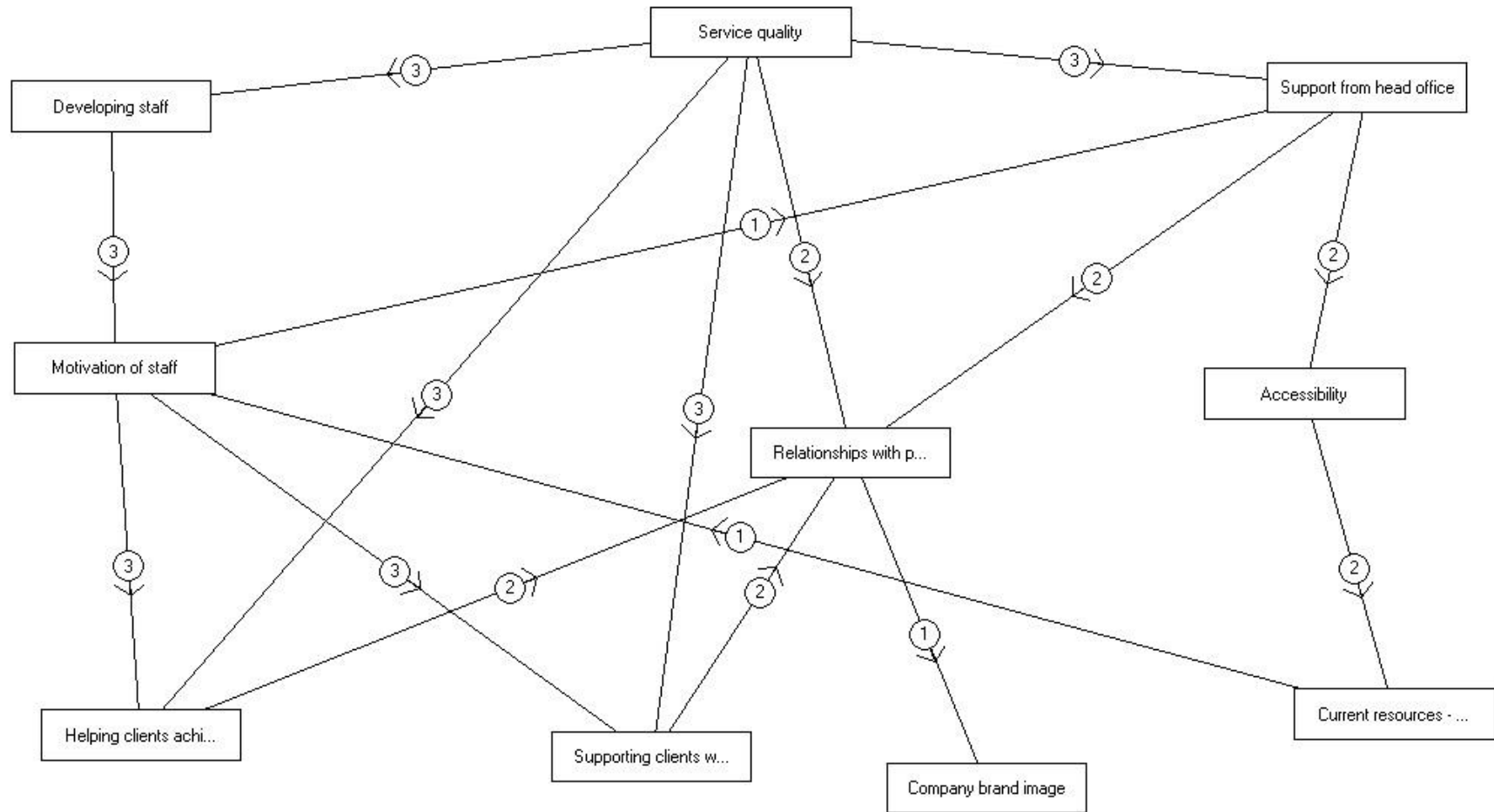
Cognitive Map of Respondent A11



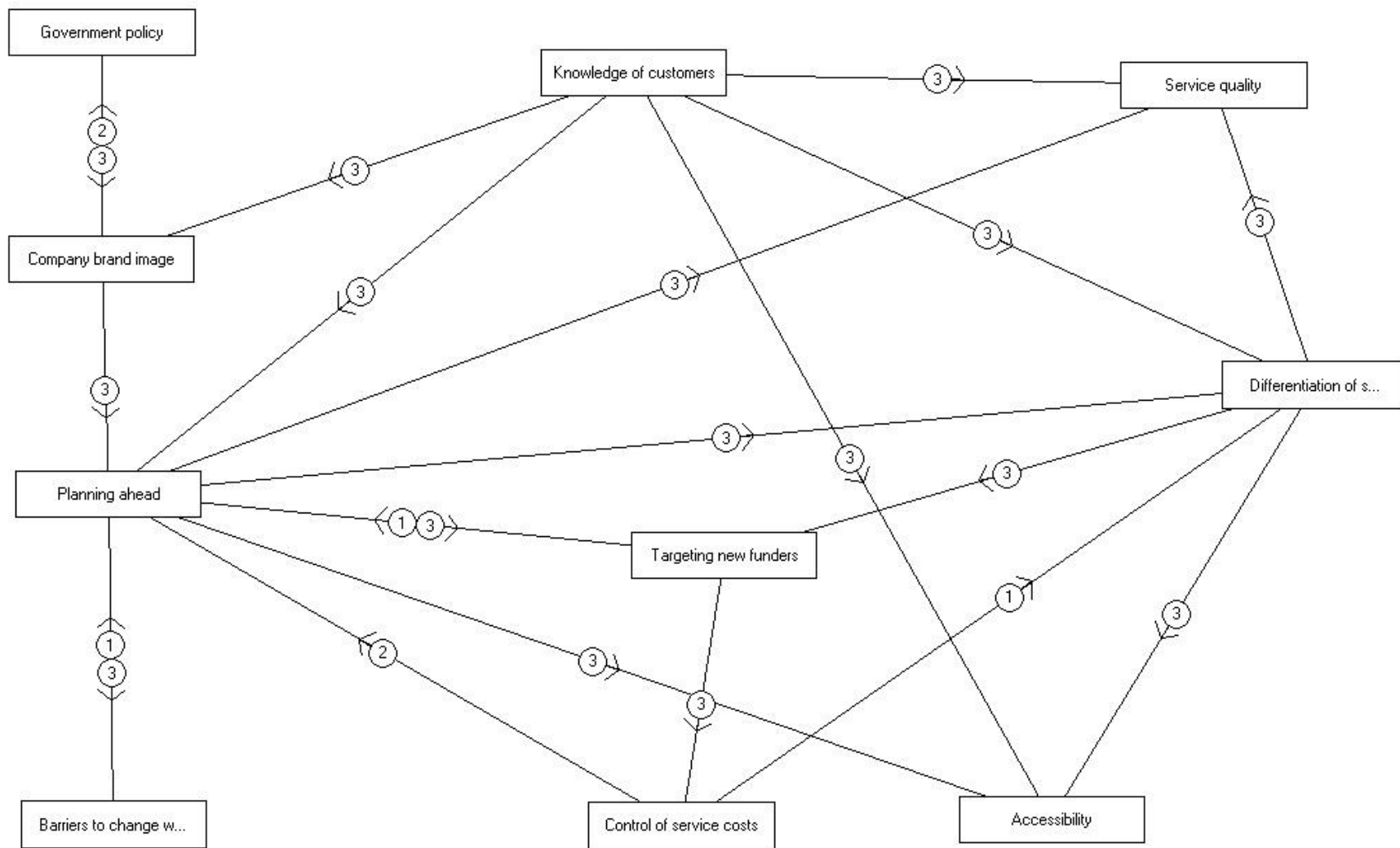
Cognitive Map of Respondent A12



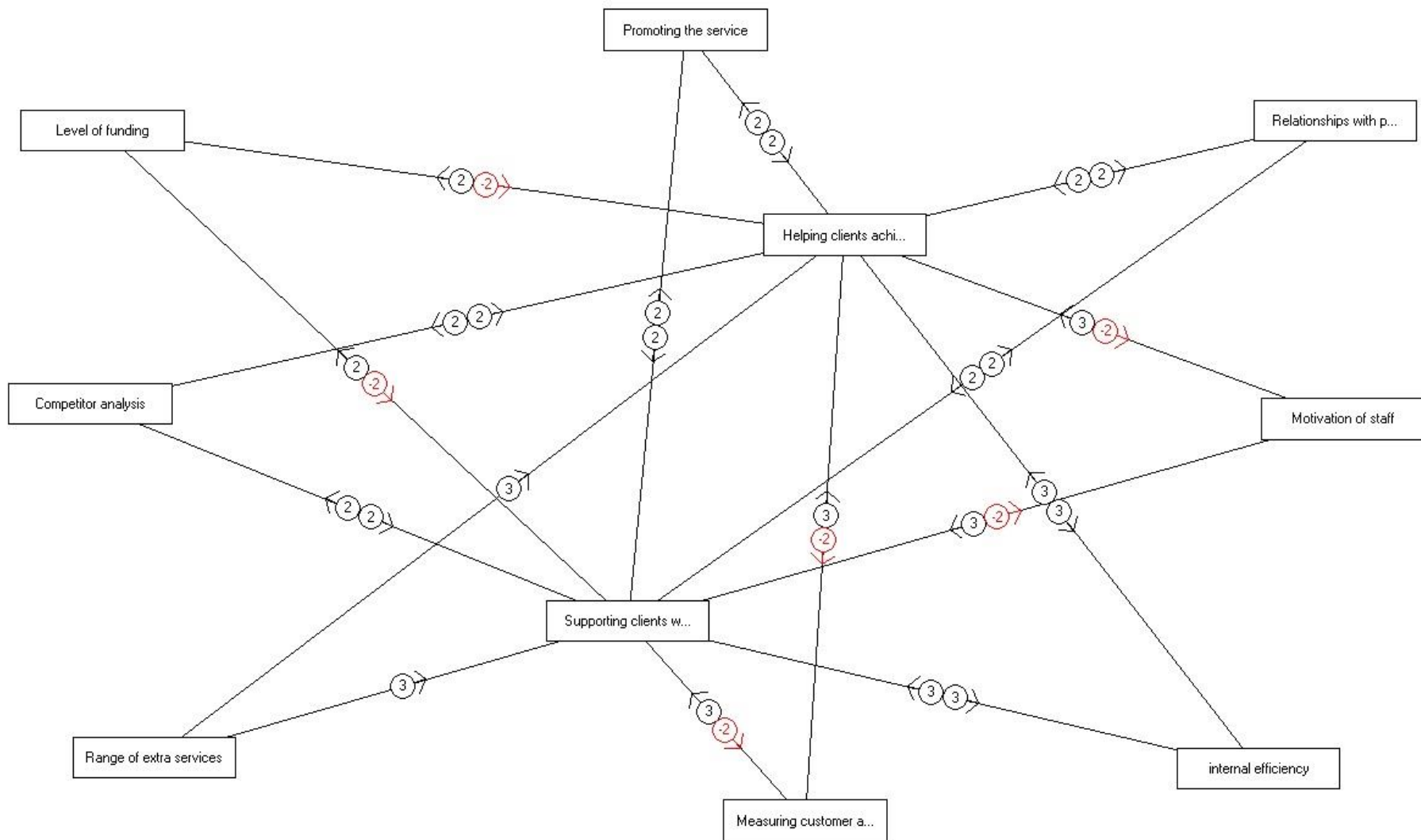
Cognitive Map of Respondent A14



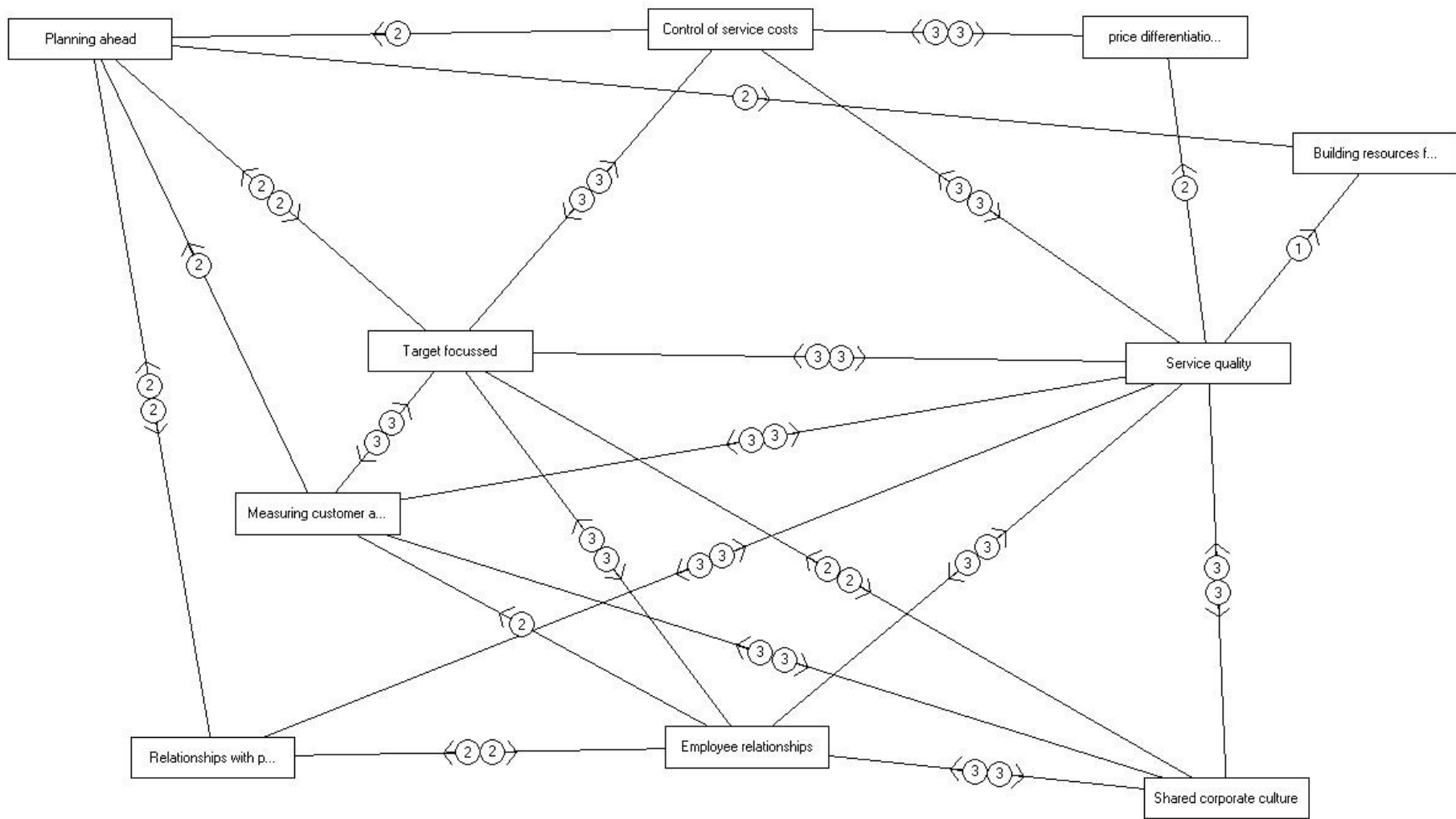
Cognitive Map of Respondent A15



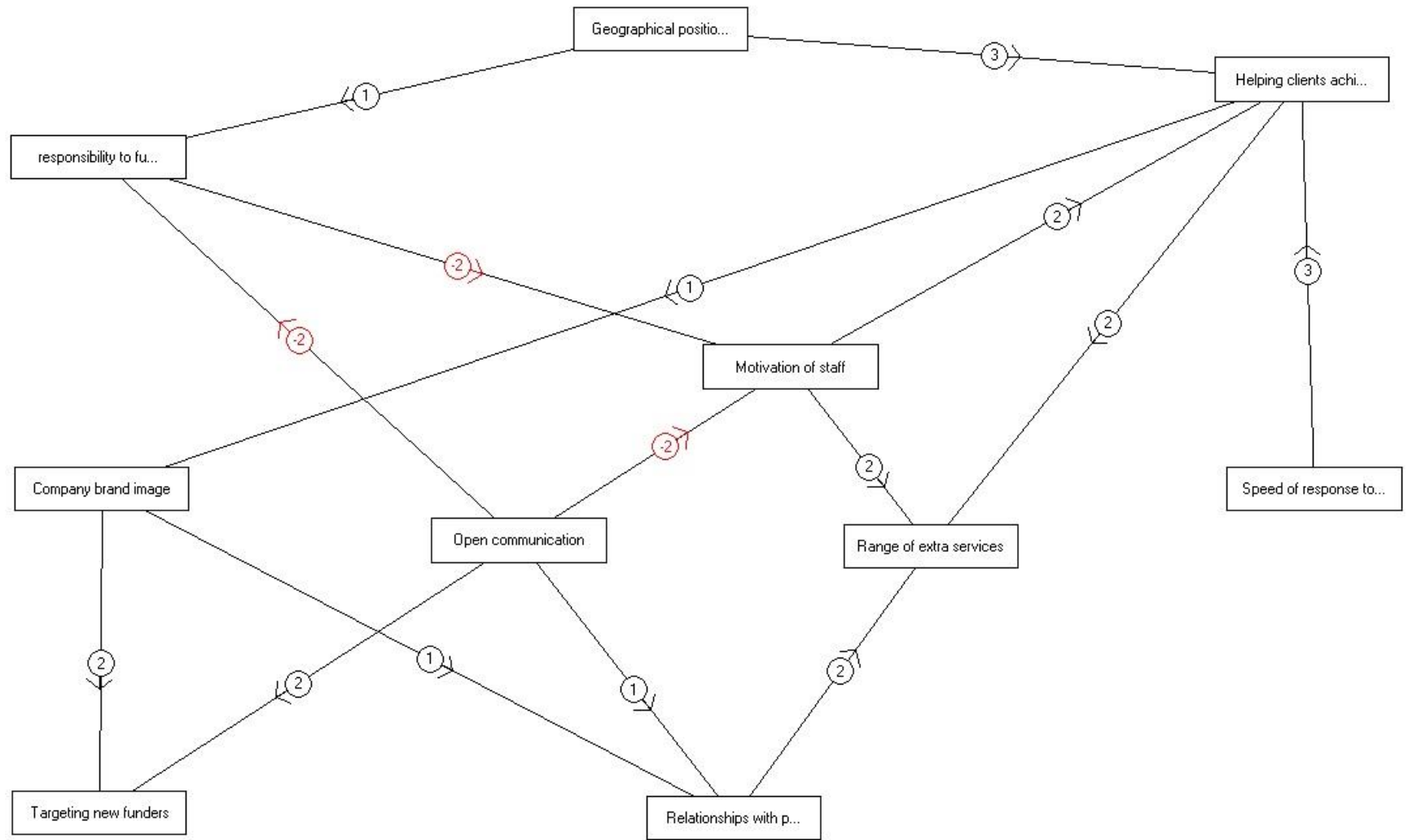
Cognitive Map of Respondent A16



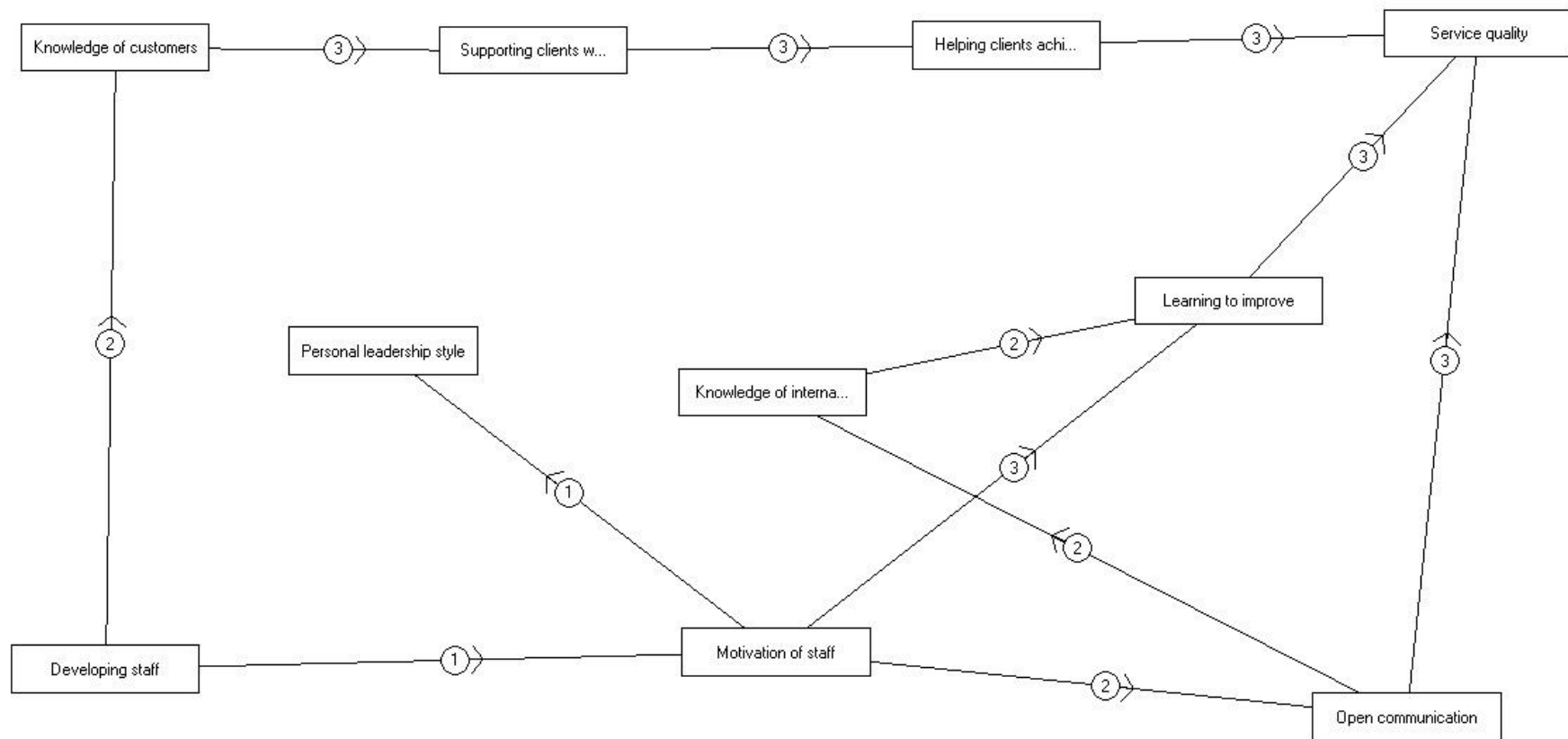
Cognitive Map of Respondent A17



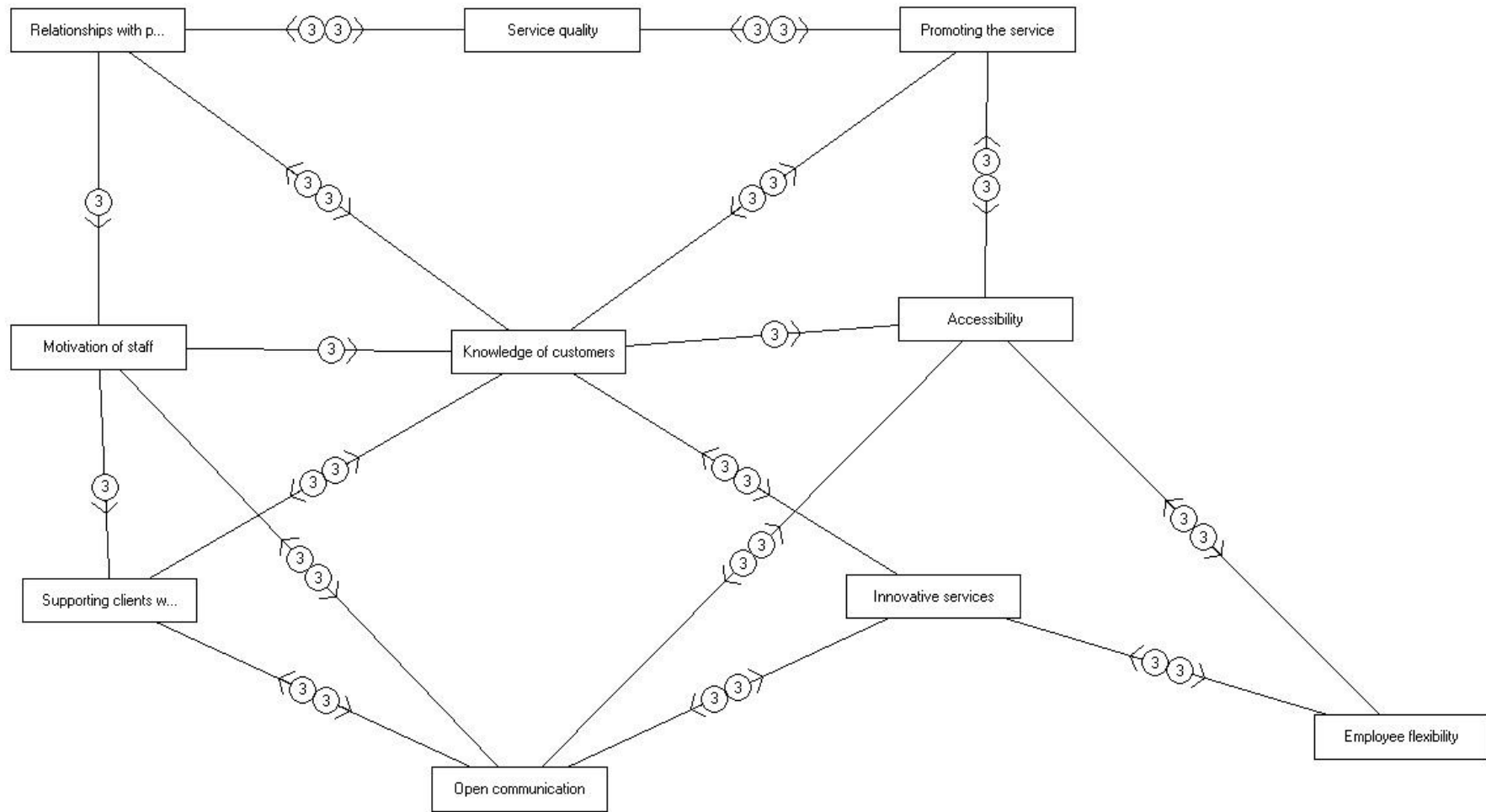
Cognitive Map of Respondent A18



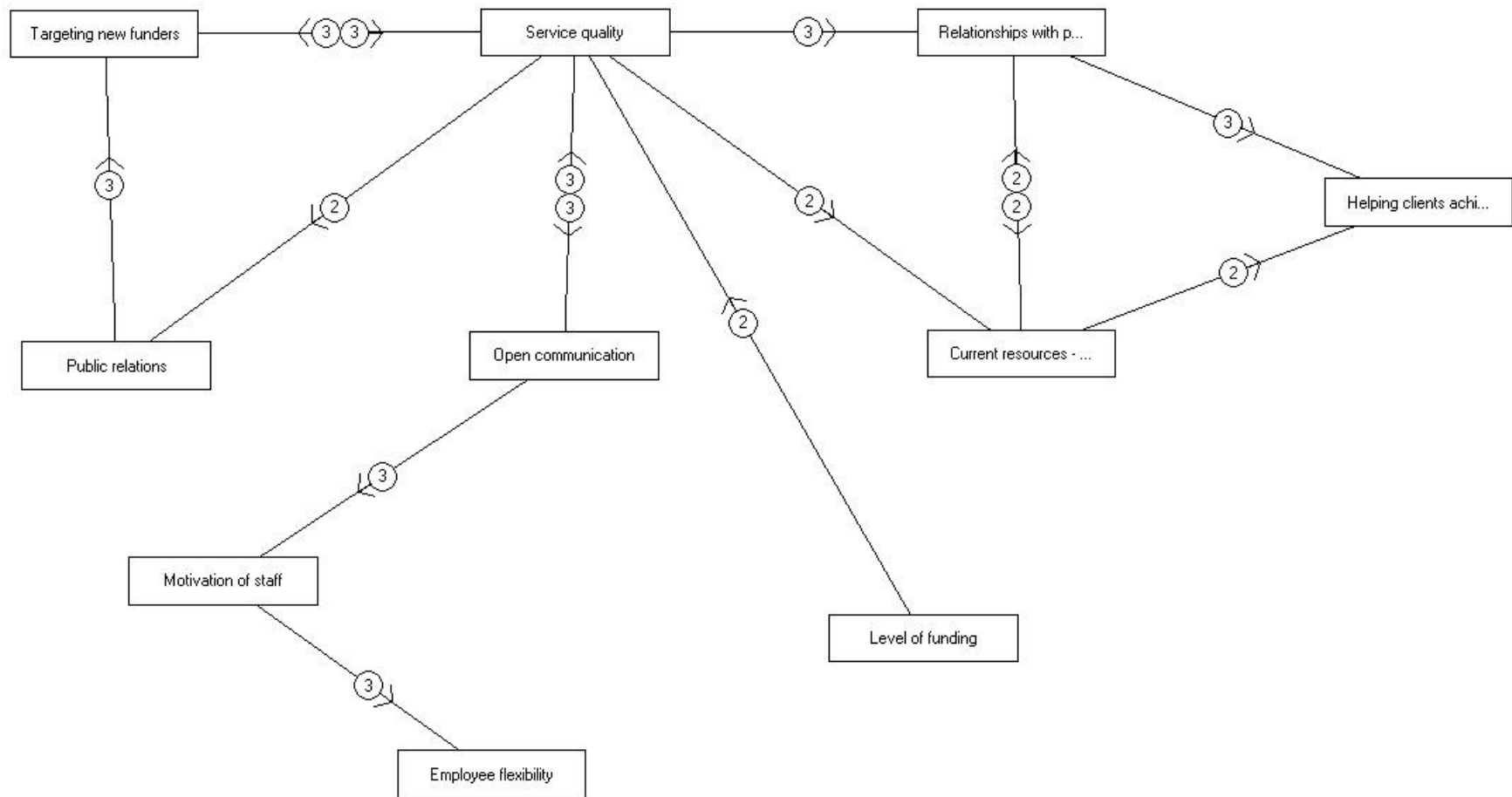
Cognitive Map of Respondent A19



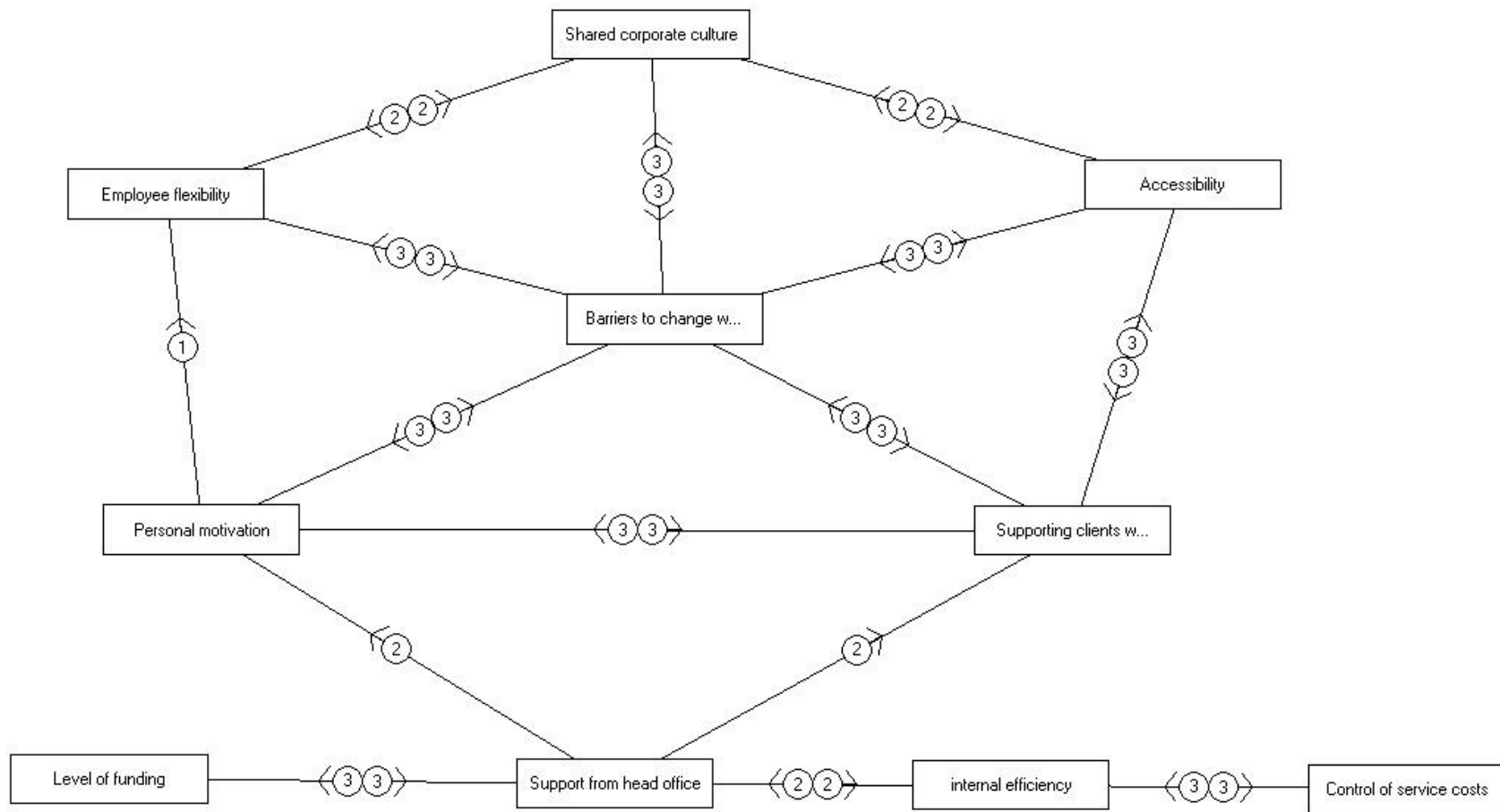
Cognitive Map of Respondent A20



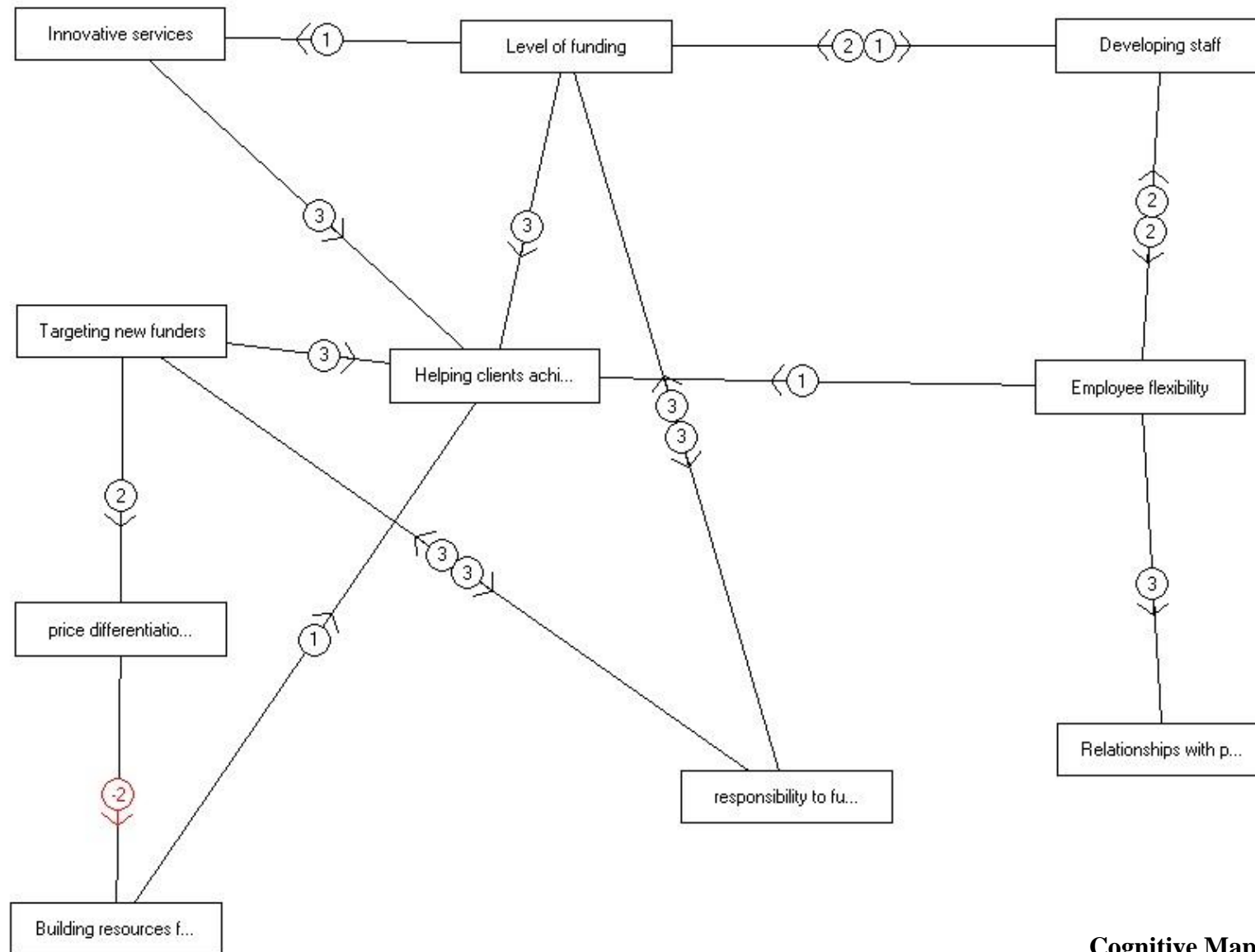
Cognitive Map of Respondent A21



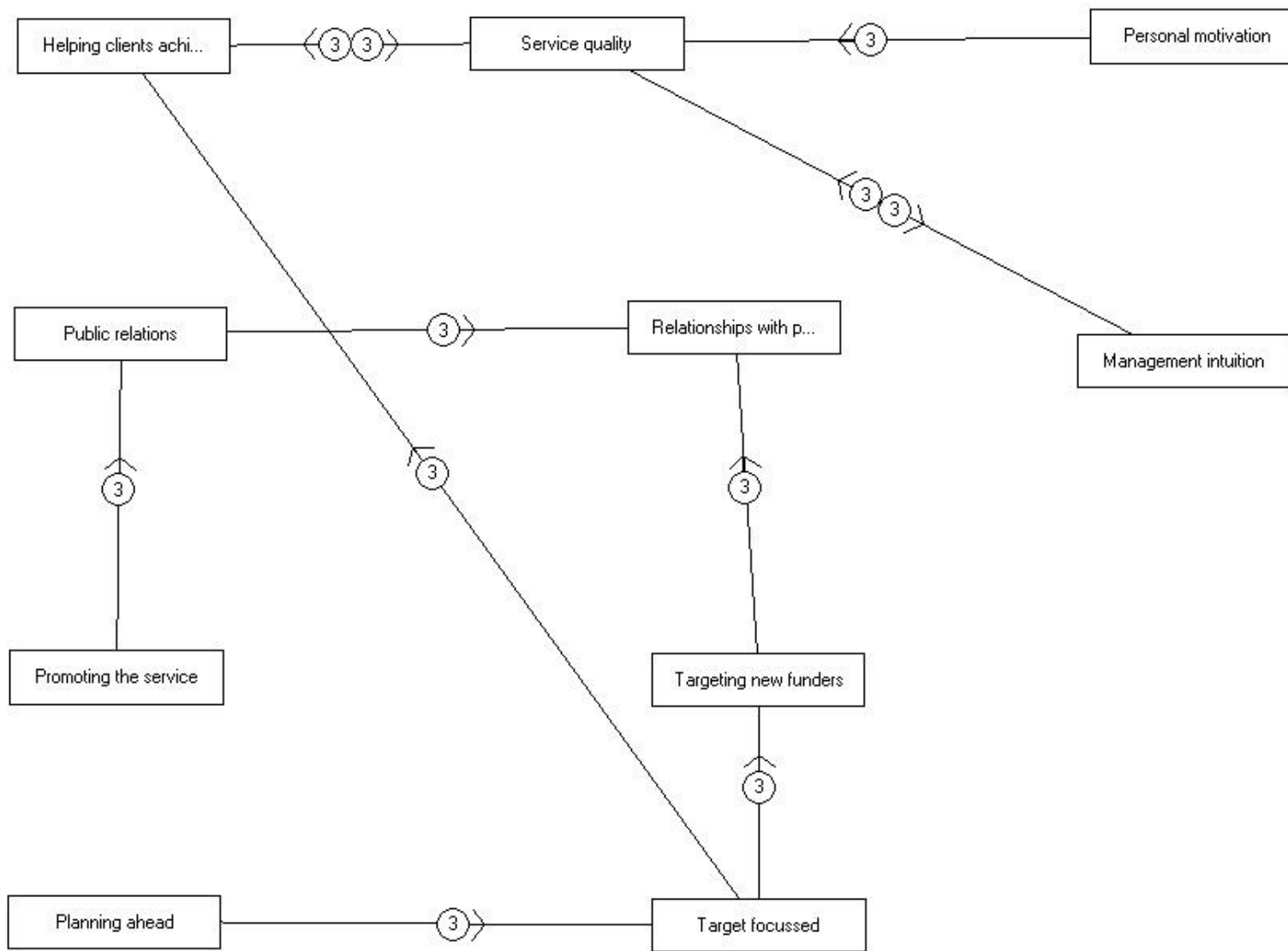
Cognitive Map of Respondent A22



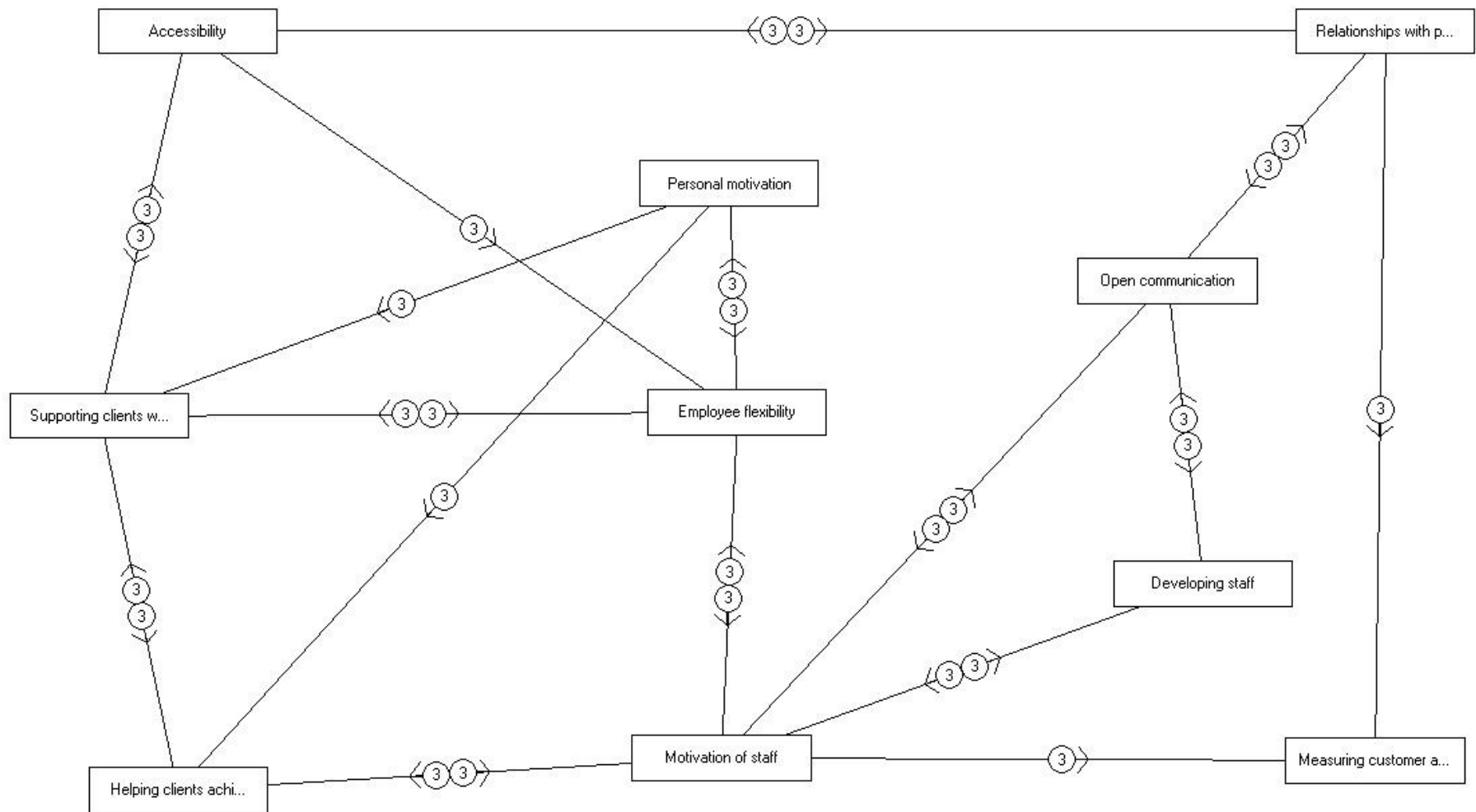
Cognitive Map of Respondent A23



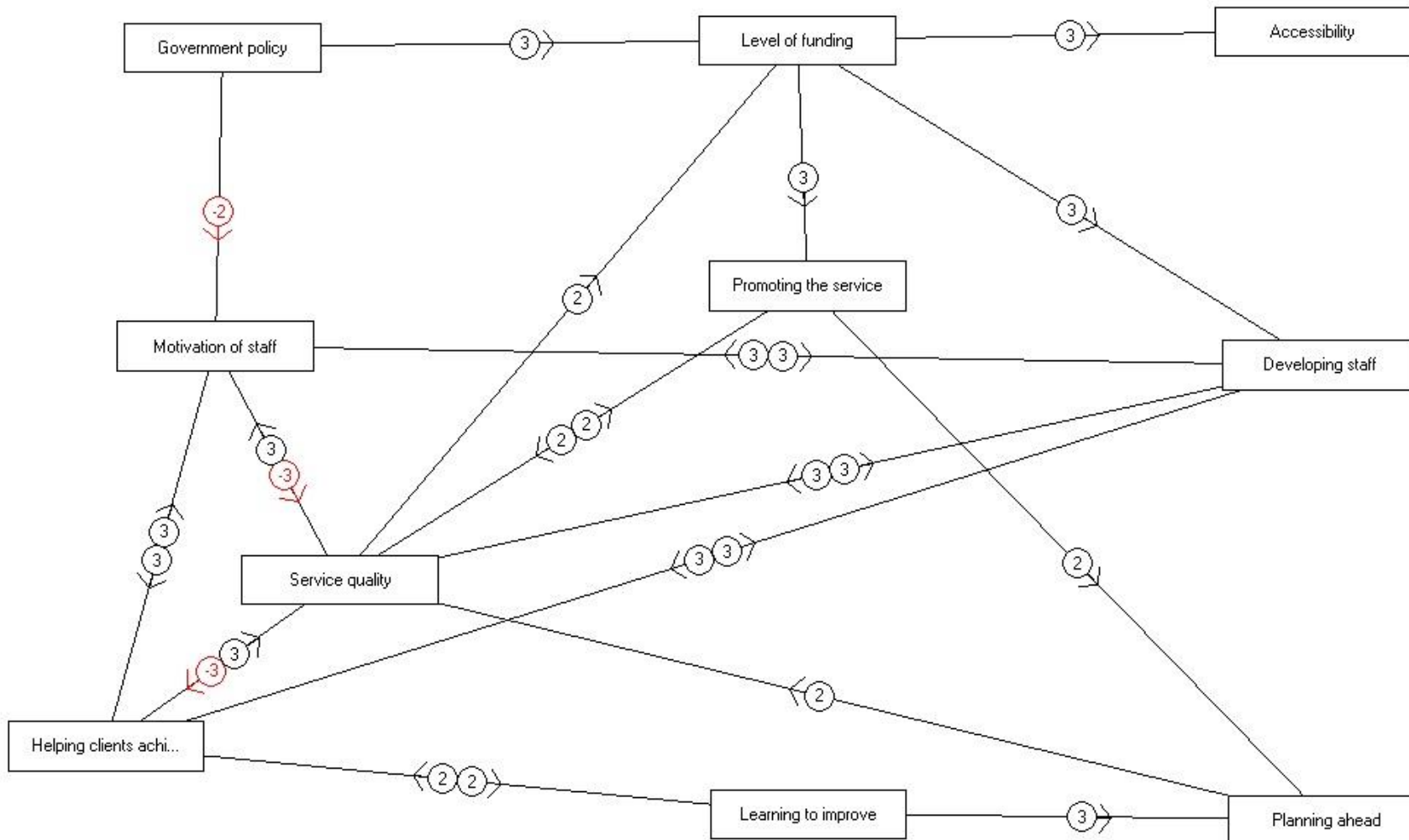
Cognitive Map of Respondent A24



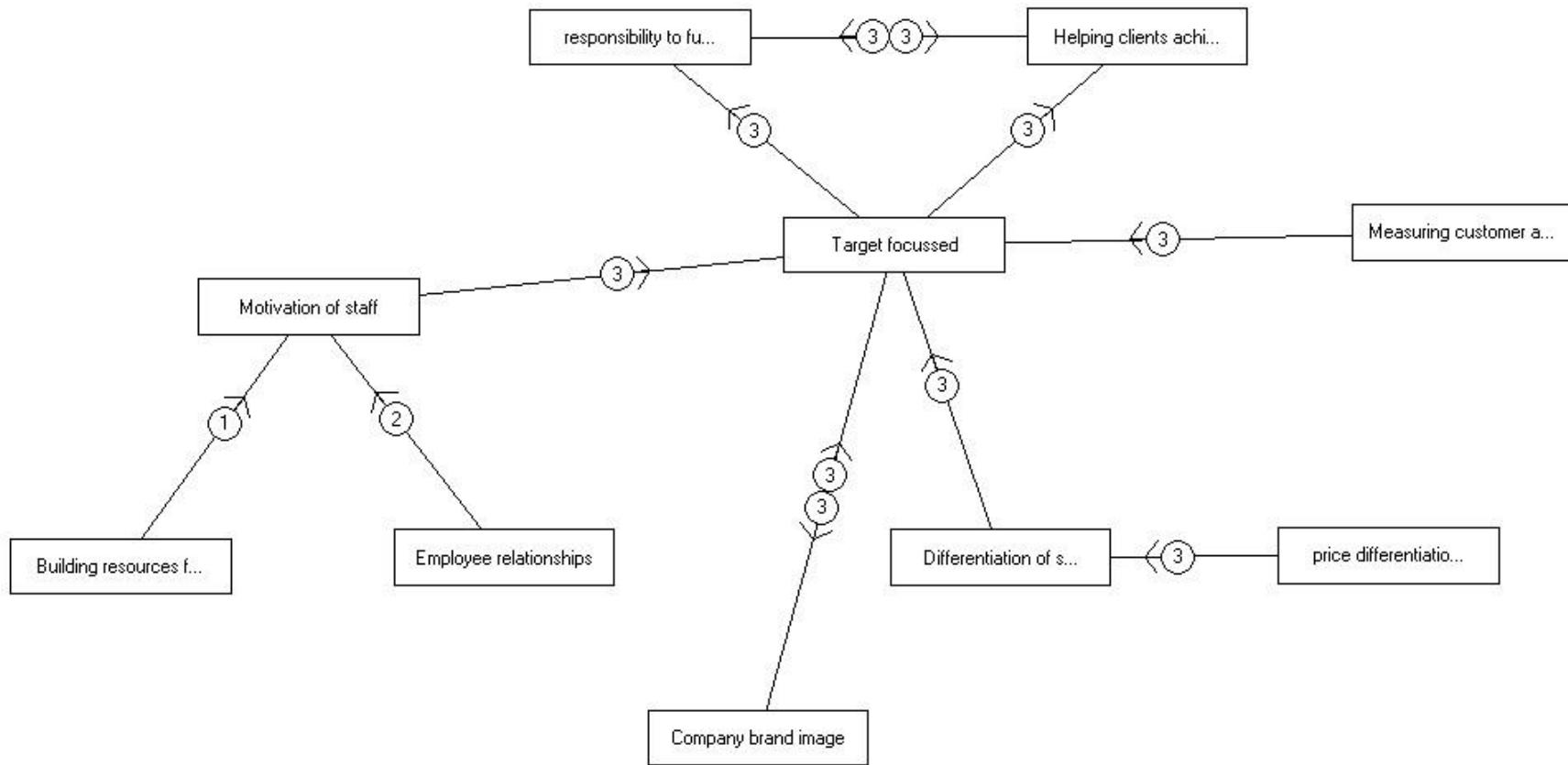
Cognitive Map of Respondent A25



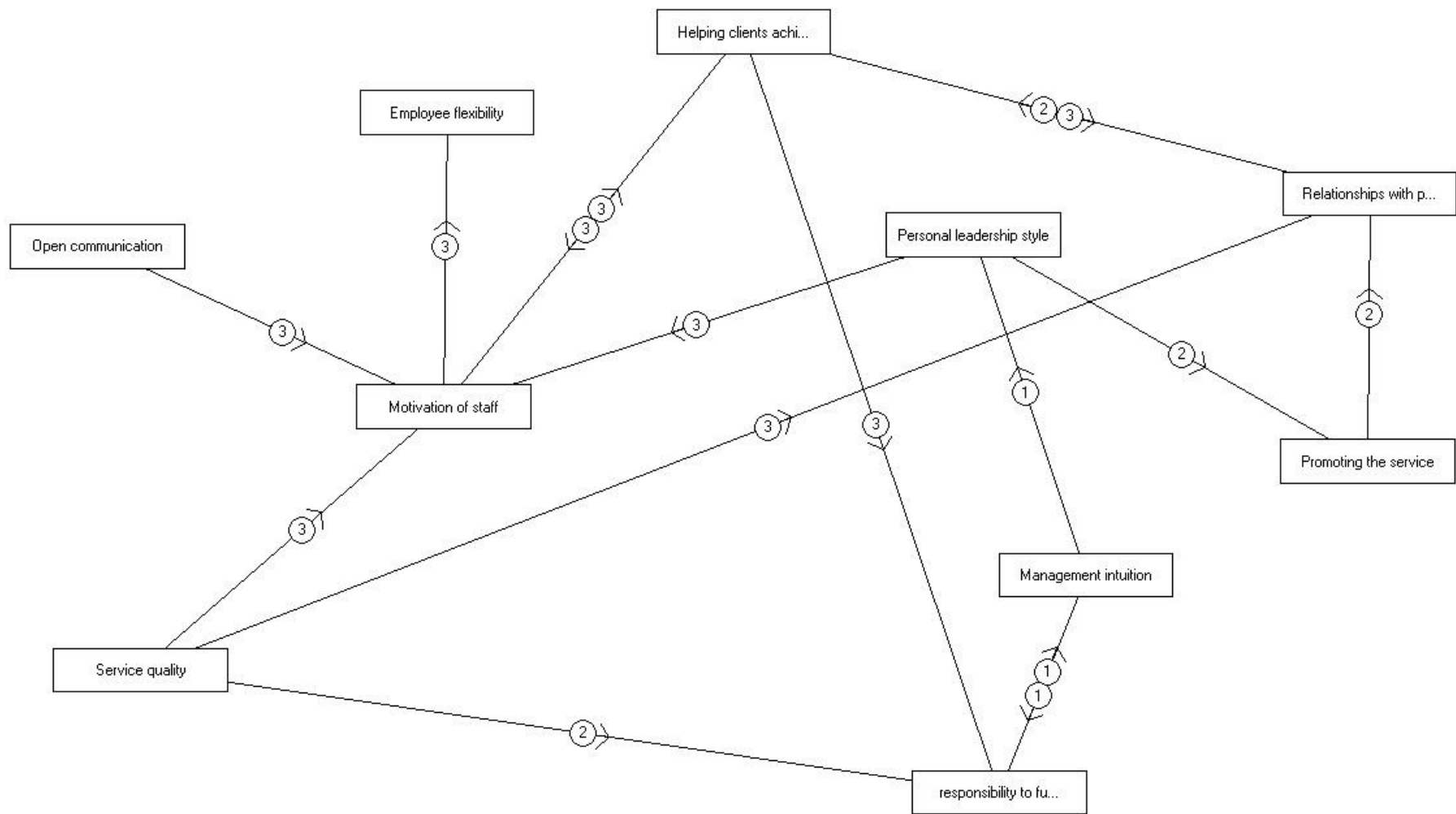
Cognitive Map of Respondent A26



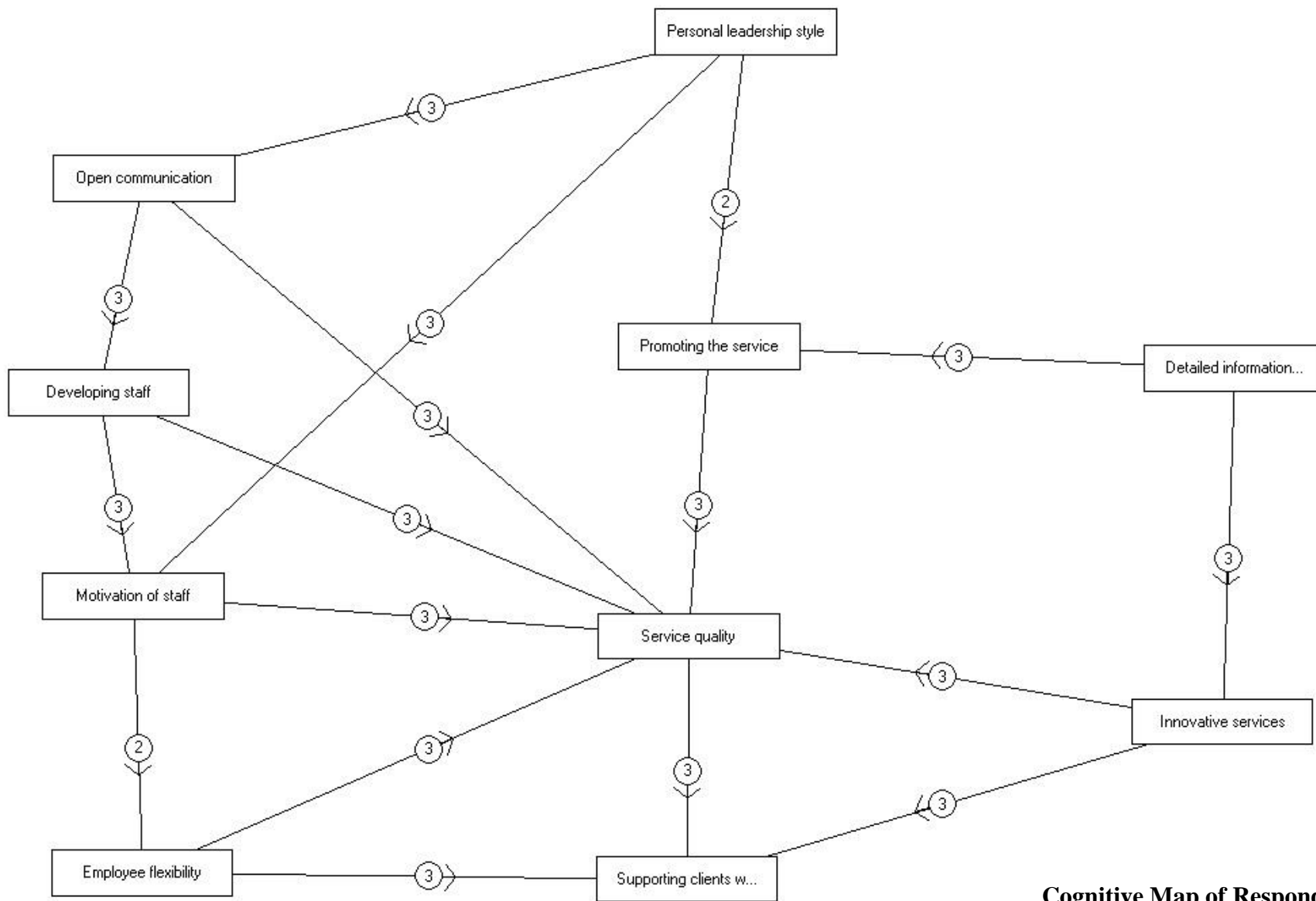
Cognitive Map of Respondent A27



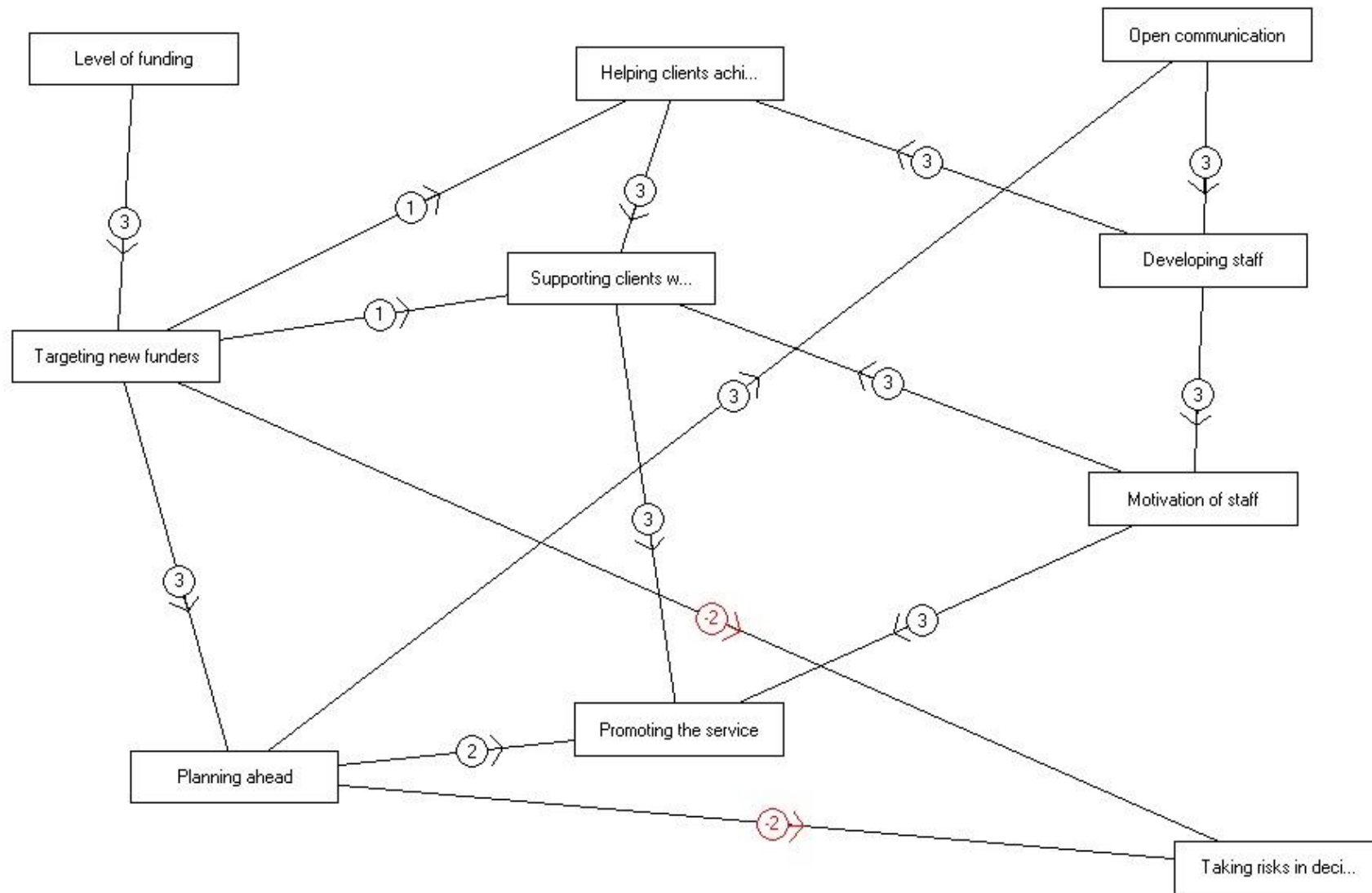
Cognitive Map of Respondent A28



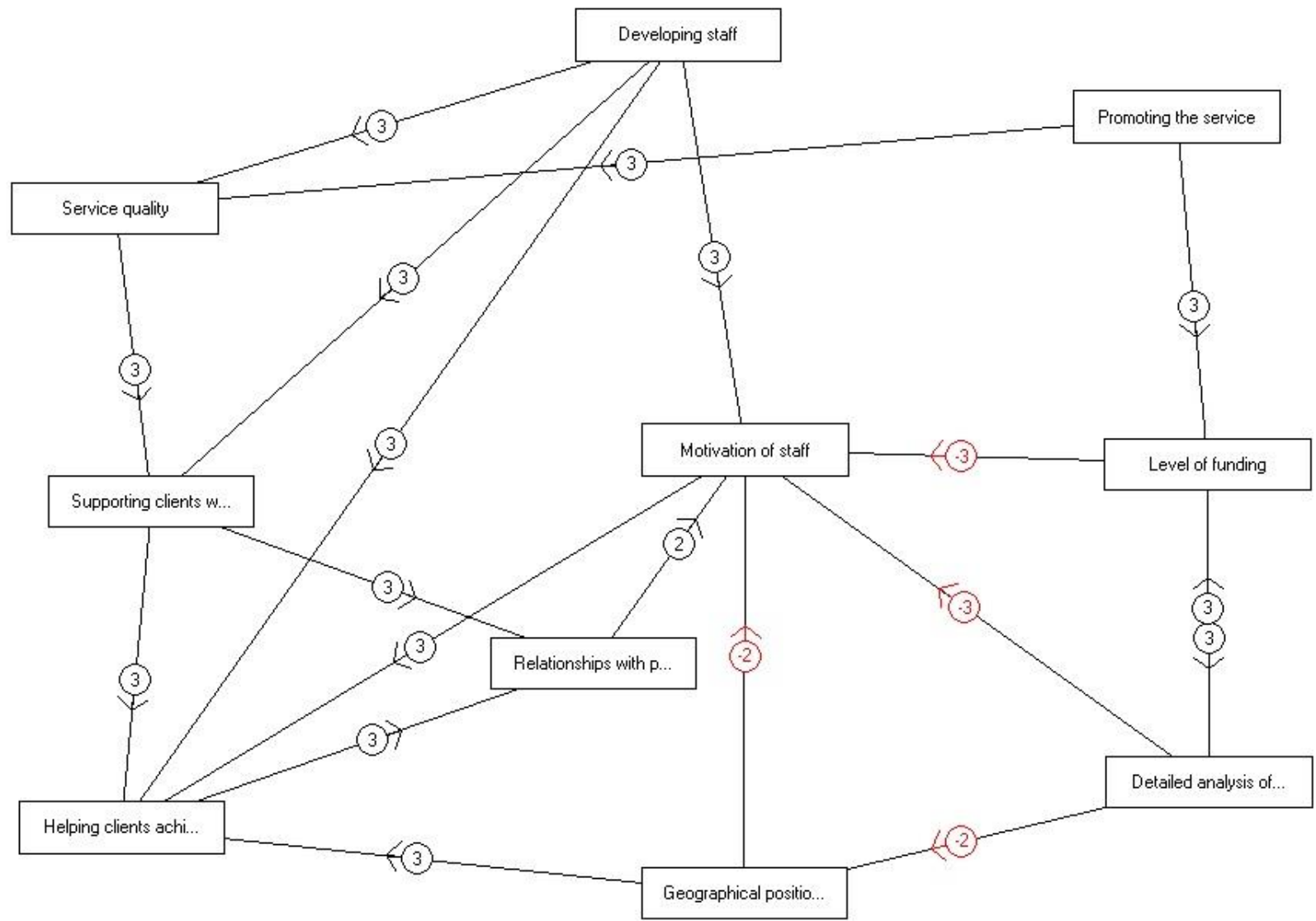
Cognitive Map of Respondent A29



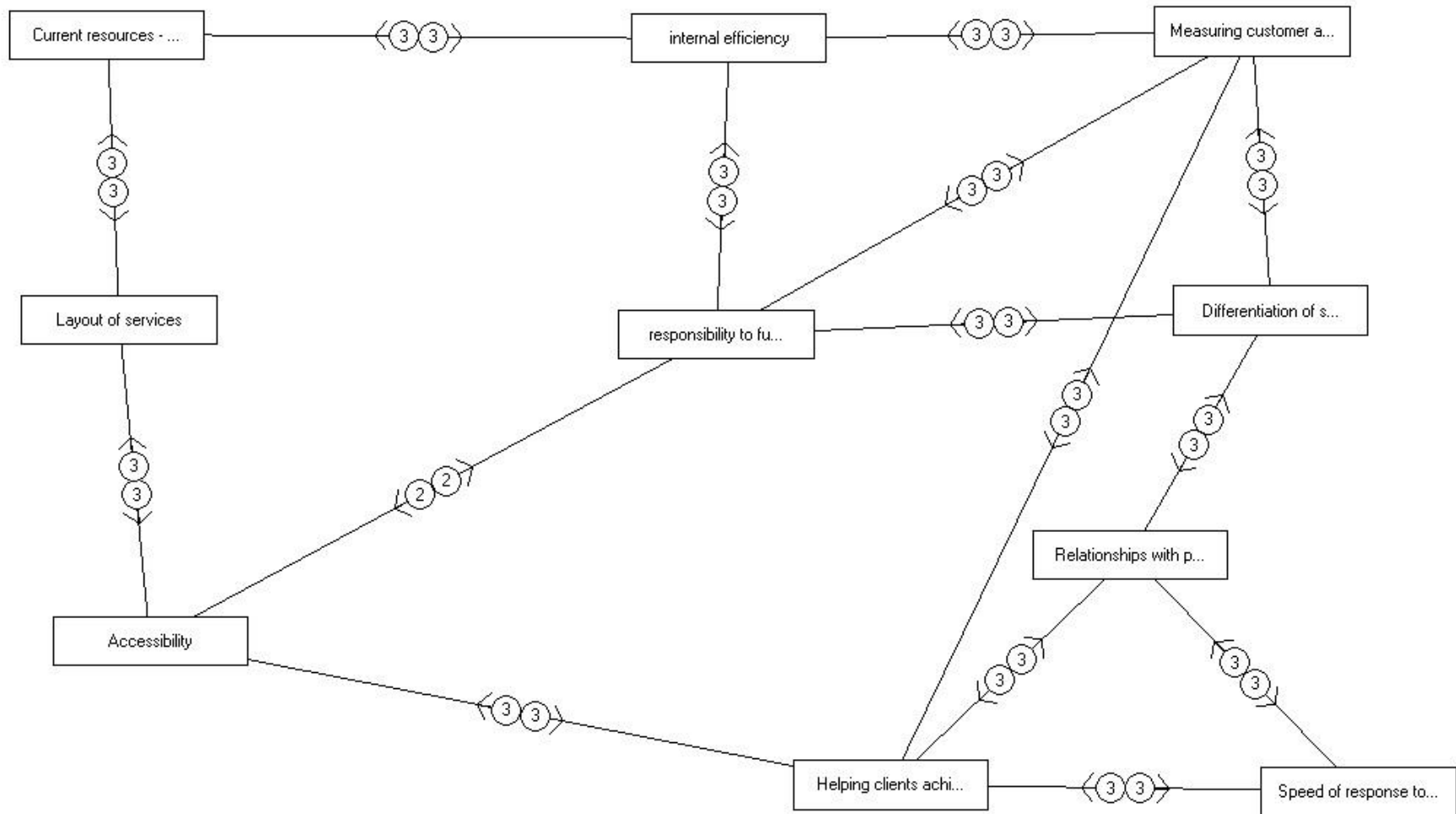
Cognitive Map of Respondent A30



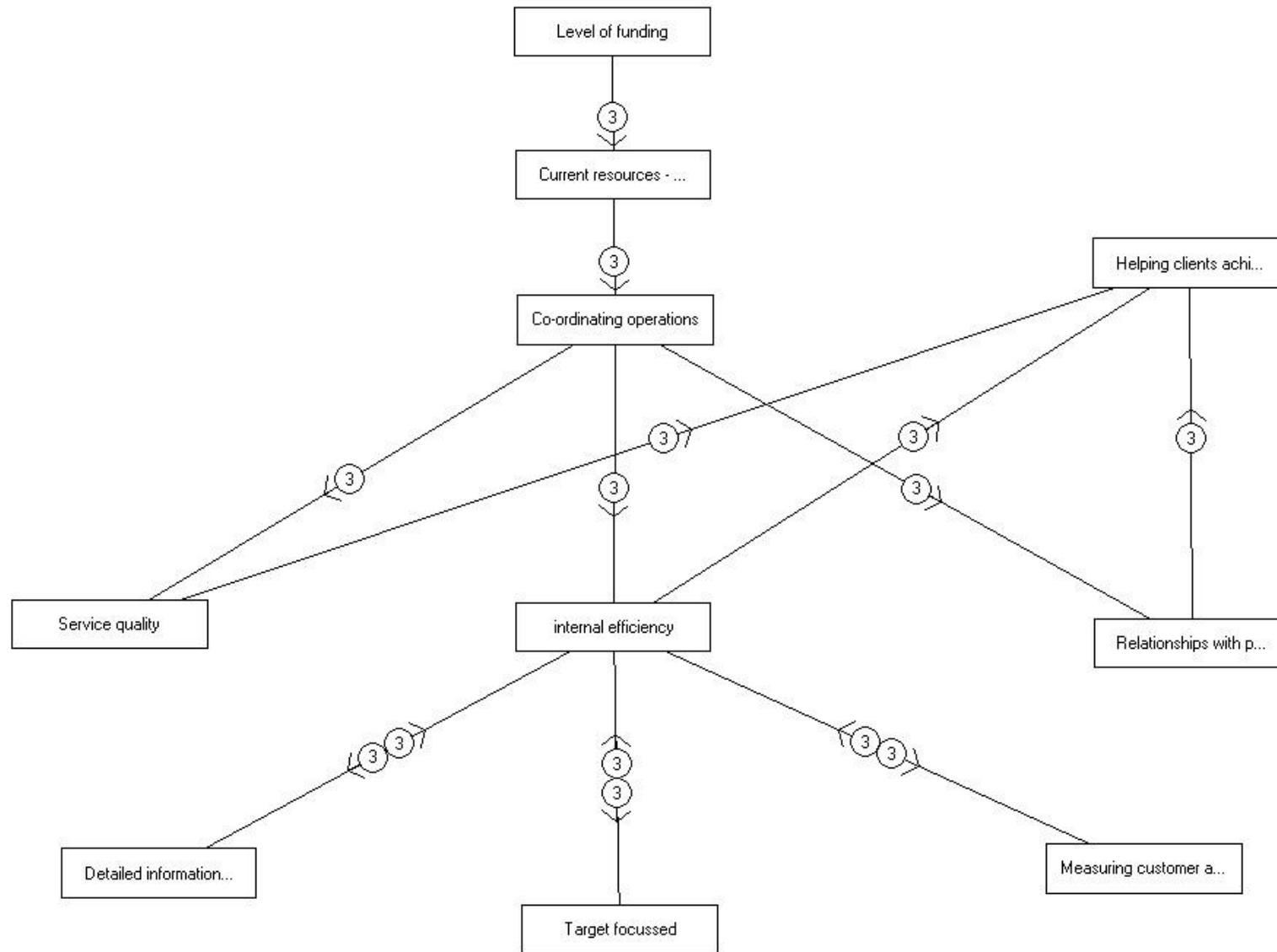
Cognitive Map of Respondent A32



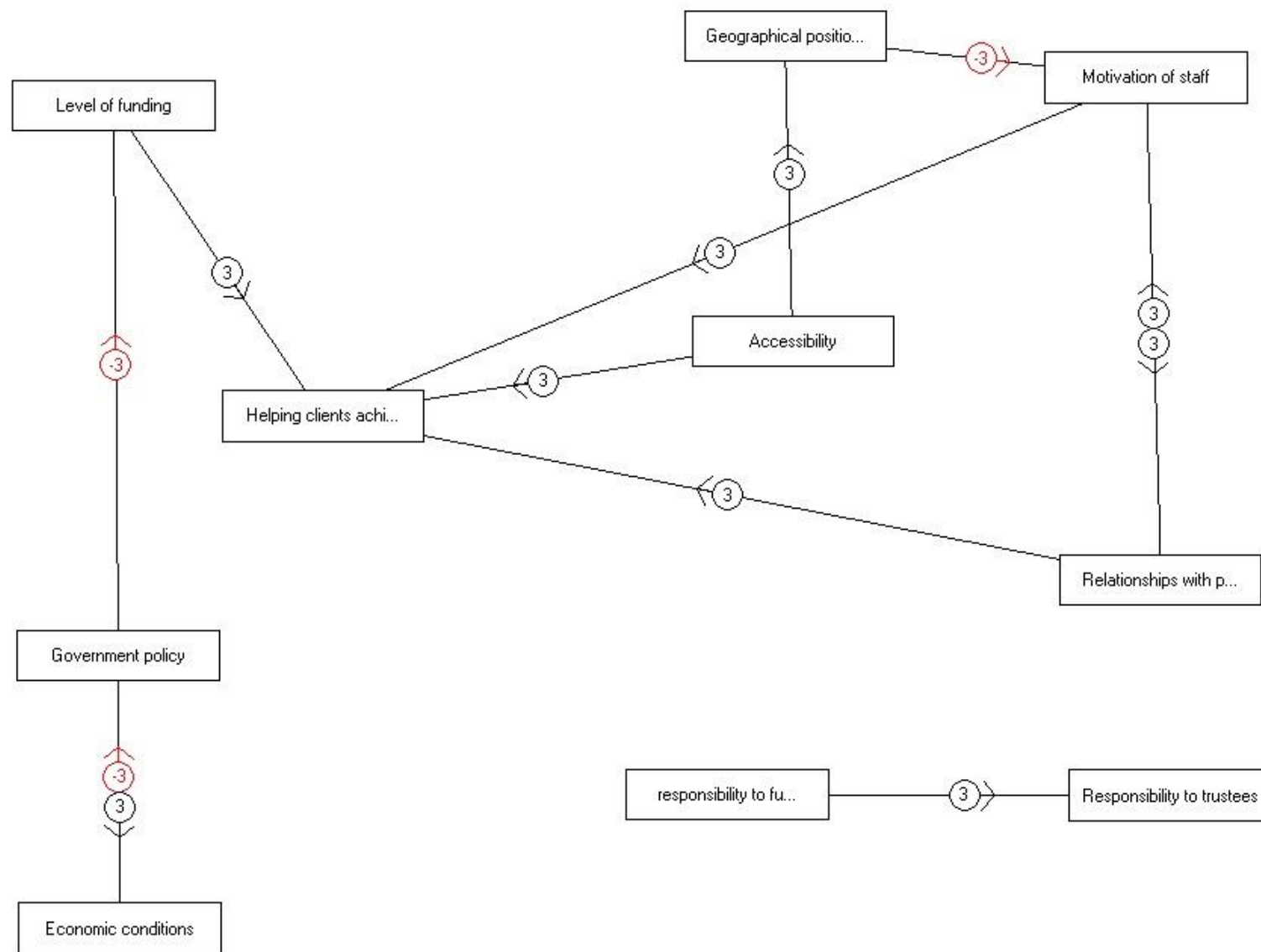
Cognitive Map of Respondent A33



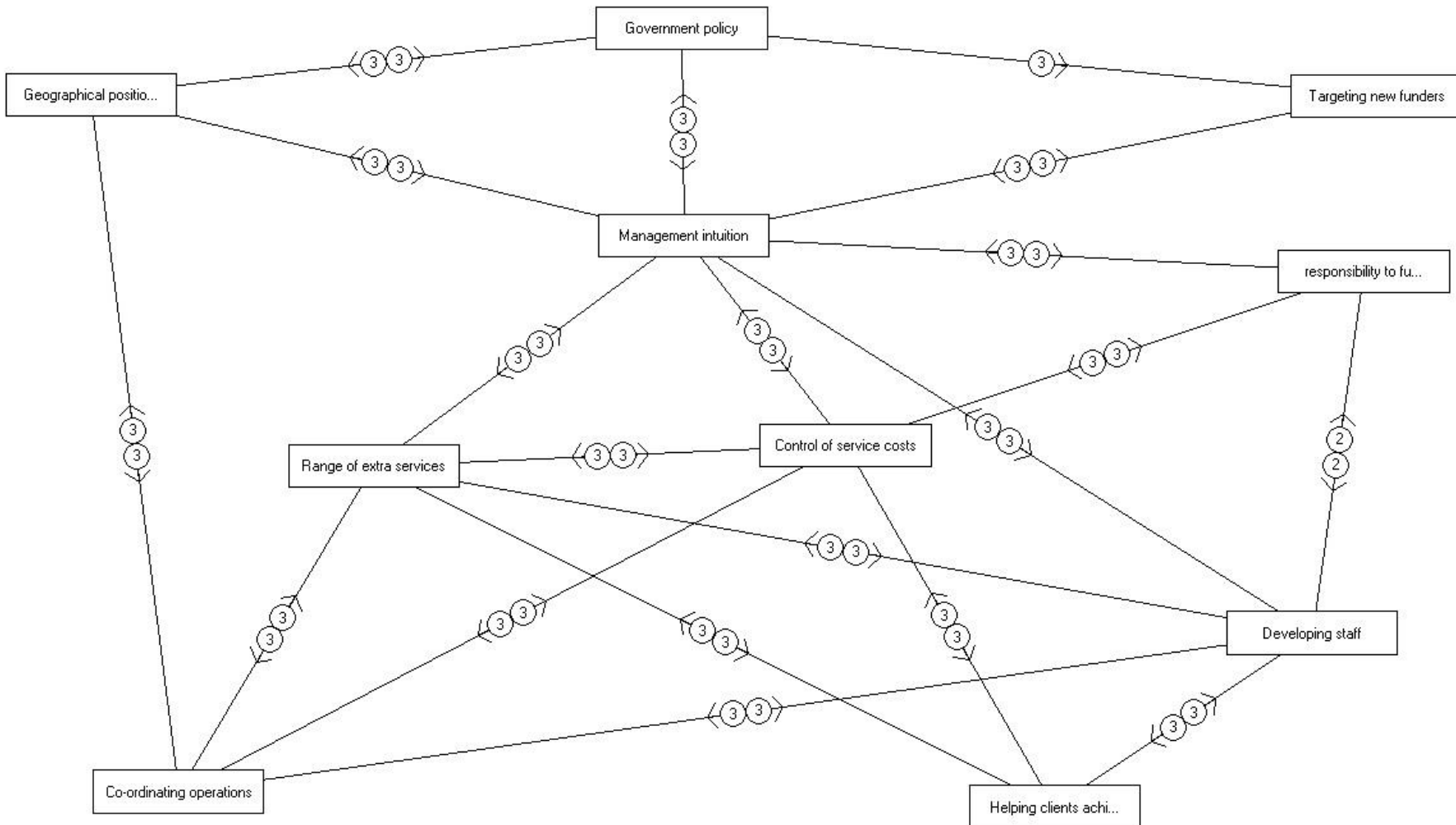
Cognitive Map of Respondent A34



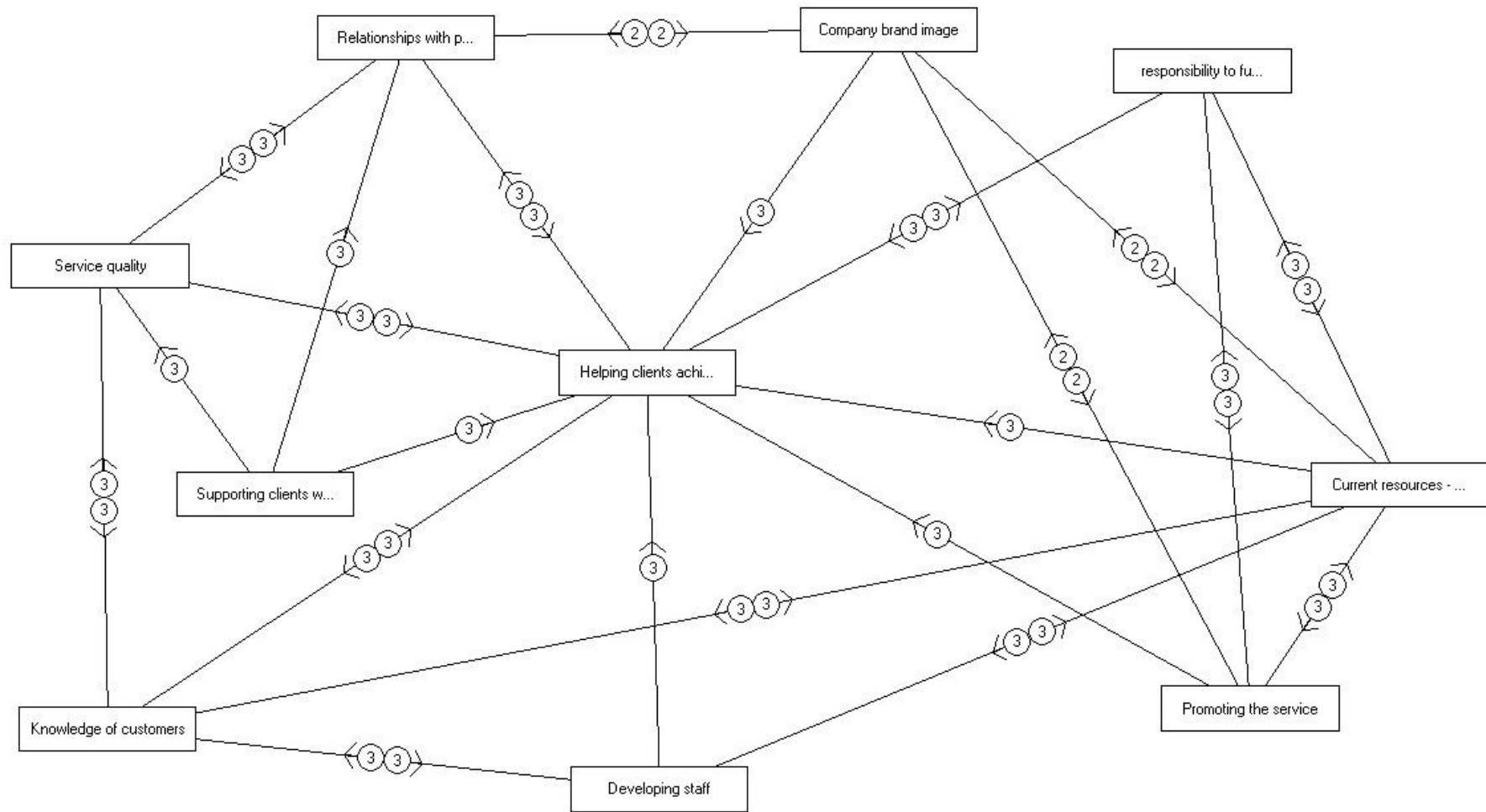
Cognitive Map of Respondent A35



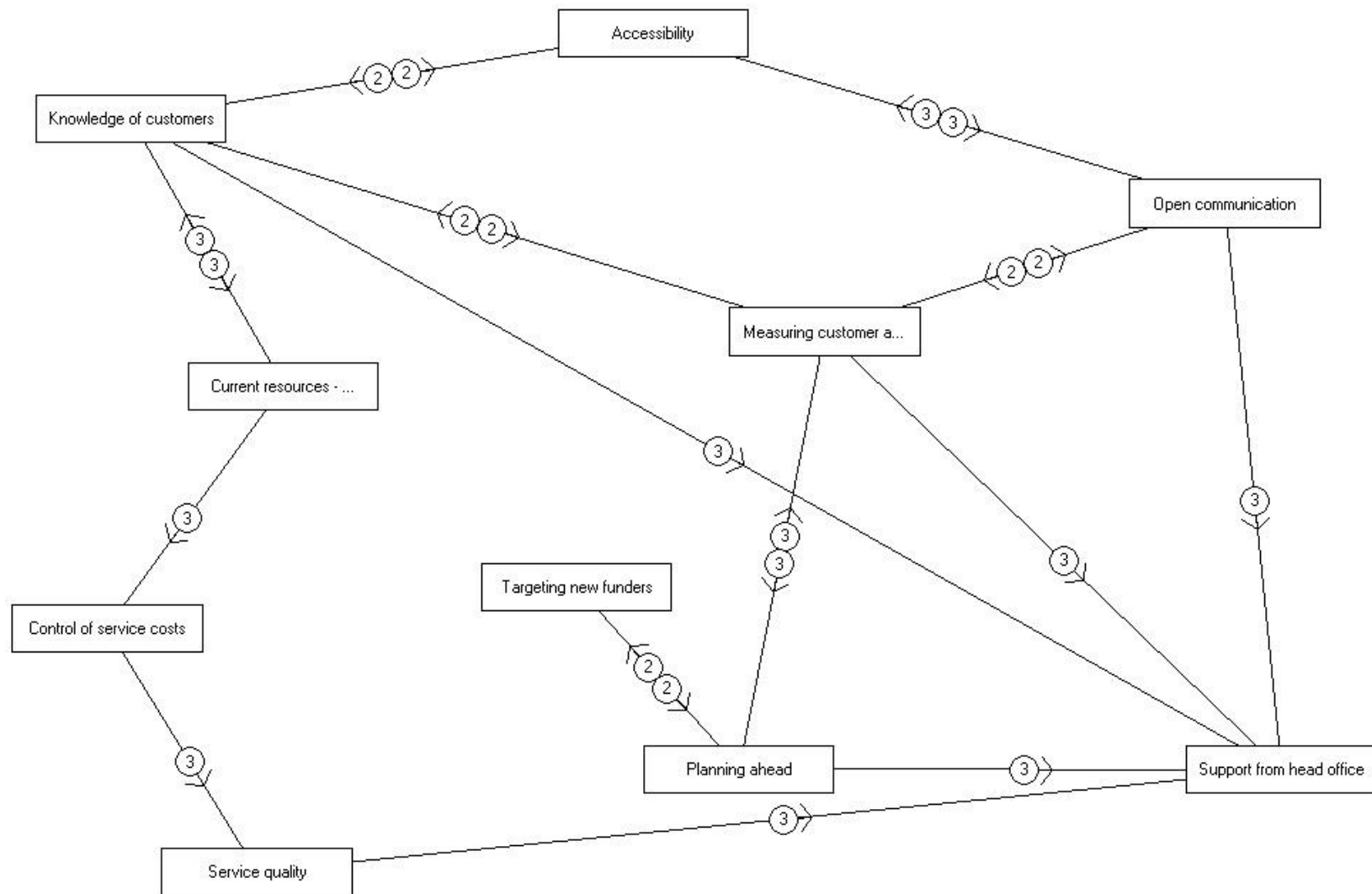
Cognitive Map of Respondent A36



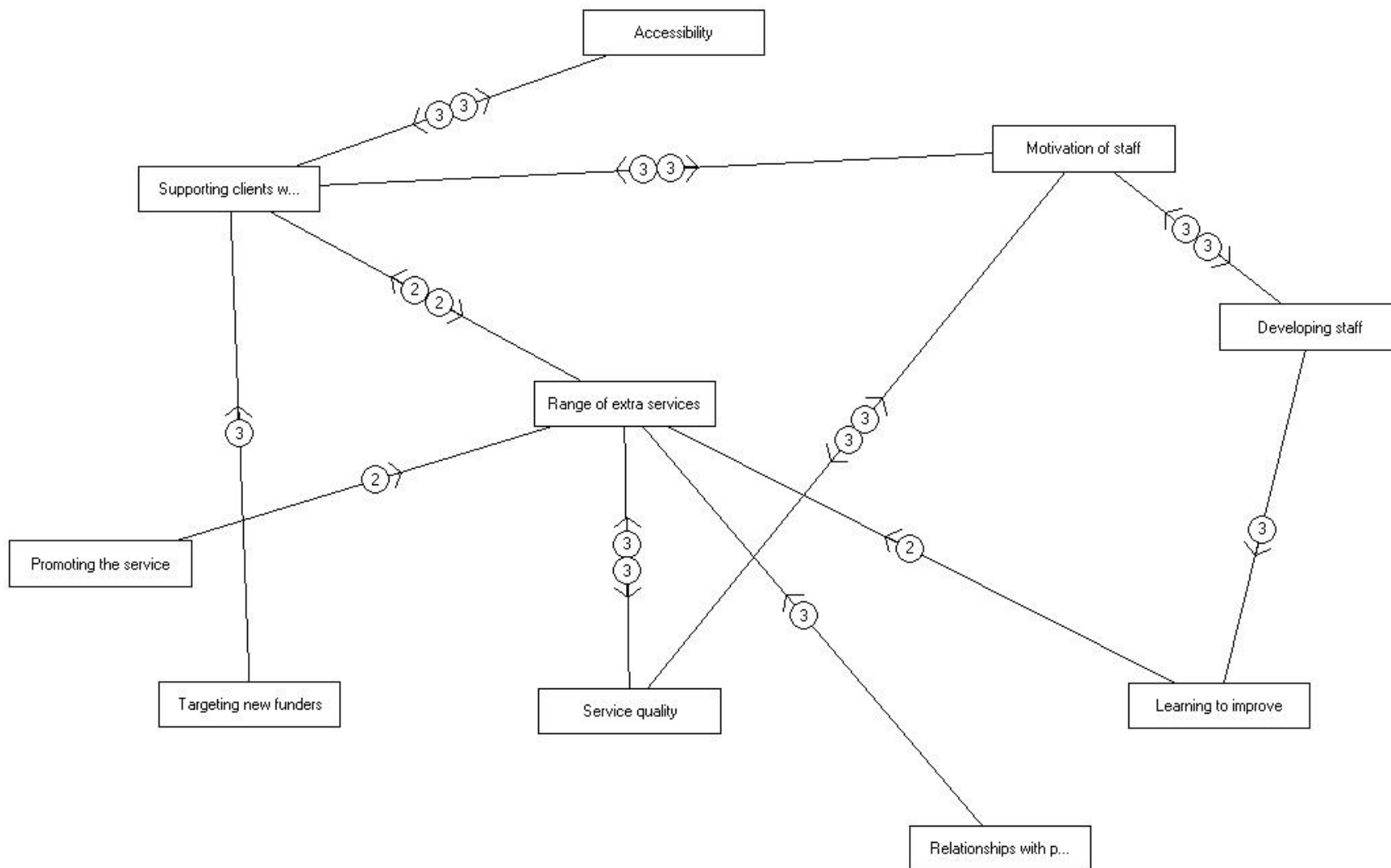
Cognitive Map of Respondent A37



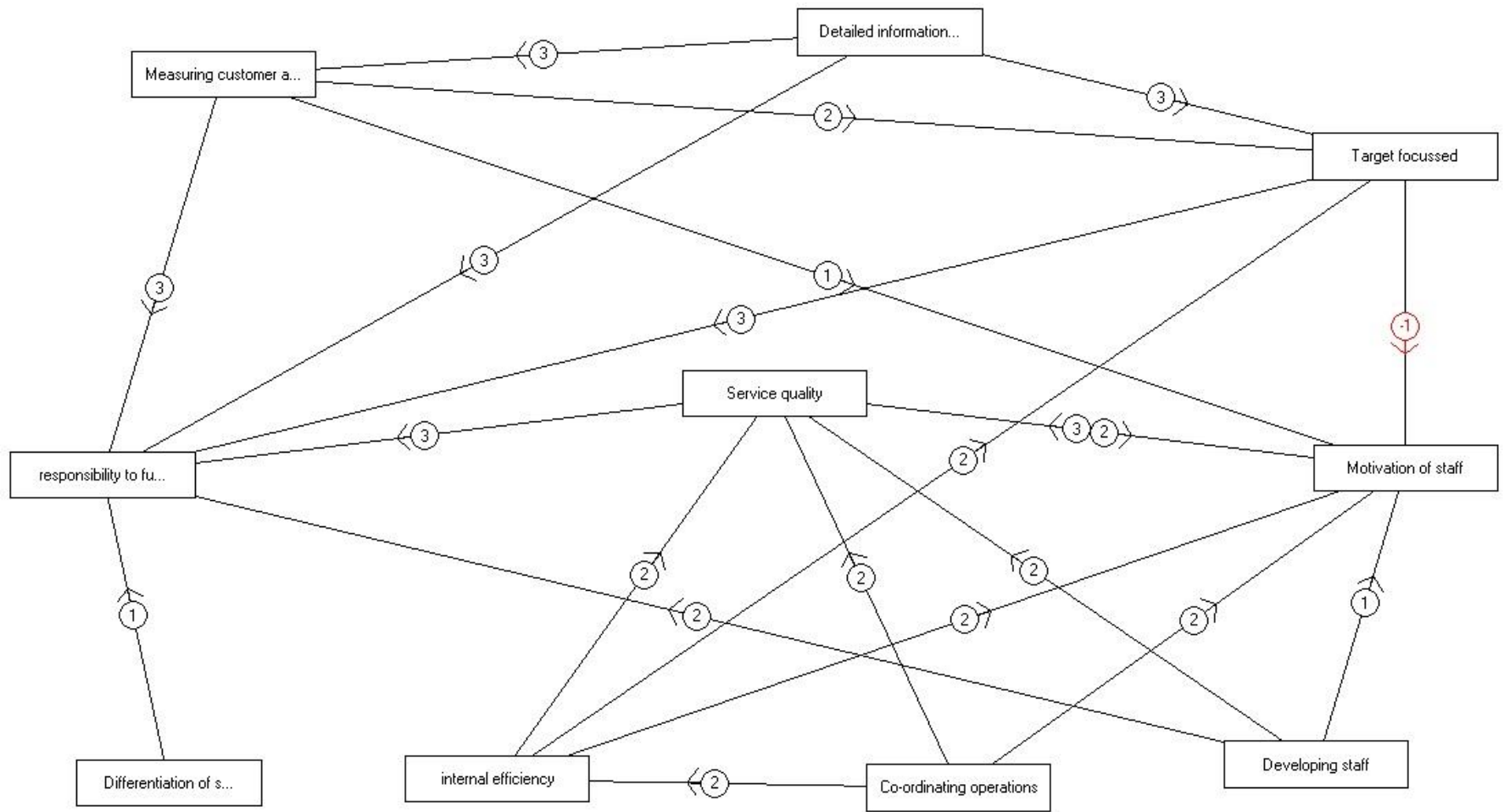
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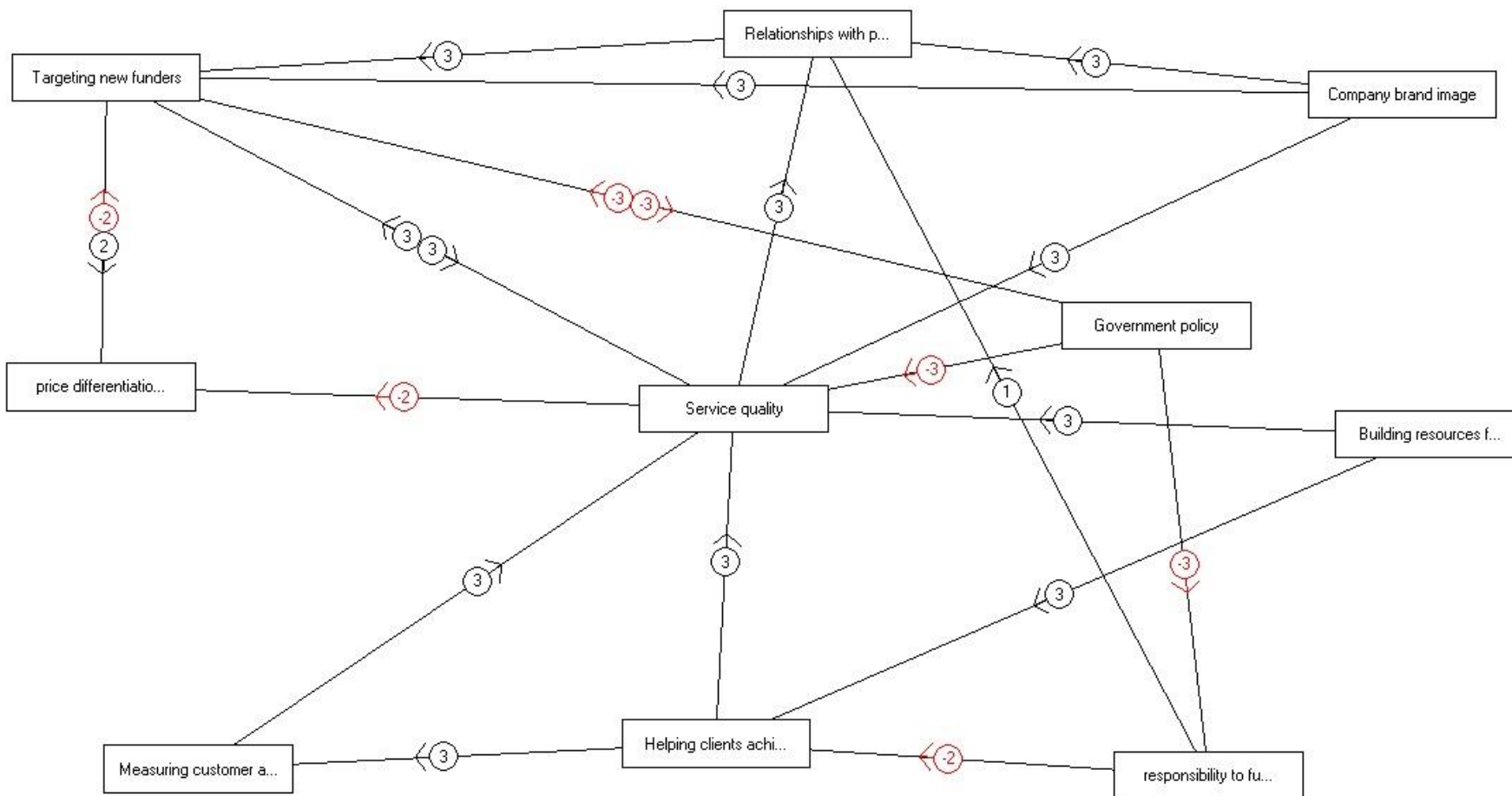
Cognitive Map of Respondent A39



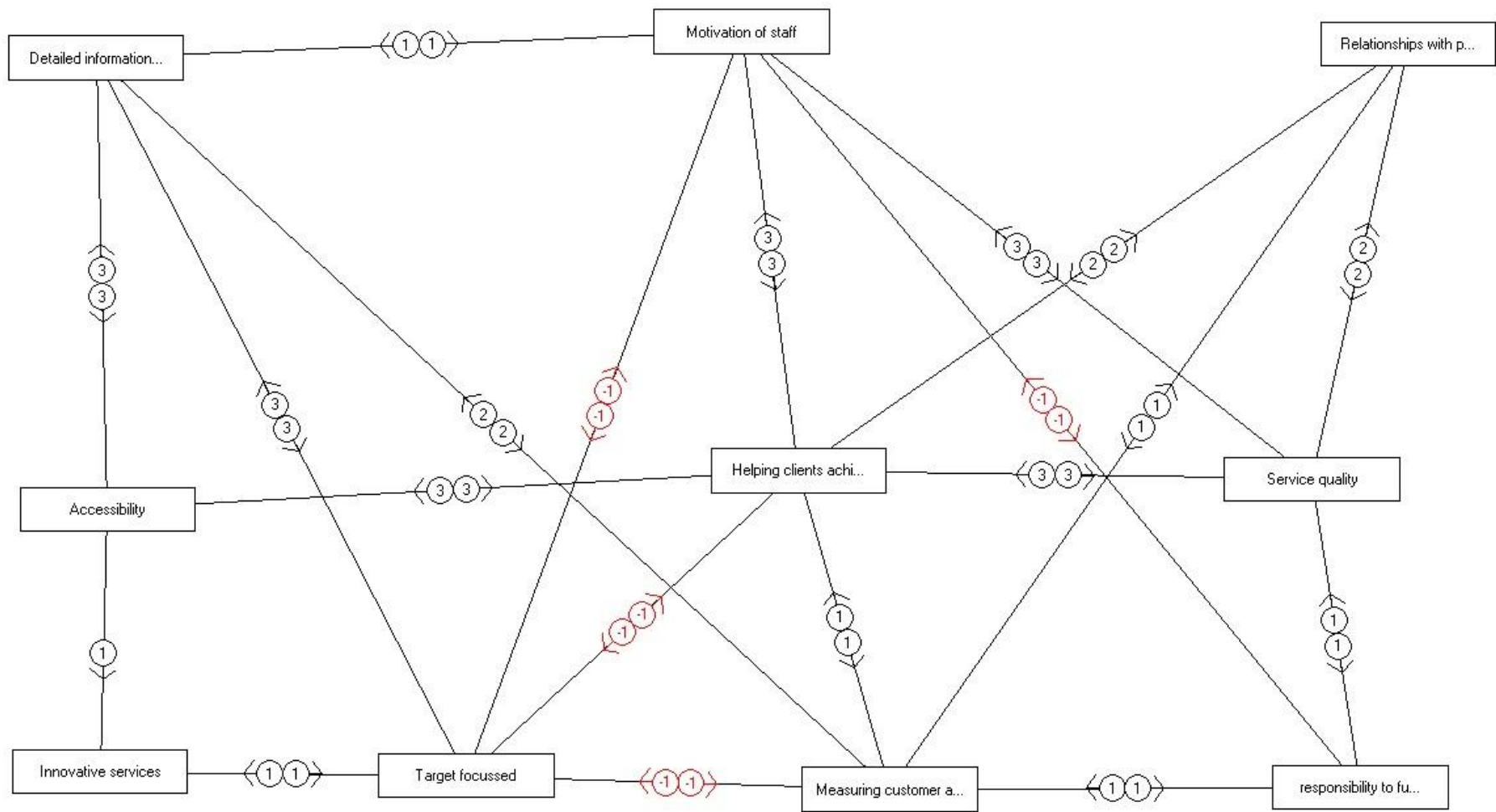
Cognitive Map of Respondent A40



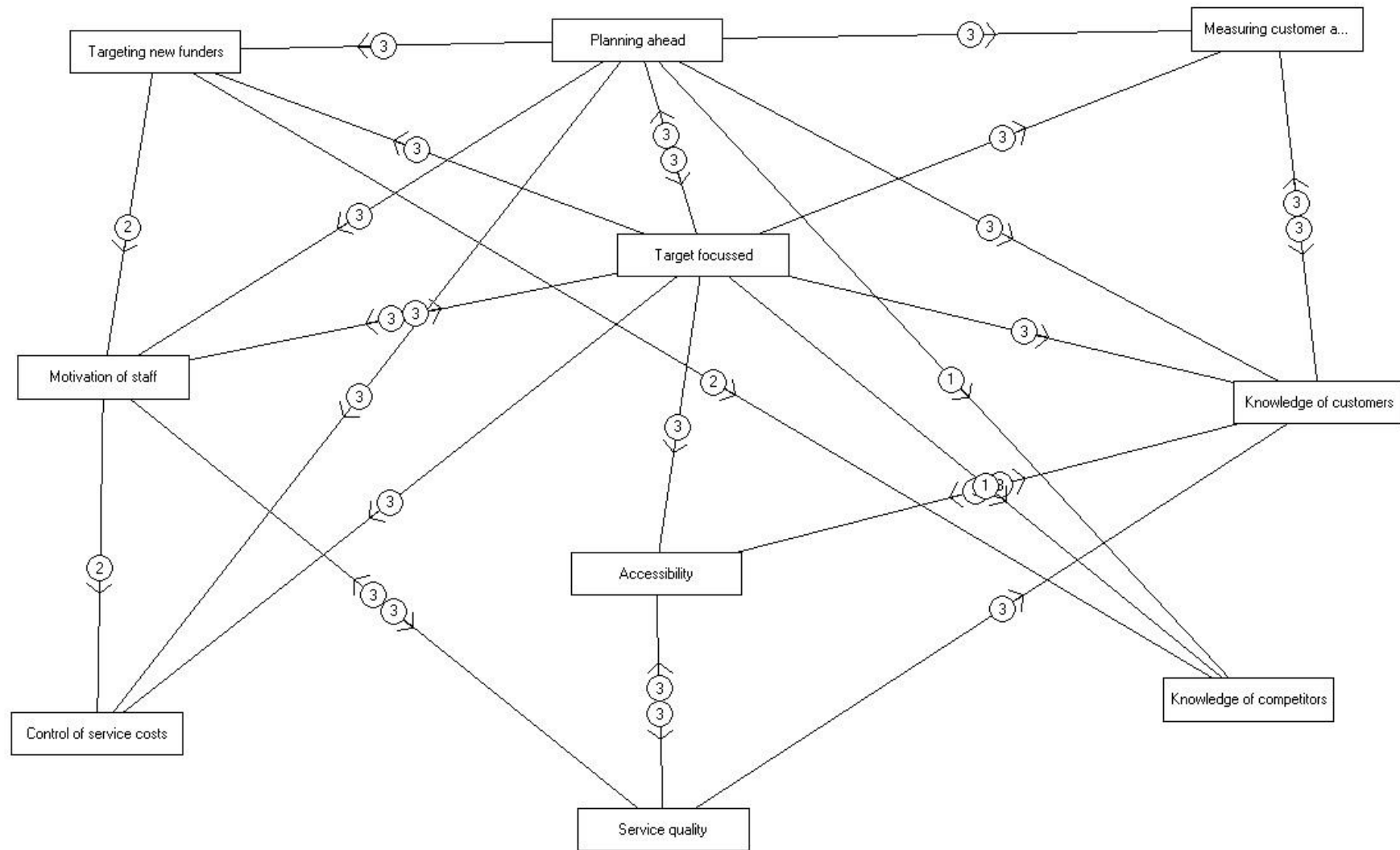
Cognitive Map of Respondent B1



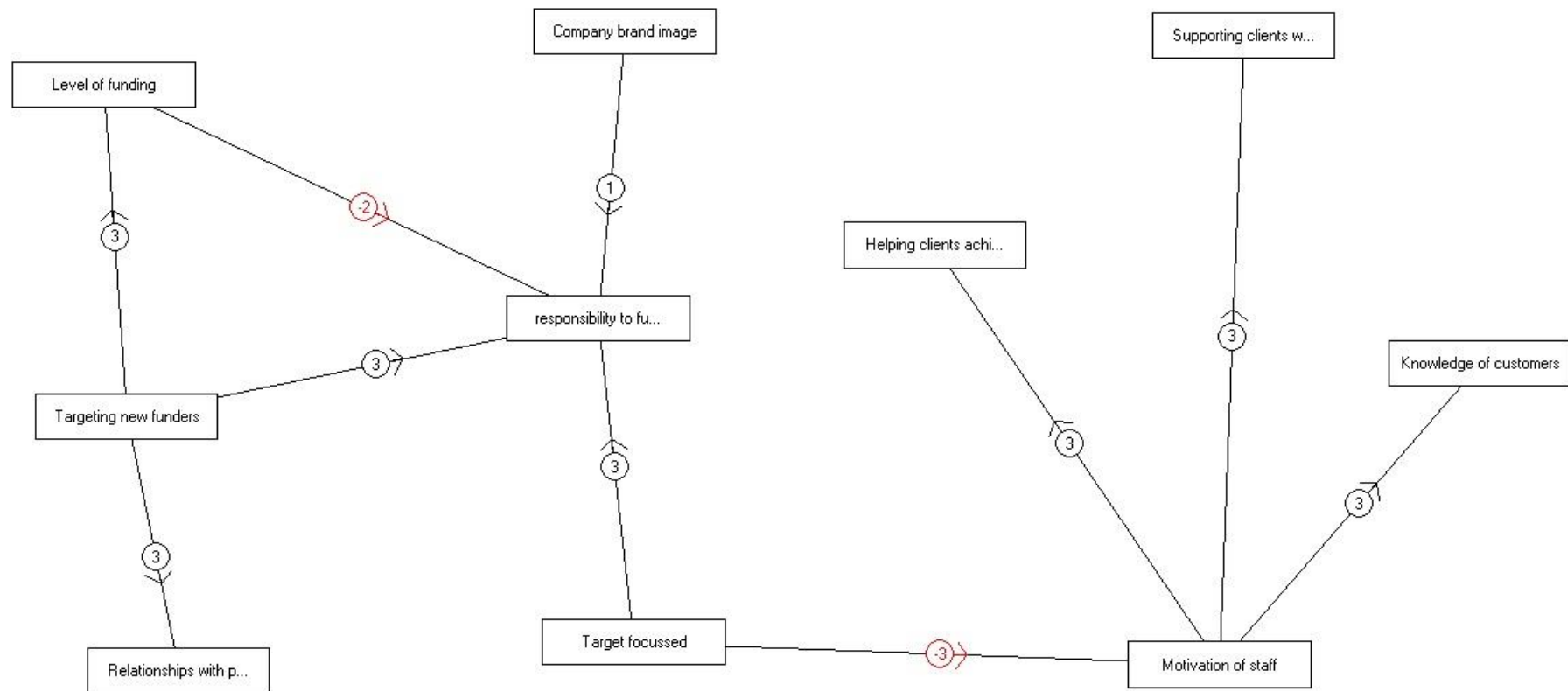
Cognitive Map of Respondent B3



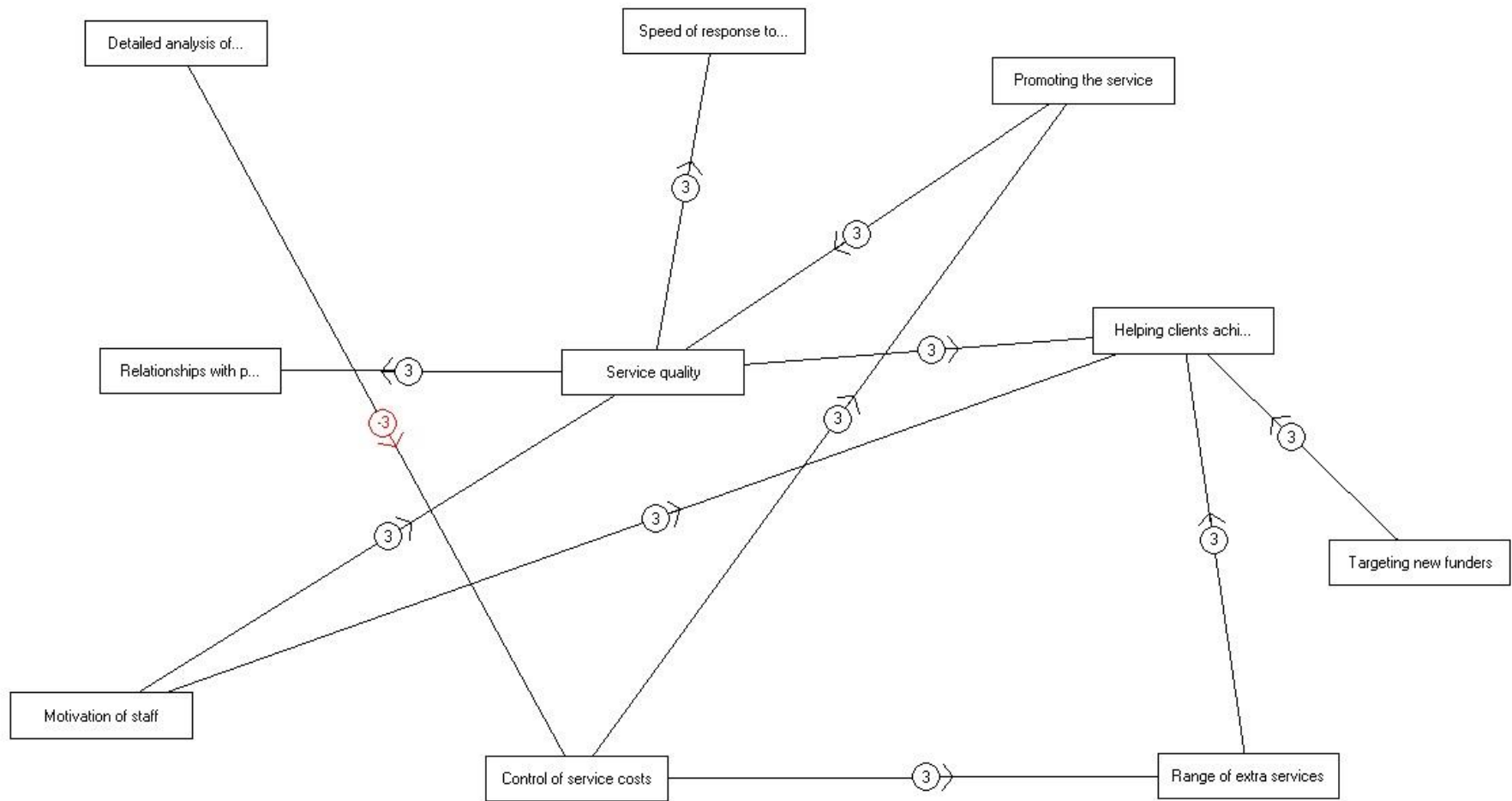
Cognitive Map of Respondent B4



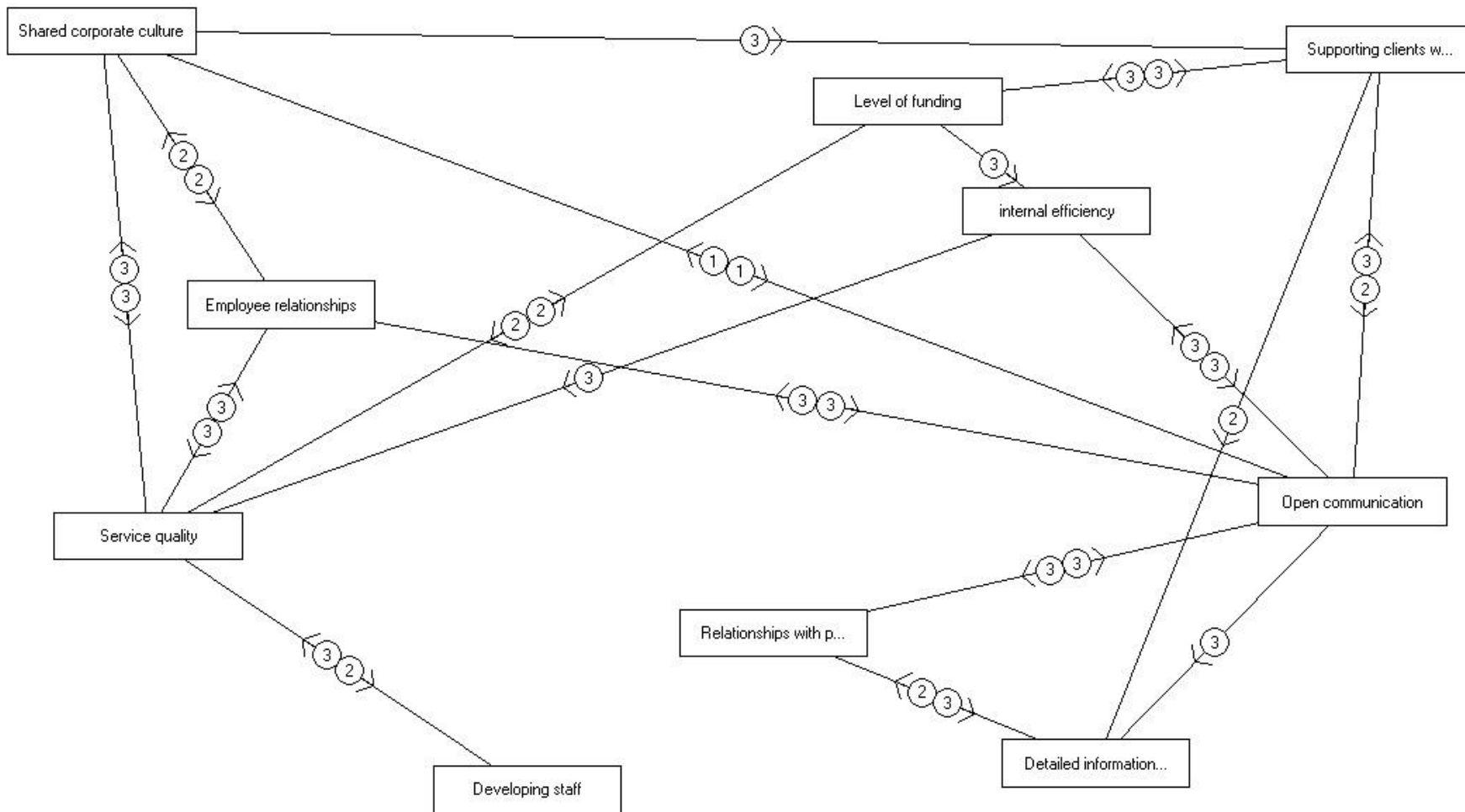
Cognitive Map of Respondent B5



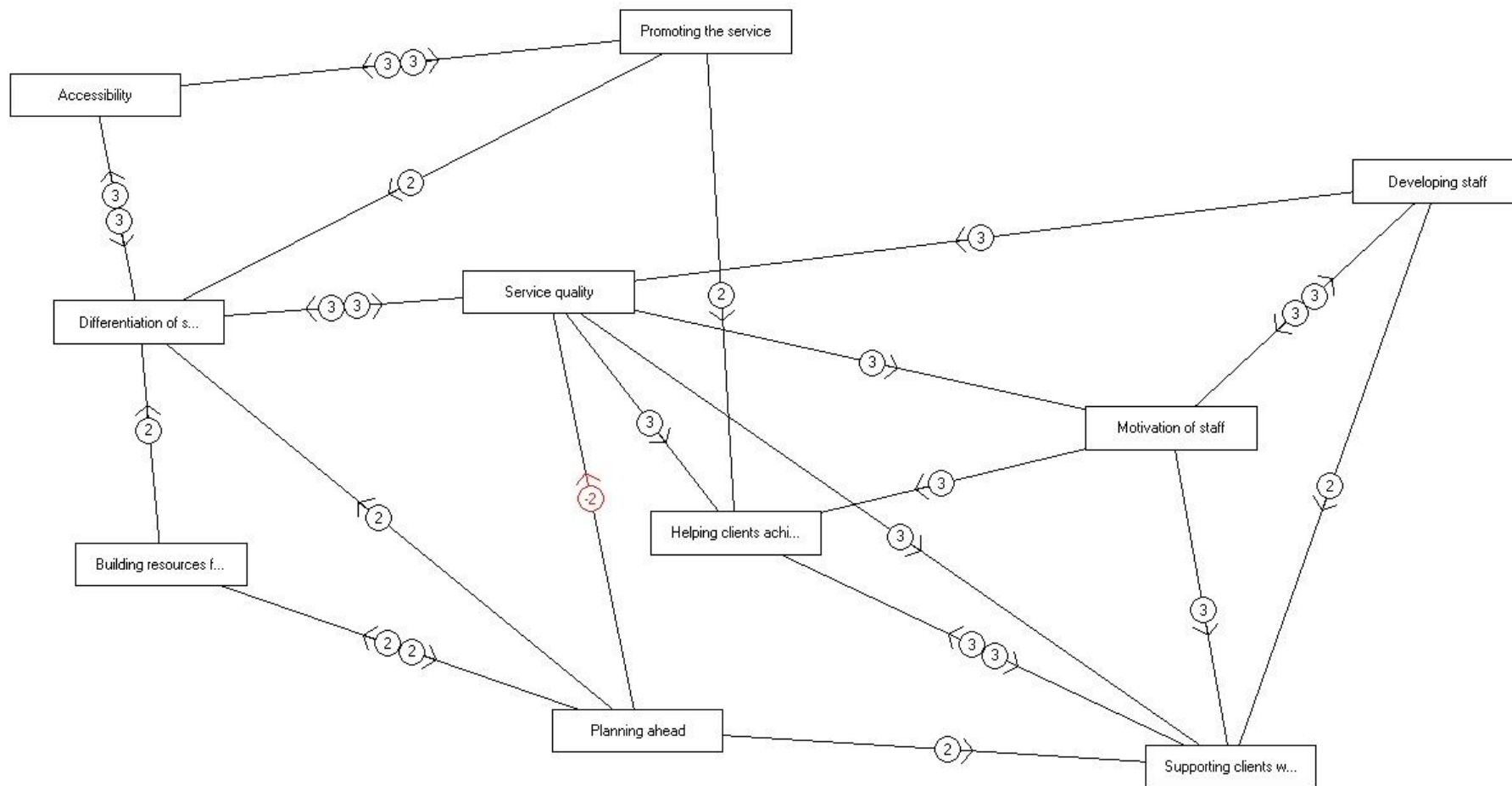
Cognitive Map of Respondent B6



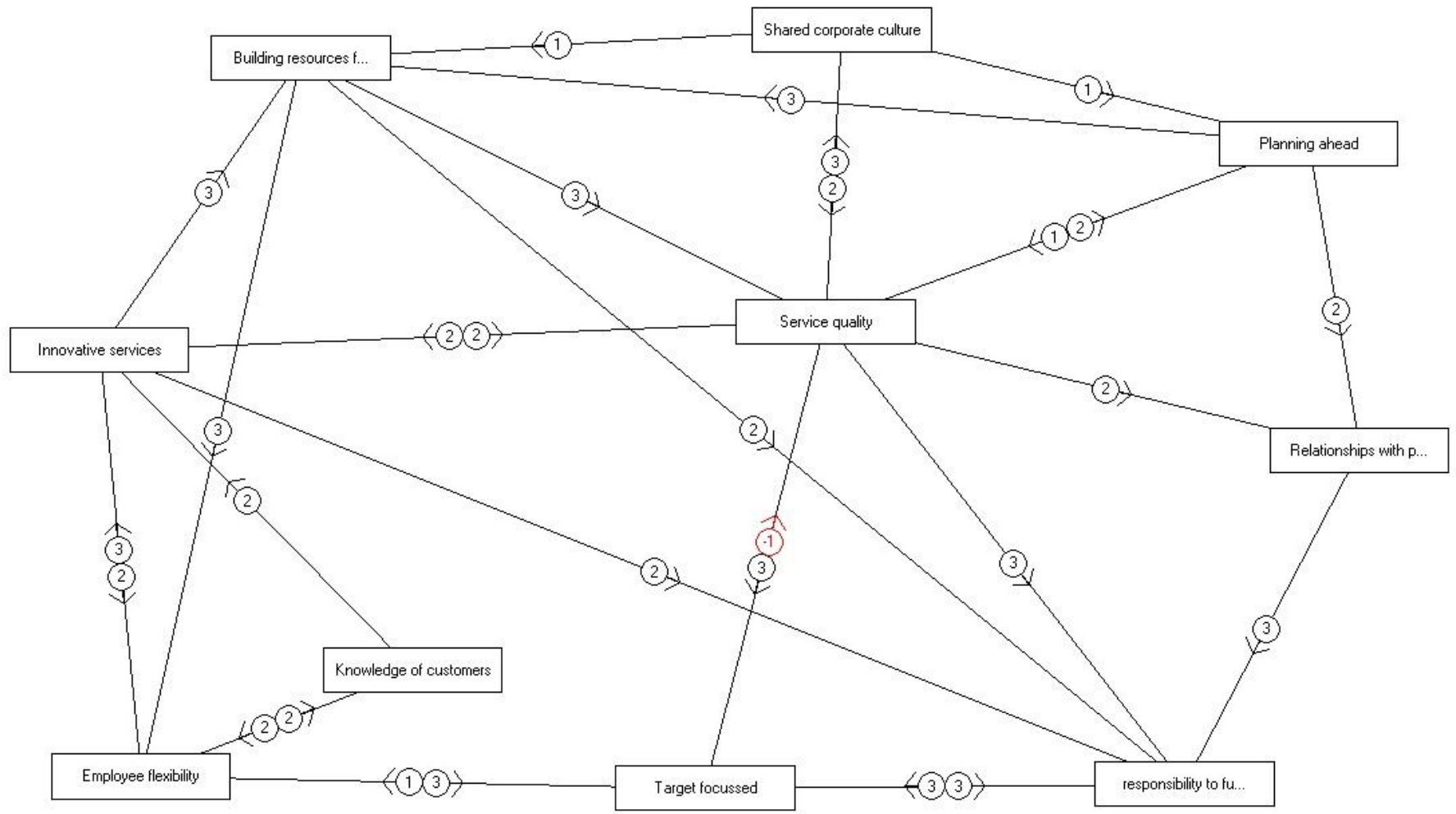
Cognitive Map of Respondent B7



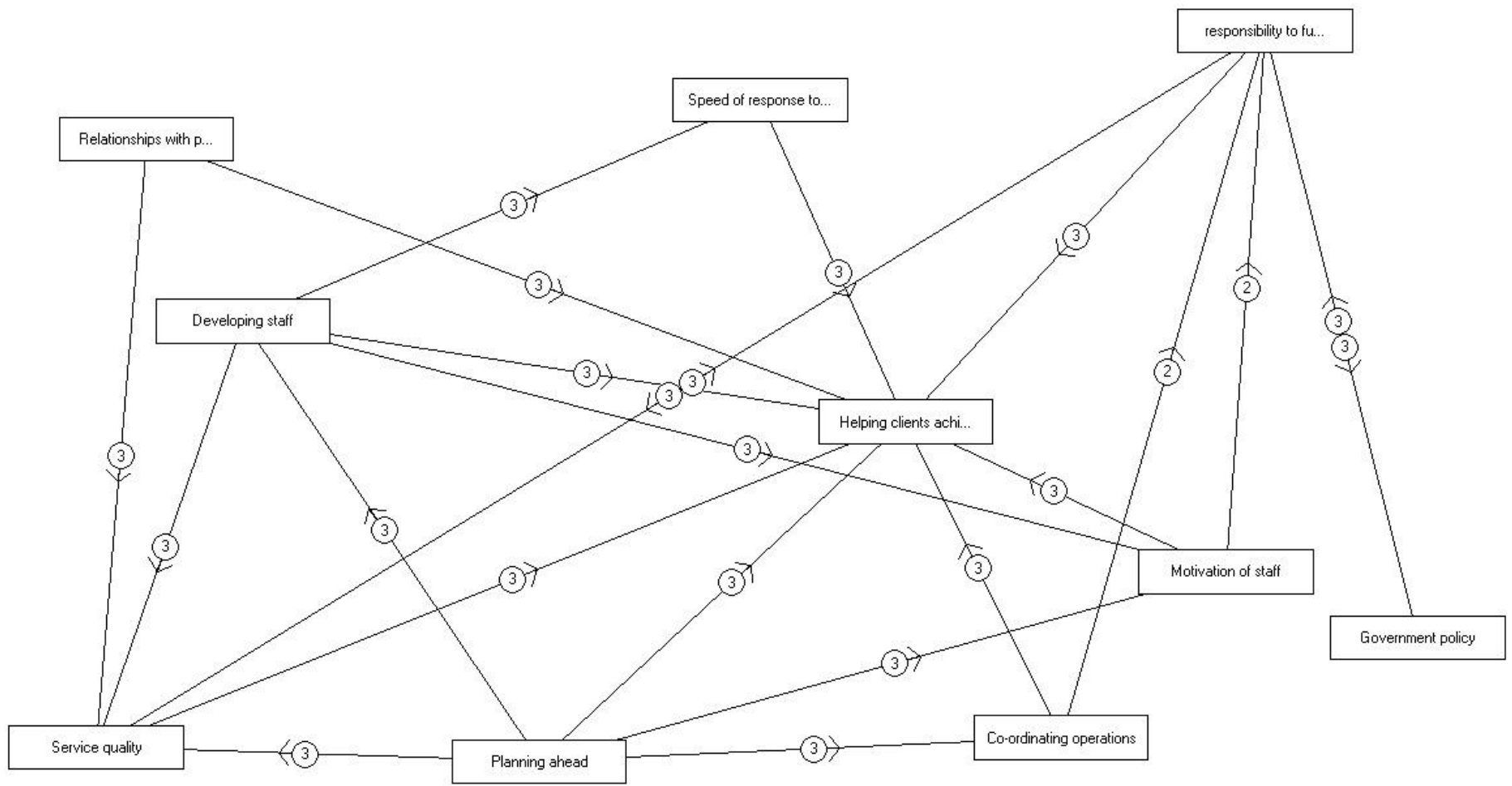
Cognitive Map of Respondent B8



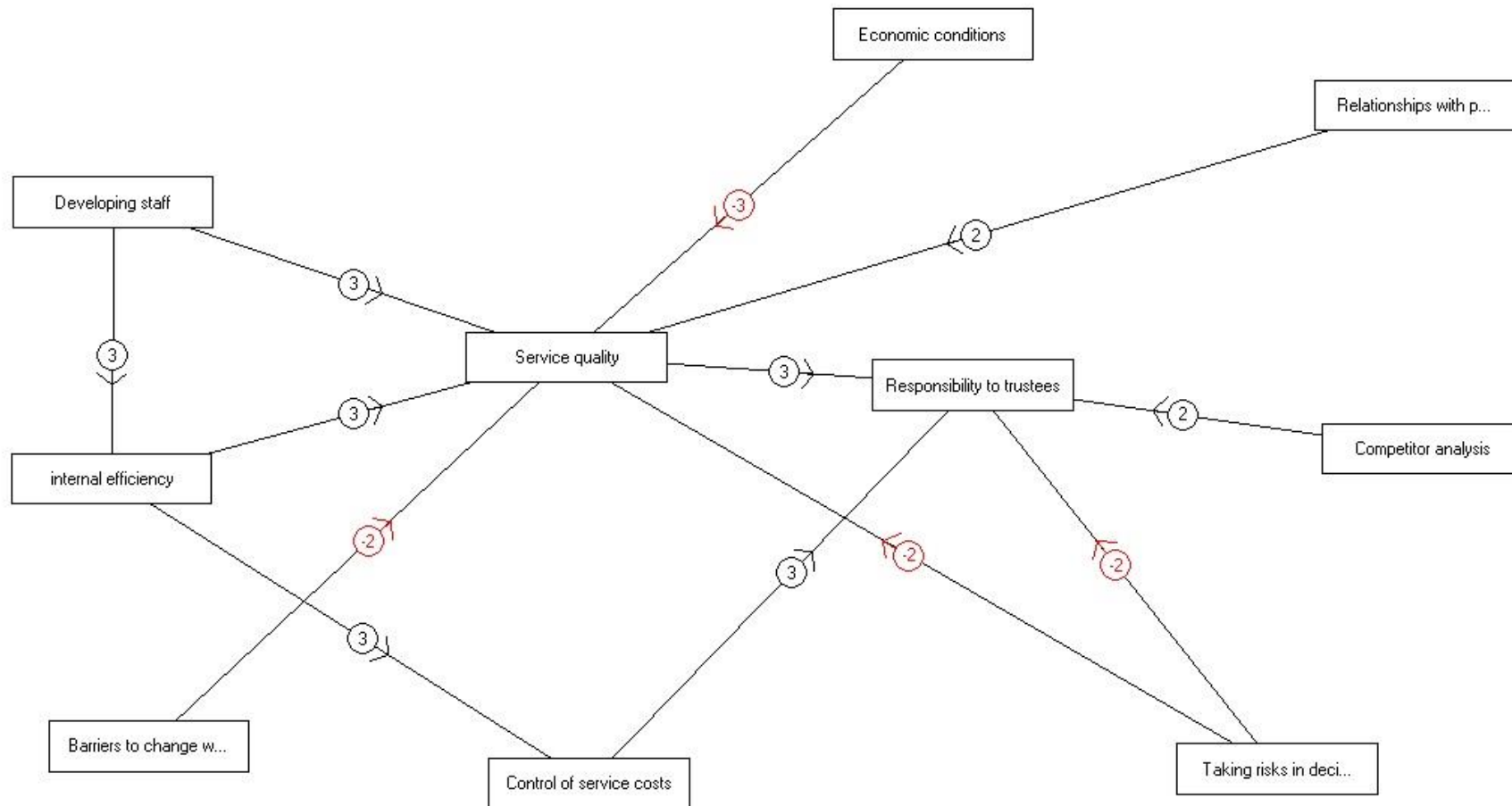
Cognitive Map of Respondent B9



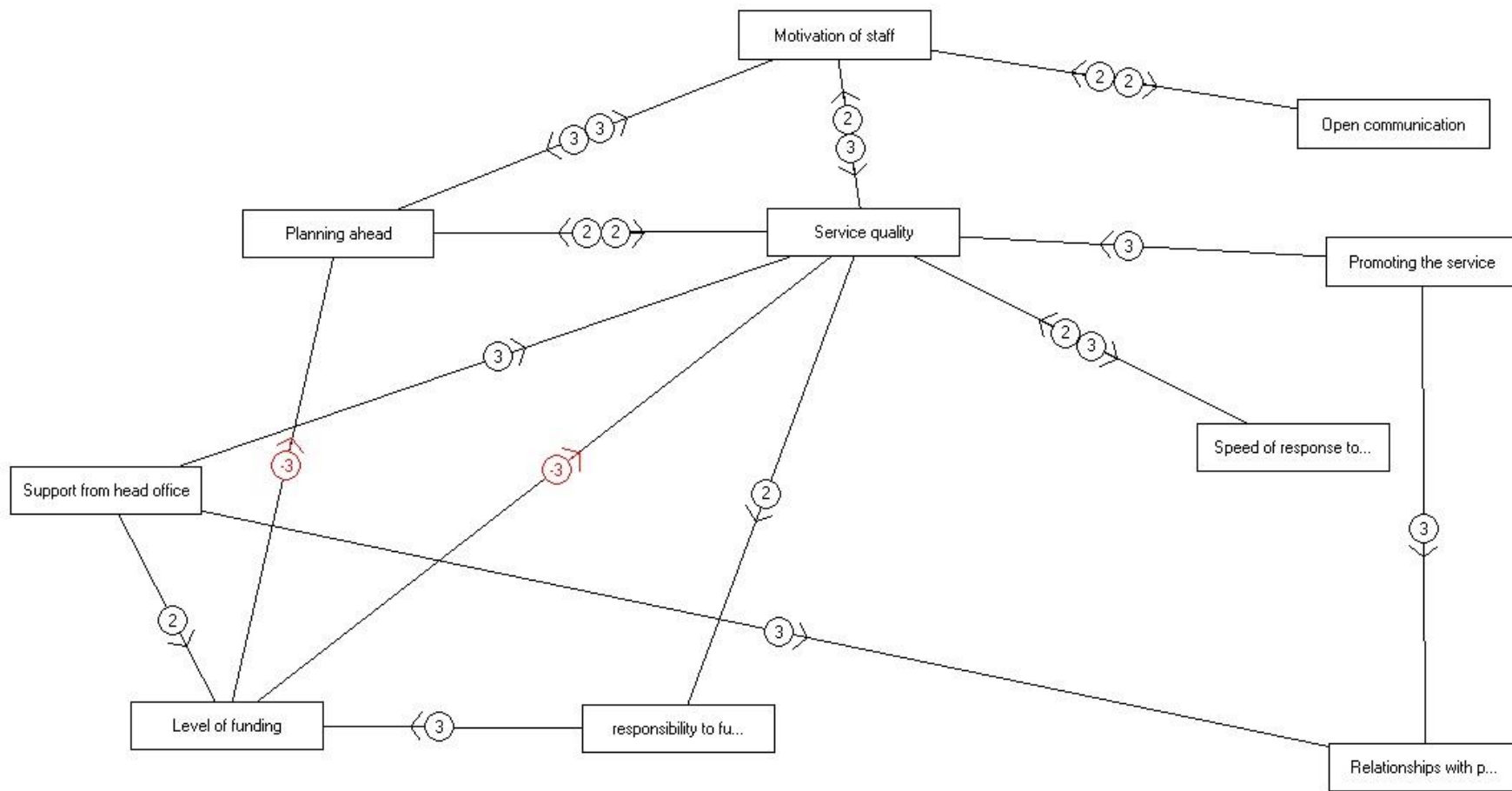
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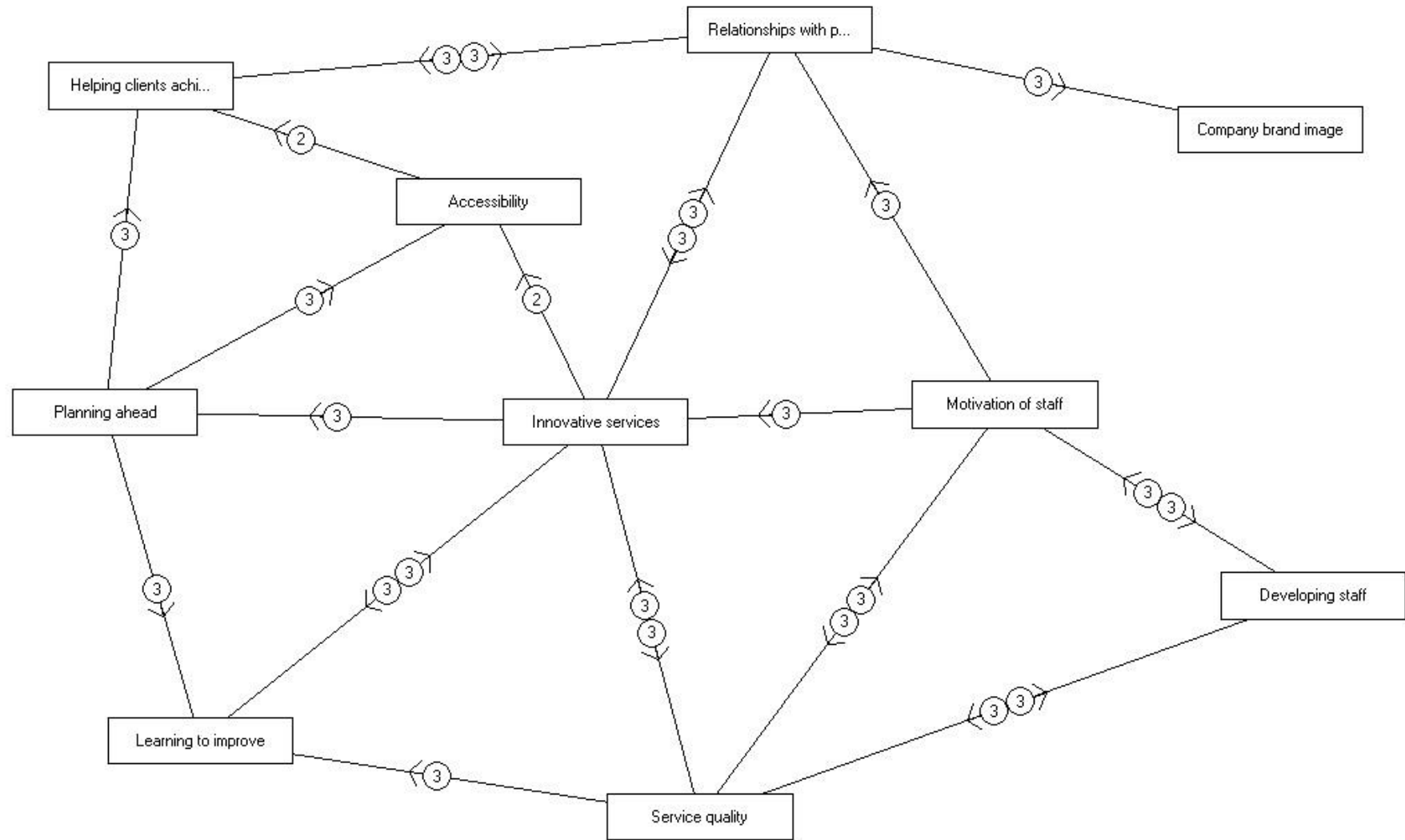
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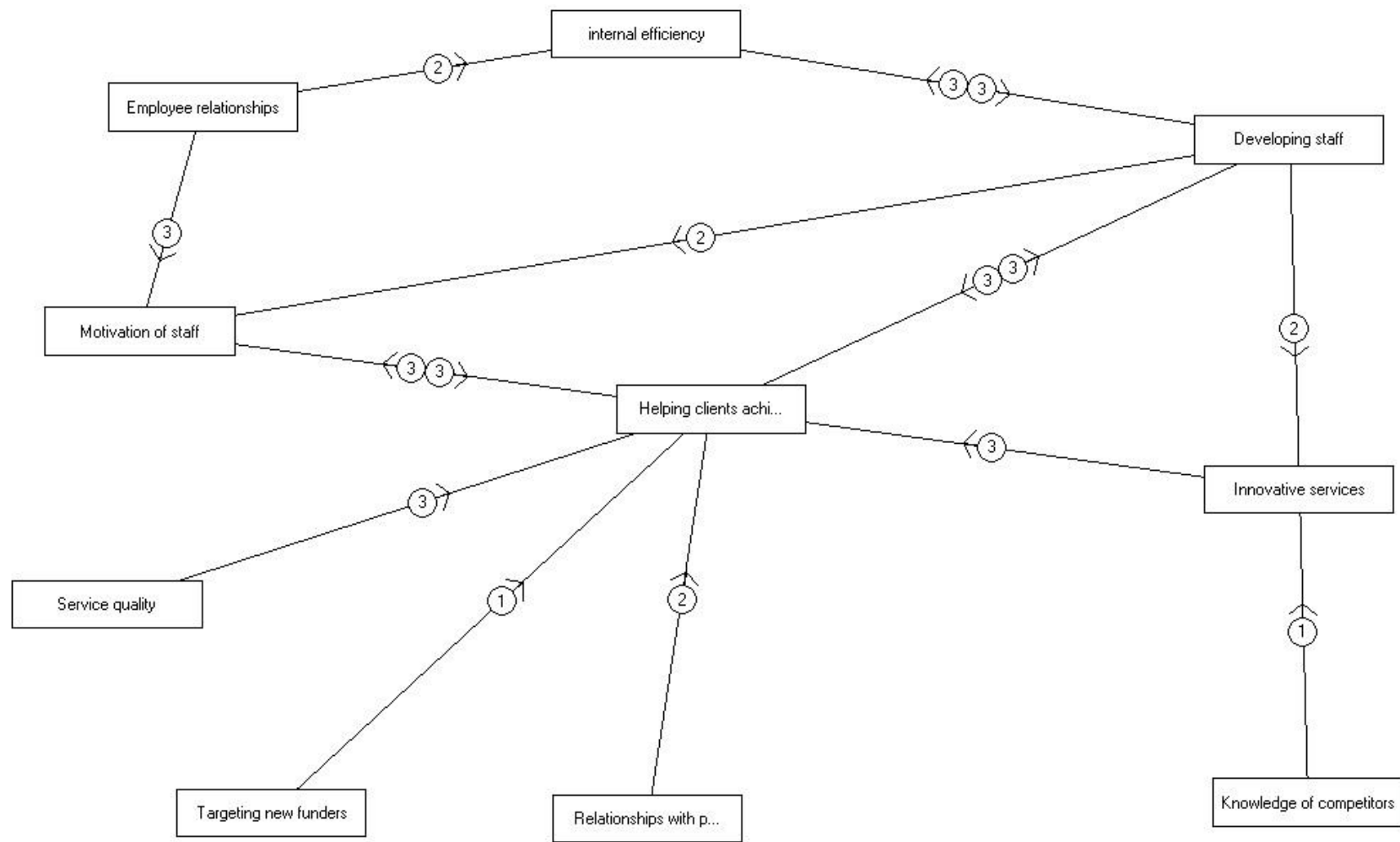
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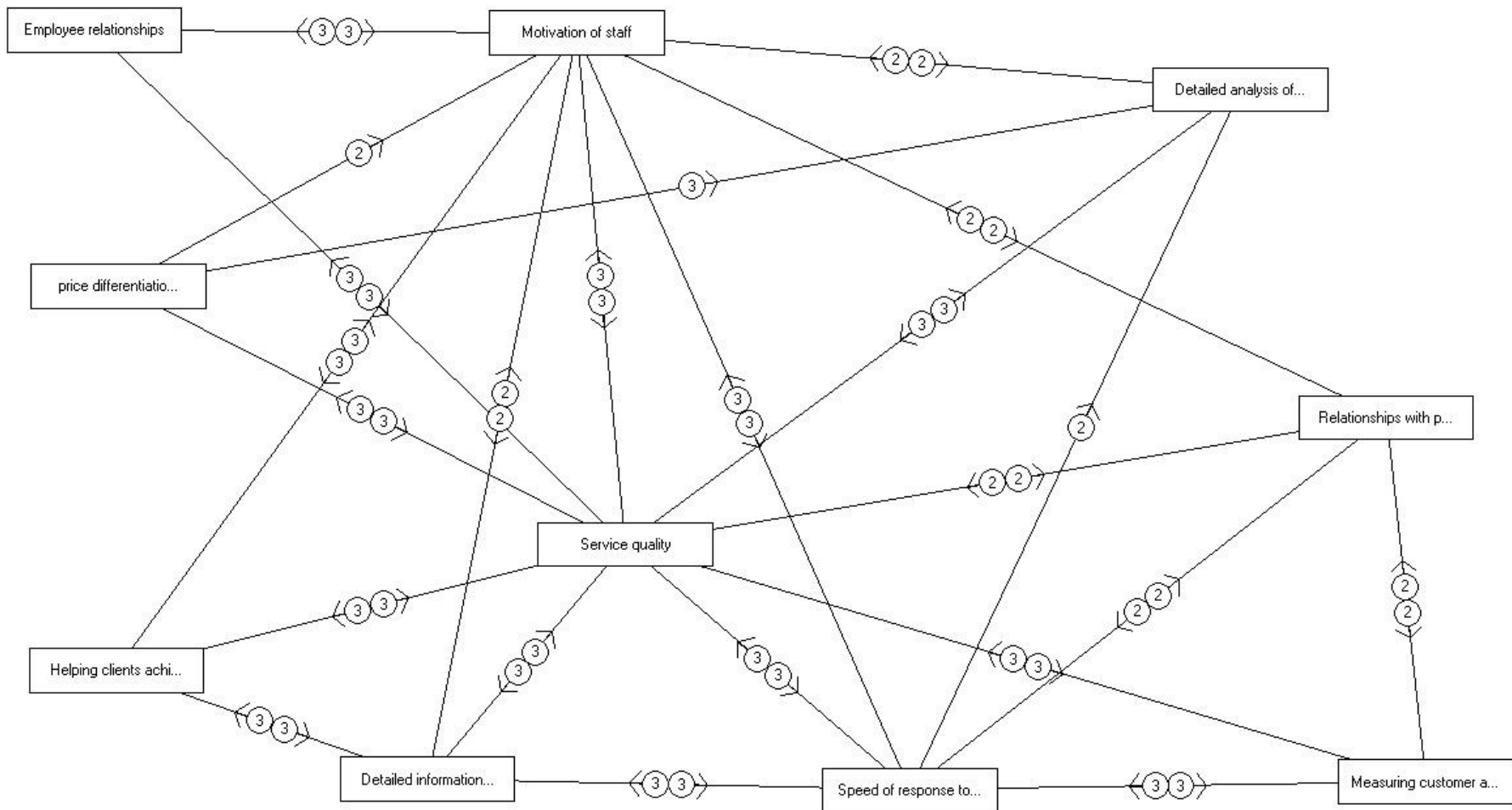
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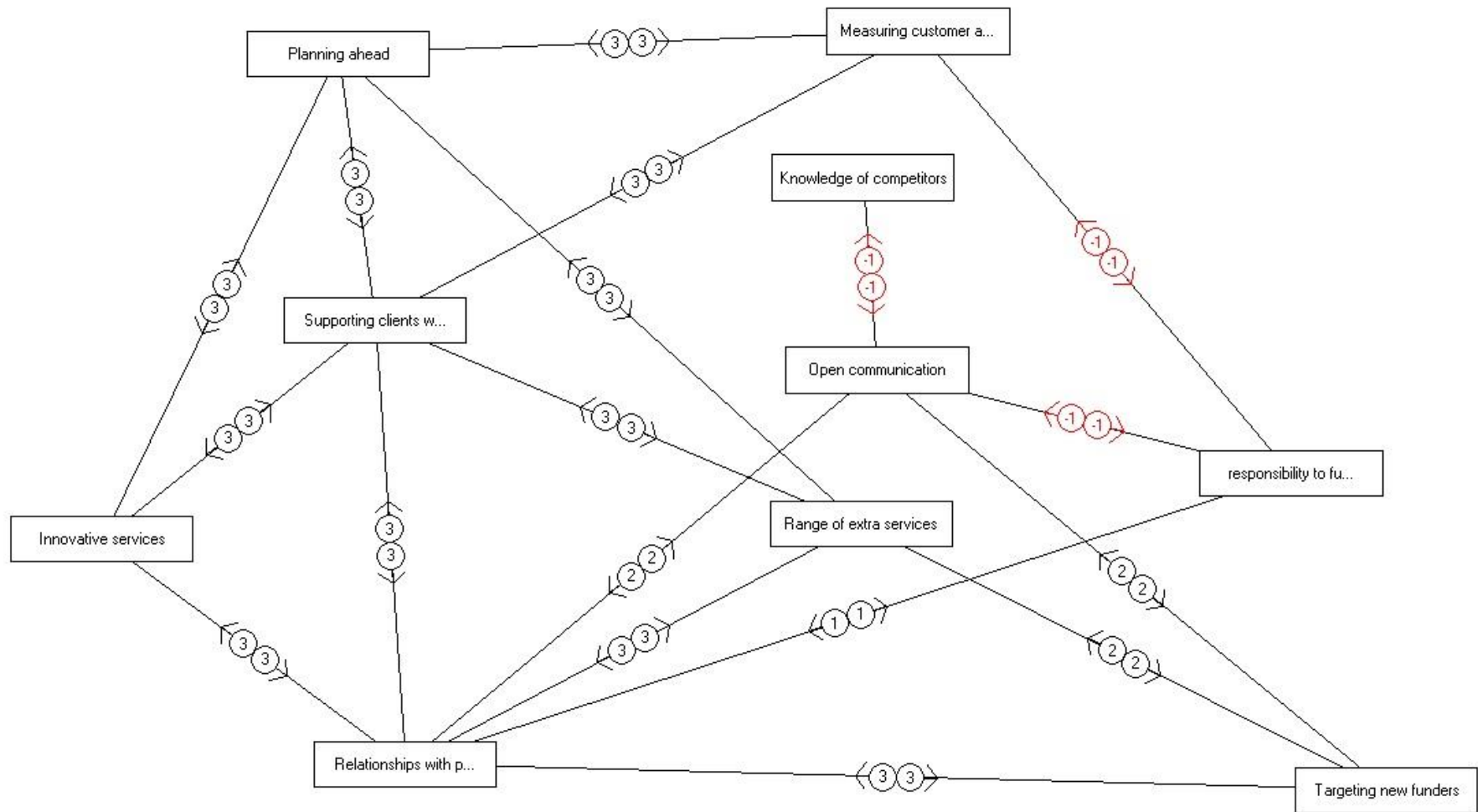
Cognitive Map of Respondent B16



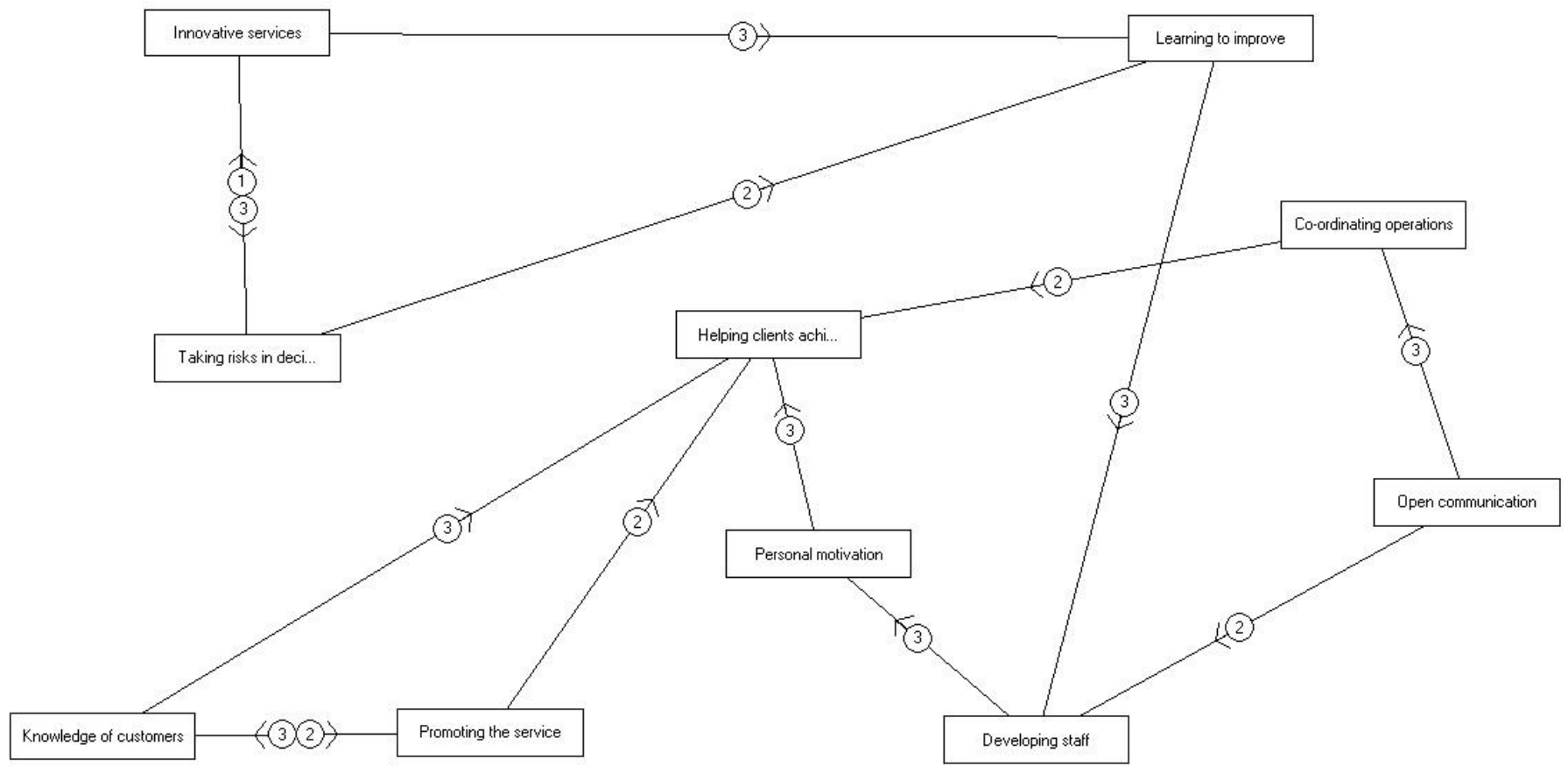
Cognitive Map of Respondent B17



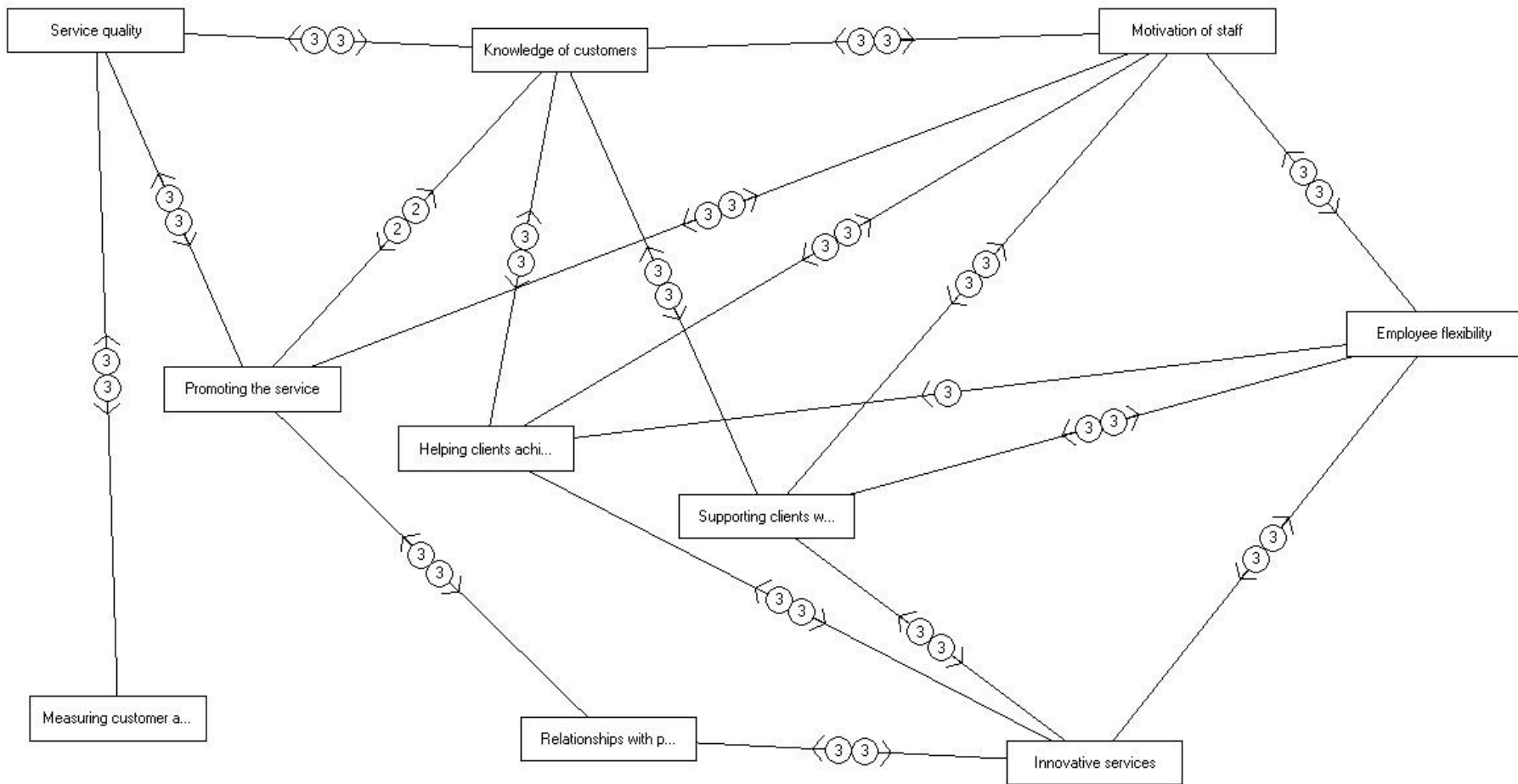
Cognitive Map of Respondent B18



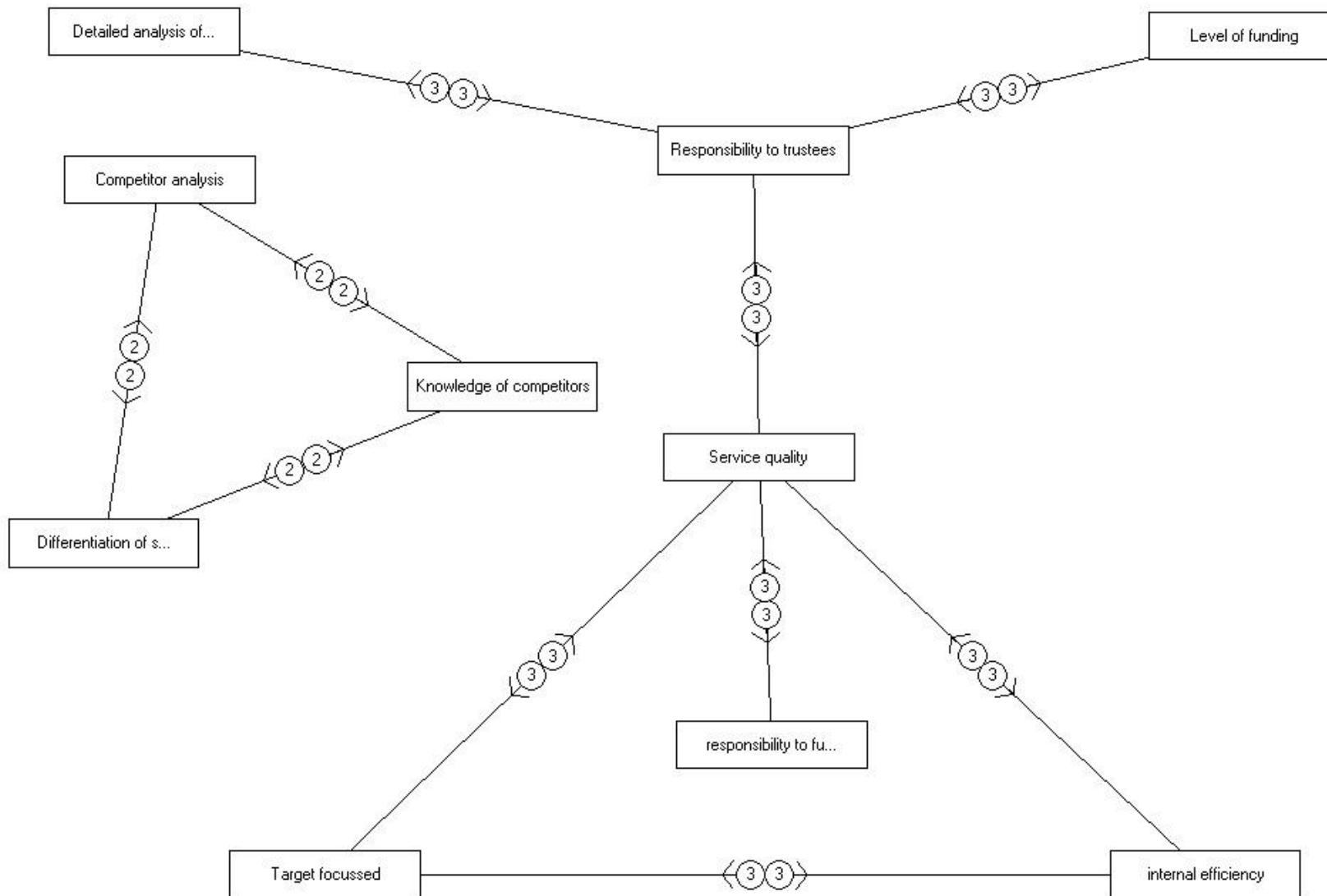
Cognitive Map of Respondent B19



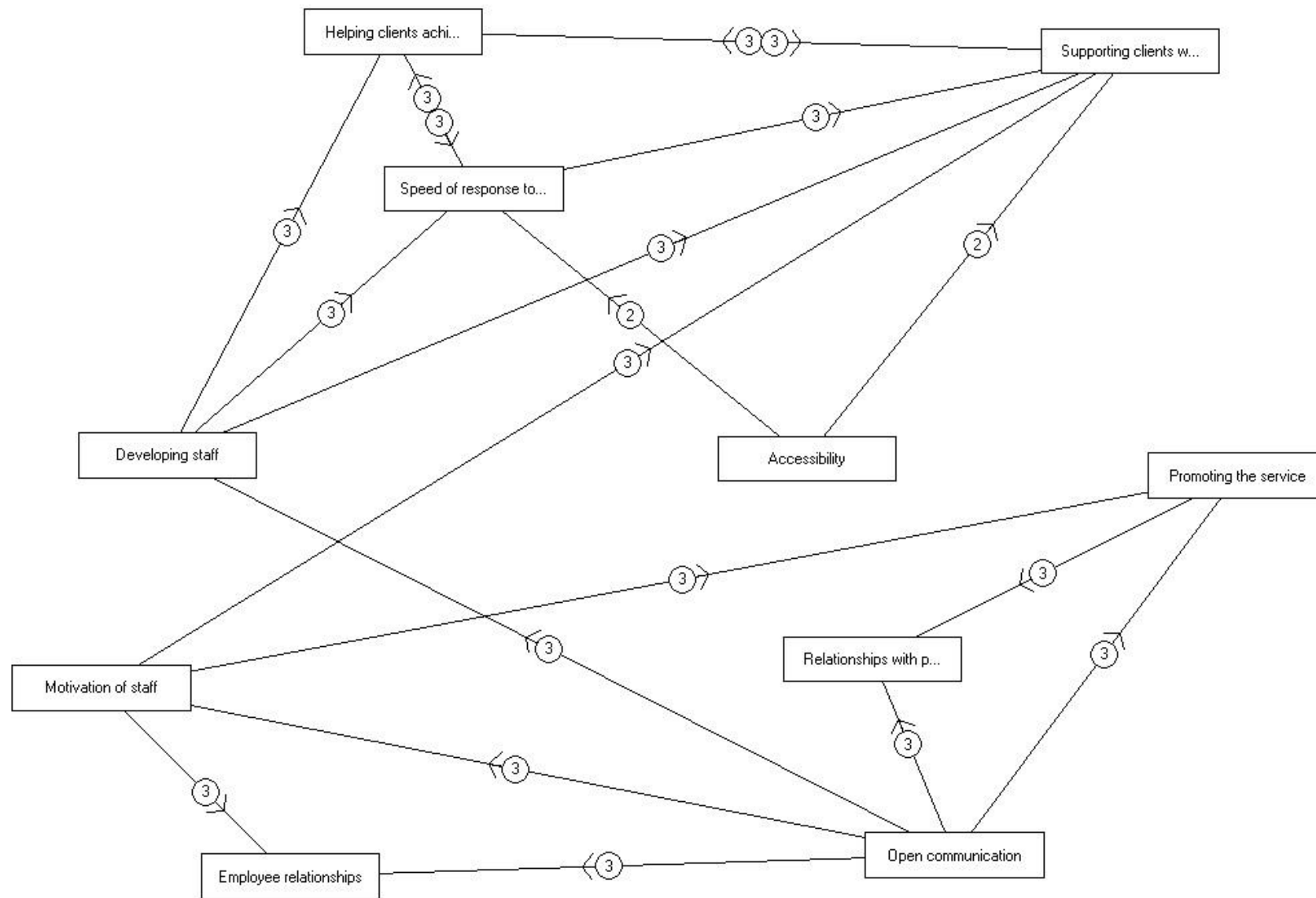
Cognitive Map of Respondent B20



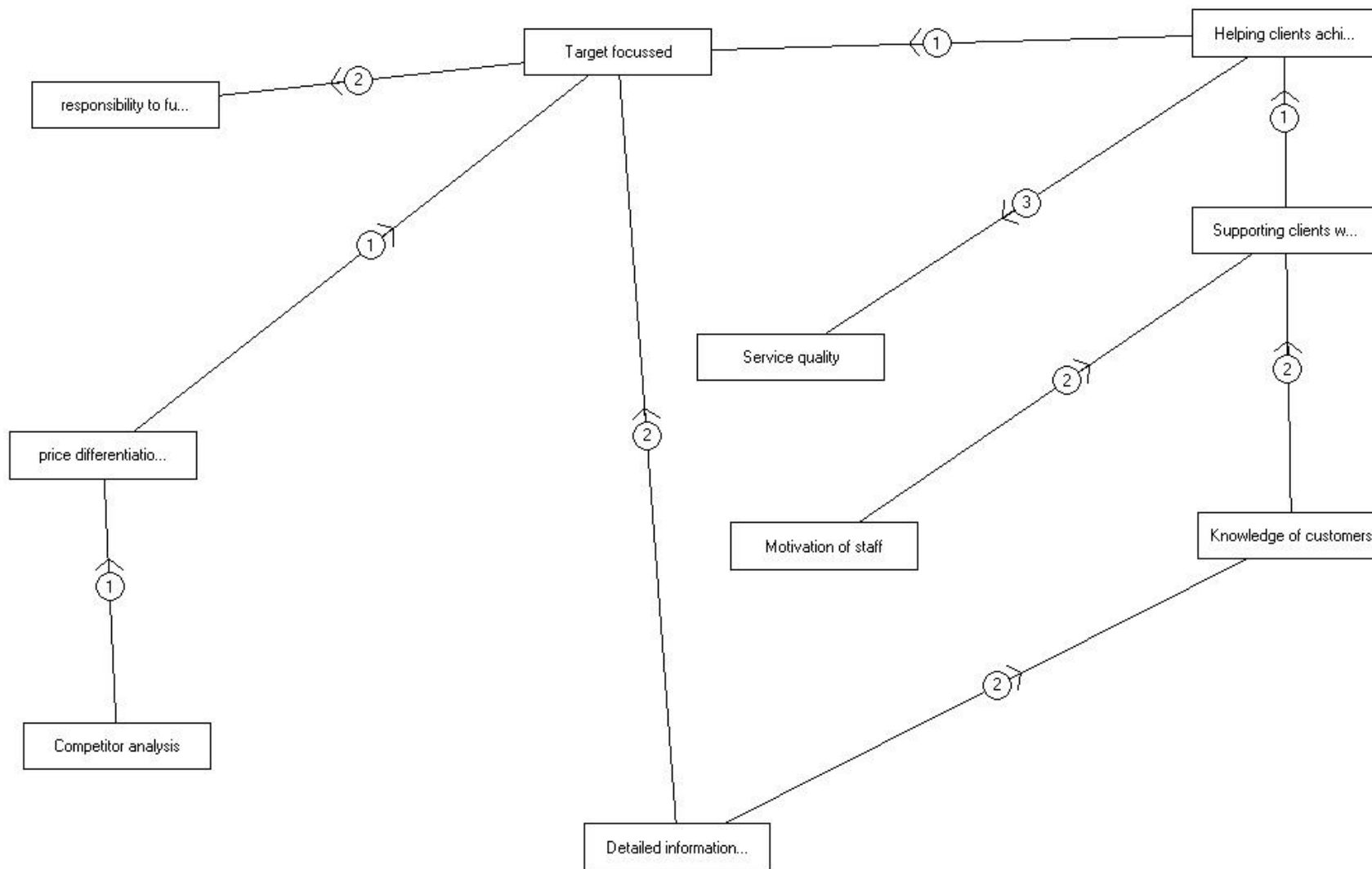
Cognitive Map of Respondent B21



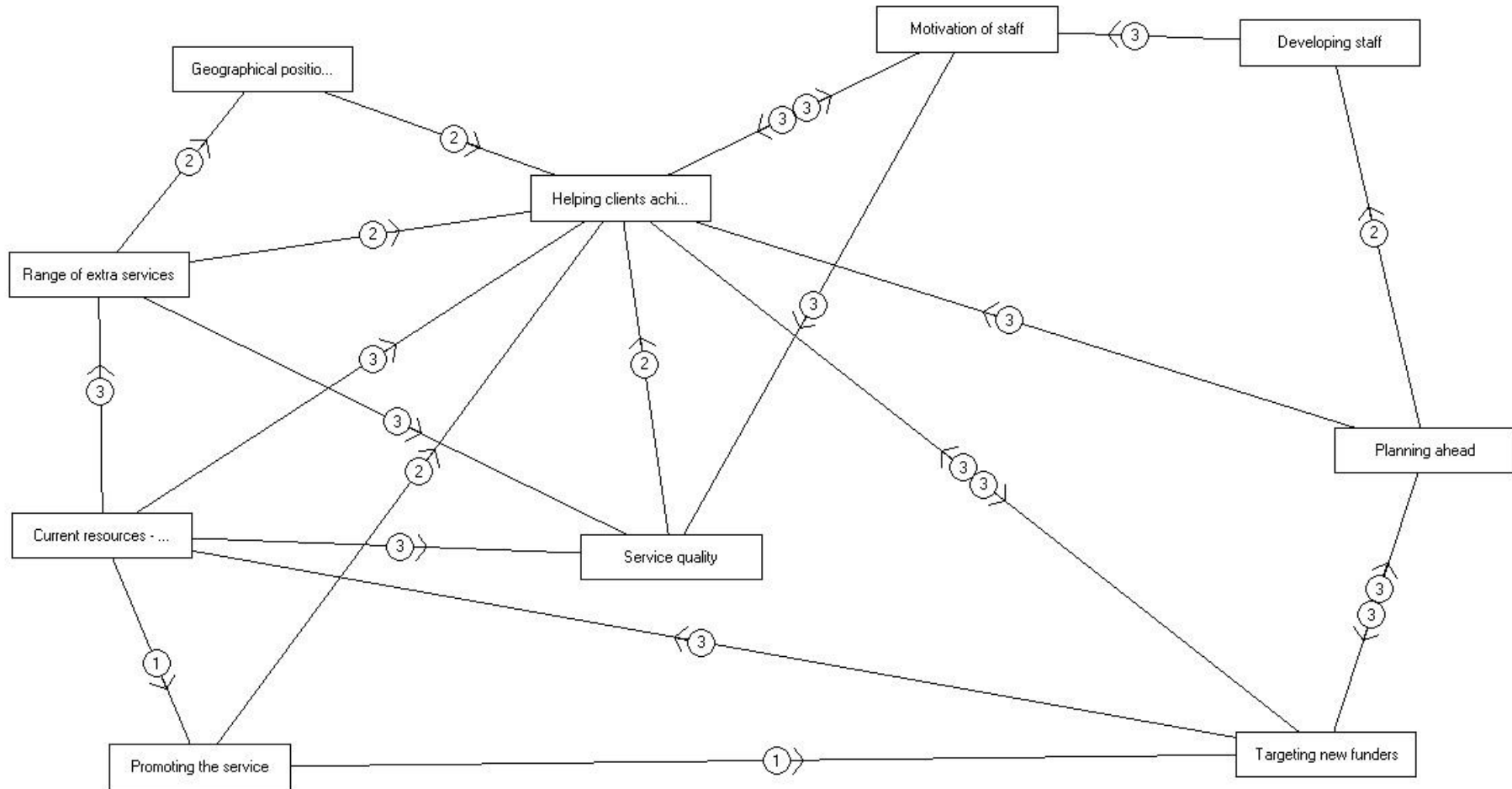
Cognitive Map of Respondent B23



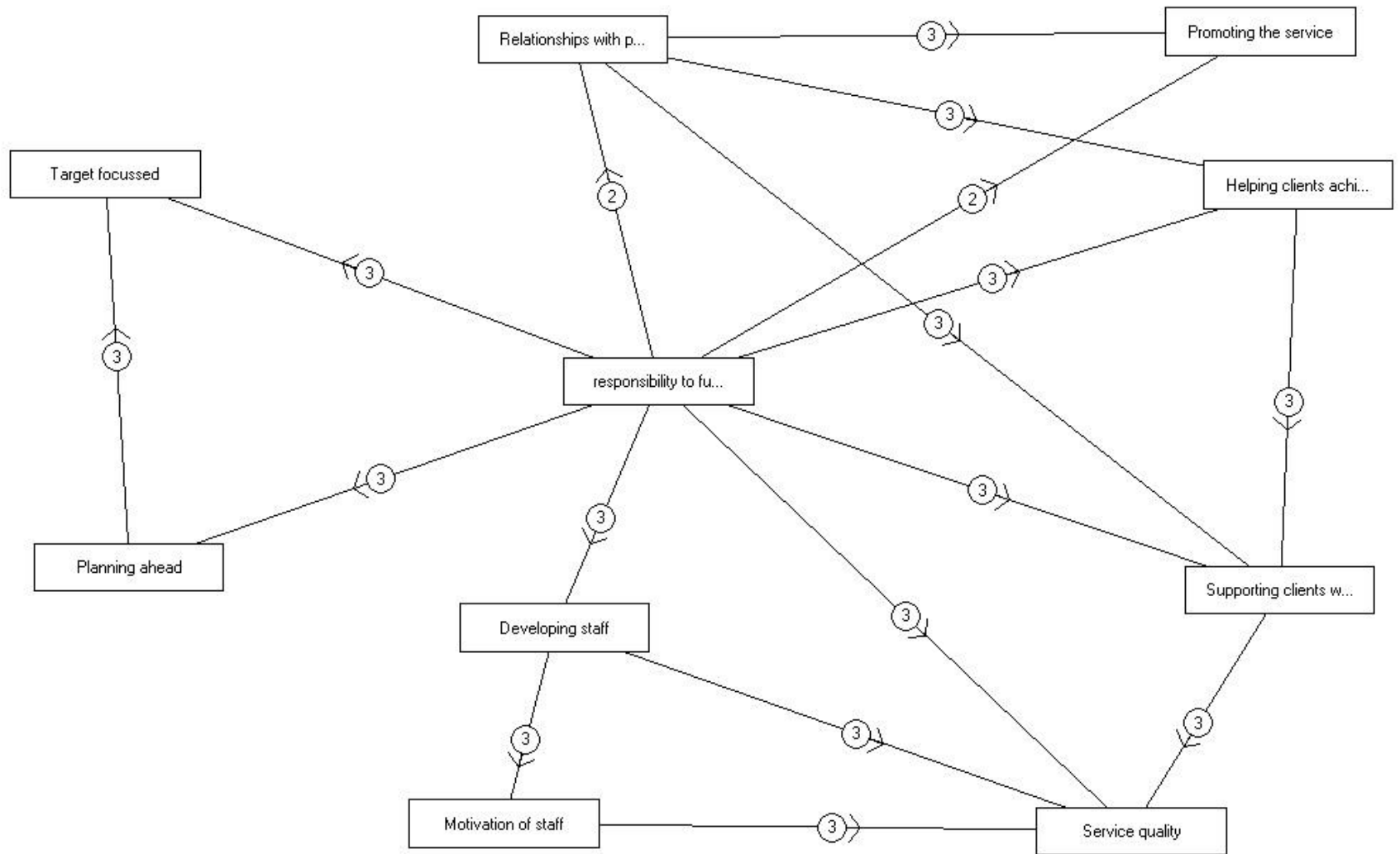
Cognitive Map of Respondent B26



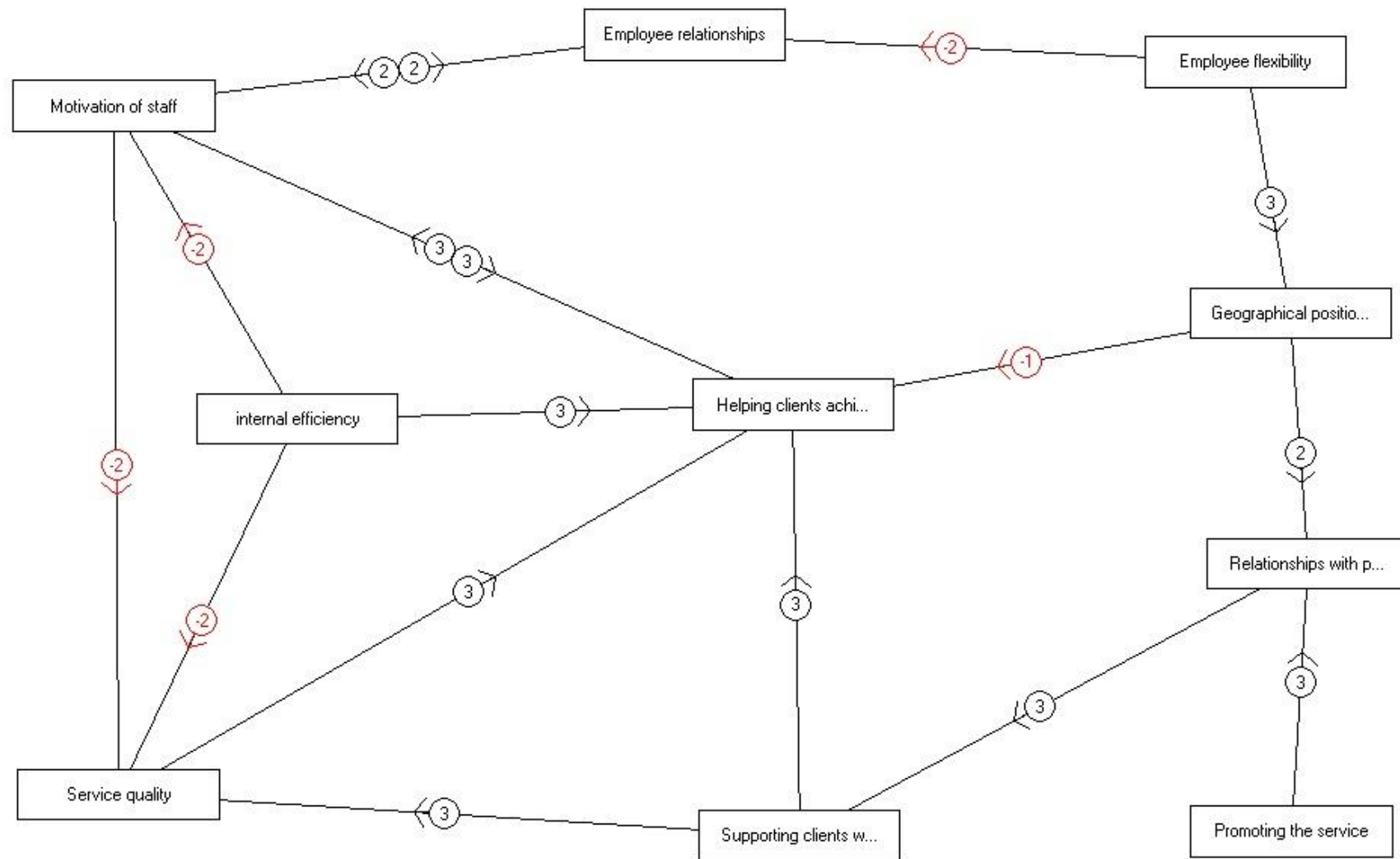
Cognitive Map of Respondent B28



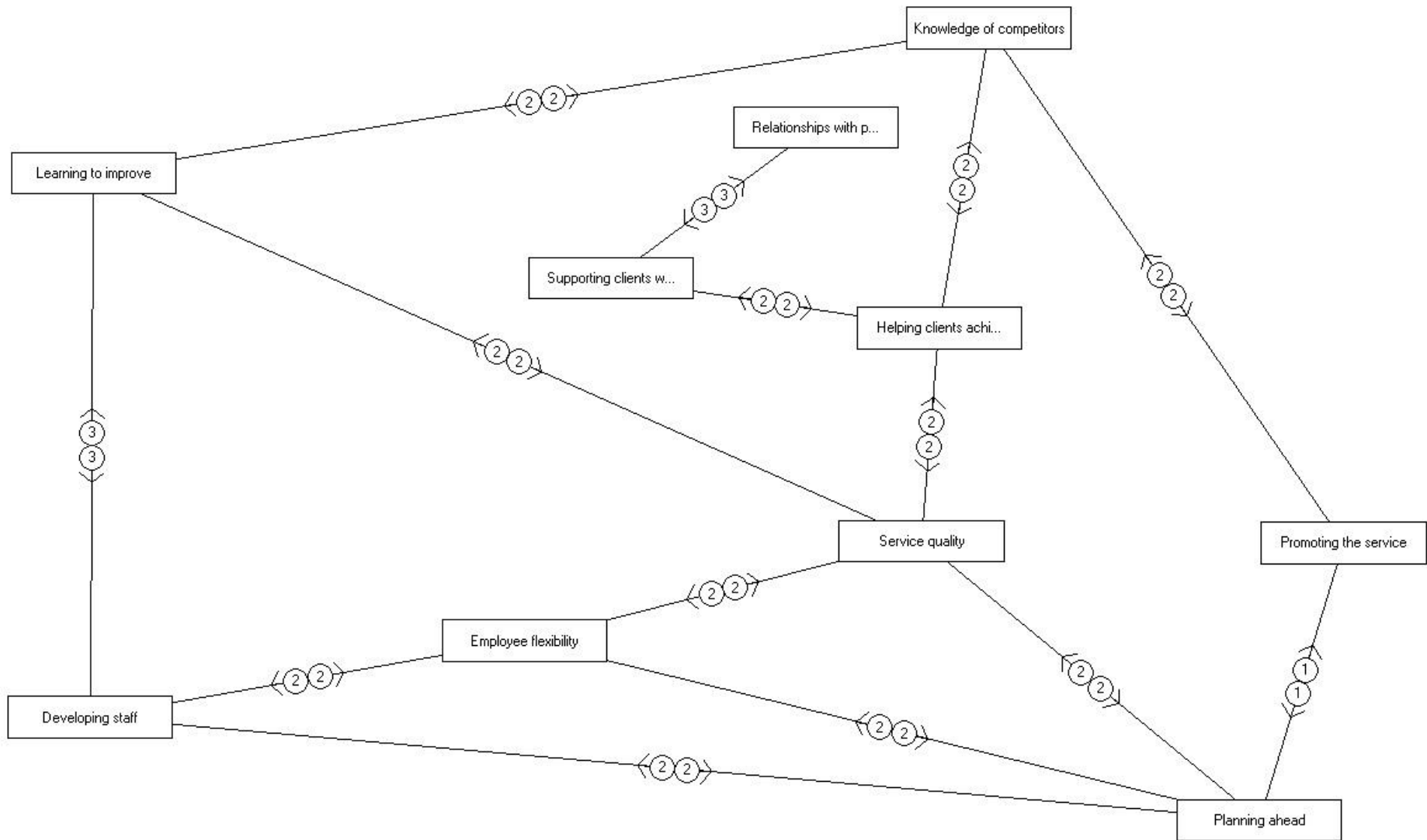
Cognitive Map of Respondent B31



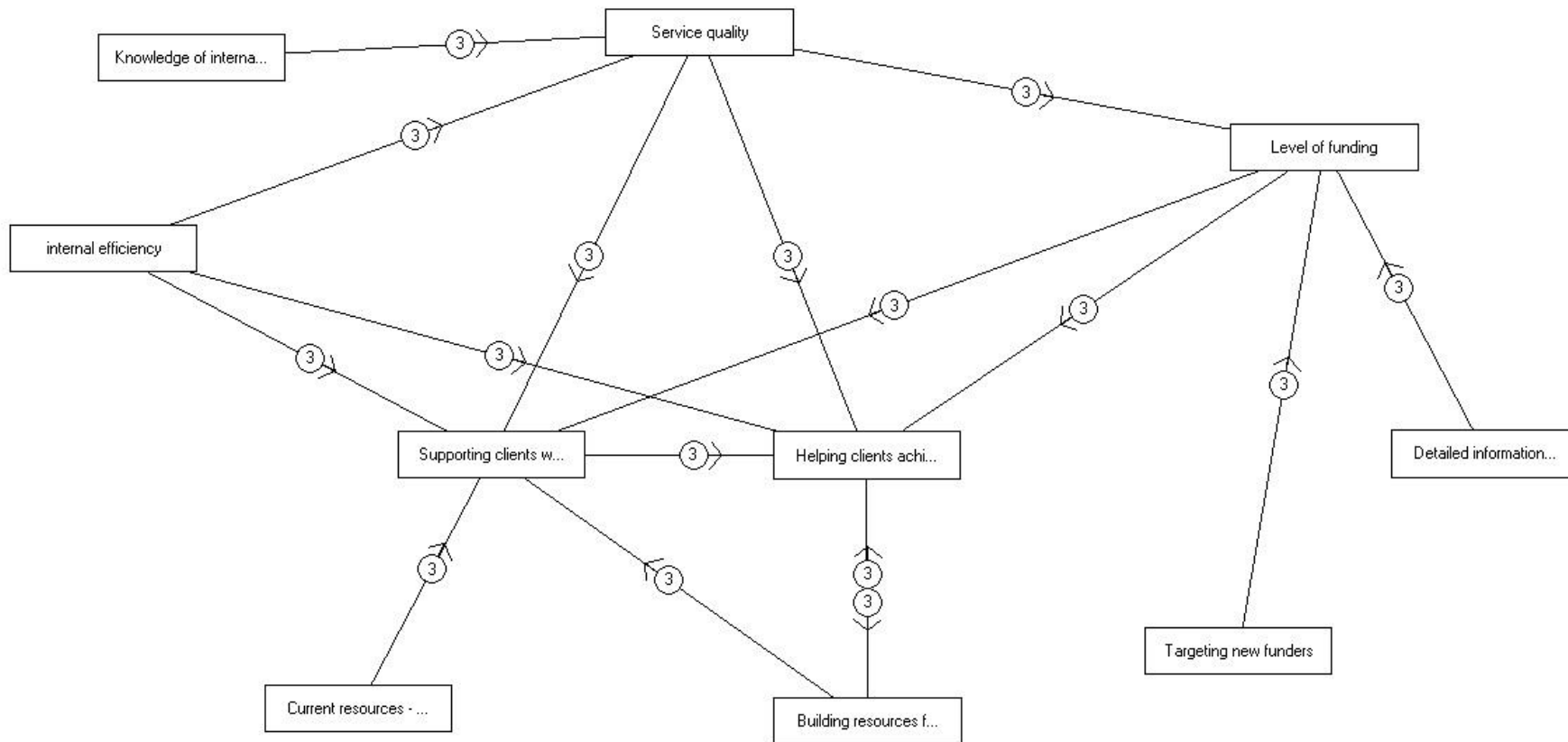
Cognitive Map of Respondent B32



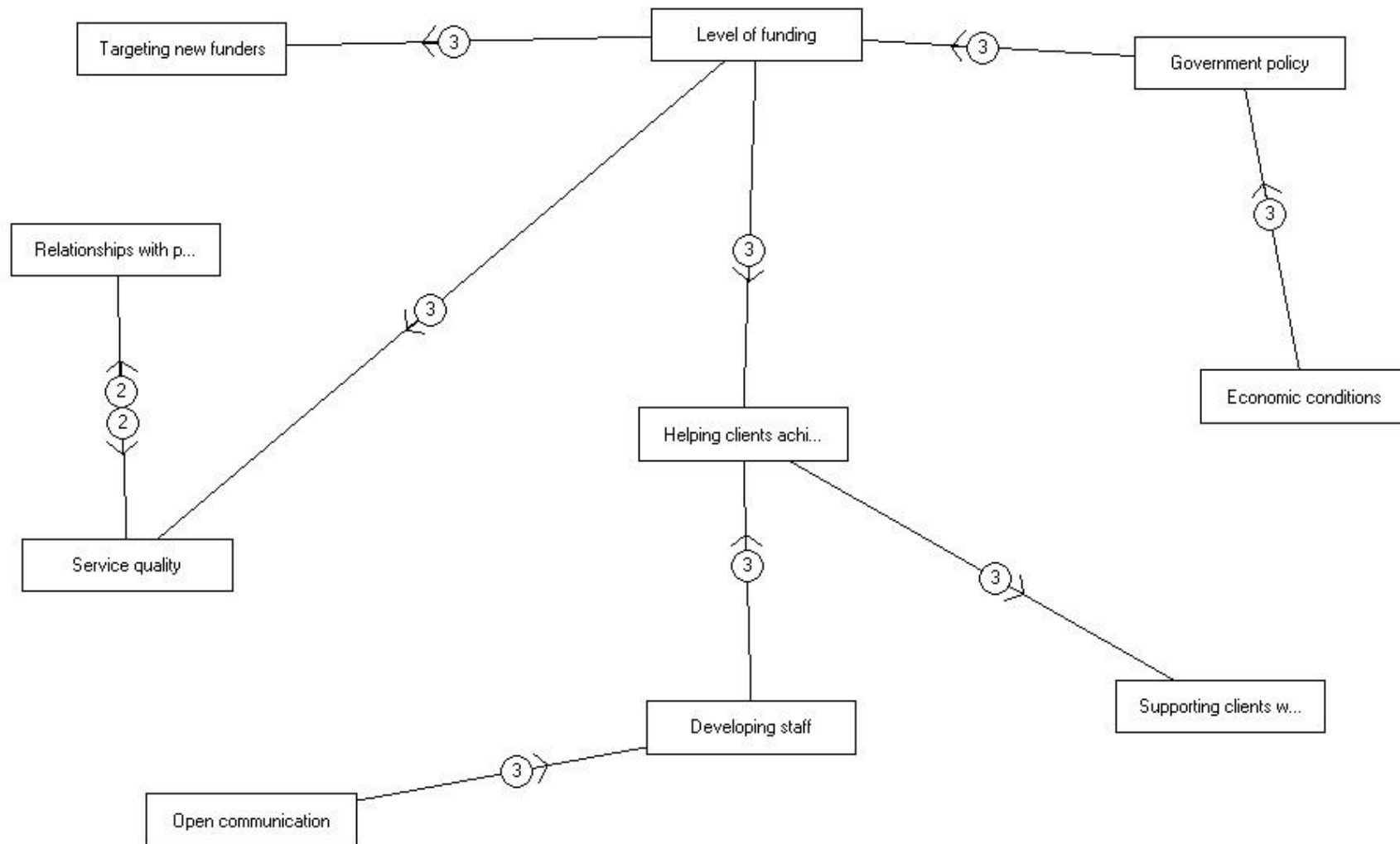
Cognitive Map of Respondent B33



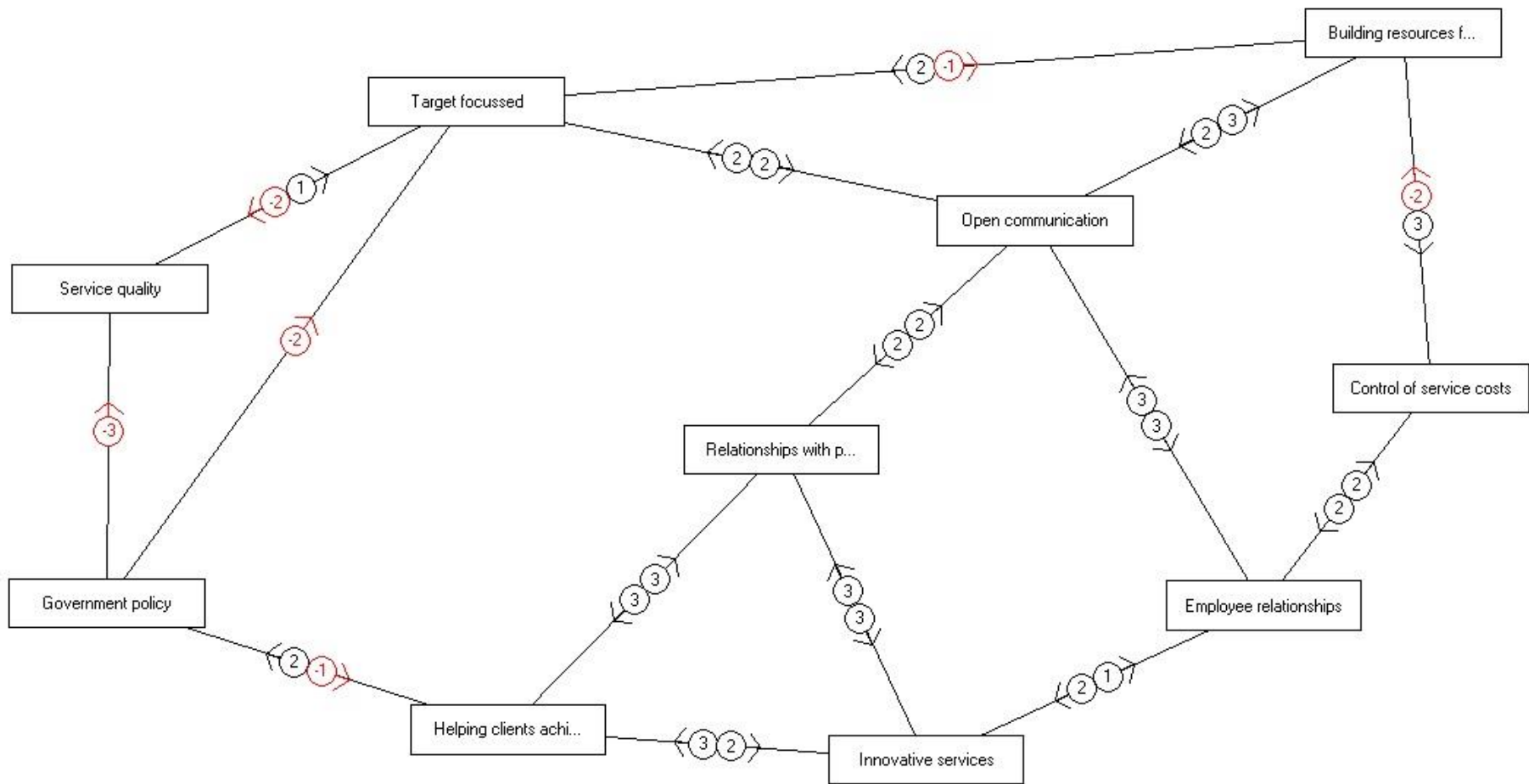
Cognitive Map of Respondent B34



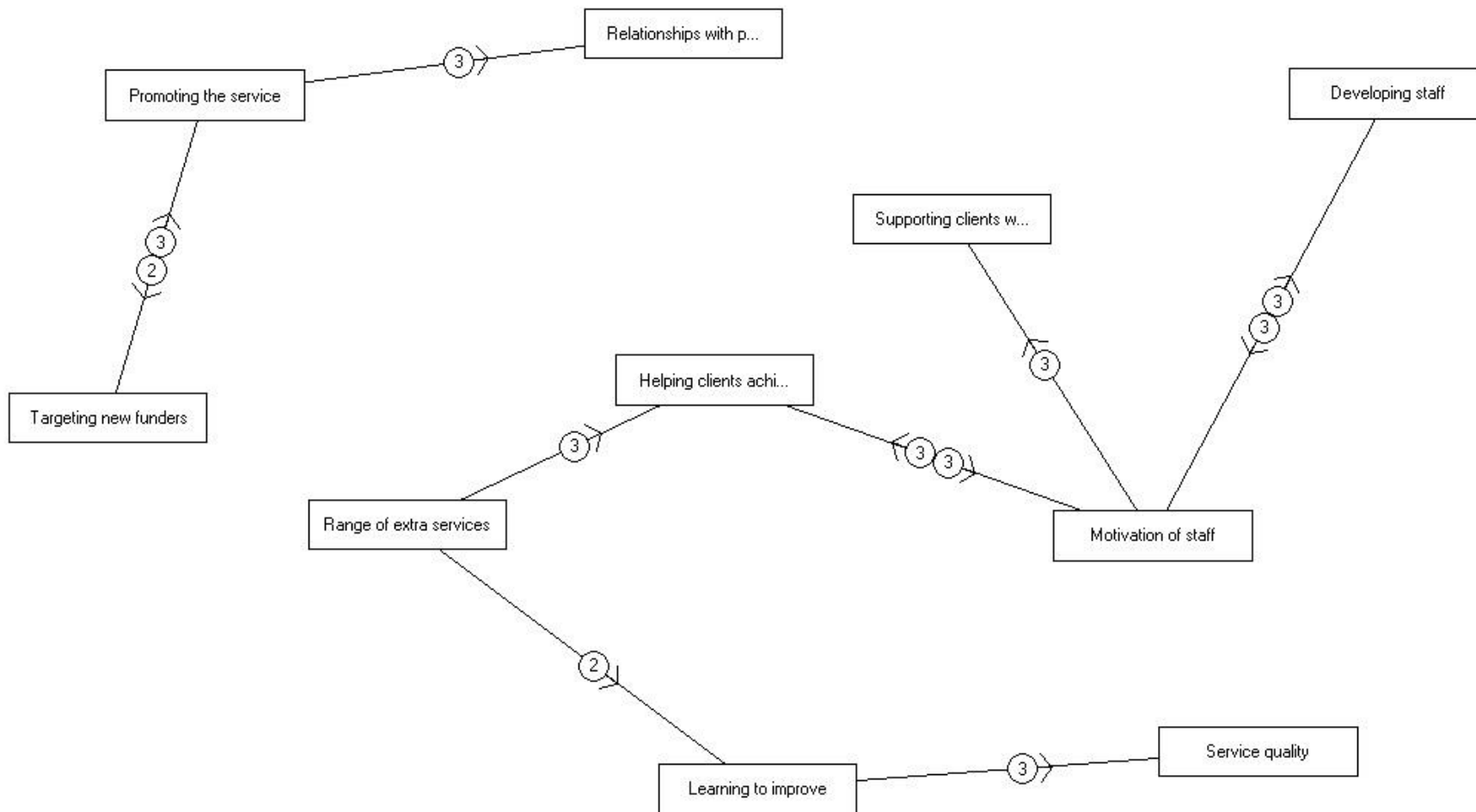
Cognitive Map of Respondent B35



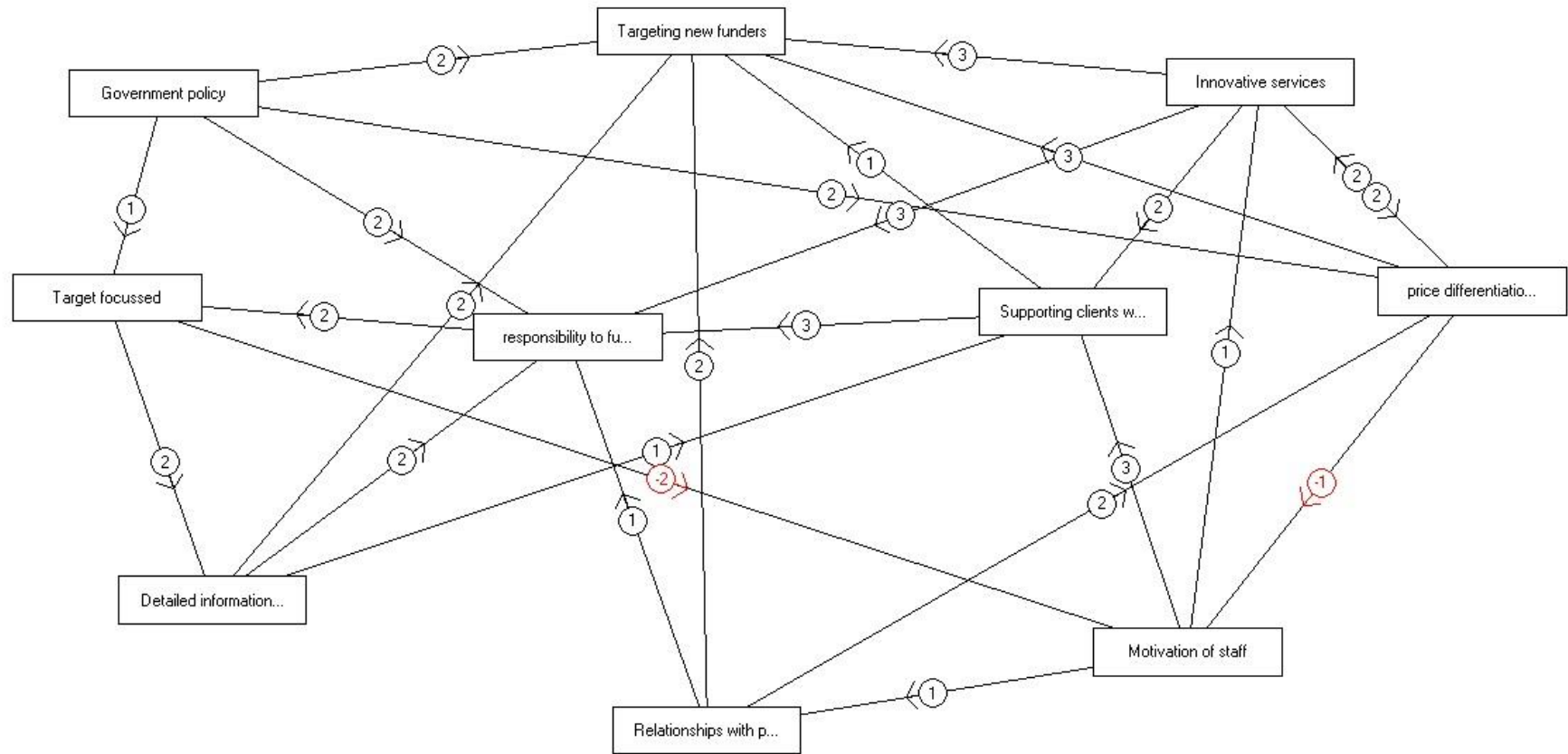
Cognitive Map of Respondent B36



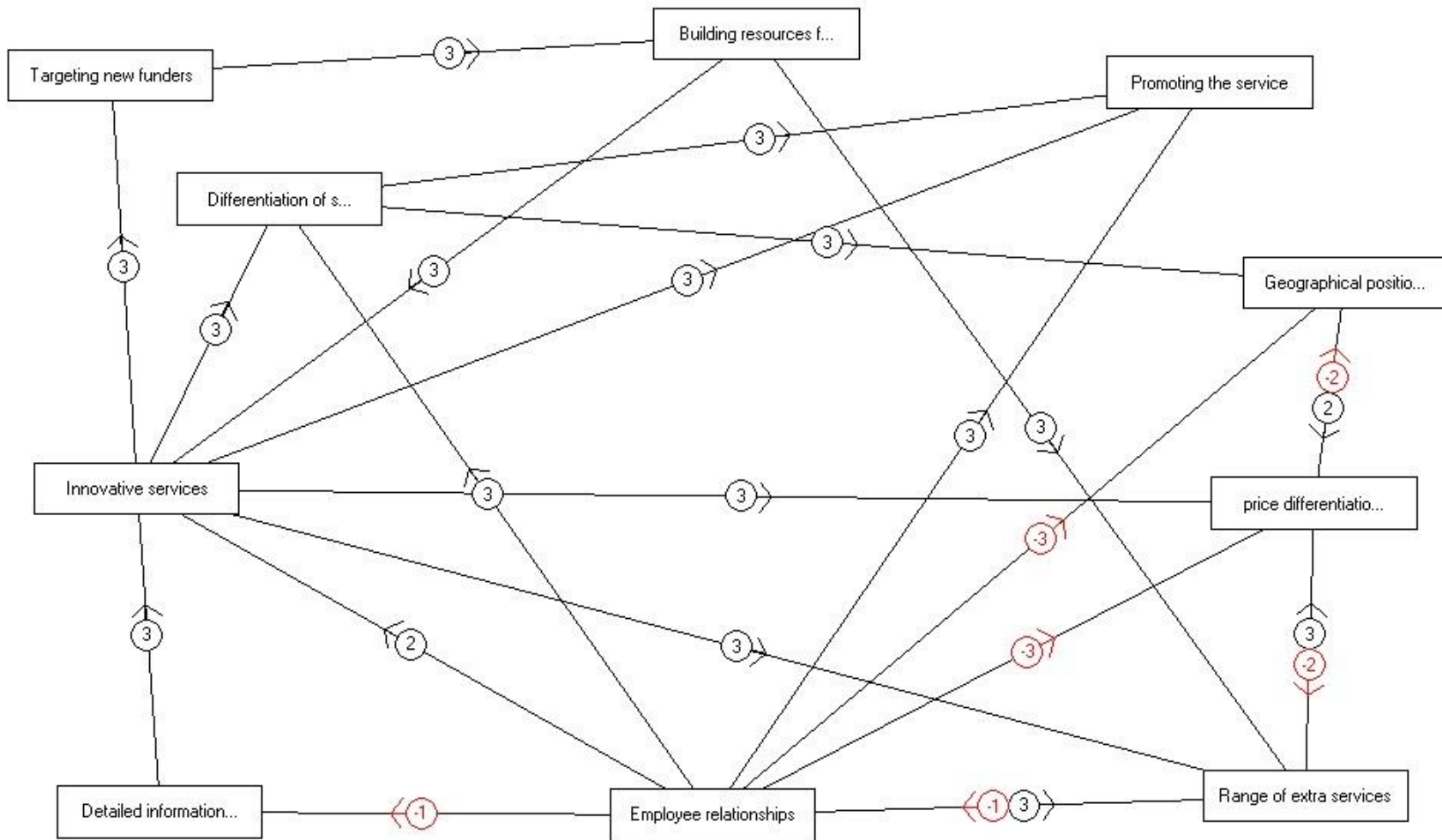
Cognitive Map of Respondent B37



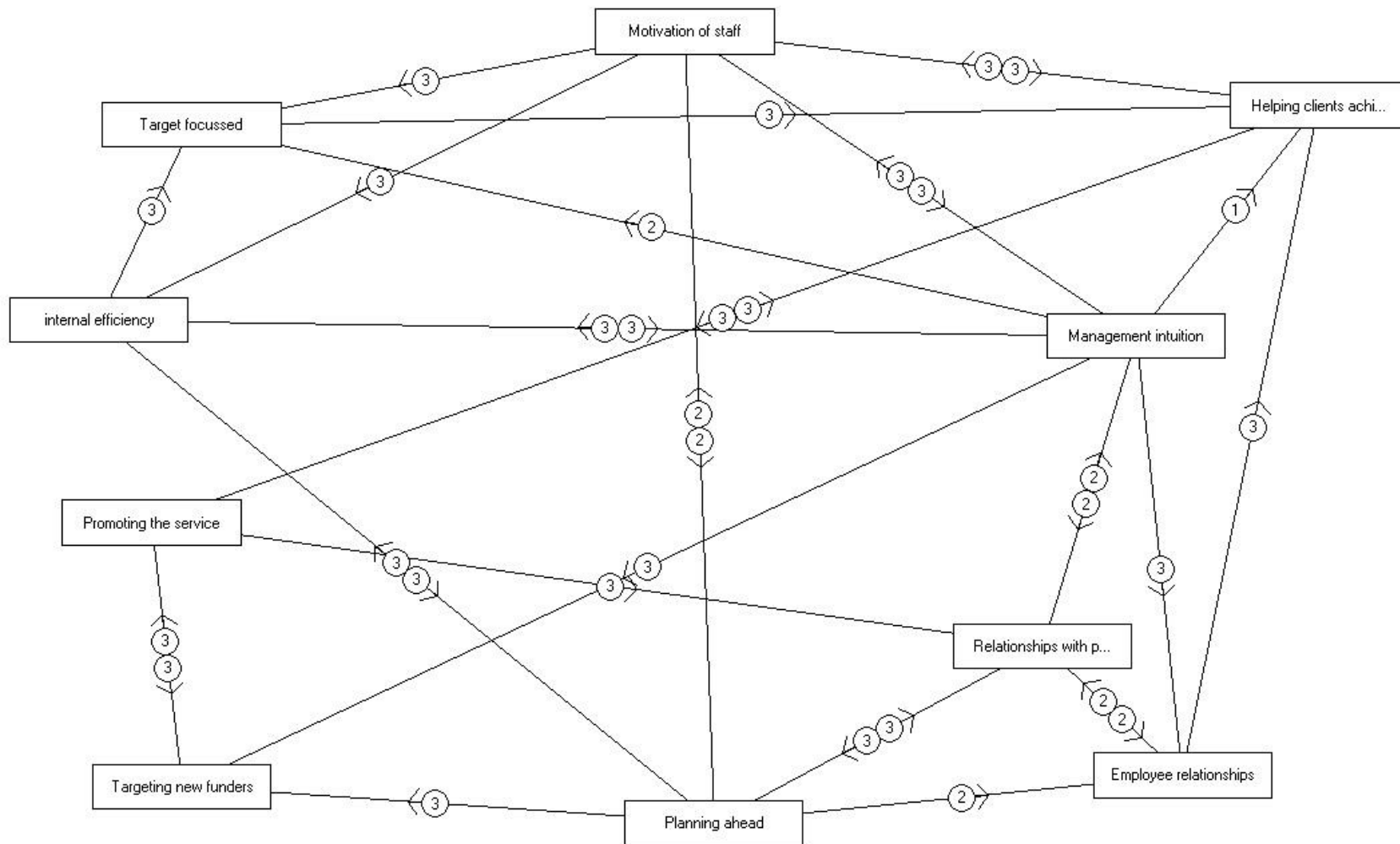
Cognitive Map of Respondent B40



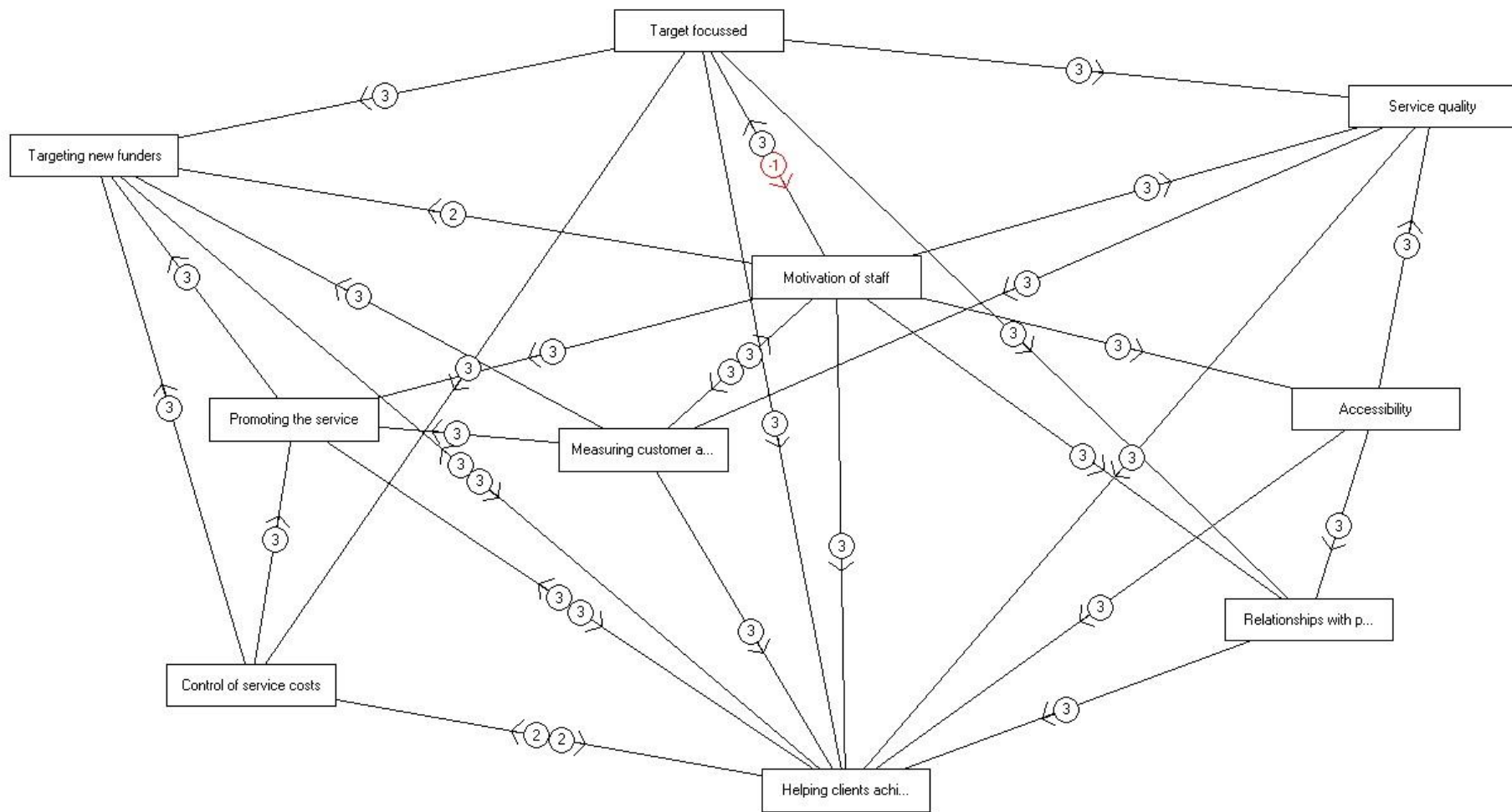
Cognitive Map of Respondent C1



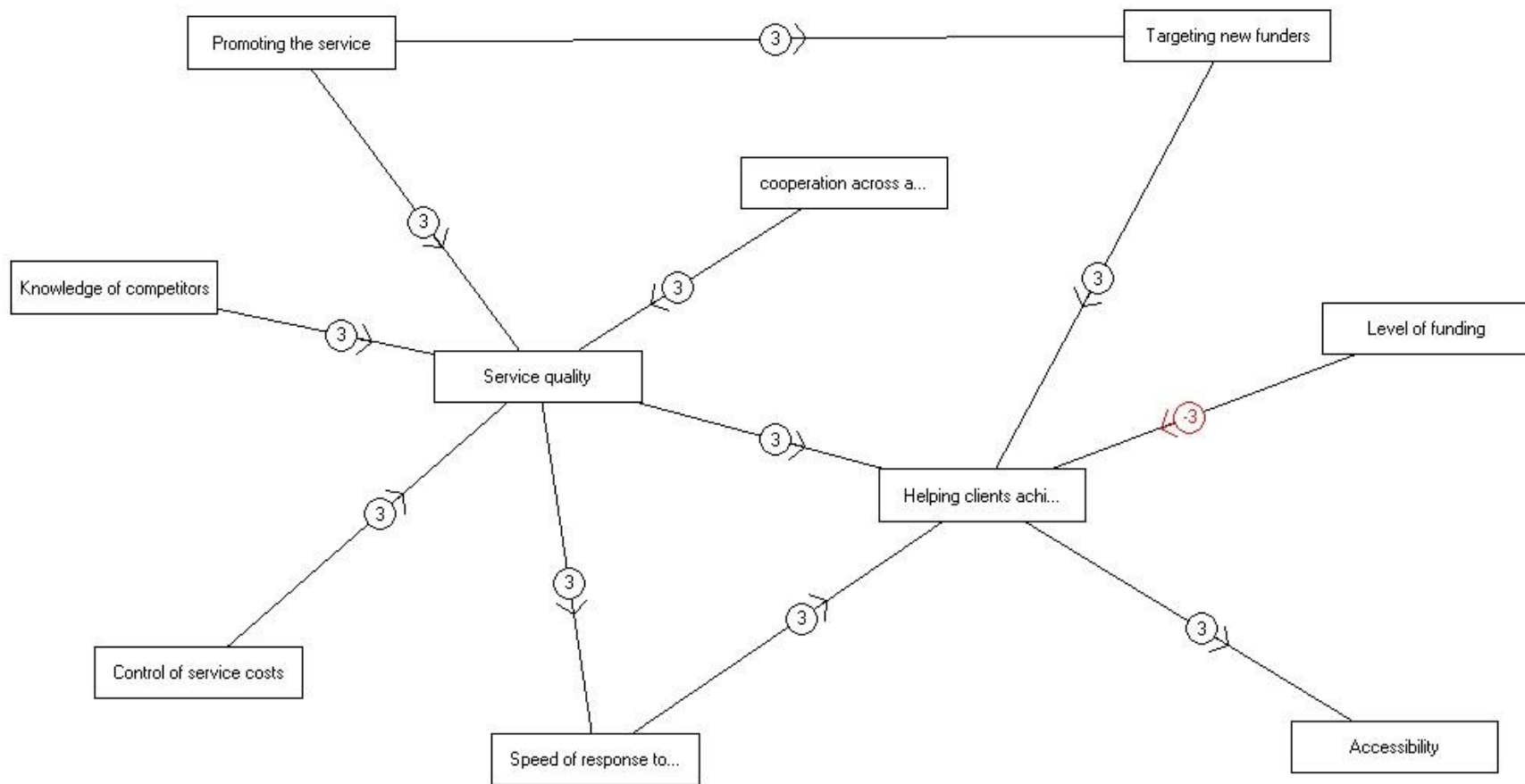
Cognitive Map of Respondent C2



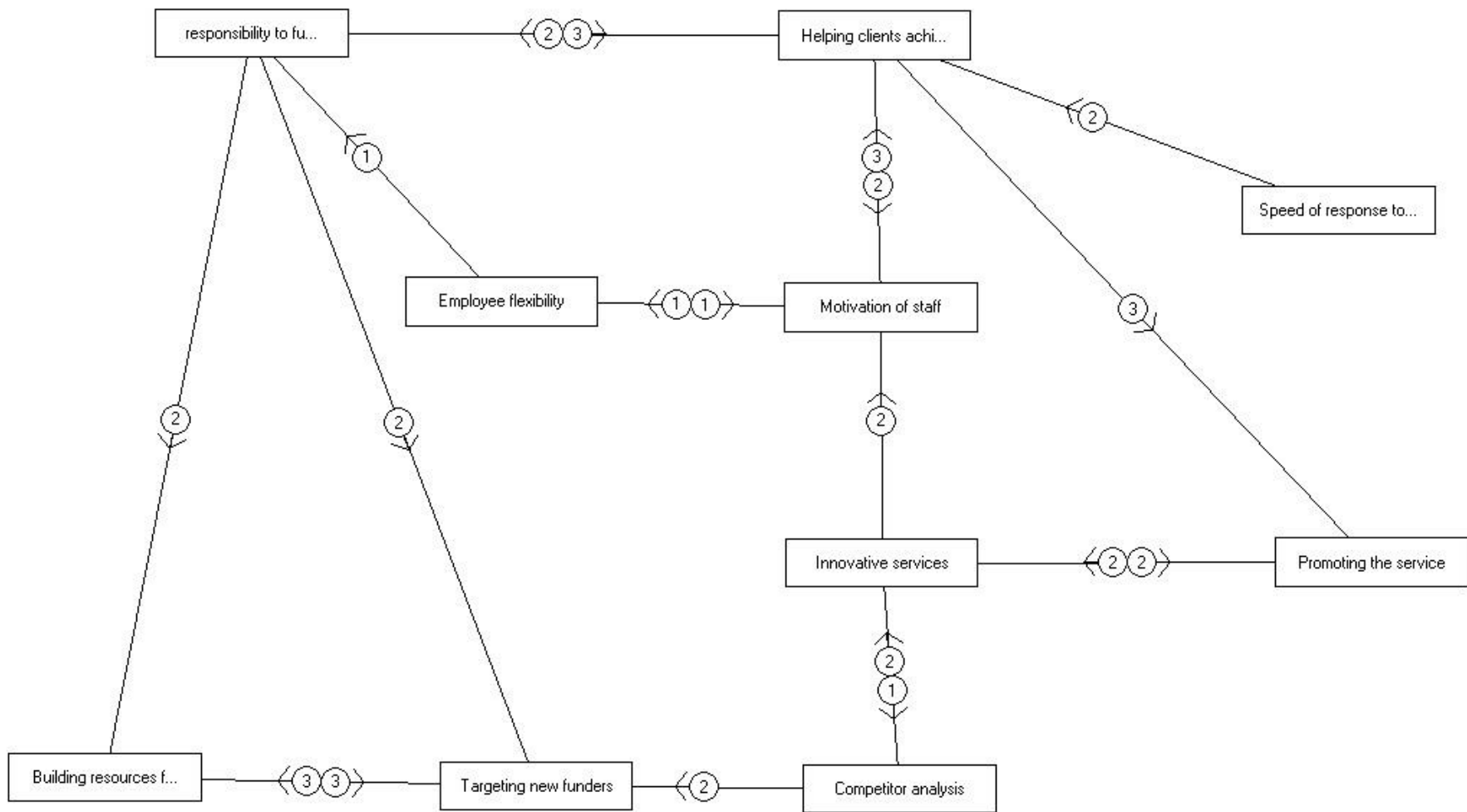
Cognitive Map of Respondent C4



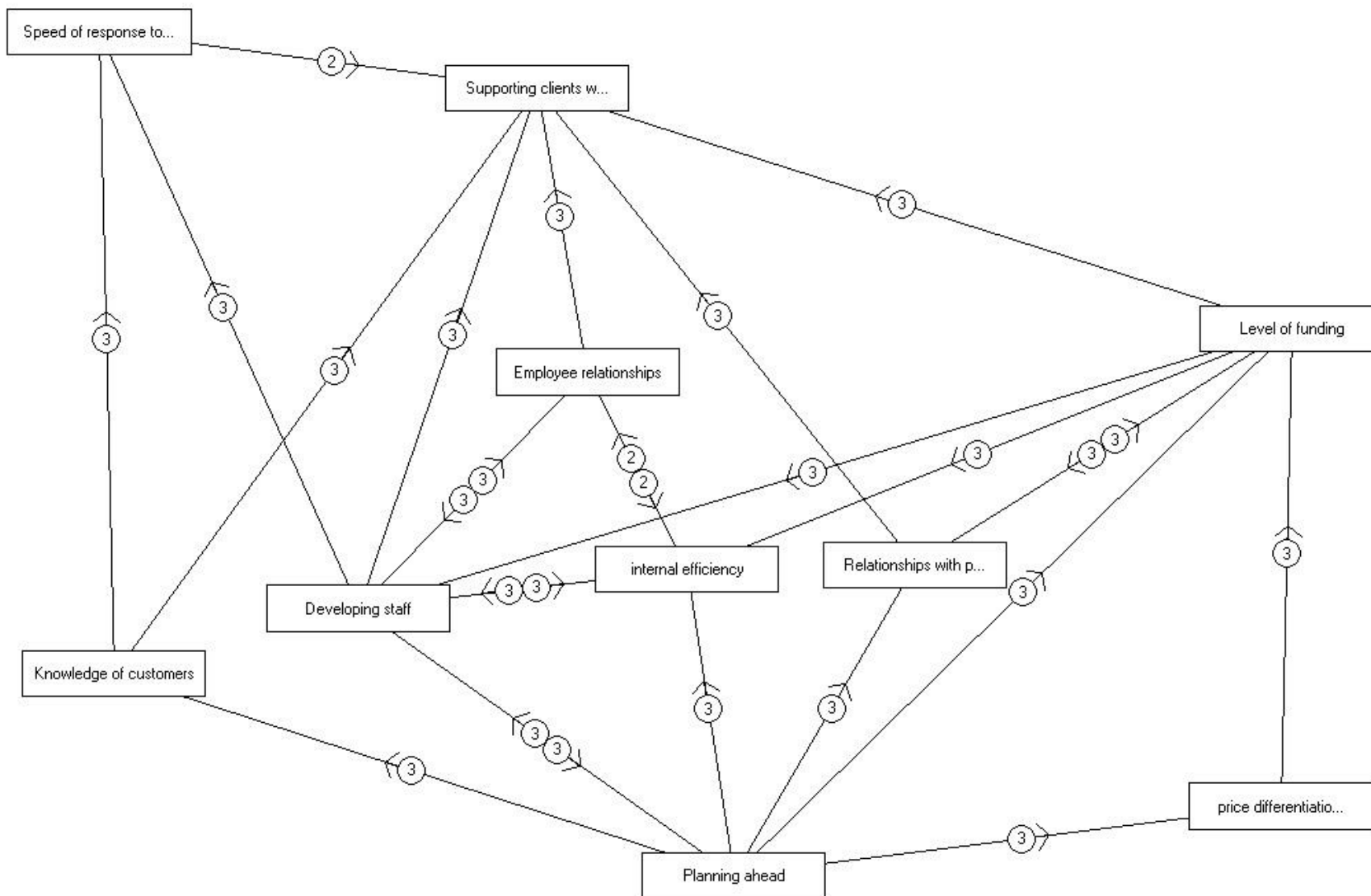
Cognitive Map of Respondent C5



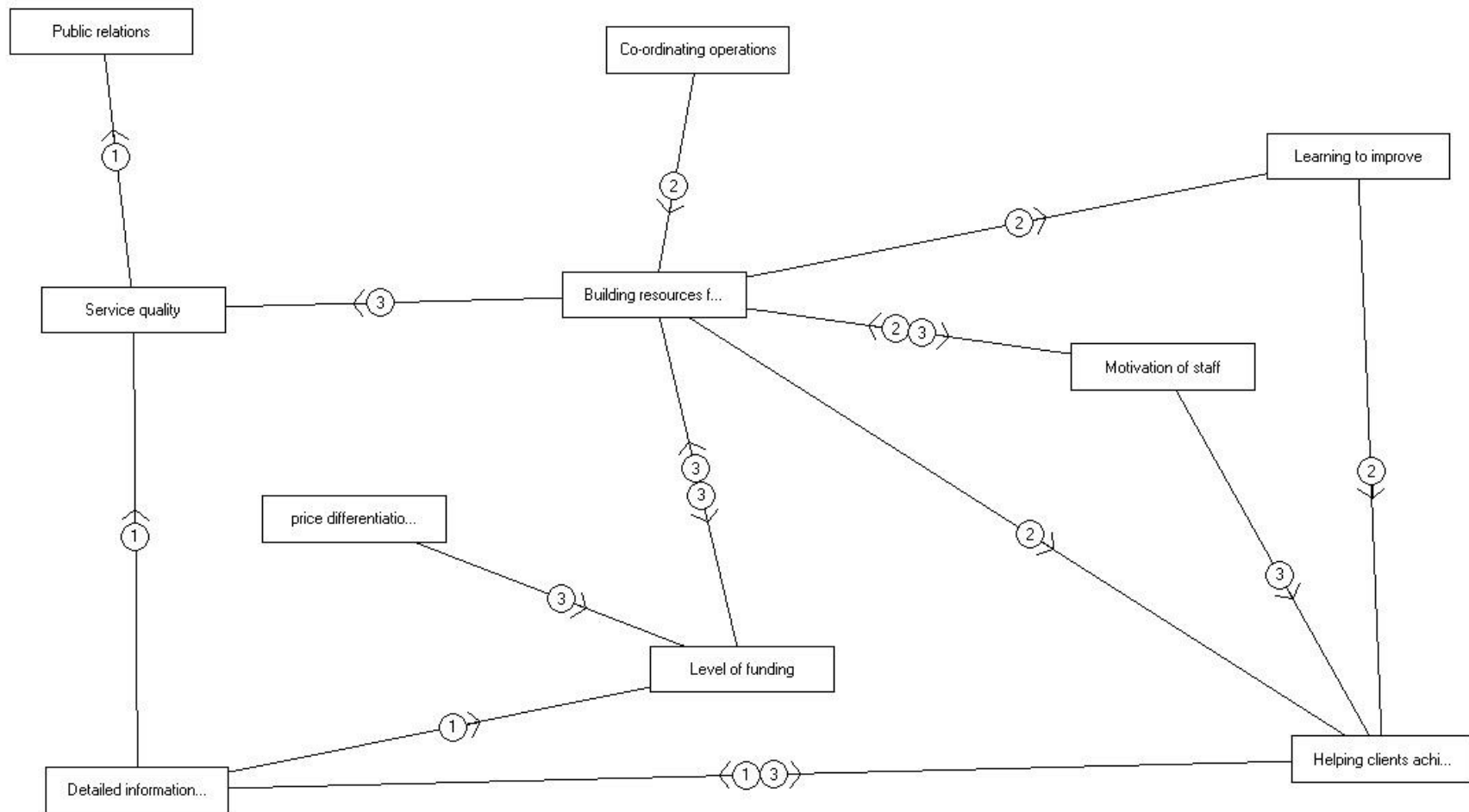
Cognitive Map of Respondent C7



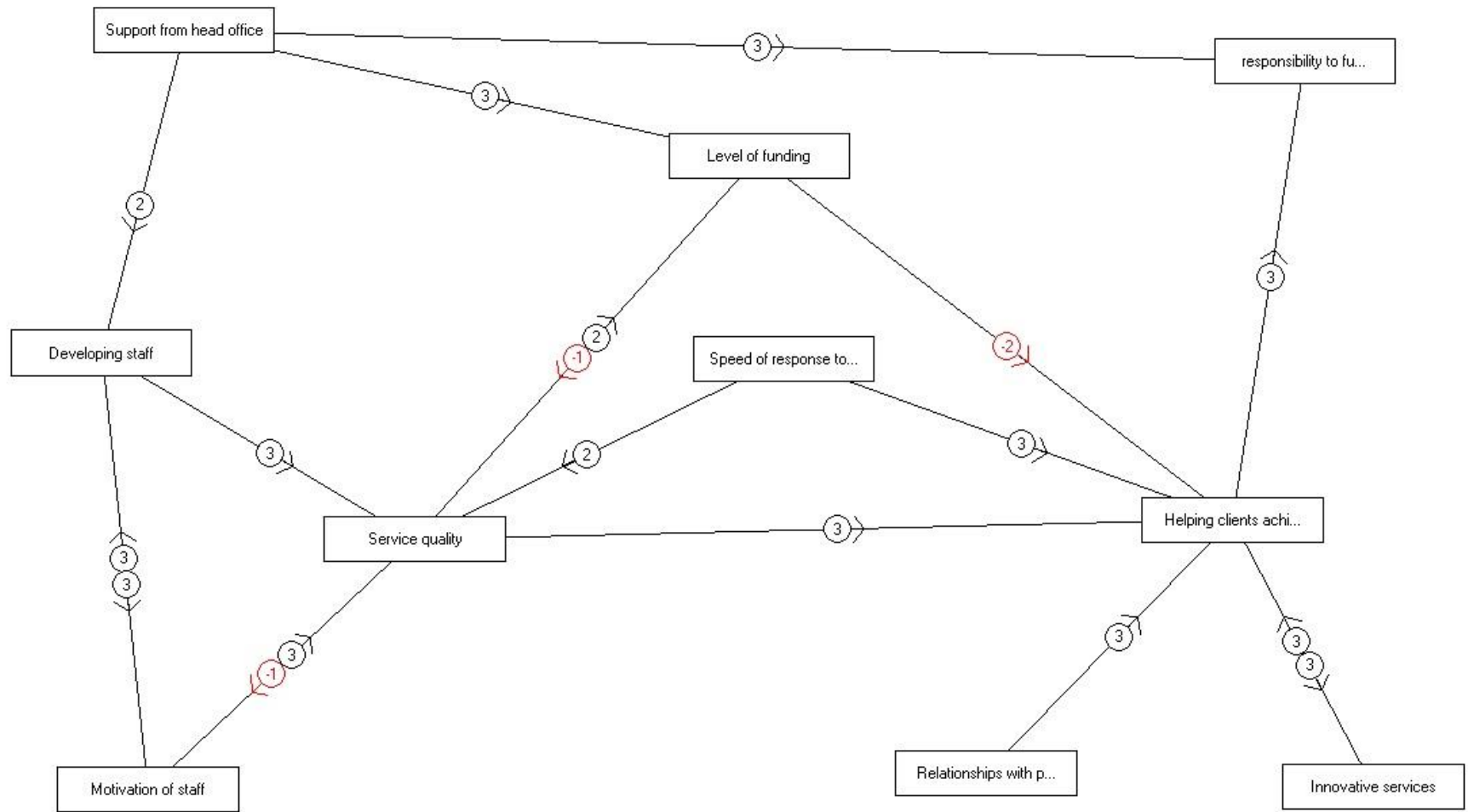
Cognitive Map of Respondent C10



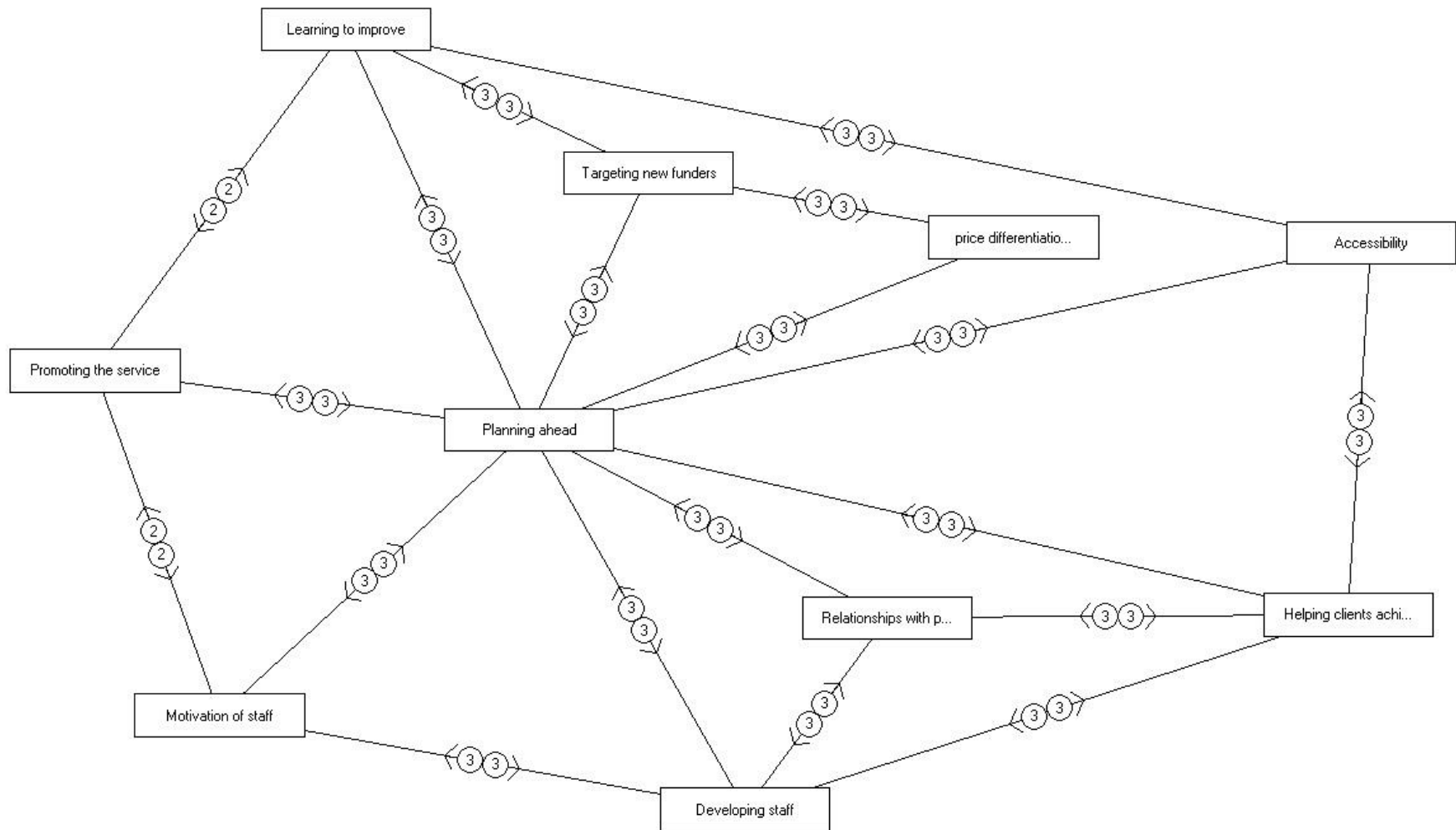
Cognitive Map of Respondent C11



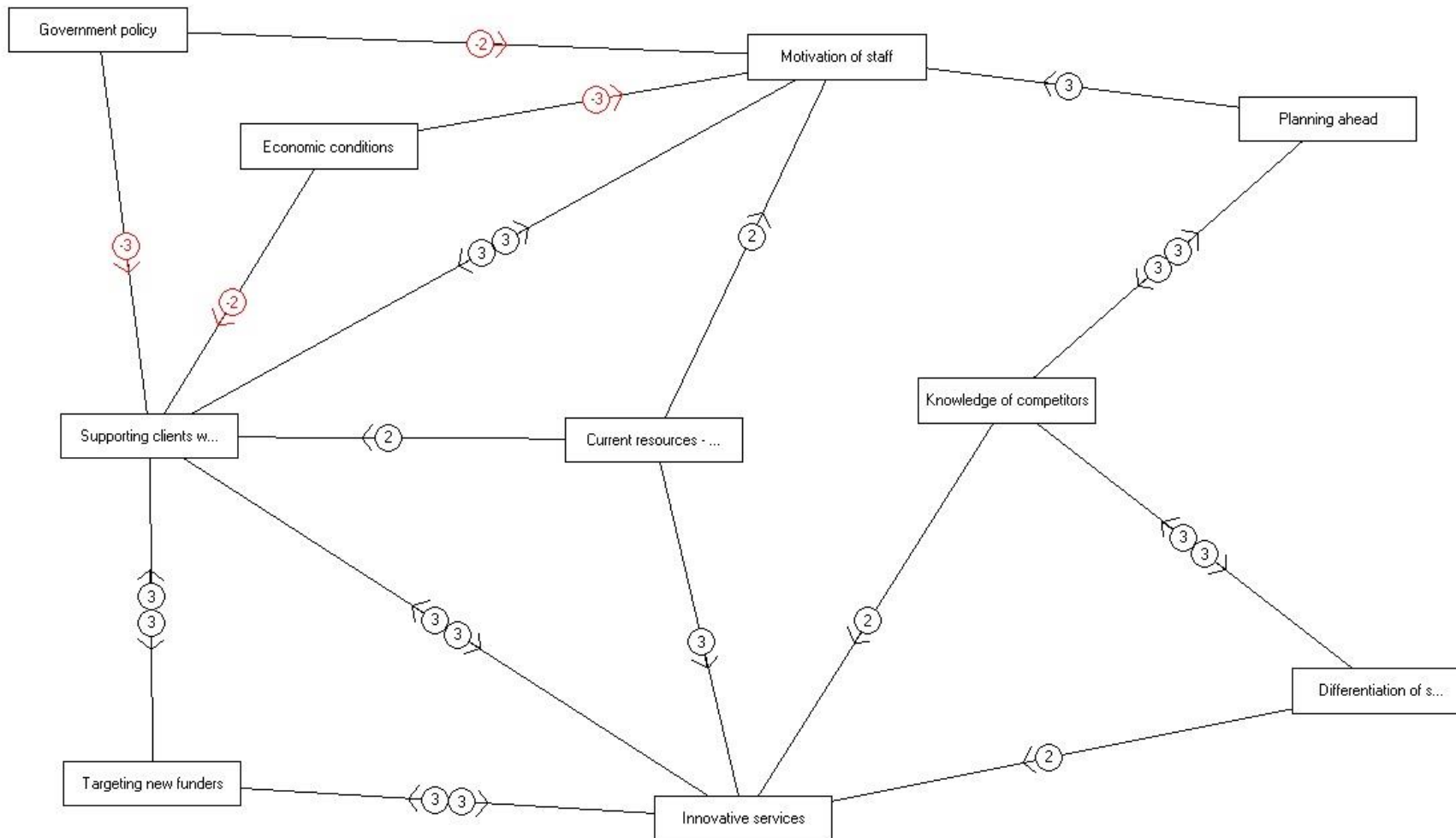
Cognitive Map of Respondent C14



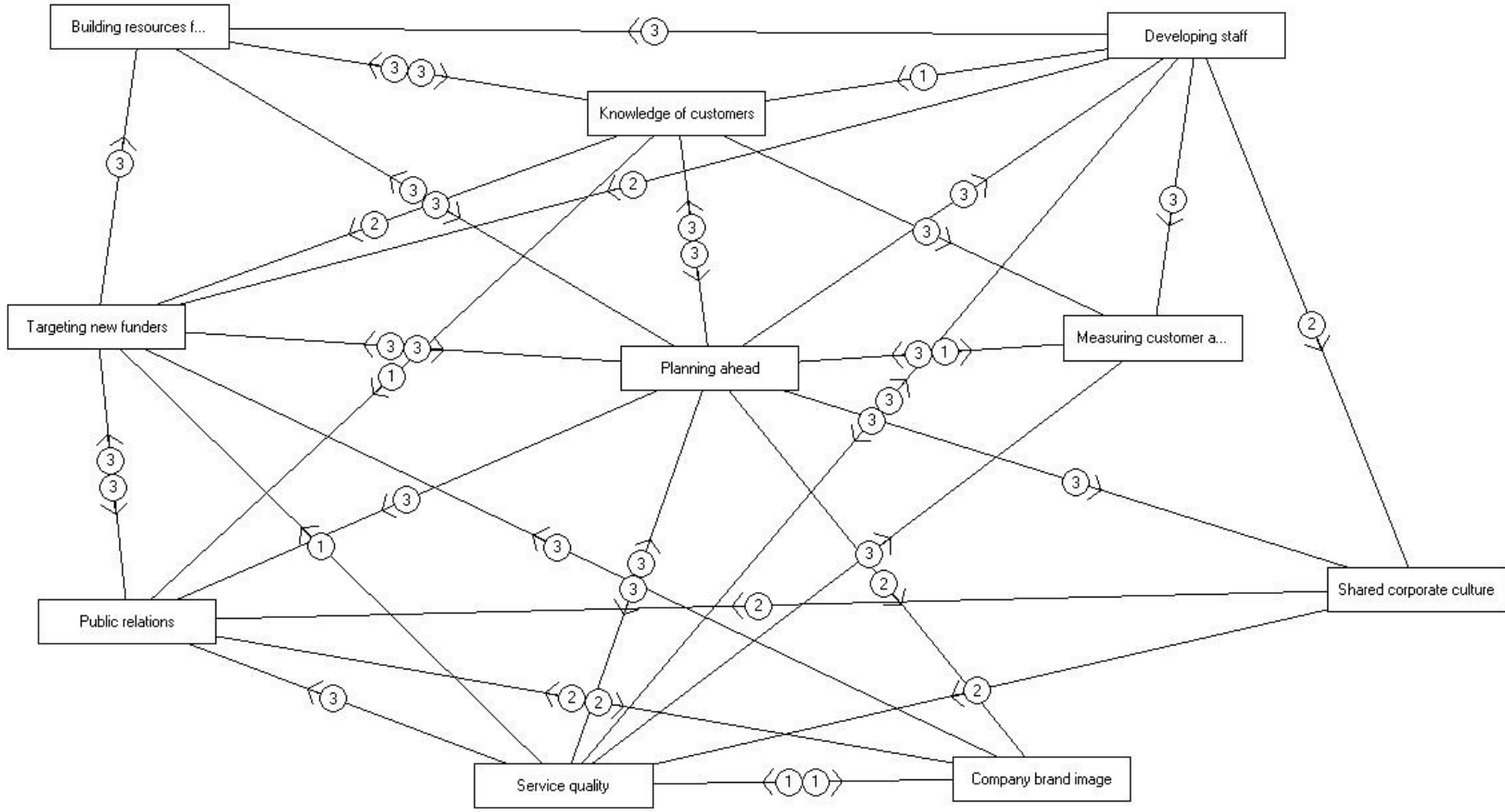
Cognitive Map of Respondent C15



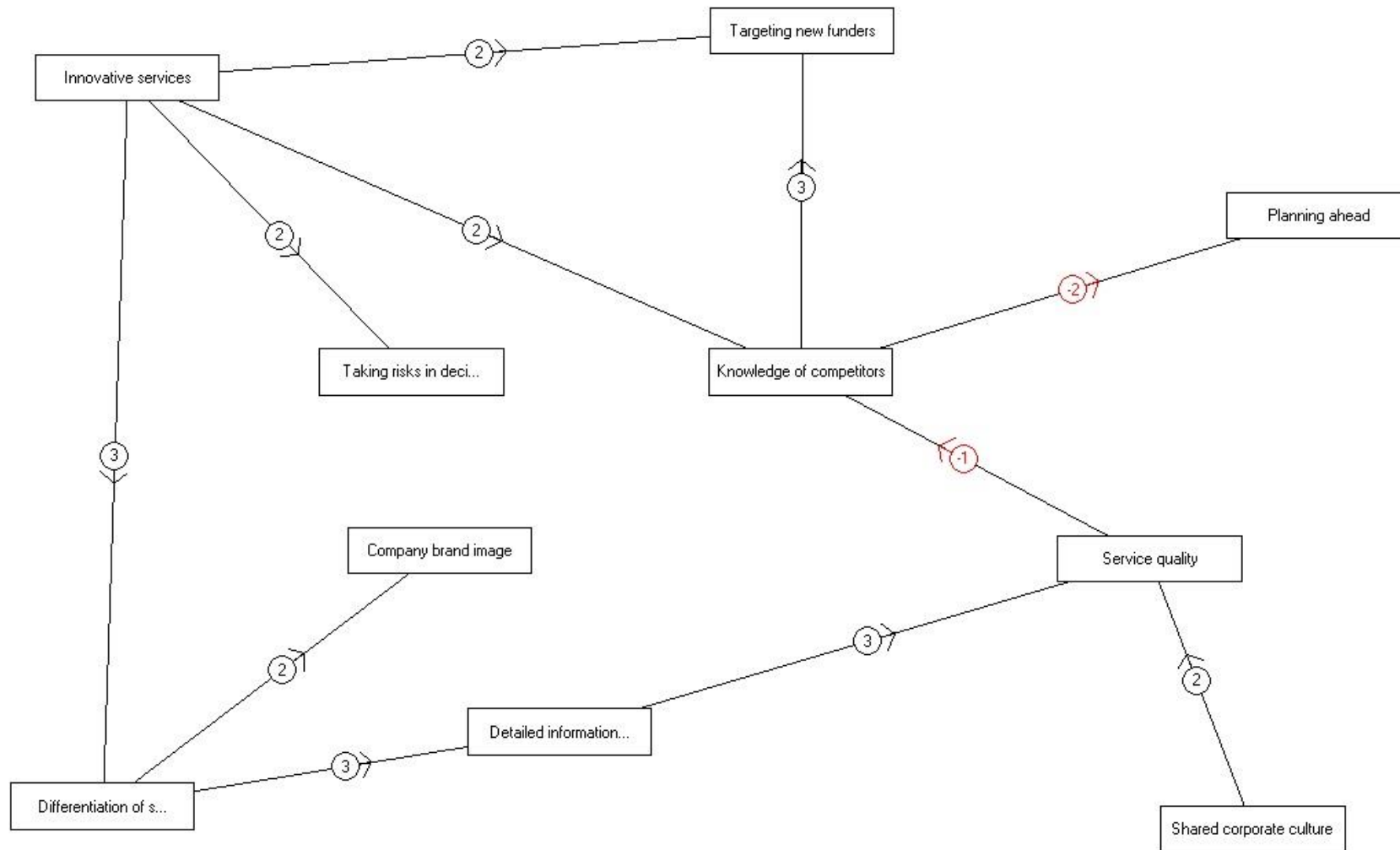
Cognitive Map of Respondent C16



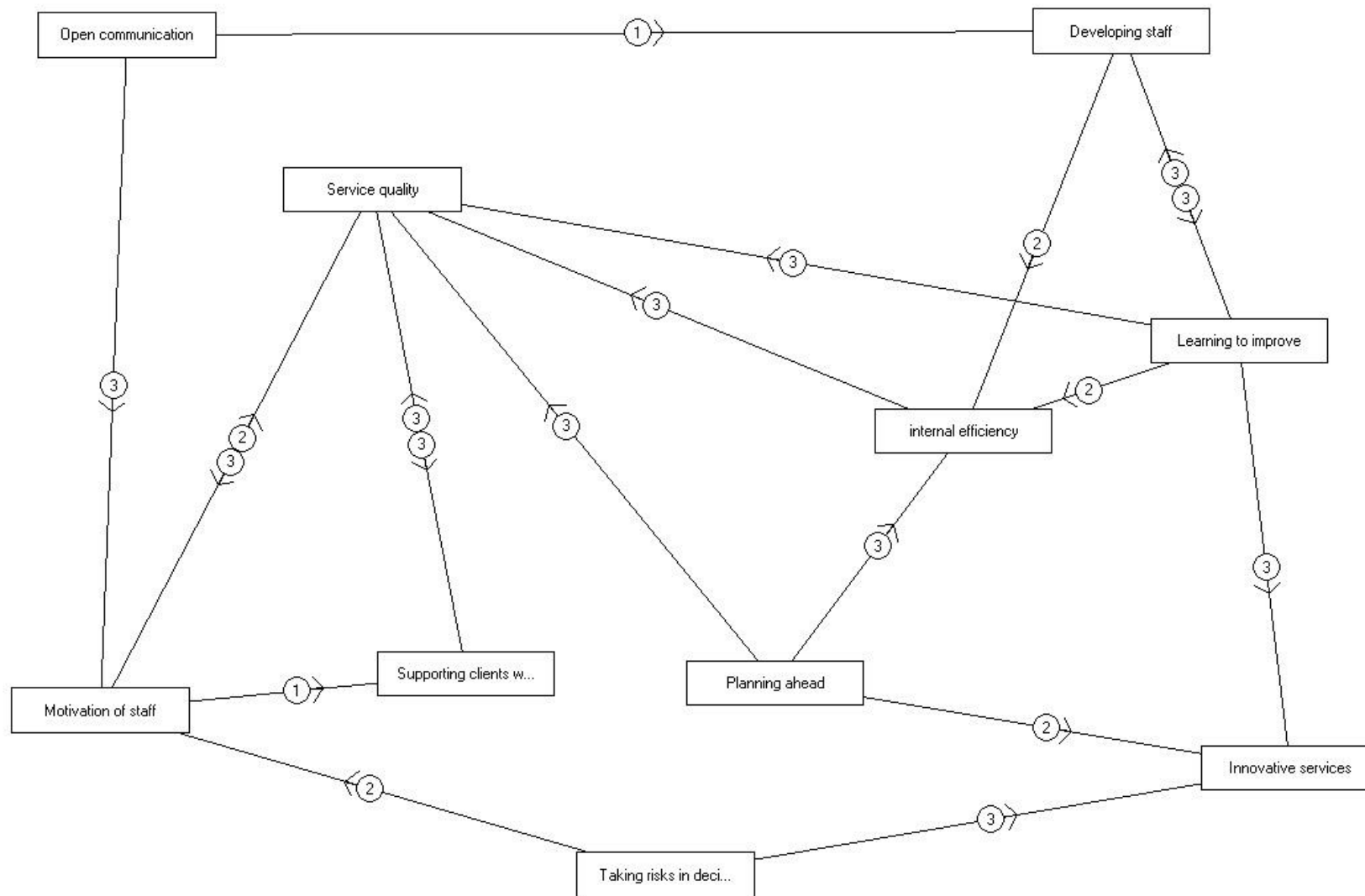
Cognitive Map of Respondent C17



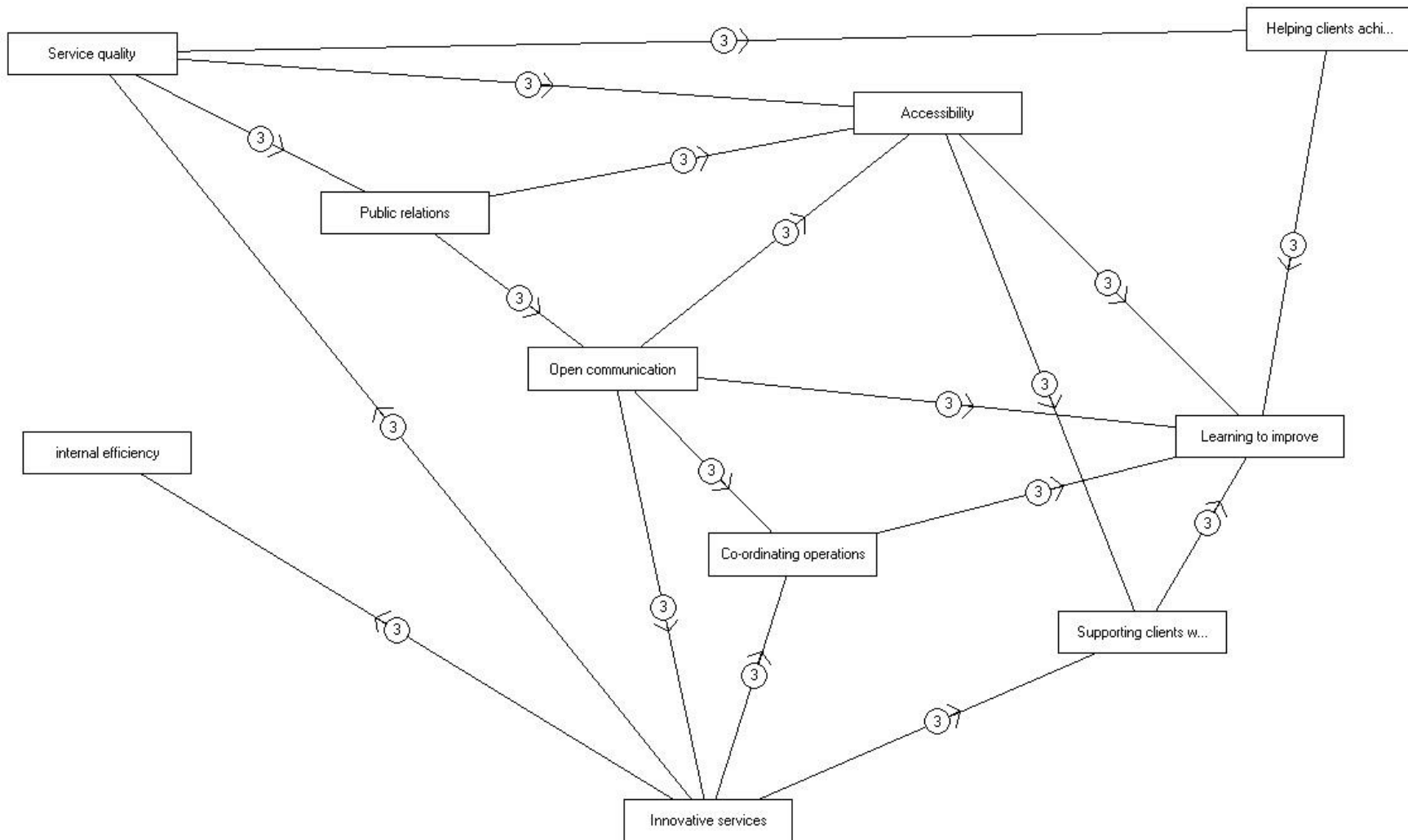
Cognitive Map of Respondent C18



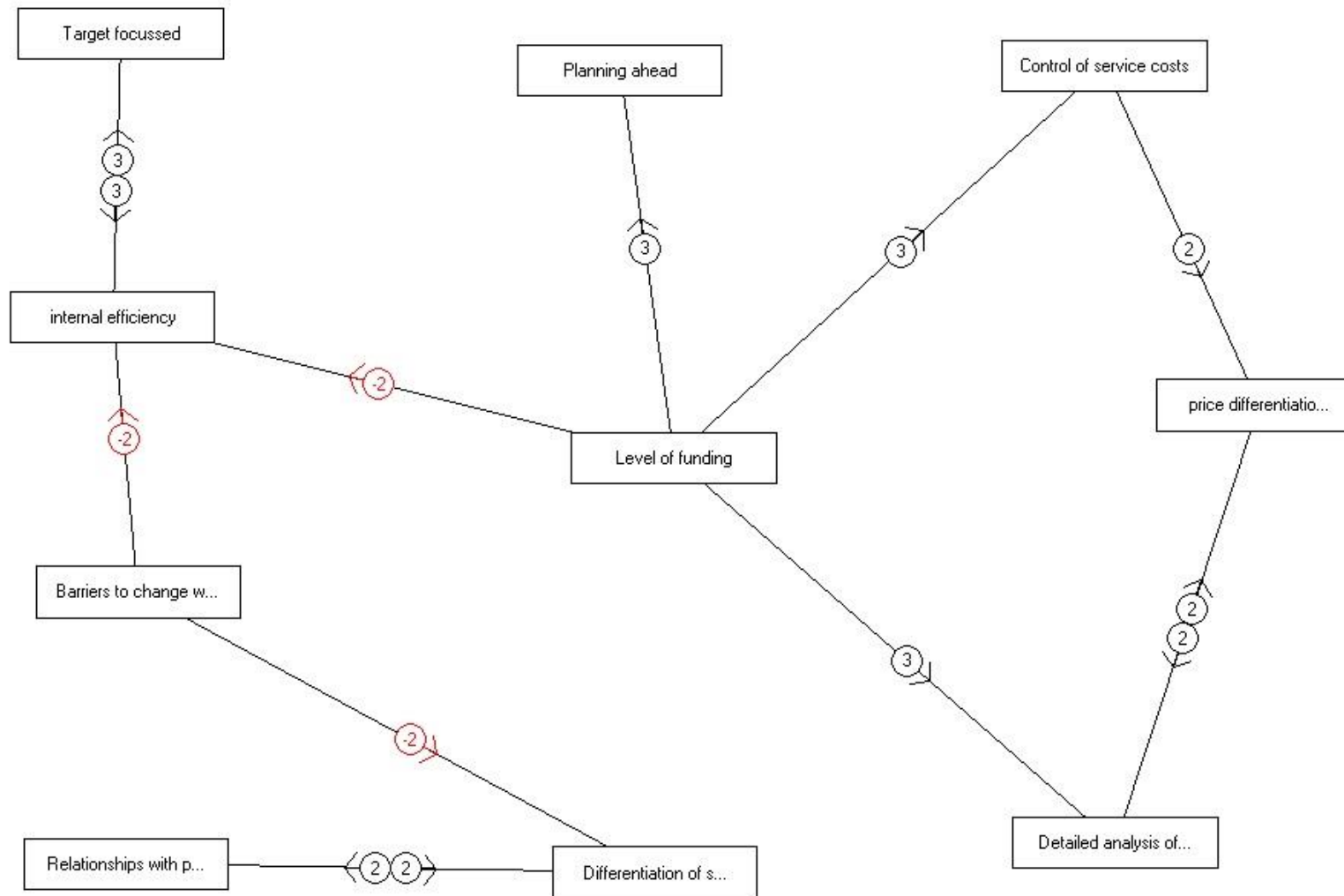
Cognitive Map of Respondent C19



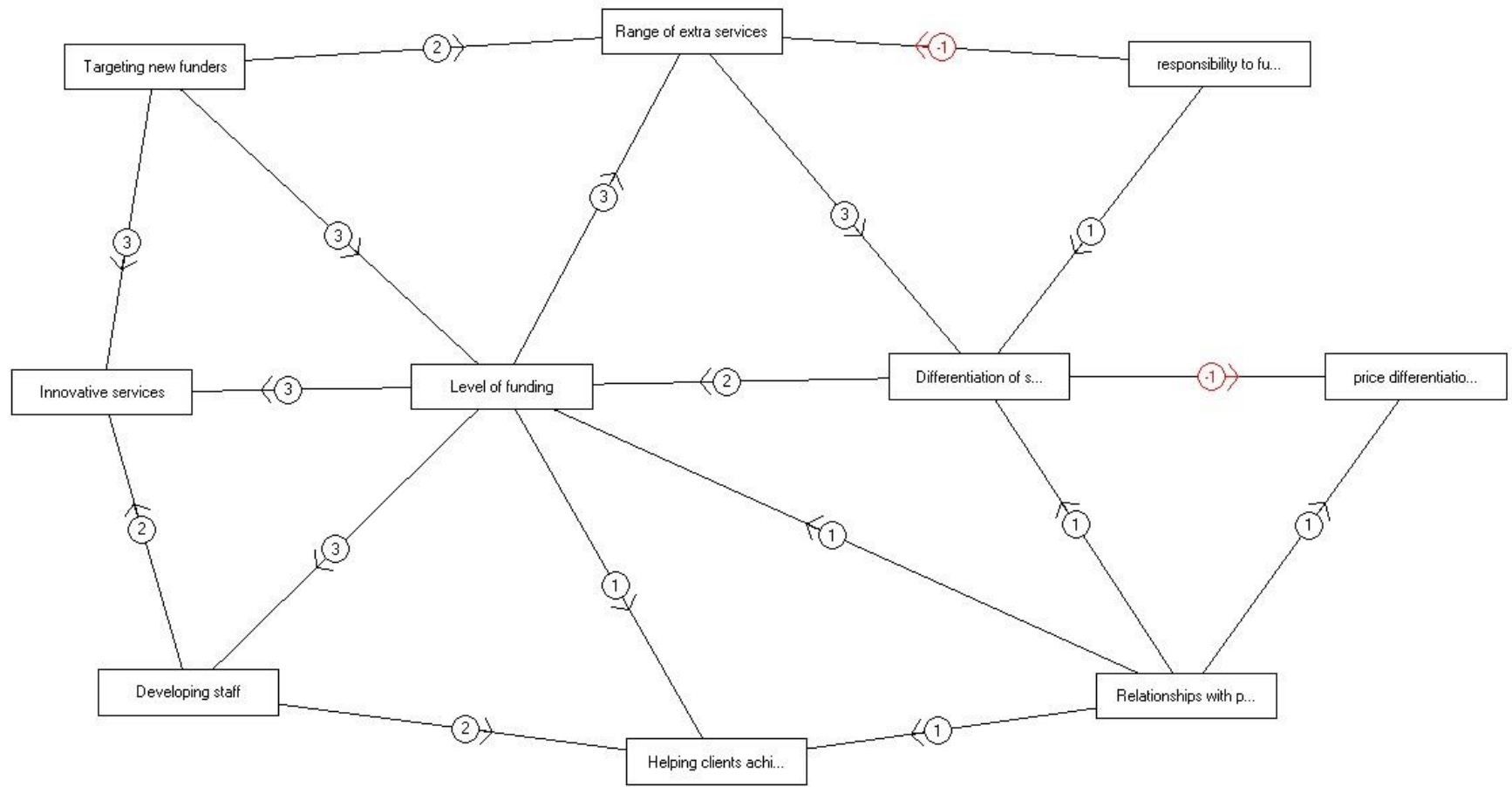
Cognitive Map of Respondent C20



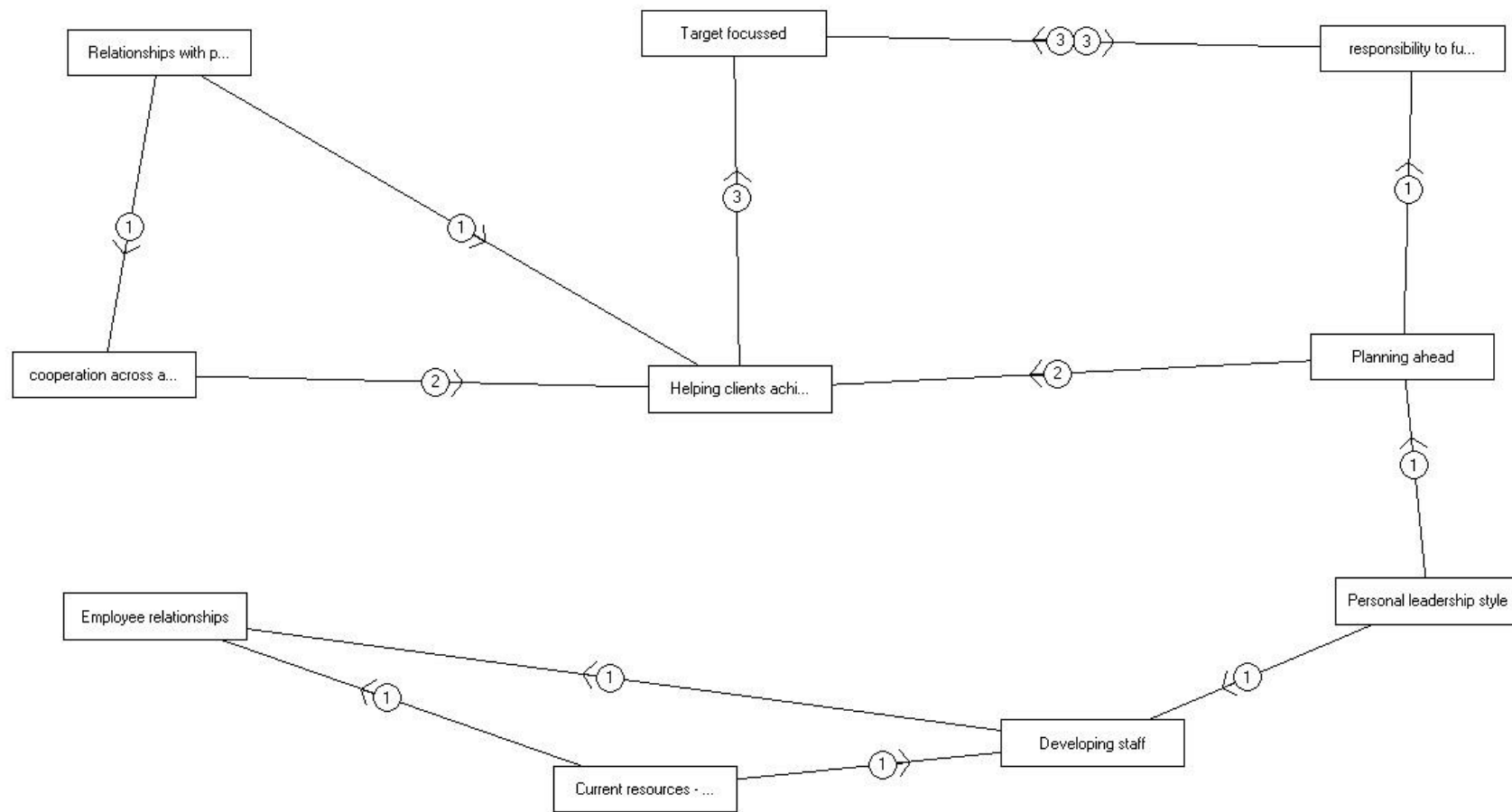
Cognitive Map of Respondent C21



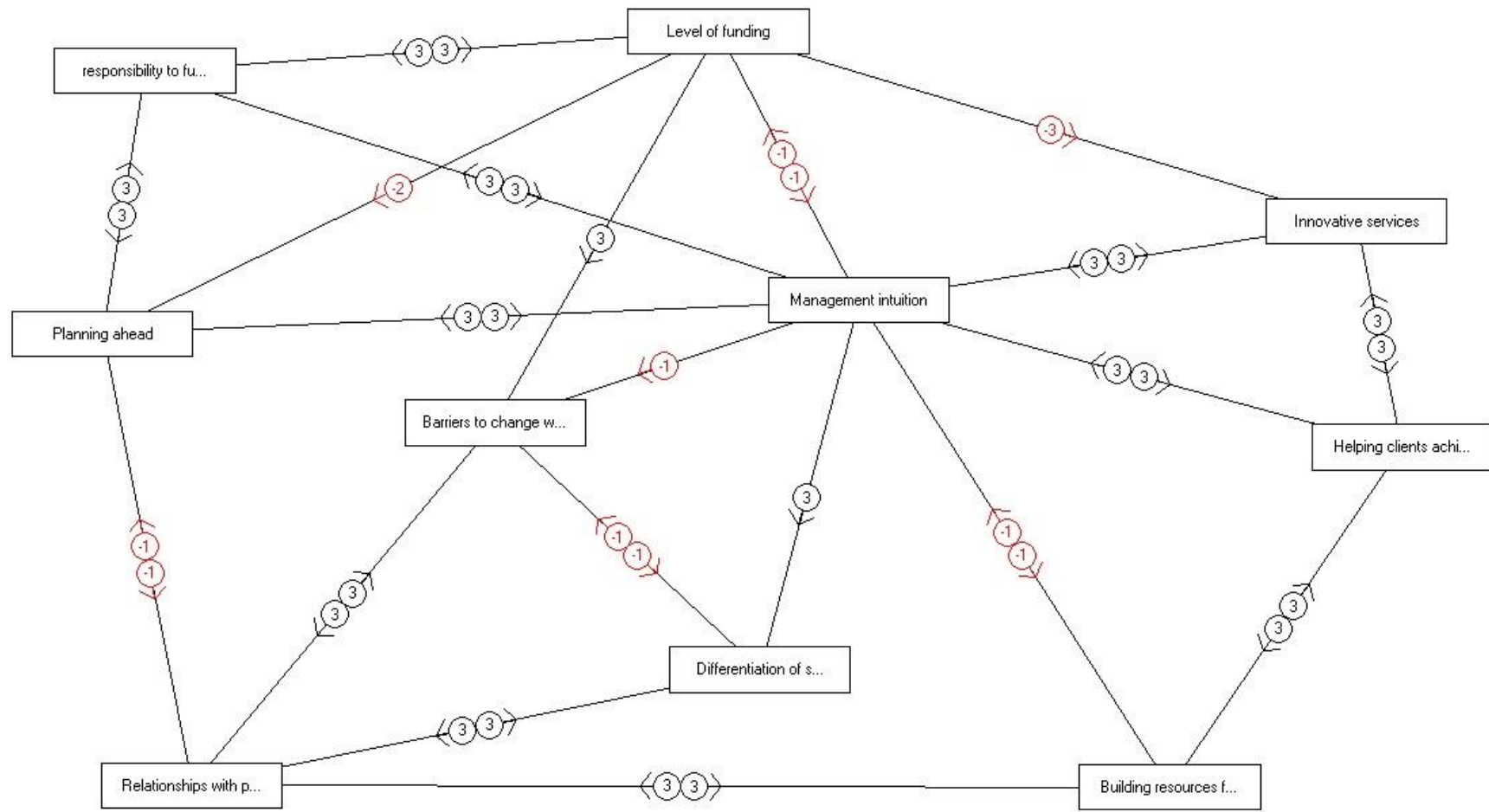
Cognitive Map of Respondent C23



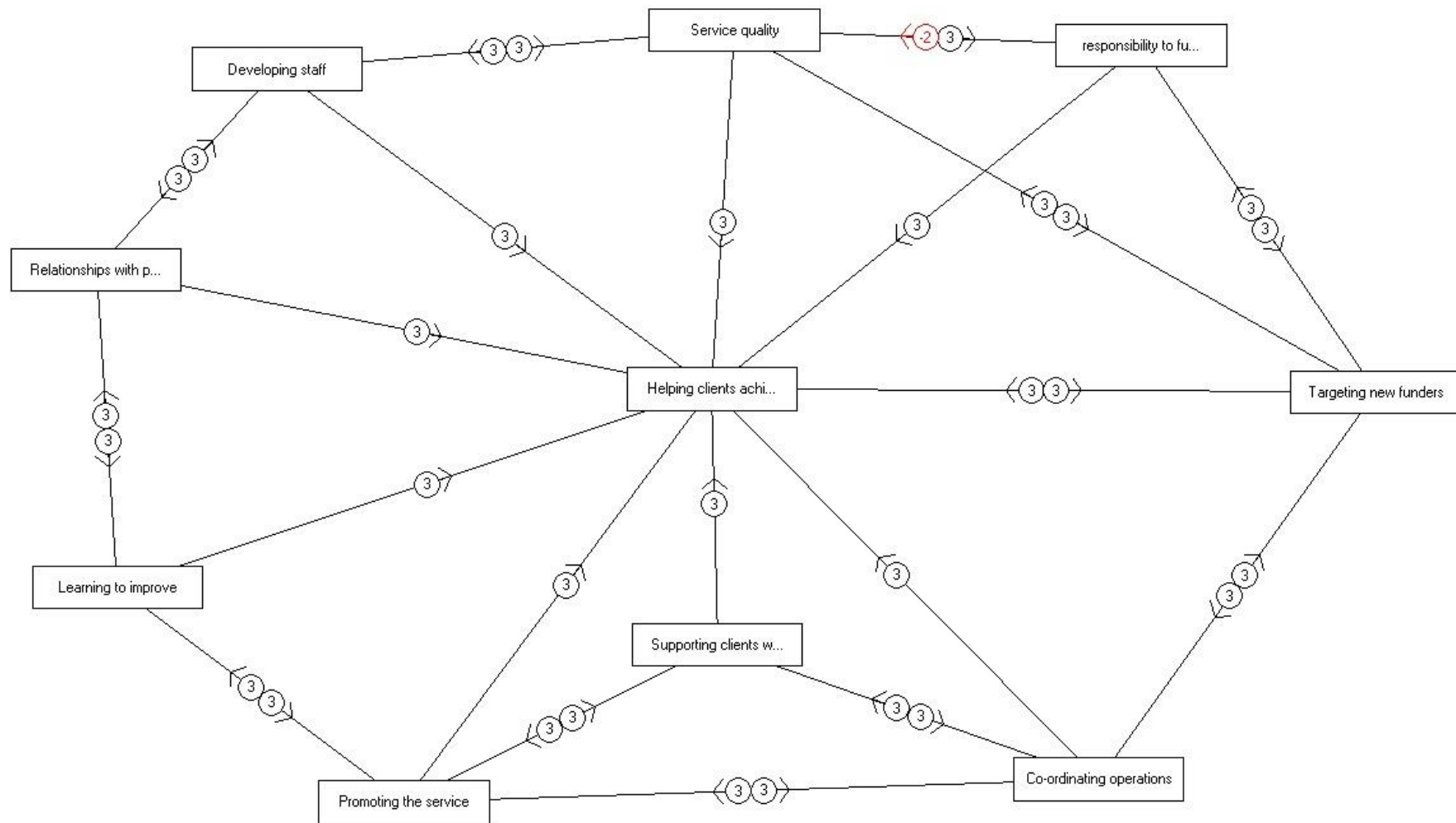
Cognitive Map of Respondent C24



Cognitive Map of Respondent C28



Cognitive Map of Respondent C37



Cognitive Map of Respondent C38

Appendix 7: Matrices of All The Distance Ratios

Distance Ratio Matrix – Comparing Individuals within Phase 1 (A)

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36	A37	A38	A39	A40		
A1	0.000	0.701	0.898	0.971	0.563	0.889	0.898	0.889	0.971	0.831	0.889	1.000	0.720	0.907	0.971	0.889	0.814	0.889	0.898	0.788	0.903	0.971	0.889	0.971	0.971	0.903	0.971	0.701	0.889	0.889	0.971	0.971	0.971	0.797	0.727	0.889	0.971	0.917	0.889	0.971		
A2	0.701	0.000	0.971	0.515	0.822	0.903	0.708	0.727	0.822	1.000	0.797	0.701	0.705	0.917	0.903	0.971	0.686	0.784	0.907	0.731	0.903	0.917	0.971	0.903	0.835	0.889	0.701	0.735	0.889	0.903	0.903	0.835	0.903	0.917	0.809	0.903	0.971	0.971	0.971	0.917		
A3	0.898	0.971	0.000	0.971	0.889	0.784	0.659	0.903	0.889	0.898	0.903	0.693	0.903	0.674	0.784	0.439	0.912	0.805	0.780	0.835	0.917	0.797	1.000	0.805	0.797	0.917	0.801	0.570	0.889	0.971	0.898	0.894	0.889	0.784	0.809	0.889	0.784	0.670	0.678	0.889		
A4	0.971	0.515	0.971	0.000	0.917	0.917	0.826	0.610	0.822	0.903	0.822	0.570	0.754	0.822	0.839	0.903	0.822	0.705	0.826	0.917	0.697	0.809	0.971	0.809	0.720	0.750	0.797	0.835	0.801	0.898	0.822	0.678	0.903	0.917	0.903	0.797	0.826	0.822	0.971	0.889	0.797	0.917
A5	0.563	0.822	0.889	0.917	0.000	0.889	0.809	0.917	0.917	0.889	0.971	0.809	0.727	0.889	0.809	0.971	0.926	0.903	0.701	0.805	0.917	0.809	0.971	0.701	0.903	0.797	0.903	0.480	0.570	0.674	0.971	0.903	0.917	0.903	0.797	0.822	0.903	0.797	1.000	0.971		
A6	0.889	0.903	0.784	0.917	0.889	0.000	0.682	0.727	0.580	0.971	0.805	0.903	0.889	0.903	0.708	0.889	0.526	0.971	0.686	0.705	0.705	0.670	0.889	0.797	0.784	0.670	0.667	0.903	0.682	0.903	0.587	0.670	0.485	0.917	0.797	0.587	0.693	0.727	0.971	0.674		
A7	0.898	0.708	0.659	0.826	0.809	0.682	0.000	0.797	0.670	0.784	0.580	0.678	0.570	0.809	0.708	0.889	0.716	0.822	0.517	0.553	0.682	0.540	0.971	0.784	0.540	0.670	0.735	0.784	0.701	0.797	0.527	0.674	0.547	0.847	0.670	0.822	0.889	0.727	0.889	0.436		
A8	0.889	0.727	0.903	0.610	0.917	0.727	0.797	0.000	0.560	0.792	0.648	0.805	0.771	0.705	0.792	0.971	0.497	0.678	0.686	0.801	0.670	0.573	0.889	0.797	0.550	0.442	0.587	0.674	0.557	0.797	0.557	0.491	0.627	0.797	0.693	0.693	0.971	0.835	0.801	0.797		
A9	0.971	0.822	0.889	0.822	0.917	0.580	0.670	0.560	0.000	0.971	0.667	0.903	0.889	0.889	0.523	0.971	0.583	0.907	0.652	0.674	0.784	0.797	0.903	0.771	0.784	0.448	0.835	0.652	0.805	0.797	0.697	0.682	0.577	0.674	0.903	0.809	0.835	0.693	1.000	0.553		
A10	0.831	1.000	0.898	0.903	0.889	0.971	0.784	0.792	0.971	0.000	0.797	0.780	0.771	0.809	0.801	0.889	0.898	0.822	0.517	0.894	0.686	0.682	0.784	0.775	0.889	0.659	0.971	0.889	0.540	0.788	0.898	0.971	0.771	0.689	0.788	0.771	0.889	0.797	0.701	0.889		
A11	0.889	0.797	0.903	0.822	0.971	0.805	0.580	0.648	0.667	0.797	0.000	0.805	0.682	0.603	0.459	0.674	0.670	0.587	0.889	0.587	0.577	0.809	0.784	0.889	0.797	0.448	0.488	0.889	0.822	0.659	0.453	0.682	0.553	0.771	0.797	0.797	0.898	0.712	0.577	0.369		
A12	1.000	0.701	0.693	0.570	0.809	0.903	0.678	0.805	0.903	0.780	0.805	0.000	0.560	0.670	0.686	0.678	0.805	0.689	0.674	0.903	0.682	0.577	0.898	0.540	0.540	0.784	0.805	0.903	0.678	0.797	0.686	0.797	0.797	0.903	0.809	0.917	0.889	0.720	0.780	0.780		
A13	0.720	0.705	0.903	0.754	0.727	0.889	0.570	0.771	0.889	0.771	0.682	0.560	0.000	0.809	0.805	0.689	0.889	0.587	0.784	0.917	0.705	0.693	0.971	0.670	0.540	0.889	0.805	0.788	0.797	0.670	0.540	0.784	0.805	0.971	0.636	0.917	0.971	0.917	0.801	0.659		
A14	0.907	0.917	0.674	0.822	0.889	0.903	0.809	0.705	0.889	0.809	0.603	0.670	0.809	0.000	0.540	0.587	0.689	0.801	0.894	0.822	0.682	0.889	0.835	0.971	0.697	0.682	0.573	0.771	0.814	0.797	0.580	0.682	0.686	0.822	0.652	0.903	0.889	0.607	0.686	0.705		
A15	0.971	0.903	0.784	0.839	0.809	0.708	0.570	0.792	0.523	0.801	0.459	0.686	0.805	0.540	0.000	0.771	0.667	0.907	0.659	0.577	0.540	0.570	0.814	0.780	0.801	0.462	0.600	0.784	0.686	0.682	0.573	0.670	0.451	0.682	0.663	0.689	0.917	0.374	0.652	0.453		
A16	0.889	0.971	0.439	0.903	0.971	0.889	0.889	0.971	0.971	0.889	0.674	0.678	0.689	0.587	0.771	0.000	1.000	0.809	0.898	0.903	0.784	0.917	0.797	0.971	0.801	0.971	0.652	0.889	0.971	0.971	0.686	0.912	0.971	0.903	0.971	0.889	0.797	0.797	0.445	0.771		
A17	0.814	0.686	0.912	0.822	0.926	0.526	0.716	0.497	0.583	0.898	0.670	0.805	0.889	0.689	0.667	1.000	0.000	0.889	0.697	0.826	0.686	0.682	0.814	0.818	0.805	0.633	0.697	0.814	0.682	0.809	0.474	0.593	0.488	0.708	0.570	0.705	0.903	0.693	0.971	0.570		
A18	0.889	0.784	0.805	0.705	0.903	0.971	0.822	0.678	0.907	0.822	0.587	0.689	0.587	0.801	0.907	0.809	0.889	0.000	0.971	0.971	0.889	0.903	0.889	0.780	0.708	0.903	0.898	0.537	0.903	0.971	0.805	0.971	0.917	0.889	0.727	0.971	0.971	0.889	0.693	0.917		
A19	0.898	0.907	0.780	0.826	0.701	0.686	0.517	0.686	0.652	0.517	0.889	0.674	0.784	0.894	0.659	0.898	0.697	0.971	0.000	0.797	0.822	0.543	1.000	0.670	0.784	0.701	0.907	0.678	0.573	0.898	0.659	0.663	0.667	0.693	0.903	0.563	0.527	0.708	0.898	0.648		
A20	0.788	0.731	0.835	0.917	0.805	0.705	0.553	0.801	0.674	0.894	0.587	0.903	0.917	0.822	0.577	0.903	0.826	0.971	0.797	0.000	0.573	0.678	0.971	0.889	0.903	0.580	0.640	0.889	0.580	0.439	0.784	0.563	0.567	0.971	0.917	0.903	0.917	0.593	0.784	0.587		
A21	0.903	0.903	0.917	0.697	0.917	0.705	0.682	0.670	0.784	0.686	0.577	0.682	0.705	0.682	0.540	0.784	0.686	0.889	0.822	0.573	0.000	0.560	0.822	0.809	0.822	0.520	0.689	0.971	0.439	0.391	0.483	0.705	0.563	0.889	0.917	0.784	1.000	0.620	0.648	0.477		
A22	0.971	0.917	0.797	0.809	0.809	0.670	0.540	0.573	0.797	0.682	0.809	0.577	0.693	0.889	0.570	0.917	0.682	0.903	0.543	0.678	0.560	0.000	0.889	0.543	0.597	0.570	0.720	0.889	0.427	0.686	0.557	0.523	0.563	0.809	0.563	0.682	0.889	0.708	0.689	0.693		
A23	0.889	0.971	1.000	0.971	0.971	0.889	0.971	0.889	0.903	0.784	0.898	0.971	0.835	0.814	0.797	0.814	0.889	1.000	0.971	0.822	0.889	0.000	0.889	0.971	0.701	0.903	1.000	0.971	0.903	0.801	0.889	0.889	0.889	0.889	0.889	0.971	0.971	0.771	0.889			
A24	0.971	0.903	0.805	0.809	0.701	0.797	0.784	0.797	0.771	0.775	0.889	0.540	0.670	0.971	0.780	0.971	0.818	0.780	0.670	0.889	0.809	0.543	0.889	0.000	0.797	0.667	0.826	0.670	0.682	0.788	0.780	0.689	0.682	0.797	0.797	0.670	0.708	0.693	0.971	0.771		
A25	0.971	0.835	0.797	0.720	0.903	0.784	0.540	0.550	0.784	0.889	0.797	0.540	0.540	0.697	0.801	0.801	0.805	0.708	0.784	0.903	0.822	0.597	0.971	0.797	0.000	0.784	0.689	0.889	0.573	0.903	0.543	0.659	0.682	0.917	0.670	0.903	0.797	0.693	0.788	0.648		
A26	0.903	0.889	0.917	0.750	0.797	0.670	0.670	0.442	0.448	0.659	0.448	0.784	0.889	0.682	0.462	0.971	0.633	0.903	0.701	0.580	0.520	0.570	0.701	0.667	0.784	0.000	0.659	0.809	0.557	0.563	0.686	0.590	0.577	0.739	0.797	0.716	0.917	0.693	0.814	0.540		
A27	0.971	0.701	0.801	0.797	0.903	0.667	0.735	0.587	0.835	0.971	0.488	0.805	0.805	0.573	0.600	0.652	0.697	0.898	0.907	0.640	0.689	0.720	0.903	0.826	0.689	0.659	0.000	0.917	0.686	0.705	0.465	0.445	0.491	0.917	0.818	0.567	0.771	0.720	0.780	0.427		
A28	0.701	0.735	0.570	0.835	0.480	0.903	0.784	0.674	0.652	0.889	0.889	0.903	0.788	0.771	0.784	0.889	0.814	0.537	0.678	0.889	0.971	0.889	1.000	0.670	0.889	0.809	0.917	0.000	0.809	0.971	0.971	0.889	0.903	0.750	0.797	0.809	0.917	0.784	0.971	0.971		
A29	0.889	0.889	0.889	0.801	0.570	0.682	0.701	0.557	0.805	0.540	0.822	0.678	0.797	0.814	0.686	0.971	0.682	0.903	0.573	0.580	0.439	0.427	0.971	0.682	0.573	0.557	0.686	0.809	0.000	0.436	0.682	0.682	0.560	0.788	0.814	0.697	0.801					

Distance Ratio Matrix – Comparing Individuals within Phase 2 (B)

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B13	B15	B16	B17	B18	B19	B20	B21	B23	B24	B26	B28	B31	B32	B33	B34	B35	B36	B37	B40
B1	0.000	0.517	0.809	0.456	0.689	0.780	0.898	0.652	0.697	0.801	0.570	0.792	0.775	0.814	0.705	0.716	0.912	0.889	0.822	0.570	0.686	0.894	0.547	0.797	0.577	0.835	0.898	0.775	0.898	0.903	0.822
B2	0.517	0.000	0.797	0.784	0.655	0.971	0.678	0.686	0.678	0.907	0.889	0.678	0.797	0.809	0.550	0.903	0.663	0.667	0.693	0.792	0.898	0.797	0.971	0.655	0.771	0.784	0.784	0.780	0.670	0.648	0.663
B3	0.809	0.797	0.000	0.583	0.809	0.563	0.705	0.903	0.822	0.674	0.630	0.912	0.797	0.716	0.716	0.580	0.659	0.971	0.682	0.917	0.797	0.889	0.652	0.843	0.705	0.809	0.797	0.705	0.580	0.570	0.693
B4	0.456	0.784	0.583	0.000	0.573	0.557	0.697	0.809	0.693	0.587	0.597	0.898	0.670	0.497	0.560	0.477	0.689	0.889	0.494	0.814	0.424	0.697	0.465	0.801	0.485	0.708	0.814	0.784	0.814	0.600	0.712
B5	0.689	0.655	0.809	0.573	0.000	0.712	0.663	0.971	0.689	0.720	0.809	0.889	0.805	0.682	0.674	0.797	0.670	0.971	0.739	0.801	0.801	0.889	0.705	0.678	0.693	0.926	0.792	0.889	0.889	0.797	0.805
B6	0.780	0.971	0.563	0.557	0.712	0.000	0.659	0.797	0.797	0.659	0.667	0.971	0.655	0.693	0.670	0.801	0.689	0.903	0.570	0.792	0.448	0.670	0.416	0.809	0.465	0.682	0.814	0.670	0.550	0.797	0.520
B7	0.898	0.678	0.705	0.697	0.663	0.659	0.000	0.903	0.678	0.894	0.560	0.792	0.533	0.716	0.543	0.491	0.839	0.898	0.590	0.889	0.784	0.550	0.822	0.422	0.560	0.557	0.670	0.784	0.670	0.682	0.323
B8	0.652	0.686	0.903	0.809	0.971	0.797	0.903	0.000	0.801	0.784	0.792	0.663	0.686	0.775	0.573	0.693	0.826	0.898	0.771	0.814	0.784	0.557	0.780	0.912	0.667	0.557	0.678	0.567	0.465	0.667	0.655
B9	0.697	0.678	0.822	0.693	0.689	0.797	0.678	0.801	0.000	0.818	0.577	0.889	0.708	0.436	0.708	0.809	0.907	0.771	0.617	0.917	0.784	0.448	0.716	0.439	0.346	0.573	0.456	0.682	0.701	0.784	0.445
B10	0.801	0.907	0.674	0.587	0.720	0.659	0.894	0.784	0.818	0.000	0.701	0.907	0.670	0.705	0.797	0.898	0.708	0.898	0.583	0.826	0.570	0.971	0.678	0.903	0.603	0.780	0.686	0.903	0.898	0.580	0.898
B11	0.570	0.889	0.630	0.597	0.809	0.667	0.560	0.792	0.577	0.701	0.000	0.775	0.445	0.485	0.547	0.637	0.780	0.788	0.682	0.889	0.533	0.540	0.712	0.567	0.359	0.678	0.580	0.889	0.540	0.693	0.570
B13	0.792	0.678	0.912	0.898	0.889	0.971	0.792	0.663	0.889	0.907	0.775	0.000	0.898	0.792	0.678	0.898	0.971	0.889	0.898	0.667	0.889	0.889	0.889	0.903	0.780	0.801	0.792	0.889	0.667	0.780	0.792
B15	0.775	0.797	0.797	0.670	0.805	0.655	0.533	0.686	0.708	0.670	0.445	0.898	0.000	0.689	0.792	0.712	0.667	0.889	0.701	0.814	0.655	0.540	0.801	0.693	0.468	0.674	0.667	0.917	0.674	0.788	0.667
B16	0.814	0.809	0.716	0.497	0.682	0.693	0.716	0.775	0.436	0.705	0.485	0.792	0.689	0.000	0.541	0.731	0.784	0.659	0.620	0.971	0.577	0.567	0.809	0.573	0.424	0.735	0.485	0.903	0.708	0.678	0.468
B17	0.705	0.550	0.716	0.560	0.674	0.670	0.543	0.573	0.708	0.797	0.547	0.678	0.792	0.541	0.000	0.593	0.686	0.818	0.547	0.797	0.419	0.563	0.822	0.553	0.577	0.419	0.550	0.663	0.543	0.560	0.419
B18	0.716	0.903	0.580	0.477	0.797	0.801	0.491	0.693	0.809	0.898	0.637	0.898	0.712	0.731	0.593	0.000	0.907	0.971	0.580	0.917	0.814	0.597	0.630	0.801	0.735	0.590	0.797	0.835	0.797	0.720	0.712
B19	0.912	0.663	0.659	0.689	0.670	0.689	0.839	0.826	0.907	0.708	0.780	0.971	0.667	0.784	0.686	0.907	0.000	0.889	0.682	0.889	0.674	0.809	0.889	0.839	0.701	0.903	0.659	0.889	0.712	0.771	0.742
B20	0.889	0.667	0.971	0.889	0.971	0.903	0.898	0.898	0.771	0.898	0.788	0.889	0.889	0.659	0.818	0.971	0.889	0.000	0.682	1.000	0.780	0.670	0.903	0.771	0.780	0.898	0.655	0.971	0.788	0.792	0.655
B21	0.822	0.693	0.682	0.494	0.739	0.570	0.590	0.771	0.617	0.583	0.682	0.898	0.701	0.620	0.547	0.580	0.682	0.682	0.000	0.971	0.610	0.570	0.620	0.708	0.494	0.384	0.485	0.809	0.663	0.663	0.424
B23	0.570	0.792	0.917	0.814	0.801	0.792	0.889	0.814	0.917	0.826	0.889	0.667	0.814	0.971	0.797	0.917	0.889	1.000	0.971	0.000	0.670	1.000	0.689	0.971	0.822	0.926	0.889	0.797	0.903	0.921	0.971
B24	0.686	0.898	0.797	0.424	0.801	0.448	0.784	0.784	0.784	0.570	0.533	0.889	0.655	0.577	0.419	0.814	0.674	0.780	0.610	0.670	0.000	0.682	0.678	0.784	0.404	0.705	0.557	0.898	0.678	0.689	0.670
B26	0.894	0.797	0.889	0.697	0.889	0.670	0.550	0.557	0.448	0.971	0.540	0.889	0.540	0.567	0.563	0.597	0.809	0.670	0.570	1.000	0.682	0.000	0.797	0.701	0.459	0.433	0.557	0.903	0.530	0.682	0.451
B28	0.547	0.971	0.652	0.465	0.705	0.416	0.822	0.780	0.716	0.678	0.712	0.889	0.801	0.809	0.822	0.630	0.889	0.903	0.620	0.689	0.678	0.797	0.000	0.831	0.459	0.716	0.797	0.678	0.801	0.801	0.678
B31	0.797	0.655	0.843	0.801	0.678	0.809	0.422	0.912	0.439	0.903	0.567	0.903	0.693	0.573	0.553	0.801	0.839	0.771	0.708	0.971	0.784	0.701	0.831	0.000	0.424	0.537	0.550	0.697	0.678	0.898	0.318
B32	0.577	0.771	0.705	0.485	0.693	0.465	0.560	0.667	0.346	0.603	0.359	0.780	0.468	0.424	0.577	0.735	0.701	0.780	0.494	0.822	0.404	0.459	0.459	0.424	0.000	0.456	0.338	0.835	0.563	0.659	0.348
B33	0.835	0.784	0.809	0.708	0.926	0.682	0.557	0.557	0.573	0.780	0.678	0.801	0.674	0.735	0.419	0.590	0.903	0.898	0.384	0.926	0.705	0.433	0.716	0.537	0.456	0.000	0.427	0.689	0.708	0.670	0.422
B34	0.898	0.784	0.797	0.814	0.792	0.814	0.670	0.678	0.456	0.686	0.580	0.792	0.667	0.485	0.550	0.797	0.659	0.655	0.485	0.889	0.557	0.557	0.797	0.550	0.338	0.427	0.000	0.809	0.567	0.814	0.323
B35	0.775	0.780	0.705	0.784	0.889	0.670	0.784	0.567	0.682	0.903	0.889	0.889	0.917	0.903	0.663	0.835	0.889	0.971	0.809	0.797	0.898	0.903	0.678	0.697	0.835	0.689	0.809	0.000	0.590	0.809	0.670
B36	0.898	0.670	0.580	0.814	0.889	0.550	0.670	0.465	0.701	0.898	0.540	0.667	0.674	0.708	0.543	0.797	0.712	0.788	0.663	0.903	0.678	0.530	0.801	0.678	0.563	0.708	0.567	0.590	0.000	0.567	0.401
B37	0.903	0.648	0.570	0.600	0.797	0.797	0.682	0.667	0.784	0.580	0.693	0.780	0.788	0.678	0.560	0.720	0.771	0.792	0.663	0.921	0.689	0.682	0.801	0.898	0.659	0.670	0.814	0.809	0.567	0.000	0.797
B40	0.822	0.663	0.693	0.712	0.805	0.520	0.323	0.655	0.445	0.898	0.570	0.792	0.667	0.468	0.419	0.712	0.742	0.655	0.424	0.971	0.670	0.451	0.678	0.318	0.348	0.422	0.323	0.670	0.401	0.797	0.000

Distance Ratio Matrix – Comparing Individuals within Phase 3 (C)

	C1	C2	C4	C5	C7	C10	C11	C14	C15	C16	C17	C18	C19	C20	C21	C23	C24	C28	C37	C38
C1	0.000	0.678	0.667	0.697	0.971	0.678	0.792	0.775	0.659	0.670	0.577	0.971	0.784	0.792	0.894	0.780	0.567	0.792	0.788	0.686
C2	0.678	0.000	0.809	0.903	0.903	0.682	0.903	0.771	0.971	0.797	0.805	0.889	0.663	0.971	0.971	0.889	0.587	0.971	0.797	0.889
C4	0.667	0.809	0.000	0.468	0.822	0.674	0.697	0.903	0.809	0.512	0.797	0.903	0.903	0.814	0.889	0.693	0.775	0.580	0.723	0.716
C5	0.697	0.903	0.468	0.000	0.471	0.708	0.971	0.797	0.663	0.483	0.898	0.788	0.889	0.907	0.809	0.797	0.805	0.818	0.903	0.540
C7	0.971	0.903	0.822	0.471	0.000	0.674	0.889	0.797	0.670	0.670	0.889	0.894	0.801	0.971	0.797	0.903	0.814	0.898	0.903	0.705
C10	0.678	0.682	0.674	0.708	0.674	0.000	0.971	0.809	0.560	0.682	0.805	0.903	0.898	0.898	0.889	1.000	0.674	0.912	0.708	0.705
C11	0.792	0.903	0.697	0.971	0.889	0.971	0.000	0.889	0.682	0.682	0.889	0.801	0.971	0.686	0.889	0.597	0.670	0.689	0.839	0.822
C14	0.775	0.771	0.903	0.797	0.797	0.809	0.889	0.000	0.693	0.655	0.971	0.792	0.898	0.805	0.543	0.903	0.788	0.971	0.814	0.663
C15	0.659	0.971	0.809	0.663	0.670	0.560	0.682	0.693	0.000	0.693	0.889	0.903	0.889	0.689	0.809	0.889	0.445	0.655	0.557	0.577
C16	0.670	0.797	0.512	0.483	0.670	0.682	0.682	0.655	0.693	0.000	0.809	0.792	0.917	0.750	0.822	0.822	0.573	0.761	0.856	0.465
C17	0.577	0.805	0.797	0.898	0.889	0.805	0.889	0.971	0.889	0.809	0.000	0.917	0.600	0.697	0.903	0.889	0.792	0.889	0.780	0.917
C18	0.971	0.889	0.903	0.788	0.894	0.903	0.801	0.792	0.903	0.792	0.917	0.000	0.577	0.822	0.889	0.971	0.898	0.903	0.917	0.801
C19	0.784	0.663	0.903	0.889	0.801	0.898	0.971	0.898	0.889	0.917	0.600	0.577	0.000	0.674	0.903	0.889	0.805	0.971	0.784	0.917
C20	0.792	0.971	0.814	0.907	0.971	0.898	0.686	0.805	0.689	0.750	0.697	0.822	0.674	0.000	0.474	0.903	0.898	0.889	0.898	0.716
C21	0.894	0.971	0.889	0.809	0.797	0.889	0.889	0.543	0.809	0.822	0.903	0.889	0.903	0.474	0.000	0.971	0.889	0.971	0.917	0.580
C23	0.780	0.889	0.693	0.797	0.903	1.000	0.597	0.903	0.889	0.822	0.889	0.971	0.889	0.903	0.971	0.000	0.667	0.771	0.567	0.971
C24	0.567	0.587	0.775	0.805	0.814	0.674	0.670	0.788	0.445	0.573	0.792	0.898	0.805	0.898	0.889	0.667	0.000	0.644	0.456	0.580
C28	0.792	0.971	0.580	0.818	0.898	0.912	0.689	0.971	0.655	0.761	0.889	0.903	0.971	0.889	0.971	0.771	0.644	0.000	0.674	0.689
C37	0.788	0.797	0.723	0.903	0.903	0.708	0.839	0.814	0.557	0.856	0.780	0.917	0.784	0.898	0.917	0.567	0.456	0.674	0.000	0.797
C38	0.686	0.889	0.716	0.540	0.705	0.705	0.822	0.663	0.577	0.465	0.917	0.801	0.917	0.716	0.580	0.971	0.580	0.689	0.797	0.000

Distance Ratio Matrix – Comparing Individuals from Phase 1 (A) with Phase 2 (B)

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36	A37	A38	A39	A40
B1	0.488	0.809	0.797	0.971	0.720	0.971	0.797	0.894	0.775	0.805	0.670	0.971	0.670	0.780	0.822	0.903	0.784	0.839	0.898	0.801	0.912	0.912	0.971	0.898	0.889	0.809	0.839	0.543	0.792	0.655	0.898	0.898	0.805	0.735	0.453	0.889	0.805	0.801	0.889	0.805
B2	0.917	0.889	0.693	0.898	1.000	1.000	0.889	0.797	0.889	0.780	0.652	0.784	0.784	0.814	0.917	0.670	0.771	0.809	0.898	0.784	0.716	0.809	0.903	0.784	0.784	0.797	0.801	0.889	0.784	0.550	0.792	0.659	0.784	0.822	0.814	1.000	0.780	0.784	0.550	0.659
B3	0.917	0.971	0.376	0.917	0.689	0.780	0.693	0.809	0.889	0.663	0.797	0.610	0.670	0.697	0.697	0.735	0.822	0.547	0.533	0.889	0.903	0.670	1.000	0.433	0.705	0.797	0.797	0.413	0.697	0.971	0.822	0.894	0.809	0.705	0.705	0.670	0.689	0.600	0.809	0.822
B4	0.577	0.716	0.814	0.597	0.610	0.801	0.610	0.678	0.801	0.682	0.557	0.674	0.439	0.693	0.573	0.889	0.682	0.727	0.674	0.835	0.540	0.727	0.971	0.663	0.686	0.580	0.705	0.620	0.567	0.678	0.670	0.917	0.727	0.553	0.453	0.557	0.889	0.682	0.771	0.652
B5	0.557	0.809	0.659	0.784	0.797	0.889	0.701	0.809	0.971	0.898	0.445	0.775	0.577	0.697	0.822	0.477	0.889	0.620	0.898	0.809	0.716	0.831	0.889	0.971	0.659	0.784	0.701	0.809	0.903	0.903	0.587	0.818	0.917	0.889	0.784	0.889	0.889	0.903	0.328	0.667
B6	0.693	0.822	0.670	0.839	0.573	0.465	0.427	0.693	0.636	0.889	0.780	0.678	0.682	0.784	0.517	0.784	0.567	0.889	0.413	0.693	0.693	0.540	0.889	0.577	0.659	0.682	0.784	0.583	0.678	0.903	0.553	0.547	0.557	0.797	0.648	0.547	0.784	0.465	0.889	0.670
B7	0.971	0.903	0.797	0.917	0.917	0.557	0.424	0.682	0.667	0.809	0.670	0.689	0.682	0.814	0.659	0.784	0.533	0.809	0.419	0.822	0.682	0.570	0.971	0.771	0.550	0.784	0.727	0.903	0.573	0.771	0.433	0.667	0.422	0.847	0.797	0.809	0.693	0.705	0.784	0.430
B8	0.917	0.889	0.971	0.797	0.971	0.809	0.771	0.674	0.640	0.792	0.686	0.784	0.792	0.917	0.678	0.971	0.708	0.682	0.912	0.686	0.686	0.701	0.682	0.784	0.889	0.678	0.797	0.971	0.809	0.570	0.674	0.689	0.570	0.889	0.570	0.889	0.971	0.701	0.889	0.655
B9	0.971	0.822	0.797	0.797	0.809	0.835	0.705	0.667	0.547	0.971	0.462	0.792	0.667	0.477	0.430	0.693	0.697	0.792	0.894	0.603	0.540	0.809	0.917	0.775	0.663	0.547	0.364	0.659	0.667	0.557	0.465	0.448	0.442	0.822	0.889	0.784	0.917	0.570	0.780	0.448
B10	0.814	0.797	0.917	0.735	0.693	0.889	0.797	0.898	0.971	0.674	0.818	0.462	0.459	0.903	0.889	0.814	0.971	0.456	0.903	0.889	0.577	0.775	0.907	0.570	0.689	0.889	0.903	0.792	0.655	0.818	0.809	0.971	0.898	0.903	0.797	0.903	0.971	0.697	0.784	0.898
B11	0.898	0.797	0.788	0.822	0.818	0.678	0.550	0.659	0.670	0.682	0.530	0.712	0.693	0.693	0.563	0.771	0.792	0.814	0.537	0.701	0.797	0.682	1.000	0.670	0.693	0.682	0.485	0.805	0.603	0.784	0.674	0.682	0.547	0.693	0.682	0.557	0.590	0.570	0.903	0.693
B13	0.889	0.889	0.971	0.822	1.000	0.971	0.898	0.971	0.889	0.788	0.659	0.784	0.788	0.907	0.814	0.780	0.771	0.814	0.971	0.903	0.907	0.912	0.784	0.889	0.898	0.889	0.903	1.000	0.912	0.889	0.889	0.889	0.780	0.889	0.792	0.771	0.889	0.801	0.903	0.792
B15	0.889	0.903	0.971	0.822	0.903	0.784	0.674	0.468	0.889	0.448	0.678	0.797	0.678	0.801	0.693	0.903	0.648	0.831	0.537	0.814	0.573	0.573	0.907	0.784	0.674	0.805	0.603	0.889	0.413	0.670	0.459	0.570	0.563	0.797	0.784	0.670	0.971	0.712	0.697	0.663
B16	0.971	0.660	0.771	0.617	0.797	0.822	0.587	0.682	0.705	0.889	0.402	0.497	0.560	0.537	0.336	0.659	0.814	0.814	0.697	0.597	0.617	0.693	0.971	0.693	0.693	0.577	0.376	0.771	0.697	0.693	0.550	0.670	0.587	0.788	0.797	0.674	0.917	0.590	0.784	0.416
B17	0.788	0.597	0.788	0.701	0.792	0.792	0.540	0.663	0.547	0.889	0.674	0.537	0.560	0.903	0.563	0.889	0.686	0.839	0.663	0.708	0.670	0.567	0.971	0.540	0.670	0.682	0.731	0.801	0.682	0.682	0.663	0.674	0.567	0.788	0.652	0.814	0.775	0.697	0.889	0.533
B18	0.814	0.822	0.727	0.822	0.809	0.686	0.640	0.557	0.674	0.723	0.701	0.801	0.705	0.818	0.712	0.971	0.720	0.553	0.716	0.835	0.818	0.742	1.000	0.771	0.788	0.674	0.822	0.540	0.716	0.826	0.809	0.917	0.623	0.750	0.607	0.805	0.971	0.805	0.917	0.805
B19	0.805	0.903	0.903	0.727	0.889	0.835	0.826	0.663	0.839	0.678	0.697	0.712	0.693	0.847	0.907	0.907	0.697	0.805	0.577	0.889	0.765	0.831	0.971	0.712	0.784	0.701	0.971	0.898	0.805	0.784	0.613	0.701	0.903	0.814	0.889	0.898	0.788	0.792	0.682	0.727
B20	0.971	0.835	0.903	0.682	0.971	0.889	0.903	0.667	0.775	0.971	0.903	0.903	0.971	0.788	0.889	0.971	0.898	1.000	0.889	0.533	0.686	0.889	0.971	0.784	0.792	0.663	0.693	0.971	0.780	0.640	0.971	0.520	0.792	0.971	0.898	0.971	0.831	0.705	0.889	0.797
B21	0.814	0.784	0.705	0.847	0.809	0.560	0.550	0.580	0.659	0.667	0.557	0.590	0.670	0.550	0.560	0.903	0.512	0.797	0.788	0.630	0.314	0.560	0.917	0.712	0.705	0.433	0.712	0.797	0.468	0.497	0.597	0.705	0.483	0.822	0.682	0.822	0.971	0.523	0.839	0.580
B23	0.667	0.771	0.903	0.917	0.784	0.903	0.917	0.971	0.917	0.971	0.889	0.917	0.971	0.971	0.971	0.903	0.771	0.889	0.971	0.971	0.971	0.898	0.889	0.917	0.917	1.000	0.898	0.797	0.907	0.971	0.898	0.971	0.797	0.822	0.682	0.809	0.971	0.917	0.971	0.971
B24	0.663	0.705	0.971	0.708	0.647	0.697	0.670	0.689	0.659	0.780	0.771	0.705	0.670	0.971	0.655	1.000	0.686	0.889	0.663	0.792	0.693	0.573	0.889	0.328	0.797	0.583	0.705	0.716	0.593	0.678	0.805	0.670	0.557	0.792	0.655	0.557	0.822	0.686	1.000	0.784
B26	0.971	0.835	0.971	0.647	0.903	0.682	0.540	0.459	0.436	0.771	0.520	0.903	0.889	0.682	0.442	0.971	0.617	0.907	0.540	0.570	0.483	0.659	0.907	0.784	0.784	0.359	0.560	0.792	0.570	0.560	0.547	0.424	0.448	0.712	0.903	0.693	0.903	0.570	0.917	0.436
B28	0.573	0.701	0.693	0.818	0.593	0.708	0.537	0.903	0.792	0.889	0.801	0.784	0.689	0.814	0.689	0.903	0.701	0.809	0.788	0.517	0.667	0.784	0.971	0.771	0.801	0.826	0.835	0.550	0.701	0.667	0.792	0.792	0.686	0.889	0.670	0.784	0.889	0.593	0.889	0.814
B31	0.971	0.797	0.805	0.903	0.903	0.805	0.701	0.689	0.686	0.889	0.689	0.701	0.682	0.686	0.557	0.792	0.667	0.889	0.563	0.697	0.809	0.607	1.000	0.784	0.573	0.784	0.509	0.917	0.674	0.659	0.392	0.459	0.436	0.903	0.801	0.805	0.587	0.573	0.667	0.407
B32	0.792	0.739	0.889	0.720	0.693	0.682	0.433	0.540	0.560	0.792	0.453	0.689	0.540	0.553	0.485	0.903	0.600	0.708	0.682	0.567	0.600	0.659	0.971	0.678	0.416	0.560	0.491	0.693	0.485	0.530	0.422	0.413	0.369	0.805	0.648	0.689	0.822	0.402	0.889	0.442
B33	0.917	0.716	0.903	0.822	0.822	0.693	0.557	0.547	0.550	0.663	0.705	0.659	0.805	0.708	0.587	0.971	0.494	0.839	0.674	0.701	0.456	0.567	0.771	0.788	0.659	0.560	0.701	0.805	0.430	0.573	0.553	0.716	0.356	0.809	0.655	0.705	0.894	0.590	0.971	0.577
B34	0.971	0.835	0.907	0.822	0.801	0.809	0.570	0.693	0.674	0.797	0.471	0.563	0.788	0.600	0.570	0.903	0.705	0.831	0.889	0.550	0.573	0.689	0.889	0.652	0.527	0.560	0.509	0.971	0.560	0.563	0.567	0.550	0.453	0.917	0.797	0.903	0.917	0.456	0.907	0.410
B35	0.847	0.822	0.784	0.971	0.822	0.822	0.663	0.903	0.903	0.971	0.889	0.784	0.659	0.809	0.659	0.889	0.723	0.894	0.889	0.682	0.903	0.580	0.797	0.678	0.784	0.903	0.826	0.917	0.903	0.771	0.689	0.712	0.682	0.809	0.433	0.889	0.889	0.693	0.771	0.797
B36	1.000	0.971	0.640	0.822	0.971	0.537	0.537	0.674	0.659	0.809	0.689	0.693	0.814	0.809	0.570	0.771	0.720	0.898	0.648	0.560	0.667	0.445	0.889	0.540	0.686	0.550	0.587	0.971	0.667	0.670	0.540	0.387	0.462	0.917	0.697	0.560	0.659	0.587	0.771	0.523
B37	0.971	0.720	0.801	0.529	0.																																			

Distance Ratio Matrix – Comparing Individuals from Phase 1 (A) with Phase 3 (C)

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	A33	A34	A35	A36	A37	A38	A39	A40
C1	0.686	0.797	0.788	0.814	0.720	0.670	0.533	0.894	0.775	0.894	0.784	0.792	0.419	0.971	0.784	0.898	0.801	0.780	0.659	0.903	0.663	0.784	0.971	0.587	0.805	0.788	0.898	0.678	0.780	0.670	0.663	0.780	0.809	0.894	0.780	0.667	0.784	0.801	0.971	0.674
C2	0.971	0.898	0.797	0.898	0.917	0.971	0.971	0.903	0.801	0.971	1.000	0.903	0.682	0.971	1.000	0.903	0.889	0.784	0.771	1.000	0.903	0.971	1.000	0.697	0.889	1.000	0.971	0.670	0.971	0.797	0.771	0.889	0.889	0.971	0.971	0.971	0.771	0.971	0.971	0.780
C4	0.818	0.500	0.889	0.620	0.822	0.682	0.530	0.488	0.686	0.971	0.809	0.674	0.573	0.780	0.792	0.894	0.577	0.689	0.652	0.917	0.797	0.670	0.971	0.784	0.366	0.771	0.682	0.678	0.577	0.889	0.573	0.613	0.701	0.797	0.682	0.822	0.788	0.822	0.903	0.670
C5	0.839	0.814	0.693	0.693	0.839	0.822	0.477	0.580	0.797	0.801	0.465	0.701	0.573	0.583	0.583	0.670	0.580	0.600	0.693	0.822	0.630	0.597	0.889	0.797	0.459	0.590	0.643	0.697	0.610	0.797	0.462	0.708	0.597	0.682	0.550	0.670	0.818	0.693	0.550	0.439
C7	0.971	0.971	0.670	0.903	0.889	0.903	0.550	0.835	0.971	0.917	0.809	0.797	0.903	0.686	0.784	0.659	0.801	0.903	0.784	0.917	0.809	0.701	0.771	0.797	0.682	0.903	0.587	0.971	0.797	0.889	0.540	0.678	0.670	0.797	0.784	0.822	0.809	0.809	0.636	0.659
C10	0.889	0.701	0.889	0.784	0.593	0.907	0.663	0.780	0.898	0.775	0.971	0.527	0.678	0.903	0.898	0.971	0.678	0.971	0.543	0.912	0.689	0.667	0.971	0.448	0.784	0.792	0.788	0.670	0.540	0.667	0.771	0.682	0.792	0.809	0.971	0.801	0.801	0.826	0.971	0.771
C11	0.889	0.814	0.889	0.809	1.000	0.689	0.788	0.693	0.689	0.889	0.674	0.912	0.903	0.889	0.805	0.917	0.731	0.674	0.889	0.792	0.822	0.917	0.797	0.686	0.903	0.797	0.809	0.889	0.971	0.903	0.705	0.705	0.705	0.797	0.809	0.917	0.971	0.705	0.903	0.797
C14	0.889	0.826	0.771	0.971	0.735	0.797	0.670	0.822	0.889	0.971	0.797	0.917	0.693	0.784	0.784	0.971	0.797	0.797	0.894	0.689	0.889	0.520	0.971	0.693	0.801	0.903	0.563	0.670	0.797	0.788	0.805	0.784	0.648	0.971	0.540	0.784	0.889	0.917	0.971	0.797
C15	0.889	0.809	0.903	0.809	0.822	0.678	0.550	0.701	0.682	0.510	0.663	0.682	0.663	0.903	0.462	0.971	0.674	0.917	0.533	0.705	0.686	0.557	0.903	0.442	0.797	0.670	0.633	0.784	0.583	0.663	0.686	0.667	0.465	0.693	0.655	0.557	0.826	0.570	0.903	0.663
C16	0.971	0.727	0.784	0.705	0.903	0.809	0.560	0.633	0.739	0.971	0.494	0.708	0.716	0.720	0.593	0.792	0.693	0.805	0.667	0.689	0.686	0.648	0.971	0.583	0.610	0.620	0.412	0.771	0.686	0.801	0.483	0.474	0.580	0.771	0.903	0.693	0.771	0.682	0.805	0.331
C17	0.889	0.797	0.771	0.917	0.898	0.805	0.818	0.903	0.784	1.000	0.797	0.814	0.659	0.889	0.797	0.674	0.912	0.971	0.889	0.917	0.809	0.780	0.971	0.917	0.889	0.917	0.784	0.889	0.971	0.809	0.705	0.689	0.917	0.889	0.971	0.818	0.903	0.898	0.788	0.784
C18	0.903	0.971	0.567	0.971	0.903	0.971	0.894	0.894	0.971	0.912	0.720	0.597	0.712	0.701	0.792	0.590	0.971	0.597	0.894	0.801	0.889	0.809	0.971	0.805	0.731	0.903	0.801	0.771	0.971	0.903	0.814	0.805	0.903	0.971	0.903	1.000	0.898	0.708	0.583	0.809
C19	0.889	0.903	0.678	0.805	0.780	1.000	0.889	0.971	0.971	0.971	0.903	0.427	0.543	0.784	0.889	0.570	1.000	0.788	0.898	0.971	0.889	0.917	0.971	0.898	0.771	1.000	0.898	0.898	0.971	0.809	0.792	0.801	0.971	0.971	0.903	1.000	0.971	0.889	0.788	0.889
C20	0.907	0.617	0.971	0.693	0.971	0.907	0.708	0.784	0.780	0.898	0.459	0.784	0.659	0.784	0.697	0.889	0.814	0.903	0.912	0.462	0.593	0.818	0.889	0.889	0.903	0.693	0.600	0.971	0.780	0.453	0.689	0.422	0.705	0.971	0.903	0.971	0.971	0.784	0.784	0.580
C21	0.971	0.750	0.903	0.727	0.971	0.903	0.712	0.889	0.889	0.898	0.705	0.809	0.903	0.570	0.670	0.903	0.822	0.971	0.889	0.580	0.580	0.686	0.784	0.903	0.797	0.682	0.705	0.971	0.784	0.670	0.784	0.784	0.809	0.797	0.670	0.903	0.889	0.809	0.797	0.682
C23	0.805	0.797	0.903	0.839	0.971	0.797	0.889	0.771	0.889	0.889	0.797	0.898	0.636	0.903	0.971	0.682	0.780	0.567	0.971	1.000	0.971	0.889	0.686	0.771	0.784	0.971	0.903	0.797	0.971	1.000	0.792	0.903	0.784	0.780	0.644	0.889	0.971	0.971	0.889	0.971
C24	0.971	0.917	0.663	0.792	0.903	0.655	0.775	0.805	0.540	0.889	0.889	0.682	0.822	0.971	0.792	0.903	0.693	0.894	0.527	0.898	0.889	0.663	0.971	0.248	0.788	0.784	0.792	0.678	0.801	0.898	0.689	0.682	0.674	0.693	0.788	0.655	0.577	0.682	0.971	0.655
C28	0.907	0.720	0.898	0.647	0.682	0.894	0.674	0.652	0.640	0.889	0.784	0.805	0.771	0.898	0.652	0.971	0.903	0.705	0.775	0.775	0.971	0.805	1.000	0.640	0.682	0.775	0.805	0.693	0.663	0.894	0.889	0.792	0.801	0.655	0.655	0.780	0.814	0.593	0.889	0.889
C37	0.907	0.809	0.889	0.735	0.797	0.701	0.889	0.697	0.780	0.797	0.898	0.682	0.587	0.788	0.898	0.809	0.805	0.831	0.771	0.971	0.889	0.784	0.903	0.433	0.689	0.889	0.780	0.682	0.705	0.971	0.797	0.780	0.784	0.682	0.784	0.682	0.797	0.822	0.971	0.971
C38	0.971	0.903	0.835	0.903	0.889	0.809	0.459	0.822	0.693	0.792	0.607	0.723	0.797	0.650	0.590	0.917	0.693	0.917	0.705	0.570	0.705	0.682	0.971	0.560	0.580	0.693	0.593	0.903	0.580	0.693	0.540	0.560	0.485	0.797	0.670	0.784	0.623	0.384	0.917	0.364

Distance Ratio Matrix – Comparing Individuals from Phase 2 (B) with Phase 3 (C)

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B13	B15	B16	B17	B18	B19	B20	B21	B23	B24	B26	B28	B31	B32	B33	B34	B35	B36	B37	B40
C1	0.682	0.889	0.590	0.436	0.826	0.430	0.784	0.805	0.889	0.663	0.667	0.971	0.780	0.814	0.663	0.682	0.603	0.971	0.693	0.898	0.537	0.775	0.427	0.889	0.563	0.801	0.917	0.788	0.655	0.670	0.652
C2	0.889	0.682	0.801	0.903	0.971	0.971	0.771	0.894	0.801	0.917	1.000	1.000	0.971	0.971	0.792	0.788	0.814	0.903	0.903	0.971	0.971	0.903	0.889	0.648	0.971	0.797	0.971	0.784	0.971	0.788	0.792
C4	0.814	0.784	0.784	0.689	0.701	0.550	0.570	0.788	0.678	0.788	0.705	0.889	0.667	0.742	0.424	0.701	0.835	0.907	0.693	0.903	0.682	0.583	0.826	0.583	0.488	0.445	0.701	0.784	0.771	0.697	0.523
C5	0.705	0.553	0.640	0.414	0.366	0.603	0.348	0.889	0.593	0.822	0.670	0.780	0.689	0.573	0.557	0.617	0.809	0.907	0.520	0.903	0.686	0.590	0.723	0.550	0.471	0.587	0.682	0.797	0.697	0.583	0.485
C7	0.971	0.667	0.835	0.797	0.547	0.809	0.407	0.907	0.689	0.971	0.784	0.903	0.655	0.805	0.655	0.809	0.889	0.898	0.797	0.784	0.788	0.667	0.917	0.678	0.797	0.784	0.701	0.693	0.705	0.797	0.686
C10	0.889	0.805	0.712	0.674	0.898	0.682	0.533	1.000	0.663	0.705	0.663	0.971	0.636	0.814	0.663	0.809	0.780	0.809	0.617	0.889	0.563	0.693	0.674	0.686	0.682	0.659	0.784	0.822	0.889	0.792	0.670
C11	0.917	0.917	0.889	0.971	0.889	0.693	0.889	0.480	0.809	0.788	0.659	0.784	0.693	0.809	0.667	0.652	0.822	0.889	0.797	0.903	0.805	0.543	0.775	0.907	0.682	0.663	0.678	0.797	0.705	0.889	0.797
C14	0.674	0.971	0.659	0.720	0.917	0.771	0.797	0.797	0.697	0.889	0.659	0.971	0.805	0.689	0.797	0.613	1.000	0.788	0.784	0.889	0.780	0.903	0.537	0.805	0.797	0.805	0.814	0.597	0.797	0.792	0.667
C15	0.689	0.771	0.705	0.468	0.907	0.543	0.560	0.655	0.674	0.689	0.346	0.780	0.321	0.480	0.456	0.637	0.805	0.797	0.573	0.809	0.336	0.560	0.686	0.689	0.433	0.693	0.670	0.801	0.590	0.686	0.563
C16	0.912	0.784	0.693	0.667	0.689	0.682	0.553	0.917	0.538	0.907	0.610	0.917	0.708	0.389	0.570	0.705	0.847	0.693	0.712	1.000	0.716	0.468	0.771	0.509	0.532	0.708	0.523	0.889	0.693	0.889	0.374
C17	0.889	0.805	0.917	0.889	0.682	0.809	0.889	0.971	0.674	0.889	0.780	0.971	0.903	0.809	0.663	0.971	0.607	0.971	0.771	0.898	0.771	0.903	0.907	0.689	0.809	0.917	0.797	0.801	0.689	0.889	0.809
C18	0.814	0.693	0.567	0.903	0.597	0.792	0.894	0.801	0.708	0.597	0.797	0.903	0.898	0.686	0.809	0.903	0.805	0.894	0.822	0.971	0.971	0.971	0.889	0.697	0.822	0.971	0.818	0.788	0.809	0.889	0.809
C19	0.797	0.663	0.822	0.784	0.682	0.889	0.889	0.801	0.814	0.678	0.903	0.898	0.907	0.670	0.670	0.903	0.693	0.898	0.889	0.792	0.907	1.000	0.903	0.797	0.889	0.971	0.801	0.784	0.889	0.889	0.889
C20	0.674	0.537	0.971	0.775	0.801	0.898	0.907	0.583	0.583	0.814	0.701	0.659	0.689	0.512	0.553	0.894	0.697	0.557	0.720	0.903	0.792	0.663	0.822	0.682	0.557	0.705	0.553	0.797	0.667	0.771	0.583
C21	0.797	0.686	0.917	0.697	0.903	0.889	0.889	0.689	0.693	0.903	0.784	0.903	0.889	0.593	0.670	0.903	0.797	0.567	0.693	0.917	0.889	0.674	0.801	0.894	0.809	0.678	0.701	0.693	0.659	0.689	0.682
C23	0.788	0.784	0.889	0.889	0.822	0.771	0.784	0.792	0.898	0.780	0.889	0.655	0.797	0.889	0.889	0.784	0.889	1.000	0.971	0.517	0.788	0.971	0.894	0.971	0.784	0.889	0.889	0.898	0.889	0.771	0.971
C24	0.788	0.678	0.540	0.648	0.971	0.537	0.670	0.788	0.780	0.792	0.659	0.889	0.788	0.693	0.540	0.780	0.587	0.788	0.826	0.784	0.430	0.780	0.771	0.682	0.682	0.894	0.784	0.780	0.547	0.839	0.527
C28	0.792	0.971	0.788	0.689	0.917	0.663	0.894	0.775	0.780	0.659	0.543	0.889	0.775	0.659	0.667	0.775	0.784	0.889	0.894	0.917	0.537	0.655	0.797	0.663	0.445	0.775	0.663	0.889	0.788	0.667	0.775
C37	0.894	0.889	0.682	0.674	0.971	0.667	0.889	0.889	0.689	0.597	0.701	0.917	0.682	0.735	0.792	0.889	0.720	0.917	0.797	0.797	0.567	0.889	0.889	0.903	0.686	0.889	0.780	0.784	0.784	0.731	0.889
C38	0.674	0.682	0.627	0.705	0.917	0.570	0.570	0.663	0.570	0.801	0.427	0.818	0.670	0.590	0.590	0.814	0.712	0.577	0.600	0.912	0.686	0.590	0.697	0.560	0.402	0.570	0.419	0.693	0.488	0.797	0.314

Appendix 8: Questionnaire Sample



I. DEMOGRAPHICS

1) What is your job title?

2) How long have you worked at [REDACTED]?

_____ (years) _____ (months)

3) What is your age?

4) What is your gender? (please tick)

Male
 Female

5) Service location

II. IN YOUR ROLE

What percentage of your focus is to the following stakeholders?

Clients		%
Commissioners		%
Partners		%
Competitors		%
Managers		%
Colleagues		%
Trustees		%
Government/Local Authority		%
General Public		%
TOTAL	100	%

III. OBJECTIVES

List any 3 key objectives for success at [REDACTED]

- 1) _____

- 2) _____

- 3) _____

IV. AT [REDACTED]

For the following statements, please tick “**completely disagree**” (1) or “**completely agree**” (7)

At [REDACTED] ...

		1	2	3	4	5	6	7
1	Our organisation’s objectives are driven primarily by funder satisfaction							
2	Our organisation’s objectives are driven primarily by client satisfaction							
3	We constantly monitor our level of commitment and orientation to serving funders’ needs							
4	We constantly monitor our level of commitment and orientation to serving clients’ needs							
5	We freely communicate information about our successful and unsuccessful funder experiences across all of the organisation							
6	We freely communicate information about our successful and unsuccessful client experiences across all of the organisation							
7	Our strategy for advantage over competitors is based on our understanding of funders’ needs							
8	Our strategy for advantage over competitors is based on our understanding of clients’ needs							
9	We measure funder satisfaction systematically and frequently							
10	We measure client satisfaction systematically and frequently							
11	We have routine or regular measures of customer service for funders							

12	We have routine or regular measures of customer service for clients							
13	We are more funder focused than our competitors							
14	We are more client focused than our competitors							
15	I believe this organisation exists primarily to serve funders							
16	I believe this organisation exists primarily to serve clients							
17	We survey clients at least once a year to assess the quality of our services							
18	We survey funders at least once a year to assess the quality of our services							
19	Data on funder satisfaction are disseminated at all levels of this organisation on a regular basis							
20	Data on client satisfaction are disseminated at all levels of this organisation on a regular basis							