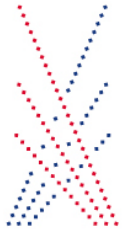

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THE DYNAMIC NATURE OF CONSENSUS: A LONGITUDINAL STUDY INTO COGNITIVE SHIFTS AND THE ASSUMPTION OF CONSENSUS DEVELOPMENT

DAVID J. CARRINGTON
IAN A. COMBE

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ABSTRACT

In this this empirical study we report the findings based on longitudinal research into the assumption that consensus develops over time within organizations when addressing external environmental change and responding to crises. The cognitive maps of leaders and followers are analysed to investigate shifts in consensus within an organization in response to a financial crisis over a four year period within a single case study firm. The inclusion of a midpoint within three phases of data collection provides new empirical evidence that the scope of consensus fluctuates, rather than builds over a sustained period of time. The findings question the assumption that consensus develops over time when organisations respond to change reported in prior empirical studies.

Track: Strategy

Word count: 7156

INTRODUCTION

The assumption that consensus develops over time when individuals work hard to address challenges and resolve problems is widespread. The recent difficulties over Brexit in the U.K. points to the lack of consensus in members of parliament even within single political parties. The assumption that consensus should materialise over time is not being confirmed, causing a loss of patience and contributing to the formation of new breakaway political groups within the U.K parliament and the dismay of the electorate.

The ability to cope with the dramatic changes has long been considered a key determinant of success, competitive advantage and organisational survival (D'Aveni, 1994; Greenwood & Hinings, 1996; Helms-Mills, Dye, & Mills, 2008). As new innovations are launched and competition increases it is imperative that individuals in organisations perceive, evaluate and respond to changing environments. Consequently, dealing with dramatic changes has historically been an important domain in the strategy field for both academics and practitioners alike (Brown & Eisenhardt, 1997; Hannan & Freeman, 1984; Pettigrew, 1990). However, this task presents major challenges for organisations by "*placing unprecedented information-processing burdens on the individuals and groups working within them*" (Hodgkinson & Healey, 2008, p. 388).

The information processing perspective considers how cognitive structures give the information environment form and meaning, which guides decision-making and action. In recent years the study of cognition in understanding strategies for responding to changing environments has significantly increased in importance (Hodgkinson & Healey, 2008; Kaplan, 2011; Narayanan, Zane, & Kemmerer, 2011). Prior research points to the presence of different interpretations of change events by individuals both across firms (Gary & Wood, 2011; Hodgkinson & Johnson, 1994; Marcel, Barr, & Duhaime, 2011; Reger & Palmer, 1996) and even in management teams within single firms (Combe & Carrington, 2015; Kilduff, Angelmar, & Mehra, 2000; Markóczy, 1997). These different interpretations of the

environment can give rise to cognitive diversity and conflict within single organisations, making achieving consensus very difficult.

However, while achieving consensus may be very difficult, prior research has asserted the importance of achieving it through aligning strategic priorities (Floyd & Wooldridge, 1992; Kellermanns, Walter, Lechner, & Floyd, 2005; O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010). Consensus is thought to enhance organizational performance by improving coordination and cooperation (Kellermanns, et al., 2005). Without consensus, strategies may not be implemented to address change events and overcome crises. 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). Furthermore, followers can have a major input into the direction of cognitive shifts required to form consensus within organisations (Carrington, Combe, & Mumford, 2019).

There are a very limited number of longitudinal empirical studies which support the assumption that consensus develops over time as individuals respond to change events and organizational crises. However, in these limited number of longitudinal studies, data has only been analysed over two phases of data collection and over relatively short periods of time (see Carrington et al., 2019; Combe & Carrington, 2015; Markóczy, 2001). Surprisingly, there are no prior empirical studies based on the analysis of additional phases of data collection, to confirm if consensus is maintained over subsequent periods of time. The possibility that consensus is a temporary phenomena, has not been investigated in longitudinal studies. Such a study would help explain why there are inconsistent findings when researchers investigate the consensus-performance relationship (see Kellermanns, et al., 2005). It is possible that consensus does not build and remain stable, so the timing of the data collection may have influenced the level of consensus found. Currently, cross sectional studies in this domain, assume stability in consensus when investigating the consensus-performance relationship.

Therefore, there is a fundamental need to investigate if consensus builds over a sustained period of time when responding to change events and crises, or whether alternatively, consensus and diversity oscillate. We address the possibility that there is a dynamic nature to consensus to address this gap in knowledge in this current study.

The nature of consensus

Consensus, and its impact on strategy, has been a longstanding concern in academic research (Child, 1972; Stagner, 1969; Tilles, 1963). Early research defined the construct of consensus as "…a significant level of shared perception that can be calculated as the extent of agreement between executives" (Grinyer and Norburn (1977, p. 103). Subsequent research, however, highlighted the strategic implications of achieving consensus much more, and consequently emphasised the importance of consensus through aligning strategic priorities (Floyd & Wooldridge, 1992; Kellermanns et al., 2005; O'Reilly et al., 2010). To achieve these strategic priorities, forming consensus is thought to develop a commitment among decision-makers to specific strategies (Hrebiniak & Snow, 1982). Therefore, without consensus, strategies may not be efficiently or effectively implemented, impacting on organisational performance. Consequently, consensus is important for both strategy development and implementation (Joshi, Kathuria, & Porth, 2003). Due to its importance to strategy implementation and performance many researchers focused their efforts on investigating strategic consensus (Bourgeois, 1980; Bowman & Ambrosini, 1997; Dess, 1987; Dess & Priem, 1995; Homburg, Krohmer, & Workman, 1999; Hrebiniak & Snow, 1982; Kellermanns et al., 2005; Knight et al., 1999; Markóczy, 2001) and its relationship with organisational performance (Kellermanns et al., 2005). Therefore, the significance of consensus is integral, not only to the strategic decision making process, but also to the organisation as a whole.

As noted above, there has been an evolution of the nature of consensus investigated in prior research studies, from investigating general agreement to specific forms of consensus,

such as strategic consensus. Additionally, different levels of analysis have also been investigated, from an individual level to a group or team level. For example, cognitive consensus is a significant variable in decision making groups, which assists a group in operating as a unified structure (Mohammed & Ringseis, 2001). As consensus requires forming an agreement on opinions and beliefs, this focus demonstrates the cognitive underpinnings of the construct (Dess & Priem, 1995). Therefore, when individuals think alike, they interpret cues similarly and make compatible decisions (Kellermanns, Floyd, Pearson, & Spencer, 2008). Due to its cognitive underpinnings, consensus is thought to be the overlapping of managers' mental models (Knight et al., 1999). Therefore, to understand the extent of consensus among organisational actors, the perceptions of different individuals within a firm is crucial, and these perceptions are the focus of this current study.

In terms of the outcomes of consensus, managerial commitment is discussed as a vital component for the successful implementation of a strategy (Dess & Priem, 1995; Dooley, Fryxell, & Judge, 2000). However, commitment to a current strategy may hinder change in thinking. Furthermore, commitment is dependent on the belief in a new strategy itself, hence scepticism of its feasibility will deter any active cooperation and support (Kellermanns et al., 2005). Therefore, the building of commitment can then hinder the speed of strategy implementation (Dooley et al., 2000).

Subsequently, cohesiveness, cooperativeness, coordination, and commitment all lead to a more efficient strategy implementation which results in improved performance (Kellermanns et al., 2005).

Towards a multi-dimensional cognitive perspective on consensus

Early research into consensus assumed it to be a unidimensional construct (Shanley & 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 were repeated calls for the unidimensional assumption to be challenged, due to the idiosyncratic nature of consensus (West & Schwenk, 1996).

Wooldridge and Floyd (1989) were early advocates of an alternative view. They argued that consensus should be seen as a multidimensional construct which includes degree, content, and scope of consensus. Firstly, the degree or level of consensus is how strongly that consensus is held. Secondly, the content of consensus refers to the object of consensus i.e. what decision makers agree about including means and ends and other matters. Thirdly, the scope considers the spread of consensus beyond the chief executive (CEO) and top management team (TMT) to other organisational actors.

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. Markóczy (2001) expands on Wooldridge and Floyd (1989) work to include another integral dimension referred to as locus of consensus, which in prior research had been limited only to the TMT. The locus of consensus is understood as which members of the organisation participate in the consensus. Consequently, Markóczy (2001) offers a refined conceptualisation of consensus formation and uncovers new patterns of consensus building. From this perspective, consensus is a multidimensional construct to include degree, content, change, scope, and locus (Markóczy, 2001; Wooldridge & Floyd, 1989). We adopt this approach within this current study to better understand the phenomenon of consensus during a crisis.

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 especially in prior studies investigating strategic

consensus, 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 on relevant 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. These advances have prompted theorists to recommend that future research should move towards this conceptualisation to tackle the equivocal findings in prior research when investigating the relationships between consensus and outcomes (Kellermanns et al., 2005). We take up this challenge. In this current empirical study this more holistic approach is adopted when investigating the content of consensus.

There are benefits to this holistic approach, because it offers advantages by considering the agreement on a more complete set of factors relevant to addressing change and overcoming a crisis. One major reason in favour of a holistic approach is that limiting the content of consensus to just means and ends (strategies and outcomes), limits the locus of consensus to only those involved in strategic decision making. However, 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 it implications for the firm, which are key stages before actions taken to resolve a crisis.

Developing the degree and scope of consensus

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

When considering the scope or spread of consensus, prior research highlights that disagreements should become synthesised into alternatives, and ultimately agreement on a chosen strategic decision (Olson, Parayitam, & Bao, 2007, p. 203). Consensus develops from greater diversity of thinking 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. Initially, these teams had multiple interpretations (interpretative ambiguity) but then gradually move to more clarity and consensus towards the end of their teams' life cycle by managing ambiguity. Interpretative ambiguity was considered a key cognitive diversity measure that differentiated successful and unsuccessful teams. Therefore, the message for managers is that it's good to start with cognitive diversity and high interpretative ambiguity and end with consensus and low interpretative ambiguity.

The important of time to increasing the scope or spread of consensus has been highlighted in prior research. Jehn and Mannix (2001) argued that this issue is often ignored by organisational theorists and psychologists because of the static nature of research. In other

words, temporal issues are often neglected due to the tendency to use cross-sectional, correlation based consensus-performance research designs (Kellermanns et al., 2005). Time moderates the relative impact of overt versus underlying diversity among work group members (Harrison, Price, & Bell, 1998). Harrison et al. (1998) proposed that cognitive diversity has stronger consequences for groups than demographic diversity as group members spend more time together. When individuals they get to know each another, stereotypes are replaced by more accurate knowledge. Harrison et al. (1998) found that the length of time group members worked together is key. However, the study is limited by being cross-sectional and just takes self-reporting measures of time spent together, rather than assessing these effects longitudinally.

There have been more recent attempts to investigate the dynamic nature of diversity (Harrison, Price, Gavin, & Florey, 2002) and conflict (Jehn & Mannix, 2001). As previously discussed, Kilduff et al. (2000) examined the movement from diversity towards consensus, when playing a computer business simulation. The study focused on two points in time; early and late in the business computer simulation. Subsequently, in a longitudinal study, Harrison et al. (2002) examine the effects of time as a moderator via collaboration. The findings suggest that as time passes, collaboration increases which strengthens the effects of cognitive diversity. In another study, Jehn and Mannix (2001) specifically examined patterns of conflict as they shifted and changed over time. The findings highlight 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. Moderate levels of task conflict were found at the midpoint of group interaction (Jehn & Mannix, 2001). Such prior research findings reinforce the view that diversity, including conflict, as well as achieving consensus must be examined as a dynamic process, rather than as a static event.

Therefore, theorists have called for future research designs that consider temporal and lag effects, because these are often neglected (Kellermanns et al., 2005). Furthermore, as many studies are lab based or conducted on students, it is recommended that studies examining consensus and diversity should take place in organisational settings. Furthermore, multilevel complexities in research is a vital area that requires further development (Jackson, Joshi, & Erhardt, 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 have 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 insights. We follow this and other recommendations, above, to investigate the development of consensus in a longitudinal study at different hierarchical levels within a natural organizational setting.

Shifts in consensus: from diversity to consensus

Individuals can arrive at a change initiative with different views and/or goals, but must seek reconciliation of conflicting perspectives to move forward (Mohammed & Ringseis, 2001). In their seminal work, Lawrence and Lorsch (1967) advocated that a high level of diversity coupled with strong integration results in superior performance (van de Ven, Rogers, Bechara, & Sun, 2008). Upper echelons theorists (e.g. Hambrick & Mason, 1984) highlight the need for behavioural integration to utilise demographic diversity. Such theorists suggest that high performance occurs when diverse teams actively explore alternatives (via brainstorming, challenging ideas etc.) compared to those which do not (Simons, Pelled, & Smith, 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 used to resolve differences in individual mental models of strategy. Mohammed and Ringseis (2001) found that groups who incorporated others' perspectives into their own interpretations of issues, resulted in a greater degree of cognitive consensus. Group discussions are likely to alter the cognition of individual group members and allowing for the combination of member perceptions and opinions (Sniezek and Henry (1990). In a more recent longitudinal study by van de Ven et al. (2008), the integrative processes of open communications, involvement, and conflict resolution in implementing an organisational change initiative were found to be important for performance.

Cognitive 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 processes for encouraging and learning from diverse and opposing views of an organisational change initiative (van de Ven et al., 2008).

Ketokivi and Castañer (2004) focused on the alignment or misalignment of employees subgroup goals with the organisational goals, and examined the importance of strategic planning as an integrative device to reduce this position bias (favouring subgroup goals over organisational goals) or sub-goal pursuit. Therefore, reducing position bias enhances goal convergence. They found that 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 & Castañer, 2004). 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 & Castañer, 2004).

Consensus can also build through longer exposure of interaction between organisational members. Clarke and Mackaness (2001) argued that, based on experience and working together over time, individuals are more likely to share constructs in common. Similarly, continued interaction diminishes cognitive diversity within the TMT (Barkema & Shvyrkov, 2007) and can perpetuate groupthink (Janis, 1972). Additionally, convergence would still eventually occur even if new members initially brought fresh perspectives (Barkema & 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 & Shvyrkov, 2007). Furthermore, in light of strategic change initiatives, Markóczy (2001) found that consensus does build near the beginning and end of strategic change initiatives. 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 based on any 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 & Mumford, 2010) or competitive blindspots (Audia, Locke, & Smith, 2000; Ng, Westgren, & Sonka, 2009; Zajac & Bazerman, 1991). Furthermore, homogeneity is associated with fixed mental models (Cho & Hambrick, 2006) which become inert and stable over-time through the same collaboration and membership (Skilton & 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.

Consensus in the context of responding to change and resolving crises

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, in responding to change, the objective is to achieve clarity and consensus among employees on a strategic vision for the future. 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 & McDermott, 1999; Joshi et al., 2003). Organisation wide participation is essential in complex and uncertain environments (Mintzberg, 1978; Wooldridge & Floyd, 1989). So in complex and uncertain environments there is a need for a wide participation in consensus i.e. an increase in the scope of consensus (Floyd & Wooldridge, 1992; Markóczy, 2001; Wooldridge & Floyd, 1989).

However, consensus is seldom achieved as radical change events generate 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, which are shaped by past experiences and circumstances. Diversity is thought to reflect differences in the roles particular actors perform within their organisations, with more complex thinking being elicited from managers whose jobs require deeper insights into their business environment (Hodgkinson & 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 chief executives will possess substantially different patterns of cognition than their functional counterparts.

In their study of strategy formulation processes, Ireland, Hitt, Bettis, Porras, and Auld (1987), in support of Stevenson (1976), find that perceptions of strength and weakness indicators and perceptions of environmental uncertainty vary by management level. They found that lower-level managers perceive more environmental uncertainty than middle managers, but not top managers. Daniels, Johnson, and de Chernatony (1994) found that diversity of cognition exists across an industry, between functions, even within the same company. Individuals' mental models 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 & Floyd, 1989). In other words, it may be more important for an increase in the number of individuals that agree, than increasing the level of agreement. Diverse perceptions at different levels must be reconciled and the scope of consensus increased. Regardless of prior literature stating the importance of organisation wide consensus (Fredrickson, 1984; Mintzberg, 1978; Quinn, 1978), the scope of consensus one of the least explored facets in organizational change (Bowman & Ambrosini, 1997; Markóczy, 2001). To address this limitation in prior research, Markóczy (2001) examined how consensus changes over time. In a longitudinal study, Markóczy (2001) found that consensus development did occur during the strategic change, within all three focal organisations and in all of the investigated organisational members. However, less through an increase in the degree of consensus amongst individuals, but more through an increase in the scope of consensus. Combe and Carrington (2015) also found that the scope of consensus across leadership groups increased when resolving a crisis.

To sum up, prior research has made considerable advances in understanding the complexities of consensus. There are a limited number of longitudinal empirical studies which

have investigated the development of consensus directly within naturalistic organizational settings. However, these studies (Carrington et al., 2019; Combe & Carrington, 2015; Markóczy, 2001), involved data collection in two phases over a short period of time. The possibility that consensus is a temporary phenomenon, has not been investigated in longitudinal studies. In this current study we build on these works to investigate this important issue.

METHODOLOGY

To investigate consensus, a research design was employed that examined the richness and complexities of similarities and differences in cognition at an individual level over time (see Bougon, Weick, & Binkhorst, 1977; Combe & Carrington, 2015; Hodgkinson & Johnson, 1994; Markóczy, 1997; Wacker, 1981; Walsh, 1988; Weick, 1979). Single case study method (see Yin, 2013) was deemed most suitable to allow an in-depth investigation into the individual perceptions and responses to the same crisis at all levels of an organisation.

The empirical research was conducted within a single not-for-profit organization anonymously named 'Health Change UK' which operates in the health sector in the United Kingdom. This organization had approximately 200 employees at the time the research. All levels of the organization were included in data collection including the Trustees, who act as non-executive directors, the Top Management team, Middle Managers, Head Office Staff and Practitioners (Client Facing Staff). There were 40 participants in phase 1 followed by 31 (of the original 40) in phase 2 and 20 (of the original 40) in phase 3. (91 in all three phases).

Tracking changes in consensus and mapping cognitive shifts during crises requires a case study design which is longitudinal. This is justified because the adequacy of cross-sectional studies has been questioned when investigating highly complex inter-related phenomena (Hodgkinson & Sparrow, 2002). Therefore, the focus of this current research design is on a longitudinal detailed contextual approach to data collection as opposed to a cross-

sectional study which assumes the stability of consensus. Consequently, the data collection for this study was conducted over three phases, spanning a four year period. With the first phase starting in the autumn of 2011 and the final phase in the summer of 2015.

There are a limited number of direct longitudinal empirical studies into cognitive shifts, as to-date, studies have predominantly used secondary data based on documentary evidence. Direct longitudinal data has many advantages and is high in validity, as this research design doesn't require respondents to recall from their long-term memory, or for the researchers to interpret cognition from secondary sources.

The research protocol consisted of four distinct stages per interview. These stages that the researcher and respondent went through during the face-to-face interview process are as follows and are discussed in greater detail throughout this section. *Stage 1* consisted of a standardized sorting technique (Markóczy & Goldberg, 1995) to identify each participant's beliefs about important factors for success and to compile the ten most important in rank order. Prior work before interviews were conducted involved 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 in real time during the interviews. *Stage 3* followed the mapping procedure with an in-depth interview to develop a more detailed understanding. 91 interviews (all phases) were conducted and transcriptions of the interviews were produced. *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.

While the first phase of data collection included 40 participants, due to sample attrition over the four years of data collection, 18 participated throughout. All of the TMT, including the CEO participated in all three phases of data collection.

DATA ANALYSIS & FINDINGS

We examine the data longitudinally to investigate the change in consensus over the three phases. Using paired samples t-tests, Table 1 examines the longitudinal data between leaders and followers who are present in all three phases of data collection (n=18).

Take in Table 1 about here

The initial finding from Table 1 is that the scope of consensus increases 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 involving sensemaking. 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 finding demonstrates that consensus does not continue to build, instead after the midpoint, the opposite occurs. This unexpected finding demonstrates the fluctuation between consensus and diversity at different stages when resolving a crisis. 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) 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. This finding highlights the importance of a midpoint in the data collection to reflect what actually happened. Therefore, if this study was conducted over just two phases of data collection the findings would be very limited and show little change in consensus 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 again (t = -2.861; p = .006). This

pattern of fluctuations is further supported in the interviews with certain participants from the leadership group in Phase 3. The following quotations provide an insight into the changes that have continued to impact the organisation over the four years of the study.

> "*Maybe because I have been hit over the head with a sledge hammer so often because we've lost contracts… I think when we were doing these [Map from Phase 1] we were recognising weren't we that we were struggling and we needed to kind of upskills ourselves…in reality we saw significant successes and in one year [2012/13] we won three contracts…Whereas since then we lost XXX (Service A – 9% of revenue), lost XXX (Service B – 55% of revenue), weren't successful with XXX (Bid / Tender C), what else, messed up on XXX (Service D – 6% of revenue), I won't remember all of them… Perhaps the XXX (Service E – 21% of revenue) thing was a harsh thing first of all [2011] but perhaps I didn't think it would get any tougher than that and it got much tougher*." Participant 17

> "*I think it is because we have been so kicked…It just shows how much more cut-throat the market is and how much more I've and I think 'Health Change UK' needs to be aware of the position we are in and how tenuous it is…I think we had only lost XXX (Service E – 21% of revenue) then [2011]… we maybe just thought that was a one-off, crazy thing, don't know what was going on so I think we weren't maybe or hadn't appreciated just quite how fundamental that change to tendering was going to be and we hadn't appreciated how our competitors were gearing up for it really.*" Participant 2

> "*Come to 2013, I would say we were still quite optimistic about winning contracts and I think now we are really pessimistic…I think we are pessimistic being realistic about the challenges that we face…we look at that now [Map from Phase 1] I mean it was an optimistic time but thinking about it now it was a naïve time…I think we have tried to be strategic but when it comes to the crunch we have been more reactive than proactive to some extent…for such a long time 'Health Change UK' has looked prosperous in funds, the organisation expanded, the number of employees expanded, and we to some extent when times are good you kind of think to yourself we are ok at the moment we are not going to worry too much.*" Participant 23

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). In sum, the findings point to differences in the pattern of consensus and diversity formation between leaders and followers. The changes in across group consensus mimics that of the scope of consensus moving from convergence (t = 6.212; p = .000) and 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 2).

Take in Table 2 about here

Firstly, the scope of consensus indicates convergence in beliefs 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 finding further supports the unexpected notion that the scope of consensus fluctuates 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 in beliefs occurs within the leaders between phases 1 and 2 (t = 2.973; p = .003) but towards the end (between phases 2 and 3) 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 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 of beliefs 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.

Paired samples t-tests are ran at specific hierarchical levels to understand more about how consensus changes and forms over all three phases. Table 3 demonstrates this on the reduced sample (n=18).

Take in Table 3 about here

However, this analysis produced 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). Furthermore, there is a significant difference for middle managers between Phase 1 ($\bar{x}$ = 0.809) and Phase 3 ($\bar{x}$ = 0.673); at the beginning and end of data capture (t = 3.520; p = .007). 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 between trustees, top managers, middle managers, head office support staff and client facing staff (see Table 4).

Take in Table 4 about here

A significant difference of consensus building within practitioners is found between Phases 1 and 2 (t = 3.237; p = .001). However, a movement towards more cognitive diversity between Phases 2 and 3 within practitioners was found (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) (t = 4.968; p = .000) as well and at the end ($\bar{x}$ = 0.647) (t = 3.430; p = .002). Therefore, as a significant difference in the level of consensus between the middle managers within Phases 2 and 3 is not found (t = -0.535; p = .598), so they did not revert back to a diverse position at the start. In other words, middle managers exclusively maintain a level of consensus between

Phases 2 and 3. This continues to demonstrate the importance of middle managers as the crisis has unfolded from the midpoint.

DISCUSSION

This research presented additional insights into the dynamics of consensus over three phases of data collection over four years. First, after the midpoint of data collection, a reversal in the momentum of the scope of consensus was found 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 Phase 1 and Phase 3 there was a higher degree of diversity across the organisation, but a movement towards consensus in-between (Phase 2). This finding serious questions prior longitudinal studies that observed the development of consensus over time (Combe & Carrington, 2015; Kilduff et al., 2000; Markóczy, 2001). These studies were hindered by only capturing data from two points in time.

The inclusion of a midpoint in the data collection has allowed for a more detailed understanding of consensus and diversity when responding to an organizational crisis (Jehn & Mannix, 2001). Likewise this research has demonstrated the importance of a midpoint in data collection as the fluctuation in consensus would not have been observed.

Likewise, both leaders and followers ensue a similar pattern to the scope of consensus over the three phases, whereby it was observed that they originally converge and then later diverge. However, the initial convergence for both leaders and followers is less radical than the movement towards diversity after the midpoint. After the midpoint in data collection, for the first time a highly diverse follower group is found. Consequently, by the third phase, neither leaders nor followers are found to be locus of consensus, increasing the possible ambiguity in the direction taken by the organisation at this stage. This finding points to some significant

challenges faced by the organisation towards the end of data collection. There may have been strong fault-lines within subgroups, which could have hindered constructive debate (Barkema & Shvyrkov, 2007).

Next, we provide two potential and interrelated explanations for the fluctuations in cognitive diversity observed. Firstly, the levels of higher and lower cognitive diversity may be indicative of the context surrounding each phase. The first phase, was shrouded in a chaotic external environment, which is both highly complex and highly dynamic. At this early stage in the crisis the effects are being felt across the leadership of the organisation. This may result in diverse perspectives and early 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, was closely aligned with the initial cognitive diversity.

Prior research has demonstrated how the degree of cognitive diversity can be generated by either complex or dynamic environments (Dess & Origer, 1987; Homburg et al., 1999; Hrebiniak & Snow, 1982; Olson et al., 2007) as well as 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 winning additional contracts. However, after that midpoint, the external environment destabilises further and also revenues fall again, more sharply. At the same time the data highlights cognitive diversity as different perspectives emerge on how to deal with the additional subsequent fallout from the crisis. Therefore, the case study organisation reached a situation of stability and heightened consensus by the

midpoint. After developing consensus, however, it becomes clear that this was only temporary and that not all the after-shocks of the crisis may been fully understood. Additionally, the data provides further evidence that organizational crises are not necessarily static, one off events, but can be perpetuating mini-crises situations that have some lasting implications.

LIMITATIONS & 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.

The findings are based on a diminishing 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 and further attrition between Phases 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. Adding additional respondents in Phases 2 and 3 may have maintained the sample size, but we would not have been able to examine individual cognitive shifts. However, the small sample size was unavoidable in this context due to the population size, longitudinal cognitive mapping technique, and preliminary research objectives.

The observed fluctuations in consensus, between three phases over four years, must be met with some caution. Particularly, as between these phases there were 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 problematic.

Future research could be directed in several ways. Studies replicating the research in different case study companies in different sectors is an obvious priority. The main difficult is

finding organizations about to go into crisis and this criteria for inclusion may be a significant barrier to future research. In this particular case study, the management were concerned about radical external change events that were occurring before the start of research. However, the effects of these change events was not fully anticipated, nor was the extent of the financial crisis that had to face.

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Table 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)

Table 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

Table 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)

Table 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)