# Consensus formation during strategic change

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**Abstract**

This paper offers a refined conceptualization of consensus formation and demonstrates in three organizations how this conceptualization enables us to uncover new patterns of consensus building. It describes a longitudinal study which investigated consensus formation in three organizations undergoing major strategic change. The study explored whether consensus building occurred during the strategic change, and if so, how. Initial participants of consensus were also investigated as well as changes in the scope of participants in consensus. Consensus building did occur, but contrary to some views, less through an increase in the strength of consensus and more through an increase in the scope of consensus. Additionally, initial consensus was not located among members of the top management team, but more within an interest group whose members benefited from the given direction of the change.

**Biographical Note**

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## INTRODUCTION

Certain important questions about consensus and consensus formation in organizations cannot even be asked – much less answered – without a new view which breaks down the concept into four facets of consensus: *locus*, or which members of the organization participate in the consensus; *scope*, or how many members participate in it; *degree*, or how strongly that consensus is held; and of course *content*, or what the actual beliefs are. Once those concepts are clarified it becomes possible to ask questions like: where is the locus of a consensus? Where does it grow (in scope) from? When there is growth in consensus is it through growth in degree or scope?

This paper presents such a new view of consensus, extending work in this direction by others. It then goes on to ask some of the questions about the locus and the change in scope during radical change in some specific organizations. We find patterns of locus and change in scope which run counter to the implicit assumptions of much of the literature on top management teams.

### Why consensus matters

It is a widely shared assumption in the strategy literature that the strategy process involves a consensus building process (Dess and Oringer, 1987; Nielson, 1981; Lyles, 1981) during which organizational members develop a general level of agreement "on the fundamental priorities of the organization" (Floyd and Wooldridge, 1992, 28). The importance of consensus formation has been suggested both in the strategic decision making process as well as in the implementation process. Whyte (1989, 41), for example, emphasized that the "task, after all, of all decision making groups is to produce consensus from the initial preferences of its members", while according to Floyd and Wooldridge (1992, p. 27), the "successful execution [of strategy] means managers acting on a common set of strategic priorities." This is achieved through the development of some shared understanding and common commitment, namely by the formation of "strategic consensus." Despite the assumed importance of consensus formation there has been little empirical work conducted exploring whether consensus does in fact develop during strategic change. Although there have been several, mostly experimental, studies conducted on how consensus is (or isn't) formed in negotiating situations in small groups (e.g., Priem, Harrison and Muir, 1995; Schweiger, Sandberg and Ragan, 1986; Cosier and Rechner, 1985), these did not and could not explore the growth of consensus in an organization as a whole. Other empirical studies, conducted in organizational settings, were less interested in consensus formation, but instead

focused on the degree of consensus in the top management team (TMT) and its relationship to organizational performance, without considering the nature of the development of consensus (e.g. DeWoot, Heyvaert and Martou, 1977–78; Grinyer and Norburn, 1977–78; Bourgeois, 1980; Hrebiniak and Snow, 1982; Walsh and Fahey, 1986; Dess, 1987). However, inconsistent findings in these latter studies which ranged from a positive relationship between consensus and performance (Stagner, 1969; Bourgeois, 1980; Hrebiniak and Snow, 1982; Dess, 1987) to a negative relationship (Bourgeois, 1985; DeWoot et al., 1977–78) or even to no relationship at all (Grinyer and Norburn, 1977–78) called attention to a potential problem in our conceptualization of consensus (Dess and Oringer, 1987) and to a lack of clear understanding of the consensus formation process in organizations (Wooldridge and Floyd, 1989). These inconsistencies, we believe, are the consequence of having an insufficiently refined view of consensus. This paper attempts, among other things, to remedy that.

**Consensus as a multi-faceted concept**
Wooldridge and Floyd (1989) implied that one of the problems with our existing conceptualization of consensus is that previous empirical studies failed to clearly distinguish the different facets of consensus and *changes* in these without which consensus and consensus formation may not be discussed or well understood. In this paper, we build upon and extend what Wooldridge and Floyd (1989) started. These authors listed the *content*, *degree* (also termed as *level*), and *scope* of consensus as those facets which need to be distinguished and investigated in future empirical work. The *content* of consensus is what people are actually agreeing on. This may, for example, be the priority of certain organizational goals (Bourgeois, 1980; Dess, 1987) or the importance of certain competitors (Hodgkinson and Johnson, 1994). The *degree* of consensus is how strongly the people involved actually agree on the content. The *scope* of consensus, is how many people share in the consensus which might range from a small team (e.g., top management team) to many members of the organization (Floyd and Wooldridge, 1992). To the above facets this paper adds a fourth one, namely the *locus* of consensus. The *locus* of consensus is where in an organization the consensus is primarily located. For example, consensus might develop among the members of the top management team (TMT) (Hambrick and Mason, 1984), as well as among members of other interest groups who are in favor of change, but not necessarily are members of the TMT (Narayanan and Fahey, 1982; Cyert and March, 1963). The scope here is how many people (or what portion of people) share in a consensus and the locus is who those people are in the organization.

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A brief overview of the empirical studies in the consensus literature (see below) suggests that most of these studies focused on the degree of consensus, limited the investigation to the TMT (or to a small team in laboratory setting) for the locus of consensus, held highly diverse views on the content, and almost entirely ignored the scope. Dess and Oringer (1987) and Priem (1990) provide a good overview of these studies. Furthermore, with the exception of the laboratory studies, most of these have paid little attention to the issue of *change* in consensus (in any of these four aspects), so that we, as yet, have no empirical basis for believing that these facets do change.

Without understanding the strategy context some consensus facets cannot be meaningfully investigated. For example if one wants to explore whether the primary locus of consensus is in the TMT or instead in some other interest group, one needs to first identify the existence of such interest groups. For this to be done, however, one needs to be familiar with the nature of the strategic change and with the potential beneficiaries of this change who might form such interest groups (Narayanan and Fahey, 1982).

**Consensus and the strategy process**
It has not always been made explicit that predictions of the patterns of consensus and consensus development differ depending on the conceptualization of the strategic decision making process. There are two dominant views in this respect.

By one view, strategy is conceptualized as an outcome of a rational decision making process by members of the TMT, while by the other view strategy is an incremental process that could be initiated and driven by interest groups other than the TMT (Frederickson, 1983; Eisenhardt and Bourgeois, 1988; Wooldridge and Floyd, 1989). According to the rational model, strategy is formed through a comprehensive decision making process during which members of the TMT reach consensus in strategic issues (e.g., Ansoff, 1965; Andrews, 1971). By this view we would expect that consensus forms in the TMT and spreads (if at all) from there. Although it often remains implicit, this is the view that underlies expectations on the patterns of consensus building in most consensus studies.

Alternatively, the strategy process is conceptualized as a process during which individuals with common interest form coalitions to advocate their common interest (e.g., Lindblom, 1959; Cyert and March, 1963; Quinn, 1980; Narayanan and Fahey, 1982). Consensus is often formed among coalition members along the lines of their common interest which allows them for effective lobbying to realize their interest (e.g., Cyert and March, 1963). Although members of the interest group might come from the TMT (Quinn, 1980), it is often the case that coalition and

consequently consensus is formed in groups distinct from the TMT (Narayanan and Fahey, 1982). If the efforts of this group succeed consensus will spread from this group and not from the TMT . The mechanisms of consensus formation, however, is not limited to political lobbying. Consensus may also emerge if external or internal organizational conditions favor the new strategic direction and this is realized by an increasing number of organizational members. Also, consensus may just form over time after the initial turmoil of change settles. In addition, people who disagree with the change might chose to leave the organization, while new recruits are likely to show better fit with the new direction. Such changes in the composition of organizational members also increases the chance to reach an increased scope of consensus. Whatever is the mechanism of consensus formation, however, what is important here is that the incremental view of strategy formation allows for a new conceptualization of consensus, which has not been sufficiently explored by previous consensus studies. Through this lens the multi-faceted nature of consensus becomes clearer. We no longer can assume that the main locus of consensus is necessarily in the TMT and our attention is redirected from the emphasis on the degree of consensus to the changes in the distribution of consensus over time.

In sum, this paper argues that our understanding of consensus formation is limited: (1) partially because various facets of consensus (and changes in these) have not been clearly distinguished in the consensus literature; (2) partially because consensus was investigated outside of the strategy process context; and (3) partially because our conceptualization of consensus building was based on a one-sided view of the strategic decision making process. This study aims to overcome these limitations by refining our conceptualization of consensus. By using these new concepts it also demonstrates that the actual pattern of consensus development in organizations differs from what many have assumed.

The study explored the degree, scope, and locus of consensus and changes in various facets of consensus among 64 managers in three organizations undergoing massive strategic change. The method is described below after a brief overview of previous consensus studies. The purpose of this overview is to describe the focus of these studies on various facets of consensus and serve as a basis for a pre-conceptualization of those consensus facets which are explored in the present study.

## CHARACTERISTICS OF CONSENSUS

Previous non-experimental consensus studies are reviewed here considering their focus and assumptions on the *degree*, *locus*, *scope*, and *content* of consensus.

### Degree of consensus

The *degree* of consensus, namely the strength of consensus, has been the most investigated facet of consensus in the non-experimental consensus-performance studies (e.g,. DeWoot et al., 1977–78; Grinyer and Norburn, 1977–78; Bourgeois, 1980; Hrebiniak and Snow, 1982; Walsh and Fahey, 1986; Dess, 1987). These studies mostly focused on the relationship between the degree of consensus and organizational performance, assuming that this relationship is positive, independent of when in the strategy process the data was collected. These studies failed to take into consideration that both the *achievability* and the *desirability* of a given level of consensus might change as the strategic change progresses (Wooldridge and Floyd, 1989). At an early stage of the strategy process, for example, the *achievable* level of consensus might be rather low. This is because strategic change is often triggered by events such as crises (Mitroff, Pearson and Pauchant, 1992), dissatisfaction with existing organizational strategy (Narayanan and Fahey, 1982) or some invading external forces (Sales and Mirvis, 1985; Buono and Bowditch, 1989) which entail diversification and confrontation of views. This low level of consensus, however, is not necessarily undesirable for organizational outcomes if two conditions are met: (1) conflicting views lead to consideration and critical evaluation of alternative view points (Schweiger et al., 1986); and (2) initial confrontation of views are consolidated later on in the strategy process, thus some level of consensus is reached (Lyles, 1981). Laboratory studies, for example, suggested that decision making groups which start with conflicting views and build consensus from these diverse views reach more efficient decision outcomes than those which start with a high level of consensus (Schweiger et al., 1986; Priem et al., 1995). Furthermore, as Dess and Priem (1995) suggested, an overly zealous commitment to a certain course of action at an early stage might be problematic as it may block accommodation to changing conditions, while consensus formation in the later stage of the strategy process is desirable to ensure shared understanding and commitment to the strategy process by organizational members (Floyd and Wooldridge, 1992).

Instead of investigating the appropriateness and desirability of consensus at a given time, it may be more meaningful to investigate and interpret changes in the degree of consensus over time. This study follows the latter approach by

investigating whether the degree of consensus in fact increased over the strategy process.

**Locus of consensus**

Most non-experimental consensus studies followed the rational-decision making model assuming that the primary locus of consensus is in the top management team (TMT) and have thus limited the investigation to this group (e.g., Hrebiniak and Snow, 1982; Bourgeois, 1980; Dess, 1987). These studies imply that the TMT members are the ones who decide the direction of strategic change, who manage the implementation efforts of others (Nutt, 1987; Frederickson, 1984; Frederickson, 1986), and that consensus formation is supposed to aid this process through developing shared strategic priorities and coordinating implementation efforts among TMT members (Ansoff, 1965; Andrews, 1971).

In accordance to the incremental view consensus, however, the primary locus of consensus may be outside the TMT. Consensus is expected to be formed among those organizational members who share a common interest in change and who form coalitions to advocate their common interest (Eisenhardt and Bourgeois, 1988; Narayanan and Fahey, 1982). Although Quinn (1980) implied that the main advocates of change are usually members of the TMT others demonstrated that change is often initiated by those who are not members of the TMT (e.g., Burgelman, 1991).

This study accommodates both views on the locus of consensus by exploring whether consensus is primarily located in the TMT or in other interest groups. Potential coalition members were identified by collecting information about who was interested in the given direction of the change and who benefited most from this change.

**Scope of consensus**

One of the least explored facets of consensus in the empirical studies on consensus is the *scope* of consensus, or more importantly an increase in the scope of consensus during strategic change. The little attention that has been devoted to this consensus facet is surprising as the importance of building a shared understanding and commitment towards the strategy process among a wide scope of organizational members has been widely emphasized in the strategy literature (Mintzberg, 1973; Mintzberg, 1978; Quinn, 1980; Frederickson, 1984). According to Wooldridge and Floyd (1989, p. 297) "in some settings, consensus scope may be more closely related to performance than consensus degree". This may have been neglected because many feel that strategic decision making and managing

the implementation are limited to a group of strategic decision makers of the top of the organizational hierarchy (ie, the TMT) who delegate the relevant task to other organizational members (e.g., Nutt, 1987). In this view strategy formation is considered to be the domain of the TMT while the rest of the organizational members are considered to focus mostly on those tasks which were delegated to them or which are consistent with their organizational position (Dearborn and Simon, 1958; Lawrence and Lorsch, 1967). Increase in the scope of consensus is not considered to be important for effective strategy implementation under such a view.

The TMT view is prevalent in studies which consider strategic change as an outcome of a rational decision making process (Ansoff, 1965; Andrews, 1971) but is not so common among those who view the strategy process as an emergent process involving many members of an organization (Lindblom, 1959; Quinn, 1980). In this latter view the new direction of strategic change is advocated by various interest groups and consensus formation emerges if an increasing number of organizational members adopt this view (Narayanan and Fahey, 1982).

This study explores both the incremental and the rational views by investigating whether the scope of consensus changes over the strategy process or whether it remains limited to the TMT or its original locus.

**Content of consensus**

The most disagreement in the consensus literature is about the *content* of consensus. The dominate view is that consensus primarily should be around the priorities of goals and means (Bourgeois, 1980; Bourgeois, 1985; Dess, 1987), but other content measures have also been widely used. These included priorities and categorization of competitors (Hodgkinson and Johnson, 1994), organizational strengths and weaknesses (Hrebiniak and Snow, 1982), satisfaction with decision making (Stagner, 1969), objectives and role perception (Grinyer and Norburn, 1977–78), and perceived environmental uncertainty (Bourgeois, 1985). Such diversity in the conceptualization of the content of consensus has been considered by Dess and Oringer (1987) as one explanation for inconsistent findings in the consensus-performance studies.

This study does not resolve this diversity but contributes to it by using yet another consensus measure for reasons discussed below. What is captured here are the beliefs of managers in two domains: beliefs in what issues are the most relevant to the organization and beliefs in how these issues affect each other. Beliefs underlie strategic decision making and action (e.g., Dutton and Ottensmeyer, 1987; Dutton and Jackson, 1987; Dutton, Walton and Abrahamson, 1989). Deci-

sion makers are constantly bombarded with a vast amount of ill-defined stimuli. What issues decision makers pay attention to (Stewart and Latham, 1980; Lord and Maher, 1993) and how these issues are interpreted and resolved (Ford, 1985) are based on individual beliefs about relevance and causality (Bettman and Weitz, 1983; Fiske and Taylor, 1991). Beliefs are basically cognitive filters that "impose order on the environment" (Dutton and Jackson, 1987, p: 75) and in a way more basic to strategic decisions and actions than specific goals and means (Dess and Priem, 1995). Decision makers can lose sight of goals and means in specific circumstances (e.g., under time pressure (Svenson and Maule, 1993)) but even in specific circumstances the issues that receive attention and the way they are dealt with are guided by beliefs in relevance and causality. The strategy that emerges over time is the accumulated results of decisions and actions that are guided by beliefs which may or may not correspond with the stated goals and means. Dess and Priem (1995) (who labeled cause-effect beliefs as "cognitive structures"), argue that agreement in beliefs might be more relevant to effective strategy implementation than agreement in goals and means because "divergent cognitive structures among the members of the top management team may reflect a more basic, and perhaps more debilitating disagreement than would differences over goals or methods". Thus in this study the content of consensus is defined as the agreement in relevance beliefs and causal relationships. Although I consider this new content measure as a strengths of this study I also need to acknowledge that this weakens the generalizability of our results to previous consensus studies.

## METHODS

This study applies a multiple case design as this allows the findings to be compared and interpreted across cases (Yin, 1994), while at the same time aggregating data where appropriate. The investigation includes three organizations in Hungary each of which is a recent acquisition of previously state owned enterprises by some "Anglo-Saxon" companies. These three organizations originally were part of a broader study (which included five companies in the first phase) which aimed to investigate the effect of individual characteristics and organizational factors in shaping beliefs (Markóczy, 1997). These organizations were selected for this longitudinal study because they all were undergoing massive strategic change at the time of the first phase of the data collection. The investigated companies are referred by the letters of the alphabet (A, B, C). The ordering of the letters corresponds with the order of investigation in both phases. All three companies are large (with 9500, 1000, and 1300 employees, respectively), and came from

the lighting, biscuit and soft drinks industries. Data collection occurred in two periods of time (end of 1992 and beginning of 1993 and end of 1994 and beginning of 1995).

In the three organizations sixty four managers took part in the first phase of the data collection (20, 22 and 22 managers in each company) and fifty-one in the second phase (14, 20 and 17 managers). Managers were selected from top down in the hierarchy (which usually included the executive director and managers one or two levels down) for two reasons: (1) to include members of TMTs (ie, the executive director and managers one level down); and (2) to include managers who are likely to be aware of the strategic issues, but not necessarily TMT members (Hambrick, 1981). The same managers were asked to participate in both phases of the data collection. If this was not possible because some of the managers have left the organization their replacement was asked to take part in the study, unless the position ceased to exist (this occurred, for example, in company A where many positions were eliminated or moved to the European headquarters).

## DATA SOURCES

Data were collected on the strategy change process as well as on the beliefs of managers in both stages of data collection using the data collection techniques described below.

### Qualitative data

Information on the strategic change and potential coalition members was collected from three sources: (1) by interviewing the managers in the sample with structured, but open ended interviews; (2) by relying on the help of key informants in gaining background information and for consultation during the data analysis; and (3) by using feed-back sessions on validating and interpreting the findings (Heller, 1969; Brown and Heller, 1981). Managers were also asked to fill out a short questionnaire about their individual characteristics as well as were asked three questions concerning changes in organizational performance: (1) Change in the total growth of sales since 1992 (last time of data collection); (2) Change in growth in after-tax return on total assets (ROA) since 1992; (3) Change in overall firm performance/success since 1992. Since two of the investigated companies (B and C) made it clear in the first stage of data collection that they are reluctant to give out absolute data about their performance information was collected in indirect manner (change in percent in the first two items; above expectations, below expectations or according to expectations in overall performance).

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In the first phase of the study managers were asked, among others: (1) to describe those changes in their organizations which they thought were strategically relevant (ie, include changes in goals, resource allocations (Eisenhardt and Zbaracki, 1992) as well as organizational structure and values etc); (2) and to describe the problems related to these changes. In the second phase managers were asked to describe relevant changes since the time of the first data collection. In addition to the above, in both data collection phases, key informants provided background information on their companies (e.g., hiring and laying off information) and were also consulted about the changes and their interpretations which were drawn by the researcher from the interviews. Similar consultation was also done by the other managers during feed-back sessions.

**Causal mapping**

Information on beliefs were collected using a causal mapping technique which was developed by Markóczy and Goldberg (1995). Causal maps (CMs) are representations of individuals' beliefs on relevance in a given domain and on causal relations between these issues which makes them appropriate for the purpose of this study. The applied causal mapping technique was chosen as it produces CMs which are suitable for a systematic comparison of a large sample of CMs. Other causal mapping techniques are also available (Ginsberg, 1990; Huff, 1990; Laukkanen, 1992; Eden, 1992; Walsh, 1995) but only a few produce maps that are suitable for such comparison (see Daniels, Markóczy and de Chernatony (1994) for an overview).

The causal mapping technique includes the following steps:

1. Development of a pool of constructs of those issues which are potentially relevant to organizational success for a given sample of organizations

2. Selection of those constructs which managers consider as relevant for the success of their organizations

3. Assessment of the causal relationship between pairwise constructs considering those constructs which were selected as most relevant.

A brief description of the above steps are provided below. For more detail on the method see Markóczy and Goldberg (1995).

*Development of a pool of constructs*

The constructs were developed from thirty interviews by Markóczy (1995b) with 15 Hungarian and 15 Anglo-Saxon senior managers in international acquisitions

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as part of a separate study. During these structured but open ended interviews managers were asked to describe those issues, including goals, means, and environmental factors which were relevant to the success of their organizations. These issues were coded by two coders into a list of 60 constructs. During coding those issues with similar meaning were coded into the same constructs. For each decision coders sought agreement as opposed to working independently. To ensure that the pool of constructs covered the major issues which might be relevant for success, the resulting list of constructs was compared with a similar list developed by Walsh (1988). From the latter list four items were added to the original list as the coders considered these as potentially important. Note that adding new items to this list does not constitute a validity problem since if managers did not find these added issues important this would only mean that they would not select these as potentially relevant. The resulting 64 constructs went through a translation and back-translation process and two pilot studies including 3 and 49 executive-MBA students. During these pilot studies managers were asked to point out missing constructs or alternatively constructs with similar meaning. No new constructs were suggested while existing constructs with similar meaning were collapsed into 49 constructs which were used in the causal mapping exercise. These constructs, with a clarifying definition provided by the author, were placed on cards for aiding the selection procedure. The constructs are listed by Markóczy and Goldberg (1995, p. 331–332) and the extended definitions and Hungarian language translations are available from the author.

*Selecting the constructs*
To identify beliefs in relevance, managers were asked to sort the constructs into two piles: One with those constructs which they considered to be most relevant for the success of their organizations, and the other pile with those which are not as relevant. The selection procedure was repeated with the "most relevant" pile until the managers were left with 10 or fewer constructs. In the latter case they were asked to complement the constructs to ten from the previous pile. Limiting the selected factors to the top ten was necessary as trial elicitations showed that the next elicitation step, which includes assessing the causal relationship between all pairwise combinations of the selected constructs, tends to exhaust the patience of the subject beyond 10 constructs (Markóczy and Goldberg, 1995).

*Causal relationship*
To identify cause-effect beliefs, for each distinct pair of constructs (90 pairs for 10 constructs) subjects were asked three questions: (1) whether one construct

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## Figure 1: Matrix presentation of causal map

|     | 30 | 47 | 3  | 5  | 33 | 43 | 20 | 35 |
|-----|----|----|----|----|----|----|----|----|
| 30  | 0  | 2  | 3  | 0  | 0  | 0  | 0  | 0  |
| 47  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 3   | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 5   | 0  | 0  | 3  | 0  | 0  | 0  | 0  | 0  |
| 33  | 0  | 0  | 2  | 0  | 0  | 0  | −1 | 0  |
| 43  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 20  | 0  | 0  | 0  | −2 | 1  | 0  | 0  | −1 |
| 35  | 0  | 0  | 0  | 3  | 0  | 0  | 0  | 0  |

| | | | |
|---|---|---|---|
| 3  | Vision and strategic direction | 5  | Market share |
| 20 | Competition in market | 30 | Leadership in organization |
| 33 | Knowledge of market needs | 35 | Brand recognition |
| 43 | Bank connections | 47 | Efficiency/productivity |

The example causal map (from a fictitious individual) contains eight constructs (so it is smaller than the CMs that were elicited from the managers that contained ten constructs). The selected constructs are listed in the first row and first column. Matrix cells contain the existence, strengths (1 = weak, 2 = moderate, and 3 = strong) and polarity of the causal relationship between those constructs which are listed in the row and column. The direction of the influence is from row to column.

influences the other (if not a new pair of constructs were considered, if yes the questioning proceeded); (2) whether it does so positively or negatively; and (3) whether the influence is weak, moderate or strong. With this technique the existence, the polarity and the strengths of the causal relationship were established. The 10 selected constructs together with the 90 causal relationship constituted the CM for each manager's beliefs on the top ten relevant issues in the light of desirable future and the causal relationships among these issues. Figure 1 contains an example for such a CM.

## THE STRATEGY PROCESS

Before discussing how CMs were used to calculate various facets of consensus a brief description is provided on the change process in each company at both stages of the data collection.

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**Company A**

Major strategic changes in company A started by the end of 1991 following the acquisition of its shares by a large, American company.

Changes, listed by the interviewed managers (20 managers) included flattening the organizational hierarchy, introducing new technology, cost control and productivity measures, divestment of those activities which were unrelated to light bulb production, simplifying the incentive system, laying off excess employees, and training the Hungarian employees. These changes were already in process at the time of data collection which started at the second part of 1992. Managers tended to attribute these changes to the intent of the foreign partner to achieve the quality and productivity standards of the foreign parent in order to eventually turn company A into the parent's major European production and R&D site. As one Hungarian manager said, "Our company will soon be integrated into [the acquiring company] and will produce to the standard which is typical in [the acquiring company]."

Since the change had been accompanied with laying off almost half of the employees (altogether 8500 employees out of 18000 were laid off) and put many remaining positions under threat the change was difficult and full of conflict. There were, however, three groups whose managers had a possible interest in the change: (1) the foreign managers who were sent by the foreign parents to company A to orchestrate the change, and whose performance was judged by the result of this change; (2) the TMT which included some of these foreign managers as well as Hungarian managers who were eager to prove themselves to the foreign parents; (3) and the production and R&D managers whose areas received most of the new investment resources (which included, for example, setting up new production facilities, and receiving new technology), also these areas started hiring new managers and employees (after an initial lay-offs). These interest groups were included into the analysis as potential loci for consensus.

In the second phase of the data collection (which included 14 managers), in 1994, most of the changes were already completed. Changes confirmed the earlier predictions of the managers. Company A in fact substantially improved its productivity and quality standards and was integrated into the parent company as a major production and R&D site. Most of the other functions were centralized to the European headquarters which was established during these three years. During the change the company successfully improved its performance from US $105 million loss in 1992 to 11,608,128 HUF gross profit (100 HUF $\approx$ 1 US$ in 1992) by 1995 (*Wall Street Journal Interactive*, 1998). In the investigated period the company showed a more than a 100% increase in both performance measures (total

growth of sales, ROA) which exceeded people's expectations.

**Company B**

Changes in company B started at the end of 1992 following the acquisition of the company by a British parent in 1991. These included the opening of a new plant, establishing a new marketing unit, setting up a new incentive system, and introducing a more effective cost and quality control system. Most of these changes (except the new factory) were still in their early stages at the time of interviewing at the beginning of 1993. The major motivations for these changes were attributed by the interviewed managers (22 managers) to the intention of turning the company from a previously production driven company to a market and sales oriented one. As one of the managers said, "The most important change in the company is that we switch from the priority of the production to the priority of marketing."

Unlike company A, changes in company B were accompanied by less conflict as these changes did not entail laying off employees. However, several interviewed managers expressed uncertainty and fear that this situation might change. The interviews implied that there were three potential groups with an interest in the change: (1) members of the TMT that included both Hungarian and foreign managers and who were all included in developing a formal strategic plan which was approved just at the end of the first stage of the data collection; (2) the foreign managers who were sent to company B by the foreign parent to introduce changes; (3) the marketing and sales managers most of whom were young, highly trained, newly hired, with compensation packages, promotion possibilities and fringe benefits far exceeding those of other managers. As one manager from the production area said in a frustrated manner:

> [A] new managerial group was formed here, and I refer now to the sales managers, who get western cars and huge salaries and other benefits. Can you imagine this? [This] is a small town and nothing remains hidden.

These interest groups therefore were considered as potential loci of consensus in this company.

The second stage of the data collection took place in the second part of 1995 with the participation of 20 managers. By this time fear of lay-offs was justified as the company closed down one of its plants and laid off several of its employees. This was done while the sales force of the company had increased. Managers also reported the first results of the new marketing and sales orientation which were shown in an increased market share in all of the products despite of an increase in the competition. The change was accompanies by an increase in turnover (between

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41–60%) and in profit (61–80%), and met the expectations of most managers in overall performance.

**Company C**

Company C differed from the previous two companies in the sense that it was created by the acquisition and merger of six different Hungarian soft drink companies by the Australian parent in 1991 and 1992. At the time of the interviewing in the first half of 1993 (which included 22 managers) the company was most interested in developing a high market share before other major soft drink competitors reached the Hungarian market (note, that this market was highly protected from major soft drink competitors before 1990). The management aimed to reach a high market share by turning the previously production driven acquired companies into one large, marketing and sales oriented company. For this purpose they established a large sales force by hiring young, highly trained, energetic managers, introduced marketing related training, and offered an attractive compensation system to the marketing and sales force. In addition to the above, other changes were also introduced, but these were treated somewhat secondary to the effort which was devoted towards gaining and maintain a high market share. These latter changes included building up a communication system across the six companies, and introducing new productivity improving and cost controlling measures.

Although integrating six companies carried many uncertainties, managers and employees were initially not threatened by lay-offs which decreased the initial conflict and resistance. But, as with company B, some managers expressed fear that this might change. There were, however, three potential groups that managers suggested have a possible interest in the change: (1) the foreign managers who were sent to company C by the foreign parent to introduce changes; (2) members of the TMT that included both foreign and Hungarian managers and who were eager to take part in the strategic management of the company; and (3) the marketing and sales managers, most of whom were seen as beneficiaries of change. As one manager said:

> I do not think that anybody would love the sales people here, because they are the ones who get everything good. They believed that the sales people are handed everything on a silver platter, which is true after all, because sales is very important for the company.

The second stage occurred in 1995 with the participation of 17 managers. By that time the company headquarters were moved to a new site which had computer network facilities with contact to other plants. This improved the communication

across the various plants and contributed to the integration of the organization. By this time change related uncertainties had substantially decreased primarily because fears of lay-offs proved to be unfounded. The effort of the company to maintain its market share succeeded despite a substantial increase in competition. In the investigated period the company showed a more than a 100% increase in both performance measures (total growth of sales, ROA) which exceeded most managers' expectations.

## Calculation of consensus

This section describes how the various facets of consensus changed between the two phases of the study, and how these were calculated. Many of the types of calculations and their rationales are described in more detail by Markóczy and Goldberg (1995), but some are unique to this study.

The causal maps that were elicited from the managers were used for calculating various facets of consensus. CMs, however, do not yield well to direct statistical analysis. So, distances between pairs of CMs form the basis for further calculation. Distances between CMs were calculated by using a distance formula which was developed by Langfield-Smith and Wirth (1992) and extended by Markóczy and Goldberg (1995). The distance between causal maps were measured as a number between 0 and 1 inclusive, where 0 indicates identical maps and 1 total dissimilarity.

The primary measure for degree of consensus for any group was the average distance (and standard deviation) between all pairs of CMs from that group. The greater the average distance between CMs, the smaller the level of consensus between the people the CMs were elicited from. The smaller the average distance the greater the consensus level.[1]

The primary locus of consensus was measured by comparing the level of agreement within each group (e.g., TMT members) with the degree of agreement between each member of that group with other managers in the sample. If there was one (or more) group(s) whose members showed a substantially higher level of agreement with each other than with others, then this group was considered to be a locus of consensus. For example, if the CMs of the members of the TMT were closer to each other than they were to non-TMT members then the TMT would be the locus of consensus.

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[1]When comparing averages the standard deviation was and needs to be considered. All mention of comparing averages in this paper should be understood as also taking variance or standard deviations into account.

Changes in the degree of consensus were measured by investigating whether the degree of consensus had increased in each group over time. If in the second phase of the study there was a smaller average distance in CMs for some group than in the first, then we can say that the degree of consensus increased for that group.

Changes in the scope of consensus were measured by investigating whether the degree of consensus had substantially increased for the whole organization or not. That is, if people who were not really in a group showing much consensus in the first phase become closer to most other organization members in the second phase, we can say that more people share in the consensus.

**The locus of consensus**
At the first phase of the data collection the potential locus of consensus included three groups in all three companies: (1) TMT members; (2) foreign managers; (3) a functional area which corresponded with the new strategic orientation of the companies (e.g., production-R&D or marketing-sales). These functional areas are referred below as favored areas.[2] The level of consensus was calculated for the whole sample and for these three groups. Results are listed in Table 1.

The average distance of the CMs for the whole sample inform us about the level or degree of consensus among the investigated managers. As indicated in the table the lowest level of consensus (ie, the highest level of disagreement) among the investigated three companies was found in company C ($\overline{x} = 0.805$). This is not surprising given that this company seemed to be the least integrated as it was created from the merger of six companies.

The relative size of the average distance of the CMs in each group in comparison to the average distance of CMs across the subgroup[3] reflects whether they are primary loci of consensus. In other words, the locus of consensus was established by comparing the average distance among the CMs of the members of a subgroup ($x_w$) with the average of distances of the CMs across the subgroup ($x_a$). See

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[2]The broader study, which the first phase of this study was part of, did not limit the investigation of the level of consensus to these groups but also investigated the agreement level among managers with similar age, tenure and other characteristics. Information on all characteristics was collected by using a questionnaire. The level of consensus among these groups are not discussed here as these are not relevant for the purpose of this study. The result of this broader study is described elsewhere (Markóczy, 1997; Markóczy, 2000).

[3]The average distance of CMs *across* the subgroup was established by calculating distances between CMs of all pairs of managers one from inside the subgroup and the other from outside of the subgroup. $\overline{x}_a$ for TMT members, for example, is the average of the distances between all pairs of managers $p$ and $q$ such that $p$ is a TMT member and $q$ is not.

Markóczy and Goldberg (1995, 321–322) for a more detailed explanation. A $t$ value was then calculated for the comparison of these means. Note that these $t$ values cannot be used (directly) to estimate probabilities. The locus of consensus was considered to be limited to the given subgroup if the level of consensus within the subgroup was substantially higher in comparison to the outsiders (ie, the $t$ value was large). Because it is problematic to calculate probability measures from distance data an indirect measure was used to gauge these probabilities.

When a subgroup of cause maps selected (let's call this subgroup $G$) yields a particular $t$ values ($t_G$) we can see how meaningful $t_G$ is by calculating the $t$ values of every possible subgroup in the sample that is of the same size as $G$ and see what fraction of these $t$ values are greater than $t_G$. For example if $t_G$ is 1.3 and there are eight members of $G$, and the sample has 20 members, then we calculate the $t$ values for all possible combination of subgroups with 8 members of the sample (altogether 125,969 combinations) and see how many of them have a $t$ value greater than 1.3. The percentage that do have a $t > t_G$ directly reflects the probability of picking a subgroup of that size from the sample with a greater $t$ value. The smaller this probability is the less likely it is that the given $t$ value occurred by chance. This percentage is labeled $\%_{>t}$ in the table. So instead of making a probability estimate, all of the alternative possibilities were literally counted. This notion of counting subsamples was developed for me by Jeff Goldberg and is inspired by – but is less sophisticated than – the *jackknife* (Efron and Tibshirani, 1993; Mooney and Duval, 1993).[4] Table 1 lists the average intra-subgroup and inter-subgroup distances as well as the estimated standard deviations, the calculated $t$-values and the indirect measures of probabilities at the time of the first data collection. For comparison it also lists the average distances and standard deviations of the CMs of all investigated organizational members in each organization.

Table 1 indicates that in none of the companies were the TMTs the primary locus of consensus (the relevant $t$-values are $t = -0.775$; $t = 0.694$; $t = 0.914$ for companies A, B and C). One locus of consensus in all three companies was the group of those managers who worked in the favored areas, (the relevant $t$-values

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[4]One very important limitation of the technique described here is that it results in positioning a subgroup with respect to other potential subgroups within the *sample*, but says nothing directly about what can be inferred about the *population* from which that sample is drawn. Clearly there must be some relationship. That relationship will depend not only on the sample size (the bigger the better), but on the number of individuals in a tested subgroup (the closer to half the sample, the better). The appendix, by Jeff Goldberg, demonstrates that the calculated $\%_{>t}$ values are remarkably good approximations of traditional $p$-values, even for the small sample and subgroup sizes used here.

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### Table 1: Intra-subgroup distances

| Subgroup | $M$ | $N_w$ | $N_a$ | $\overline{x}_w$ | $\overline{x}_a$ | $\sigma_w$ | $\sigma_a$ | $t$ | $\%_{>t}$ |
|---|---|---|---|---|---|---|---|---|---|
| **Company A** | | | | | | | | | |
| All | 20 | 190 | | 0.781 | | 0.135 | | | |
| TMT | 11 | 55 | 99 | 0.796 | 0.778 | 0.132 | 0.134 | $-0.775$ | 71.7 |
| NA-Frgn | 8 | 28 | 96 | 0.771 | 0.788 | 0.136 | 0.139 | 0.574 | 30.3 |
| FAs-PE+RD | 6 | 15 | 84 | 0.658 | 0.778 | 0.105 | 0.131 | 3.352 | 0.5 |
| **Company B** | | | | | | | | | |
| All | 22 | 231 | | 0.742 | | 0.142 | | | |
| TMT | 6 | 15 | 96 | 0.699 | 0.727 | 0.126 | 0.143 | 0.694 | 24.3 |
| FAs-MA | 5 | 10 | 85 | 0.592 | 0.718 | 0.130 | 0.148 | 2.567 | 1.6 |
| NA-Frgn | 5 | 10 | 85 | 0.514 | 0.734 | 0.136 | 0.144 | 4.588 | 0.1 |
| **Company C** | | | | | | | | | |
| All | 22 | 231 | | 0.805 | | 0.129 | | | |
| Na-Frgn | 8 | 28 | 112 | 0.790 | 0.804 | 0.126 | 0.136 | 0.496 | 30.8 |
| TMT | 10 | 45 | 120 | 0.775 | 0.796 | 0.147 | 0.129 | 0.914 | 21.8 |
| FAs-MA | 4 | 6 | 72 | 0.707 | 0.776 | 0.154 | 0.133 | 1.211 | 10.0 |

$M$ is the number of Maps, $N_w$ is the number of distances between the maps within subgroups and $N_a$ is the number of distances across subgroups (ie, between maps which were within and outside of the subgroups). $\overline{x}_w$ is the mean distance between maps within subgroups and $\overline{x}_a$ is the mean distance across members within and outside of the subgroups. $\sigma_w$ is the estimated standard deviation within subgroups $\sigma_a$ is the estimated standard deviation across subgroups. The meaning of $\%_{>t}$ is discussed in the text. Na-Frgn stands for foreign nationality (e.g., American, British, or Australian) and FAs stand for the favored areas, which are R&D+production (PE+RD), and marketing+sales (MA).

are $t = 3.352$; $t = 2.567$; $t = 1.211$ for companies A, B and C) while in company B the foreign managers were another locus of consensus ($t = 4.588$).

**Changes in consensus**

In the second phase of study changes in the level and scope of consensus were investigated. Changes in the level of consensus are included into Table 2 for those TMT members who took part in both stages of the data collection and for those foreigners and for those FA members who participated also in both stages of the data collection. A large number of possible subgroups were tested, including all functional areas represented in the sample, dominant functional areas (Michel and Hambrick, 1992, 22), age, technical/non-technical education, sex, and level of education. These subgroups are discussed in prior work (Markóczy, 1995a; Markóczy, 2000) Those studies clearly found that the favored area was the only or primary locus of consensus and the only locus of consensus which held across five organizations (including the three discussed here) studied.[5]

Change in the level of consensus for any of the above groups was calculated by comparing the average distance of the CMs of the group members across the two stages of the data collection (ie, for the CMs which were elicited at the first stage of the data collection and for the CMs which were elicited at the second stage). If in any of these groups the new means were substantially smaller compared to the previous means, without finding a substantial increase in the standard deviations, this would suggest that the level of consensus has increased in the given group over time. The degree of change is illustrated by the last column which shows how many standard deviations away the new means are from the previous means. The table indicates that the average distance between CMs decreased somewhat in most groups of managers in each organization. In other words in these groups the degree of consensus increased somewhat over time (the only exception from this are the foreign managers in company B where the average distance of CMs increased over time from $\overline{x} = 0.514$ to $\overline{x} = 0.690$).

Table 2 also indicates a substantial decrease in the average distances of CMs for the whole sample of those managers who participated in both stages of the data collection ($\Delta\overline{x}/\sigma = 1.736$ for company A, $\Delta\overline{x}/\sigma = 1.355$ for company B, $\Delta\overline{x}/\sigma = 4.083$ for company C) which suggests that the scope of consensus has increased in each company during the strategy process. Within each company the increase in consensus of all managers who participated in both stages of the

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[5]If the pattern of consensus formation is as argued in this paper, we should still expect to find that some of the other areas not listed would show substantial convergence. As people's views converge on that of the favored area, they will naturally be moving closer to each other.

## Table 2: Consensus formation over time

| Subgroup | $N_{92}$ | $N_{95}$ | $\overline{x}_{92}$ | $\overline{x}_{95}$ | $\sigma_{92}$ | $\sigma_{95}$ | $\Delta\overline{x}/\sigma$ |
|---|---|---|---|---|---|---|---|
| **Company A** | | | | | | | |
| All | 20 | 14 | 0.781 | 0.673 | 0.135 | 0.137 | 0.788 |
| Both phases | | 10 | 0.750 | 0.540 | 0.129 | 0.121 | 1.736 |
| TMT | | 5 | 0.804 | 0.637 | 0.091 | 0.110 | 1.518 |
| Na-Frgn | | 3 | 0.769 | 0.604 | 0.125 | 0.109 | 1.513 |
| FAs | | 4 | 0.597 | 0.428 | 0.085 | 0.100 | 1.690 |
| **Company B** | | | | | | | |
| All | 22 | 20 | 0.742 | 0.606 | 0.142 | 0.130 | 1.046 |
| Both phases | | 9 | 0.786 | 0.618 | 0.132 | 0.124 | 1.355 |
| TMT | | 5 | 0.715 | 0.606 | 0.124 | 0.130 | 0.838 |
| Na-Frgn | | 5 | 0.514 | 0.690 | 0.129 | 0.009 | −1.840 |
| FAs | | 3 | 0.687 | 0.617 | 0.030 | 0.071 | 0.993 |
| **Company C** | | | | | | | |
| All | 22 | 17 | 0.805 | 0.575 | 0.129 | 0.115 | 2.000 |
| Both phases | | 9 | 0.852 | 0.509 | 0.106 | 0.084 | 4.083 |
| TMT | | 5 | 0.790 | 0.588 | 0.136 | 0.151 | 1.338 |
| Na-Frgn | | 3 | 0.882 | 0.405 | 0.095 | 0.100 | 4.770 |
| FAs | | 4 | 0.789 | 0.527 | 0.035 | 0.083 | 3.157 |

$N_{92}$ is the number of CMs which were collected in 1992–93 in each organization while $N_{95}$ is the number of CMs which were elicited in 1994–95. $\overline{x}_{92}$ and $\overline{x}_{95}$ are the mean distances of the CMs, while $\sigma_{92}$ and $\sigma_{95}$ are the estimated standard deviations. $\Delta\overline{x}/\sigma$ (calculated as $\overline{x}_{92} - \overline{x}_{95}/\sigma_{95}$) shows how many standard deviation away is the new mean from the previous one. "All" refers to the investigated sample of managers in each company, while "both phases" to only those managers who participated in both phases of the data collection. TMT, Na-Frgn (foreign nationality), and FAs mark those members of these groups who participated in both phases of the data collection.

data collection was in fact larger than the increase of consensus for any of the specific subgroup of those managers (except in company C for the group of foreign managers where $\Delta\overline{x}/\sigma = 4.77$ was slightly higher than the value for the both-phase managers of C, 4.083). This suggests that consensus building in each organization occurred not so much because the initial loci increased their degree of consensus but rather because the scope of consensus increased in each of the investigated organizations. That is, in each organization and for the people who participated in both phases, the overall degree of consensus grew more than the degree of consensus for the original locus.

**Potential causes of consensus formation**
An increase in the scope of consensus might be the consequence of two changes: (1) a change in the composition of managers, namely that those who disagreed left the organizations; and/or (2) a convergence in beliefs. Both of these reasons are explored below, but it should be noted that whichever reason applies, the scope of consensus did, indeed, increase.

Whether changes in the composition of the managers or changes in the beliefs of managers contributed to the increase in the degree of consensus is derivable from the first two lines of Table 2 for each company. It can be inferred from the table that after eliminating the effect of change in composition (ie, by comparing only the means of the distances between the CMs of those managers who took part in both stages of the data collection) those managers who participated in both stages of the data collection showed larger change in their CMs ($\Delta\overline{x}/\sigma = 1.736$ for company A, $\Delta\overline{x}/\sigma = 1.355$ for company B, $\Delta\overline{x}/\sigma = 4.083$ for company C) compared to the total of the managers in the sample (see $\Delta\overline{x}/\sigma = 0.788$ for company A, $\Delta\overline{x}/\sigma = 1.046$ for company B, $\Delta\overline{x}/\sigma = 2.000$ for company C). This suggests that consensus formation was not the consequence of changes in the composition of organizational members but the consequence of changes in individual beliefs.

This change could have occurred in three different ways. Either (1) all managers who participated in both stages of the data collection changed their beliefs, or (2) the beliefs of those managers who were outside of the original locus of consensus moved towards the beliefs of those in the original locus or (3) everybody's beliefs moved towards a different locus. If (2) is correct, this would be consistent with the view that people outside of the interests groups adopted the views of the interest groups.

To determine which of these three things occurred, further analyzes were done on the CMs of only those managers who participated in both phases and further-

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more who had not moved in or out of the favored areas. The calculation included the following steps. First pairwise distances were calculated between each managers' first and second stage CM. This way the distance between the current and past beliefs of each manager was calculated. As each managers' belief was compared only to his/her past belief company specificity of the CMs was evened out, so data can be aggregated across organizations for this calculation. This aggregated subsample contained 28 managers altogether. Of these 28 managers, 11 worked in the FAs of their organization (where the original locus of consensus was found), and the remaining 17 were outside of their company's FAs. As noted above, anyone who moved either to or from the FAs between the two phases of data collection was excluded from this subsample. This now gives us a measure of which individuals changed the most and which changed the least. We can use this measure to see whether those individuals in the FAs changed more or less than those outside the FAs.

Those who worked outside the FAs changed their beliefs more ($n = 17$, $\overline{x} = 0.637$, $\sigma = 0.185$) than those who worked inside the FAs ($n = 11$, $\overline{x} = 0.585$, and $\sigma = 0.150$) although the difference is not so large (the $t$ value is 0.732). In sum, everyone's beliefs ended up more similar to each other in the organization, but the beliefs of members of the FAs moved less than the beliefs of those outside of the FAs. If everyone ended up closer to other members of the organization, but some individuals moved less, then it follows that the others moved towards the ones who moved less. So we can concluded that people outside of the FAs came to adopt the views of those within the FAs. However, the non-significant $t$-value requires caution when interpreting this effect.

## DISCUSSION

This study presents a refined conceptualization of consensus formation and demonstrates how this conceptualization enables us to ask new questions about consensus and consensus change. By looking at some of those questions in real organizations we can uncover previously unexplorable patterns of consensus and its change. This has given us new insight into changes in the locus, degree and scope of consensus during radical strategic change. The principal findings can be summarized in three points: (1) At the early stage of strategic change the primary loci of consensus were not in the TMTs but in other interest groups particularly those in the FAs. (2) Consensus formation did occur during the strategic change within all three organizations in most of the investigated interest groups as well as among all of the investigated organizational members. (3) Consensus building took place

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less through strengthening the degree of consensus among the initial members but more through increasing the scope of consensus. These patterns of consensus and consensus development are consistent with the a incremental view of the strategy process, as opposed to the rational view which was implicit in prior consensus studies. Each of these findings and their implications are discussed below.

A major finding of this study was that the primary locus of consensus was not in the TMTs in any of the investigated organizations but in other interest groups particularly those in the FAs.[6] Even though our sample is small, this does seriously challenge any view that expects or assumes the locus of consensus is normally in the TMT during massive strategic change. In the absence of any prior reason to believe that specific characteristics of this sample would lead to consistent and atypical loci of consensus, the case remains very strong that the TMT is not generally the locus of consensus during large strategic change. Had we found that the locus was always among the managers from the foreign parent, one might argue that the pattern uncovered would be specific to acquisitions. However, we found the foreign managers to be a locus in only one of the investigated companies (Company B), and even in that organization it was not the only locus. However, there was no exception to the pattern of the favored area being among the loci. So there remains no positive reason to expect that the results are a consequence of the peculiarity of the sample.

Until someone develops a theory that specifies the conditions under which the TMT is the primary locus of consensus, researchers should no longer readily assume that the TMT is a locus. Studies on strategic decision making in organizational contexts have already pointed out that the locus of power in shaping strategic decisions often differs from the TMT (e.g., Pettigrew, 1992). So, why would we expect that the primary locus of consensus will necessarily be in the TMT?

Studies with a narrow focus on the TMTs could easily overlook alternative loci of consensus. It is plausible, therefore, that some of the mixed results of previous consensus-performance studies were the consequence of failing to find the true locus of consensus. Consensus may very well matter for performance, even if that consensus isn't in the TMT.

This study found that the locus of consensus was in the favored area. The question "where is the locus of consensus?" could not even have been asked – much less investigated and answered – without the notion of locus of consensus. In all three of the investigated organization those who worked in the FAs showed

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[6]In the two additional organizations discussed only in the first phase of the study the pattern was the same: The locus of consensus was never the TMT (Markóczy, 2000).

a higher within group agreement than across group agreement. Although the sample is small, a consistent pattern across multiple cases can still be treated as an indication of some underlying relationship.[7] This finding is consistent with the incremental view of the strategy process which calls attention to the possible importance of various interest groups in the strategy process. Additionally, this study also found that consensus formation happened through the convergence of the beliefs of other organization members towards the initial loci of consensus.

Another important finding is that consensus building did occur during strategic change. Although many strategy researchers assume that consensus building does occur, little work has been done to find empirical support for this assumption. Although we can't 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. Convergence occurred towards the interest group that was favored by the strategic change. Without a strategic change, there could be no area favored by a (nonexistent) strategic change.

What this study can't resolve is whether this consensus formation influenced the strategic choice of the organizations. In all three cases the choice was made prior to the period of the study, and the pattern observed could have been the consequence of more and more people within the organization coming to accept that choice, while the first people to accept that choice were those in the FA. Even so, the results are more consistent with the incremental view, otherwise we should expect to see the TMT as the primary locus with spreading of scope from there.

This study shows that consensus building took place more through an increase in the scope of consensus rather than through an increase in the degree of consensus. Consensus studies with a narrow focus on the degree of consensus or on changes in the degree of consensus would entirely miss the importance of the scope of consensus in the consensus building process. This repeats a warning to those studying consensus not to miss the investigation of the scope of consensus when investigating consensus building.

This study did not set out to investigate the effect of consensus on performance, and the little performance data reported must be taken with a great deal of

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[7]At the risk of venturing into the loathsome domain of methodology, it is worth pointing out here that for *some* questions even a sample size of one is interesting. If a new tool is developed which allows us to carefully investigate the color of swans, and upon using it on one or two swans we see that they are not actually white but only appear white, we can safely assume that we had been mistaken about a vast number of other swans. The locus of consensus may occasionally be in the TMT in some organizations, but that no longer appears to be the most likely location.

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caution. While all three organizations dramatically improved their performance between the two phases of the study, there is no basis to compare whether that is connected with consensus formation, and if it is, how. But when coupled with other work on consensus and performance, this study does have a real message to practice.

This study warns practitioners that increasing the scope of consensus might be more important for the organization than increasing the degree of consensus in the TMT. As a consequence we should be more skeptical of advice advocating the building of consensus among the TMT. Of course there may be many (other) reasons why consensus among the TMT is valuable. But the simple models of the relationship between consensus in the board-room and performance that have been assumed in some work don't hold up under close examination. Advice based on those models may ultimately turn out to be good advice, but not for the reasons initially suggested.

Overall, this study points to the importance of viewing consensus as a multi-faceted concept. Only by separating these facets (and looking at their interactions) can we develop clear, meaningful, and useful accounts of the relationship between consensus and performance.

Despite (or actually because of) the important implications of this study its results need to be handled with caution. The limitations of the study both in sample and in the number of things it looked at should be clear. In particular, the novel analysis techniques along with a smaller than ideal sample should be a strong reason for caution. Additionally, the study could have been improved by also investigating organizations which were not undergoing strategic changes to provide some control measure. Nonetheless we do see that in all of the organizations studied there appeared to be a locus of consensus – not in the TMT – from which the organizational consensus grew. It should also be clear that much of what has been implicitly believed about consensus, its locus and development must be explicitly reevaluated. It will take a substantial number of studies using a variety of different methods before that question can be resolved to the field's understanding. What will help that work is the awareness that one can't simply talk about the "quantity of consensus" as an atomic unit, but must consider its various facets.

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## Assessing probabilities from analysis

This appendix is primarily the work of Jeffrey Goldberg and not of the author of this paper as a whole. It very briefly describes some work done at the author's request to assess to what extent calculated $\%_{>t}$ values described in the main body of the paper can be used to make inferences about the population as a whole.

Recall that a traditional $p$ value is the likelihood that some particular statistic could occur by chance. Or to put it another way, if $p = 0.05$ then there is a one out of twenty chance that that result doesn't indicate some actual pattern. We are interested in seeing how $\%_{>t}$ values correspond with traditional $p$ values. The general approach taken by this appendix is to take a population with no underlying pattern, repeatedly select random samples, make a $\%_{>t}$ calculation and see how many of them produce results with a smaller $\%_{>t}$ than some target. Those will be "false positives". If calculated $\%_{>t}$ values correspond perfectly with $p$ values then the number portion of false positives should be exactly that same as the calculated $\%_{>t}$ value. That is, if we have a $\%_{>t}$ value of 5, then we should expect that exactly 5% of random samples from a random population should show a stronger result.

We must remember that a particular $\%_{>t}$ value depends not only on the characteristics of the sample, but also on the sample size and the target subgroup size. So we wish to calculate how many false positives there are for a particular $\%_{>t}$ value and a given sample size and subgroup size.

In slightly more detail, if we wish to get some idea of how well $\%_{>t}$ values correspond to traditional significance values ($p$) we generate a large random population and take random samples from that and see how those samples behave. Suppose for example we are concerned about a case where we have a sample of 20, a subgroup size of 6 and $\%_{>t}$ of 0.5. (This is the situation with the favored area in Company A.) What we do is

1. Generate a large random population of say 100000 members. (The characteristics of "random" will be described below).

2. From that population select lots of samples of the size we are interested in (20 in our current example). Suppose we pick 10000 such 20 member samples.

3. For each of those samples we select randomly one subgroup of the size we are interested in (six in our current example).

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4. For that subgroup we run the same statistical analysis of the cross and within $t$-tests and save the reported $\%_{>t}$ values.

5. With a 10000 (in our example) random samples from our population we see how many have $\%_{>t}$ which are less than the one actually calculated from the real data. In the case of our example, from table 1 our case of a subgroup of size 6 out of a sample of 20 corresponds to the TMT listing for company B. In that table, that yields a $\%_{>t}$ of 0.5%. So we ask, how many of our ten thousand random trials yielded values less than that. In the run of our test it was 48 out of 10000 (which is 0.48%), giving a ratio very close to the percentage itself.

Table 3 shows the results of the simulation runs for each combination of sample size and subgroup sized used in the real data. Also it is done for two kinds of random populations (discussed below). In each case the $\%_{>t}$ value does look like a remarkably good proxy for actual likelihood of such a $t$ value for a subgroup occurring by chance. Note that to save time, in some cases the calculation is run by using 1000 random samples, but in a few cases we also tested the results for as many as 10000 random samples.

**About the random samples and population**
The results reported here are based on distances between members of a population distributed uniformly in a three dimensional space and in a nine dimensional space. There was no apparent difference when tested using a 2 dimensional space. Even on test runs of buggy versions of the software, which in some versions it seeded the random number generator poorly, the results were similar.

**For complete details**
For more details about the algorithms, software and results, see `http://www.goldmark.org/jeff/programs/nqbs/` which will include source code of the software used.

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| Sample | group | % | 3-d space | | 9-d space | | Company/group |
|--------|-------|------|-----------|-------|-----------|-------|---------------|
| | | | $<$ | Trials | $<$ | Trials | |
| 20 | 6 | 0.5 | 48/10000 | | 49/10000 | | A/FA |
| 20 | 8 | 30.3 | 308/1000 | | 321/1000 | | A/Frgn |
| 20 | 11 | 71.7 | 727/1000 | | 742/1000 | | A/TMT |
| 22 | 6 | 24.3 | 2434/10000 | | 2379/10000 | | B/TMT |
| 22 | 5 | 1.6 | 136/10000 | | 159/10000 | | B/FA |
| 22 | 5 | 0.1 | 5/10000 | | 10/10000 | | B/Frgn |
| 22 | 8 | 30.8 | 300/1000 | | 305/1000 | | C/Frgn |
| 22 | 4 | 10.0 | 1037/10000 | | 1012/10000 | | C/FA |
| 22 | 10 | 21.8 | 219/10000 | | 219/10000 | | C/TMT |

**Table 3: Simulation ratios indicating likelihood of producing specific $\%_{>t}$ values**

The table lists the sample size (sample), the subgroup size (group), the $\%_{>t}$ from the real data presented in the paper (%), the number of simulations runs that produced lower percentages ($<$), out of how many trails (trials). That is repeated for a random population in a 3 dimensional space and in a 9 dimensional space. The table also lists which subgroup of which real sample the simulation line corresponds with.