EFFECTS OF INFORMATION PROCESSING CAPACITY ON CONSENSUS, DECISION SPEED, AND SUPPORT FOR STRATEGIC DECISION IN A HIGH VELOCITY ENVIRONMENT

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EXTENDED ABSTRACT

This study examines the effects of information processing capacity in a high velocity environment upon consensus, decision speed, and support for strategic decision. It also tests whether consensus and decision speed are a trade-off as often assumed. Based on the Information Processing Theory, it is hypothesized that information processing capacity (participation, interaction and informalization) would positively affect decision process outcomes, i.e. consensus, decision speed, and support for strategic decision. Measures of each construct were collected through a survey involving 156 TMT members (CEOs and General Managers) from the Indonesian telecommunication, media, and information technology sectors. The result of Partial Least Square analysis confirms that information processing capacity, in terms of participation and interaction, does significantly influence the level of consensus, decision speed, support for decision. Formalization, however, rather than informalizaton appears to increase information processing capacity. The study also shows that consensus is positively associated with decision speed, suggesting a non trade-off relationship between the two previously assumed incompatible constructs.

Keywords**:** information processing capacity, strategic decision making, decision speed, consensus, support for decisions

INTRODUCTION

Making strategic decision in a high velocity environment is difficult because Top Management Teams (TMTs) are faced with fast-paced changes in demand, competition, and technology that often cause instability, turbulence and unpredictability (Baum and Wally, 2003). In a rapidly changing environment, TMTs must quickly identify environmental changes as potential opportunities and then make a decision whether the changes represent a radical or incremental opportunity worthy of exploitation (Shepherd, McMullen, Ocasio, 2017). The combination of high volume of environmental changes and the lack of clearly useful information could cause TMTs to prefer decision speed to comprehensiveness (Baum and Wally, 2003). The preference toward decision speed, however, could cause TMTs to overlook the importance of achieving consensus and support for decision during the decision process, because efficient decision process and consensus are generally considered to be a trade-off (Roberto, 2004). To achieve consensus, TMTs need to adopt a participative approach which may take more time than the autocratic method. Therefore, TMTs in a high velocity environment are continually faced with the problem of simultaneously achieving decision speed, consensus, and support for decision.

The benefits of fast strategic decisions, consensus and support for decisions have been previously examined in several studies. Kiss and Bar (2015) identified a positive association between industry growth and speed of strategic actions. Making fast strategic decisions also has been empirically demonstrated to improve firm performance. Nadkarni, et al. (2016) found that TMTs aggressiveness is positively related to firm performance, especially in fast changing or high velocity industries. Eisenhardt (1989) found that strategic decision speed is a predictor of performance in fast changing or high velocity environment. In line with this, Baum and Wally (2003) found that decision speed positively affects firm performance and mediates the relationships between organizational structure and environment to firm performance. Independently from inquiries on decision speed, some studies have documented the benefits of consensus. A metastudy by Kellermanns et al. (2011) shows the positive effect of consensus on firm performance. Consensus has also been found to improve support for decision, especially during the implementation phase (Dooley and Fryxell, 2000).

Although a number of determinants of decision speed and consensus have been identified, TMT's capacity to process information appears to be central because strategic decision making is essentially an information processing exercise (Galbraith, 1973). Duncan (1974) identified three elements of information processing capacity, namely participation, interaction, and formalization. Unfortunately, limited attention has been given in

literature to exactly how information processing capacity can help TMT achieve decision speed and consensus, and support for strategic decisions simultaneously.

The primary objective of this research is to study whether information processing capacity (participation, interaction and formalization) affects decision speed, consensus and support for decision. The second purpose of the study is to understand the effect of consensus on decision speed, under the influence of information processing capacity. The theoretical framework in Figure 1 shows that information processing capacity is hypothesized to predict consensus, decision speed, and support for decision. The model also considers the relationship between consensus, decision speed and support for decision. This study uses quantitative data from 156 TMT members from high velocity industries (Telecommunication, Media and Information Technology). Results indicate that information processing capacity has positive influences on consensus, decision speed, and support for decision. It was also found that consensus and decision speed are not necessarily a trade-off.

LITERATURE REVIEW

Information Processing Capacity. Information processing capacity (IPC) has been previously operationalized by three dimensions: participation, interaction, and formalization as suggested by Duncan (1974) and Thomas and McDaniel (1990). In this study, information processing capacity is defined as how much TMT uses a participative, interative, and informal approach in decision making. ***Participation*** is the degree of how much TMT members are involved in strategic decision making. There are various levels of participation in decision making, from a total autractic to a fully participative. ***Interaction*** is defined as how much TMT members work together in making decisions. Sometimes TMT members do not behave as a team and they work in a fragmented way. Some TMTs seldom meet for discussions, exchange of views, problem solving, or collaboration, thereby neglecting the opportunity to realize the benefits of multiple perspectives. In a dynamic and uncertain environment, higher participation and interaction can help better sense making during decision process (Sharfman and Shaft, 2011). ***Formalization*** is defined as how much and organization is characterized by articulate and explicit policies, job descriptions, organization charts, strategic and operational plans, and objectives setting systems (Baum and Wally, 2003). In a formal organization, there is little flexibility as to who can decide or act, or how an individual can decide or act, thus reducing the team's flexibility and capacity to process information (Baum and Wally, 2003).

Strategic Decisions. In this study, strategic decision is defined as a major decision that has significant impact on performance, affects many functions in a firm, and potentially repositions or redirects a firm (Eisenhardt, 1989).

Consensus. Consensus is defined as how much mental models of individual TMT members overlap or are in agreement, usually regarding strategic means and ends or the strategic priorities (Kellermas et al., 2011).

Decision Speed. Referring to the definition of decision process by Mintzberg (1979), decision speed is defined as how fast a strategic decision is made, from the time the issue is first raised in a meeting (or from the information search is begun) until the commitment for action is made.

Support for Decisions. In this study, support for decisions is a second-order construct that consists of two dimensions, namely commitment and confidence. ***Commitment*** is defined as TMT member's cooperative attitude toward the implementation of a strategic decision (Dooley and Fryxell, 2000). ***Confidence*** is the belief and trust that a strategic decision will result in a success (Adidam and Bingi, 2000).

Hypotheses

Thomas and McDaniel (1990) argued that information processing structure that is characterized by high participation, high interaction, and low formalization will result in high information processing capacity.

Turner and Makhija (2012) found that an organic team characterized by high interaction and intensive discussions has better ability to process more information and stronger orientation toward solving problems and finding solutions. This means that a more organic team could make more agreement seeking efforts. Therefore,

Hypothesis 1 : Information processing capacity will have a positive effect on consensus.

Hambrick, Humphrey and Gupta (2015) found that the positive effect of a various capacities of TMT members on firm performance is moderated by an organization structure that is set such that the roles are highly interdependent. An organic structure, that is typified by highly participative, interactive, informal and lateral communication has been found to cause individuals to gather, interpret, and synthesize more information (Turner and Makija, 2012). By working together, TMT members can process more information, consider more factors and build more alternatives in parallel and make faster decision (Eisenhardt, 1989; Zehir and Ozsahin, 2008).

Hypothesis 2: Information processing capacity will have a positive effect on decision speed.

The level of participation and interaction can affect how much a decision process is perceived by TMT members to be fair. Perceived decision process fairness is important as it can increase commitment during implementation, despite disagreements among TMT members during the decision process (Kim and Mauborgne, 1997). TMT members also can increase their support toward the decision, despite personal disagreements, if they believe that the decision is of high quality (Adidam and Bingi, 2000). Hence,

Hypothesis 3: Information processing capacity will have a positive effect on support for decision.

Consensus and decision speed (efficiency) are often assumed to be a trade-off (Roberto, 2004) because a participative approach, which is essential for achieving consensus, could be time consuming. This study, however, will take the view that a decision process that involves participative process and debates is not necessarily a lengthy process, especially with 'consensus with qualification' in mind (Eisenhardt, 1989). Therefore,

Hypothesis 4: Consensus will be positively related to decision speed.

Prior research highlights the importance of achieving consensus during a decision process to ensure smoother implementation at a later stage (Dooley and Fryxell, 2000). To enhance decision quality, a decision process might entail diversity of views, debates and disagreements. But once the decision is made, especially through consensus, TMT members are are expected to support its implementation. Thus,

Hypothesis 5: Consensus will have a positive effect on support for decision.

TMTs that make quick decisions could drive themselves to act even faster in the future. They tend to maintain, or even increase, their momentum by increasing resource commitment so that decisions can be quickly implemented (Perlow, Okhuysen, and Repenning, 2002). Therefore,

Hypothesis 6: Decision speed will have a positive effect on support for decision.

METHODS

The participants of this study consist of TMTs from high velocity sectors, i.e.: telecommunication, media, and information technology. Data was collected by sending questionnaires to 2,383 firms in major cities of Indonesia such as Jakarta, Bandung, Surabaya, Malang, Semarang, Medan, and 57 others. Each questionnaire must be fully completed by top executives, i.e. the CEO or his direct reports, or officers at the top two levels in the company or business unit, in line with commonly applied criteria (Kreitner and Kinicki, 2007). Afther a three-month follow up, 174 responses were received (6.96% response rate), of which 156 were usable. The sample size is greater than the recommended minimum for Partial Least Square analysis, i.e. 30-100 (Stan and Saporta, 2005).

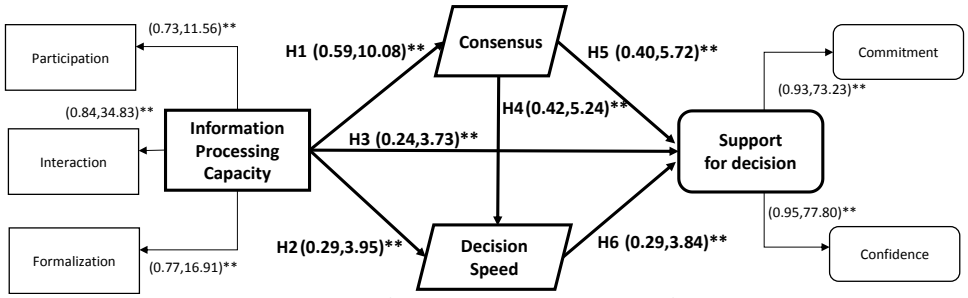
Instruments and Questionnaires

The instruments for this study are adapted from various studies. The instruments for 'participation', 'interaction', 'formalization', 'consensus', and 'speed' are mainly adapted from Zehir and Ozsahin (2008), Baum and Wally (2003), Thomas and McDaniel (1990), Eisenhardt (1989), and Duncan (1974). Measurements for 'commitment' were mainly adapted from Dooley and Fryxell (2000), whereas 'confidence' are from Adidam and Bingi (2002), Dooley and Fryxell (2000), and Eisenhardt (1989). The questionnaire initially consists of 67 questions. To statistical analysis were conducted in two stages. The first stage is to test the validity and reliability of the measurement model. To do this, measurement items with loading lower than 0.5 were removed. Next, low loading items are further dropped until the Average Variance Extracted (AVE) of each latent variable is at least 0.5 (Hwang, 2010). The reliability of the measurement model is confirmed by ensuring that composite reliability (CR) and Cronbach's alpha (CA) are above 0.7. Eventually, there were 60 items left in the refined model. Both second-order constructs (information processing capacity and support for decision) were valid because the path coefficients toward their first-order constructs are greater than 0.5 and significant ($p<0.01$) (Coltman et al., 2008). The second stage is the estimation procedure to assess the likelihood that the information processing capacity would impact the level of consensus, decision speed, and support for decision. It is performed using a variance based Structural Equation Modeling (SEM), or commonly referred to as the partial least square (PLS) method. The PLS method was preferrable compared to the full covariance based LISREL because the number of samples was limited (Hair et al., 2014). Analysis was done using Smart PLS 2.0 software (Ringle, Wende and Will, 2005).

FINDINGS AND ARGUMENT

As seen in Figure 1, analysis of the structural model provides evidence that supports all of the hypotheses. There are three paths that explain how information processing capacity can increase support for decision. First, in a highly dynamic environment where information is usually scarce, inaccurate, or quickly becomes obsolete,

exchange of information facilitated by high information processing capacity could create greater ground for TMT members to build shared understanding and common frame. The increased consensus will subsequently increase TMT members' commitment during implementation (Parayitam, Olson, and Bao, 2010) as well as their confidence on the decision (Adidam and Bingi, 2000).



Loading > 0.5 good validity. *significant: p<0.05 or t>1.96; ** significant: p<0.01 or t>2.576.

Figure 1 Theoretical Framework and Analysis Results

Secondly, higher information processing capacity, typified by high participation and lateral interaction helps TMT members gather, interpret, and synthesize information faster (Turner and Makhija, 2012). Firms with high information processing capacity can make timely strategic decisions and implement them successfully because the TMT members have higher confidence about the timeliness of the decision (Adidam and Bingi, 2000). Thirdly, information processing capacity also has a direct effect upon support for decision. Participation, interaction, and formalization can increase the perception of fairness in a decision process hence confidence in the decision (Adidam and Bingi, 2000). Interestingly, consensus and speed were also found to be positively associated, suggesting a non-trade off relationship. Both consensus and speed also positively affect support for decision.

It is important to note, however, that according to Galbraith (1973) that high information processing structure is characterized by high level of participation and interaction and *low level* of formalization. This study surprisingly reveals that formalization is positively, rather than negatively, related to information processing capacity. It could be that as participation and interaction increase, there is a greater need for formalization in the decision process. Clarity of procedures, authority, and responsibilities or sometimes referred to as structured process can improve problem formulation when ill-structured and complex problems are addressed by heterogeneous parties (Baerts, Dirks, and Nickerson, 2013). Further, in a culture with high uncertainty-avoidance like Indonesia (Hofstede, 2001), there could be greater preference toward formal over informal process, to reduce uncertainty.

CONCLUSIONS

This study contributes to extant knowledge on decision process by corroborating the positive effects of information processing capacity on consensus, decision speed, and support for decision. Secondly, this study adds to the decision making theory that consensus and decision speed are *not* a trade-off (mutually incompatible). Thirdly, this study validates the theory that consensus increases support for decision. Lastly, it adds to prior knowledge on decision making by demonstrating the positive effect of decision speed on support for decision.

The empirical results also have interesting managerial implications. Executives need to pay close attention not only to 'what', but also to 'how' and 'how fast' the decision is made. In a high velocity environment, TMTs need to make fast strategic decisions to improve performance (Baum and Wally, 2003, Eisenhardt, 1989). But they also must make every effort to achieve consensus and suppport for decision to ensure smooth implementation. And, both can be achieved by increasing information processing capacity (participation, interaction, and procedural formalization). Even when unanimous agreement could not be achieved, a participative process that allows for better engagement, expectation, and explanation could increase perceived process fairness, hence support for the decision (Kim and Mauborgne, 1997). Additionally, when TMTs achieve consensus and make fast decisions, they could quickly readjust their direction together, if they happen to make a mistake (Baum and Wally, 2003).

Limitation and Recommendations for Further Study

There are some methodological and/or scope limitations in this study. First, the data collection is based on self-report or perception of TMT members. Inclusion of several non perceptive measurements may provide more objective results. Secondly, the measurement is based on single-rater method. The multi-rater method may result

in less subjective measurements. Thirdly, the current study uses only quantitative data, whereas the inclusion of qualitative data can actually overcome the recollection/retrospective bias (Roberto, 2004).

The respondents for current study are mainly Indonesian companies, known for high collectivism and high power distance culture (Hofstede, 2001). In the future, the scope could include companies from different cultures. Future the studies could also include more detailed elements of consensus (e.g. content of the agreement, between-group consensus, or the significance of differences in consensus) as suggested by Tarakci, et al. (2014). A comparative study may also reveal differences of the abovementioned effects, in state versus private companies.

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