

# Organizational Dimensions that Influence Organizational Mindset in International Business Context

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## Abstract

Negotiation is considered as one of the most important activities that managers do on a daily basis in developing business in different markets. It is estimated to consume about fifty percent of their working time (Fraser, Zerkanda, 2002). Even with such significant consumption of time and effort, the negotiation failure rate in achieving a mutual settlement is reported to be high (Tung, 1988; Boven, & Thompson, 2003).

Studies on negotiation and business deals closure are focused on either decision making styles or on the approaches and tactics used by negotiators. History has revealed that the real world consists of multidimensional factors with mass influences, where cause and effect are imprecise, equilibrium momentary, and with repeated patterns with irregular performance.

The effect of organization characteristics in imprecise environment tends not to receive the necessary attention. Furthermore, no study has been conducted to account for factors that affect organizational global mindset within the international business negotiation context in a fuzzy environment. Modeling an organizational global mindset in a fuzzy environment to further understand the significance of each dimension in influencing the organizational global orientation is critical.

In this paper we present a model and methodology that might help decision makers to understand and identify the factors affecting the organizational global orientation (Organization Global Mindset) in a non-static, fast changing world. It aims to quantify the effect of organizational dimensions in influencing organizational global orientation. "IF-THEN" fuzzy rules using linguistic variables that have impact on the outcome of organizational global mindset are generated. A genetic algorithm-based methodology is developed to obtain the optimal set of fuzzy rules. A fuzzy inference system is then created to assess the global orientation of the organization in international negotiation context.

**Keywords:** Organizational Global Mindset; International business negotiation; Evolutionary Fuzzy System; Genetic Algorithm.

## **Introduction**

The business world interaction is rapidly changing and has become more and more global, and very competitive. In such an environment, a requirement for understanding factors affecting actions and decision from region to region and country to country is highly appreciated. Being in global business, and doing business globally is not a matter of what portion of the revenue companies are generating from cross-border transactions; it is a matter of the way the companies think about doing business, and the ability in interpreting the operating environment (Belin & Pham, 2008). Precisely, companies with a global mindset characteristic are in advantage to seize opportunities and avoid threats compared to their competitors that lack such trait (Belin & Pham, 2008).

Organization global mindset provides the organization and its members with tendency to see the world in a certain way, and common understanding and explanations for why things work the way they do inside and outside the organization (Rhinesmith, 1992). It emphasizes the need to expose the know-how at the local level, and recognize similarities and differences across cultures, and marketplaces globally.

Organization Global mindset is not purely the sum of organizational capabilities and abilities; rather, it is the way of how individuals think and use organizational capabilities and abilities within organization to achieve its goal and objectives in the global market (Gupta and Govindarajan, 2002).

This paper presents a model and its accompanying methodology that stands from psychology approach. Precisely, from organizational characteristics by identifying the traits that affect the global orientation of the organization in business negotiation context in non-static, fast changing world.

## **Research Problem, Objectives and Plan**

The business marketplace is becoming more global, and supported with technological advancement, many firms are finding it incumbent to expand their geographic scope from domestic to foreign marketplaces. In doing so, negotiation with foreign counterparts has become one of the most important activities that managers do on a daily basis, estimated to consume about 50 percent of their working time (Fraser & Zarkanda- Fraser, 2002). Even with such consumption of time and effort, negotiation failure rate to achieve mutual settlements is reported to be high (Tung, 1988; Van Boven & Thompson, 2003). Hence, it is not surprising to find a large body of research dedicated to understanding the reasons for such failures in reaching the optimal arrangement.

Researchers, such as Crowne, (2008), Earley & Peterson, (2004), and Yan, Guorong, & Hall, 2002), recognize that in order for organizations to succeed across national borders; they must have managers with global mindset. Furthermore, some researchers (e.g. Belgley and Boyd, 2003) have claimed that it is not enough for organizations to have few executives with a global mindset to be successful at multinational level. They argued that all employees should excel at balancing global consistency with local responsiveness, and suggest the need of embedding organization global mindset in companywide policies. Thus, what are the organizational dimensions that influence organization global mindset? And what are the best combinations of these dimensions that foster organization global orientation.

The goal of the study reported in this paper is to develop a fuzzy rule based model to assess the impact organizational dimensions on the global orientation of the organization in

international negotiation context. The objective of the study is to identify the organizational characteristics that influence organization global mindset, using a fuzzy rule based model.

The paper is structured into four sections namely literature review, research model development, data analysis and model testing, and discussion and conclusion. Overall, this paper develops a model with a fuzzy environment to quantify the influence of organizational dimensions on organization mindset. “IF-THEN” fuzzy rules using linguistic variables that have impact on the outcome of organizational global mindset are generated. A genetic algorithm-based methodology is developed to obtain the optimal set of fuzzy rules. A fuzzy inference system is then created to assess the global orientation of the organization in international negotiation context.

## **Literature Review**

Many researchers (e.g. Belgley & Boyd, 2003; Gupta & Govindarajan, 2002) believe that the achievement of global business objectives is leveraged by an organization-wide alignment of global mindset, when each and every employee is prepared to work effectively in a global business environment. The degree of adaptation and internationalization were examined and linked to cooperative behavior, which earlier studies have found to influence negotiation behavior and business achievement (Ang et al., 2000; Luo, 1999; Pornpitakpan, 1999; Francis, 1991). In the same way, internal organizational factors and organizational decision-making have been studied in literature. Factors such as differences in type of business have impacts on negotiation behavior, which subsequently impact negotiation outcome and business achievements (Gulbro & Herbig, 1995a, 1995b, 1996a, 1996b).

Factors such as decision-making processes, leadership, intra-organizational compromise, degree of centralization, have been investigated in relation to international business negotiations (Black & Mendenhall, 1993; Martin et al., 1999; Salacuse, 1998; Tung, 1991). In addition, several other organizational dimensions, like group decision orientation, individuality, adhockery, and planning were inspected vis-a-vis the negotiation process and business achievement outcomes that lead to organization global orientation (Calantone et al., 1998; Kale & Barnes, 1992).

### **Global Mindset and Organizatrion Global Mindset**

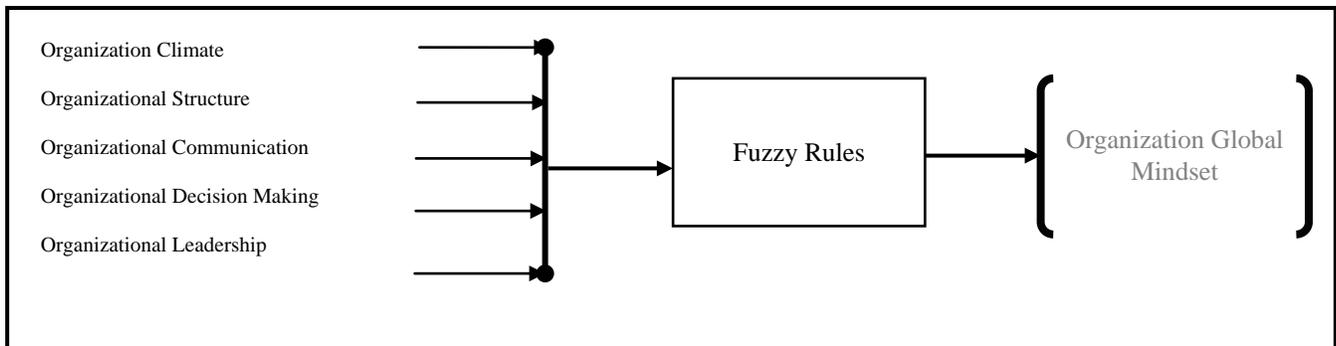
In order companies to cope with the vibrant international business world, require a unique aptitude in observing and interpreting its environment. Creating a global mindset is one pre-requisite for building such intelligence (Gupta & Govindarajan, 2002). The concept of mindset (developed in the area of cognitive psychology) refers to awareness of how people make judgment of their surrounding and select appropriate actions in interacting with their environment. According to Fisher & Ury (1981), mindset is a way that the given subject is perceived and evaluated; a predisposition to see the world in particular way that sets boundaries and provides explanations for why things are the way they are, while at the same time establishing guidance for ways in which we should behave (Rhinesmith, 1992 p. 63). Individual global mindset is regularly associated with global leaders, for leaders in a company are the ones responsible for setting the strategic direction, and influencing the globalization and human resource structure (Adler & Bartholomew, 1992; Conner, 2000; Aycan, 2001; McCall & Hollenbeck, 2002), though Begley and Boyd (2003), believe maintaining that it is not sufficient

at multinational level to have few executives with global mindset, but rather all employees should excel in balancing global consistency with local responsiveness.

Paul (2000) believes that organization global mindset is a combination of mindsets of all the members of the company, who are shaped by the administrative heritage and structure of the organization. Begley and Boyd (2003) define organization global mindset as how firms align organizational processes, organizational structure, and hierarchical power for global setting. Some researchers consider other aspect in referring to organization global mindset such as, human resource policies (Kobrin, 1994), cultural dimensions (Gupta & Govindarajan, 2002), and market characteristics where the company operate (Nummela et al. 2004). Rhinesmith (1992) believes that global mindset is the ability to scan and interpret the world from broader perspective with the intention of discovering the unexpected trends and opportunities to achieve personal, professional and organizational goals and objectives. Levy et al. (2007, p.224) see global mindset as “a highly complex cognitive structure characterized by openness to and articulation of multiple cultural and strategic realities at both global and local levels, and the cognitive ability to mediate and integrate across this multiplicity”.

### Developing the Research Model

#### The Model



**Figure 1: Organizational Global Mindset Research Model**

The research model as illustrated in the Figure 1 has been developed in three stages - factors identification stage, fuzzy rules stage, and a fuzzy output stage for the initial factors. The outputs of the initial factors through the set of fuzzy rules are named organization global mindset as identified by the initial five factors. The global orientation of the organization of the team members involved in negotiation was captured by a set of fuzzy rules, which involve a set of five antecedents; organizational climate, organizational structure, communication in organization, organization decision making, and organization leadership varied on three levels of low, medium and high.

**Organization climate** refers to a “set of conditions that exist and have an impact on individual’s behavior” (Denison, 1990). In other words organization climate is the habitual patterns of behavior, attitudes and feelings that characterize life in the organization (Isaksen, & Ekvall, 2007)

**Organization structure** is the form that organization takes to organize its activities and functions into divisions, departments, functions, and people. It consists of activities such as task

allocation, coordination and supervision, which are directed towards the achievement of organizational aims (Pugh, 1990).

**Organization communication** is defined as the sending and receiving of messages by means of symbols within organization (Drenth et al., 1998). It is a two way process of reaching mutual understanding in which participants exchange information and create and share meanings. Also, organization communication is the binding force that permits coordination and cooperation among people (Myers and Myers, 1982).

**Organization decision making** can be defined as the cognitive process of reaching a decision after taking into consideration different opinion or judgment in choosing between alternative courses of action in organization, which is also dependent on managerial style. It is the mental processes integrated in the interaction with the environment resulting in the selection of a course of action among several alternative scenarios (Kahneman & Tversky, 2000).

**Organization leadership** is about organizing a group of people to achieve a common goal. It can be defined, as creating and articulating a sense of common purpose, core values, and becoming fit to function in organization. It is described as the process of social influence where a person can join to aid and support of others in the accomplishment of common tasks (Chemers, 1997).

Bearing in mind the need to minimize complexity without losing variables sensitivity, three linguistic levels - low, medium and high, were implemented for every variable of the research model. The three linguistics levels of low, medium and high were used for the following reasons:

- 1- They are the predicate modifiers commonly used by Malaysian business negotiators in describing factors involved in business negotiation.
- 2- To define a rule base in which the effects of all the inputs were distinguishable and non-confounded.
- 3- To obtain acceptable effects of the variation in the variables
- 4- To be able to simulate the synergetic effect between the factors within the rule base.

### **Model Measurement**

This study adopts a fuzzy approach in analyzing the research model. This method is different from the conventional method in studying management phenomena. The fuzzy approach seeks to quantify and measure relationship of various attributes not measuring the attributes itself. It is to some extent similar to the methodology adopted within marketing behavior studies that seek to examine the relationship between the factors of the studies by discriminant analysis and categorizing the factors of the research on groups and categories to quantify the relationship between those factors and their pattern effects.

Fuzzy rule based systems have been shown to be accurate not only in real-life applications such as control, modeling and classification, but also on the interpretability of the factors affecting the phenomena under study (Casillas et al. 2003). In general, the large numbers of fuzzy rules are pulled out in a heuristic method using rule evaluation criteria. It is very difficult for human to understand and capture thousands of fuzzy rules when analyzing a phenomenon under study. Therefore, rules should be significantly decreased to present an understandable knowledge to the readers and the practitioners.

The model generates a common set of fuzzy rules from experts and practitioners in the field of international business negotiation through a structured questionnaire, capturing their experiences on the factors affecting organization global orientation through a dimension of organizational characteristics.

The set of rules generated through the questionnaire represents a subset of all the possible outcomes of pattern space where the number of combinations of the possible outcomes can be determined exponentially. In our case, the expected pattern space of the possible combination is  $[3^5] = 243$  rules. Out of the three hundred and fifty (350) questionnaires that have been distributed to managers and negotiators working in sixty five Malaysian companies, forty-eight (48) have been filled out. Thus giving a response rate of  $48/350 = 13.71\%$ . This low response rate may be due to the lack of documentation in most of the companies when it comes to negotiation process. Or, it could be simply due to the ignorance of questionnaire's receiver to dedicate time to answer the questionnaire.

### **Questionnaire Design**

This study adopts expert-driven perspective to develop the fuzzy system to evaluate the negotiation outputs. Hence, a set of questions have been developed to gather knowledge and information from Malaysian business negotiation experts who have had prior dealing with the Middle East market. The goal of this survey is to develop the rule base, and the collection of the fuzzy "if-then" rules, which specify the prototypical behavior of Malaysian organization with their Middle East counterparts. Malaysian business negotiators mostly use the three predicate modifiers, which are low, medium and high in describing the factors involved in business negotiation.

### **Data Analysis**

To analyze the collected data, this paper adjusted and built on the genetic algorithms and genetic programming component provided as a Java framework by "JGAP" Java Genetic Algorithms Package (<http://jgap.sourceforge.net/>). While designing a fuzzy expert system using Genetic Algorithm (GA), the first important step is the adaptation of the coding system in representing the problem under the study from the fuzzy rules into the chromosome. The fuzzy system cannot be well defined only if the fuzzy rule base and the membership functions related with each fuzzy set of variable are fully specified. The membership functions correspond to the fuzzy sets of input variables: low, medium and high. In this paper, each input/output in the fuzzy set is represented by four integers 1 for low, 2 for medium, 3 for high, and use of integer 0 is to represent the absence of a term. If we consider an example rule of organization characteristics that is evaluated involving the five factors in which the input is: medium, low, high, high and low, and the output is medium; then the rule can be encoded as 2 1 3 3 1 2.

Adopting fuzzy logic approach and genetic algorithm optimization method required an understanding of the subject under the study and the ability to choose the right measurement concerning the approach components. The approach components consist of: (a) membership function, which is a generalization of the indicator function in classical sets. In fuzzy logic, it represents the degree of truth as an extension of valuation (Zadeh,1965), (b) fitness functions, which is a particular type of objective function that is used to summarize, as a single figure of merit for a given solution to achieving the set aims, (c) Crossover, which is a process of exchanging the genes between the two individuals that are reproducing, and (d) mutation that is the process of randomly altering the chromosomes (Mitchell, 1996).

### **Membership Function**

In many cases, performance is found to be improved by changing the membership functions and selecting suitable fuzzification and defuzzification methods. Defuzzification is the translation of fuzzy data to crisp data. It includes approaches such as Max-membership principle,

centroid method, weighted average method, center of sums and so on (Zadeh, 1978). This study adopts the weighted average method as the defuzzification approach of the fuzzy output data, and the simple average method as defuzzification approach in representing the input linguistic variables. The output membership function is given by the algebraic expression below:

Output membership function =  $(x1 w1 + x2 w2 . + xn wn) / (w1 + w2 . + wn)$

$$\text{Membership Function} = \frac{\sum_{i=1}^n (x_i w_i)}{\sum_{i=1}^n w_i} \quad (1)$$

### **Fitness Function**

The Fitness function deals with the genetic algorithm and evaluates the performance of the rule base as represented by integer strings. In this study, as the objective is to evaluate the deal closure performance, the absolute difference error is taken to evaluate the fitness of the chromosomes

$$E = (1/N) \sum |O_i - e_i|; \quad (2)$$

whereas  $N$  is the number of evolved fuzzy rules and  $e_i$  is the expected outputs obtained by assigning priorities to the input variable.

$$\text{Chromosome Fitness Value} = 1 / (1 + E) \quad (3)$$

The chromosomes with higher fitness value are carried to the next generation

### **Crossover**

Crossover is a process by which two parents strings recombine to produce two new offspring strings. It is usually applied to selected pairs of parents with a probability equal to a given crossover rate. In this case, a random point is selected and the column behind this point is exchanged as whole.

### **Mutation**

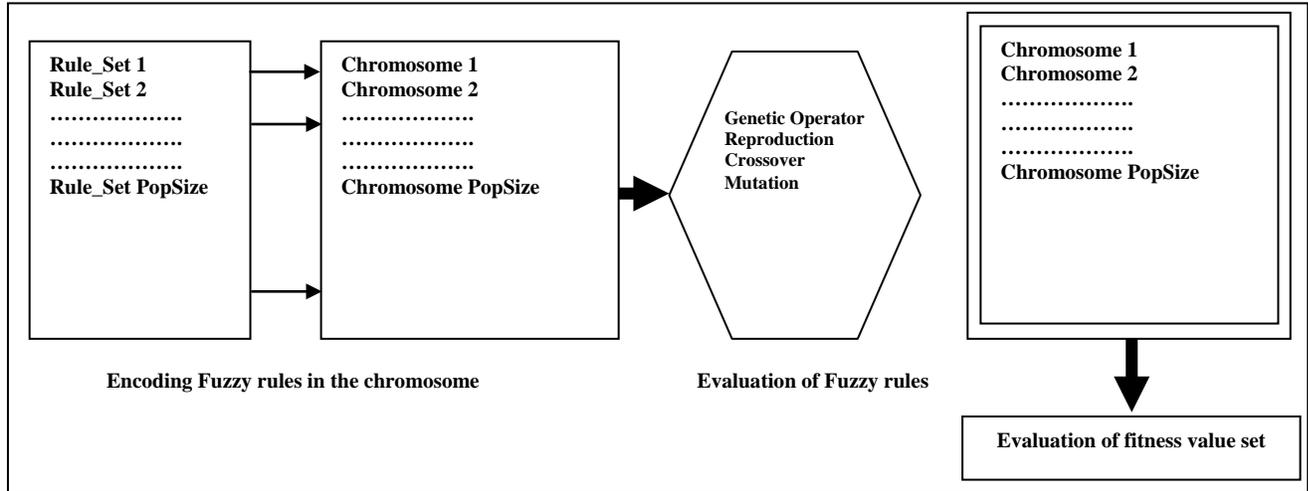
Mutation is the process of change that occurs in chromosomes. It is a random alert of few composition of a string to produce a new offspring instead of recombining two strings. In this paper the mutation used is increased or decreased by replacing the integer by another in the range of [1, 3] excluding the present value of the element. The integers of the string are independently mutated. The mutation of the element does not influence the probability of mutation of another element.

### **The Steps as Whole**

In this paper, the process-flow works as below:

1. The obtained population through the questionnaire is regrouped based on the outcome level high, medium and low.
2. Apply the simple average method in representing the membership values of the input linguistic variables
3. Apply the weighted average method as the composition rule for the fuzzy output data, *equation (1)*
4. Calculate the fitness  $f(x)$  of each chromosome  $x$  in the sub-population; *equation (3)*
5. Repeat the following steps until  $n$  offspring have been created
  - a. Select a pair of parent chromosomes from current populations, the probability of selection being an increasing function of fitness.

- b. With crossover rate, cross over the pair at a randomly chosen point to form two offspring
6. Mutate the two offsprings at each locus with a mutation rate, and replace the new chromosomes in the new population. If  $n$  is odd, one new population member can be discarded at random
7. Replace the current population with the new population
8. Go to the step 2.
9. Keep the process from step 1 to step 8 for  $n$  times until satisfactory results were obtained and make the decision based on the generated solutions.



**Figure 2: System Flowcharts for Illustrating the Evolution of Optimum Fuzzy Rule Base**

### **Data Analysis and Model Testing**

In this paper we presented a model that generates the best fuzzy rules describing the studied factors affecting organizational global mindset in business negotiation context based on the knowledge and experience of 47 senior executives and practitioners, after eliminating one respondent due to lack of experience in negotiation situation. The constructed results from the developed expert system are grouped on their levels of low, high and medium. The following sections describe the most appropriate rules that reflect organization global mindset in their three levels of low, medium, and high.

The factors organizational climate, organizational structure, communication in organization, organization decision making, and organization leadership were studied to describe and measure the relationship of these factors on the organization global mindset. As mentioned earlier, the study considers the business negotiation experts' knowledge on the organization they come from and involved in negotiation, and presented in percentages as the truth value (membership value) of the input linguistic variables of organizational characteristic factors, which are calculated as the average of the selected linguistics variables (low, medium, and high) of the organizational characteristics factors based on experts' knowledge. These averages are called membership value and presented in the tables under the name "Membership Function Value" within population (MV1). For example, for the first fuzzy rule in Table 1 for organization climate we have a membership value of  $MV1=43\%$ , implying that organization with low organizational climate in 43% of the population. The input linguistic variable low, medium, and

high are represented in this research by the numbering: 1, 2, and 3 respectively. These numbers are called linguistics variable value and presented in the tables under the name “Linguistics Variable Value” (LVV). For example, for organizational climate in the first fuzzy rule, LVV=1 implies that the individual is low on the organizational climate factor. Weighted averages have been calculated for organizational characteristics factors based on its occurrence as described by the input linguistic variable (low, medium, and high). These weighted averages are called membership value within subgroups, and presented in the tables under the column “Membership Function Value within Subgroup” (MV2). For example, MV2=80% for organizational climate factor implies that in the subgroup of low organization global mindset, 80% of the organizations have low knowledge level. The fuzzy inference system calculates the degree of membership and determines the combined degree of fulfillment for each rule base as explained earlier in the research model section. The results are presented under the column “Overall Membership Function Value” (OMV), which indicate the degree of membership of the organization to the set of organizations that are globally oriented, or simply called organizational global mindset. As example, in the case of the first fuzzy rule in Table 1 the OMV=72.36% implies that organizational with the combinations of low organization climate, low organizational structure, medium or, low organizational communication, medium organizational decision making, and medium organizational leadership are likely (0.7236) to be amongst those who are of low global mindset. In other words, it indicates to what extent the dimension under the study is explained by the level of the factors involved in the fuzzy rule. It should be noted that we reject the fuzzy rule if its membership function is below 50%. The fuzzy rules generated for optimal representation at low, medium and high level of the individuals’ global orientation are discussed below.

### Optimized Rules Describing Organizational Global Mindset at Low Level

Table 1 presents the first twelve rules that have a similar overall membership (OMV) value that characterize an organization with low level of global mindset. The research considers only the first twelve rules whereas the full set of rules, which consists of 200 rules that were generated by the system.

**Table 1: Fuzzy Rules of Organizational MV2 Global Mindset (Low Level)**

Organizational Mindset Generated Results																
Total Evaluation Time L.L.V (1)= 3078 ms; Population Seize = 200																
LVV= Linguistics Variable Value; MV1=Membership Function Value within Population; MV2= Membership Function Value within Subgroup; OMV= Overall Membership Function																
Organization Climate			Organizational Structure			Organizational Communication			Organizational Decision Making			Organizational Leadership			Organizational Mindset	
L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	O.M.V
1	43%	80%	1	43%	60%	2	60%	80%	2	48%	70%	2	60%	70%	1	0.7236
1	43%	80%	2	38%	40%	2	60%	80%	2	48%	70%	2	60%	70%	1	0.7236
1	43%	80%	1	43%	60%	2	60%	80%	2	48%	70%	1	17%	30%	1	0.7236
1	43%	80%	1	43%	60%	2	60%	80%	1	21%	30%	2	60%	70%	1	0.7236
1	43%	80%	2	38%	40%	1	19%	20%	1	21%	30%	1	17%	30%	1	0.7236
2	50%	20%	1	43%	60%	2	60%	80%	2	48%	70%	2	60%	70%	1	0.7236
1	43%	80%	2	38%	40%	2	60%	80%	2	48%	70%	1	17%	30%	1	0.7236
2	50%	20%	2	38%	40%	1	19%	20%	1	21%	30%	2	60%	70%	1	0.7236
2	50%	20%	2	38%	40%	1	19%	20%	1	21%	30%	1	17%	30%	1	0.7236
1	43%	80%	1	43%	60%	1	19%	20%	2	48%	70%	2	60%	70%	1	0.7236
1	43%	80%	2	38%	40%	3	21%	0%	2	48%	70%	2	60%	70%	1	0.7236
2	50%	20%	1	43%	60%	1	19%	20%	2	48%	70%	2	60%	70%	1	0.7236

Max MV2																
Org. Climate		Org. Structure		Org. Communication		Org. Decision Making		Org. Leadership		Org. Mindset						
1	80%	1	60%	2	80%	2	70%	2	70%	[(1) ; (0.7236)]						

This indicates that organizations with the combination of factors of organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership as mentioned by their level of linguistic variable inputs are belong to set of organizations of low global mindset by a degree of 72.36%. This means that an organization at low level of organizational global mindset can be described by what level of organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership it has.

For organization with low global mindset, we noted that the three characteristics namely, organizational communication, organizational decision making, and organizational leadership vary in their levels between low and medium. The two traits that are fixed to some extent at low level with a membership higher than 50% are organization climate (with membership 80%) and organizational structure (with membership 60%), and organizational communication at medium level (with membership 80%). In one of the rules organizational communication appears in high level with a membership 0%. It indicates that organizations with high level of organization communication are unlikely to have a low global mindset. The findings suggest that organization with low level of organization climate low organizational structure, and medium organization communication will most likely low in its global mindset. Thus, we can conclude the primary determinants of the low organization global mindset are low organization climate, low organization structure, and medium organization communication while the other two traits are secondary determinants. Further, an organization with low global mindset is unlikely to have a high organization communication. In other words, only the organization with low or medium level of organization communication can be low in global mindset.

### The Optimized Rules Describing Organizational Global Mindset at High Level

Table 2 presents the first three rules that characterize an organization with high level of global mindset. The research considers only the first three rules; while the full set of 200 rules are generated by the system.

**Table 2: Fuzzy Rules of Organizational Global Mindset (High Level)**

Organizational Mindset Generated Results																	
Total Evaluation Time L.L.V (3) = 2969 ms; Population Seize = 200																	
LVV= Linguistics Variable Value; MV1=Membership Function Value within Population; MV2= Membership Function Value within Subgroup; O.M.V= Overall Membership Function																	
Organization Climate			Organizational Structure			Organizational Communication			Organizational Decision Making			Organizational Leadership			Organizational Mindset		
L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	O.M.V	
3	7%	22%	2	38%	44%	3	21%	44%	3	31%	67%	3	24%	56%	3	0.5098	
2	50%	44%	2	38%	44%	3	21%	44%	3	31%	67%	3	24%	56%	3	0.5024	
3	7%	22%	3	19%	33%	3	21%	44%	3	31%	67%	3	24%	56%	3	0.5013	
<b>Max MV2</b>																	
Org. Climate		Org. Structure		Org. Communication		Org. Decision Making		Org. Leadership		Org. Mindset							
3	22%	2	44%	3	44%	3	67%	3	56%	[(3) ; 0.5098]							

Some significant observations can be made. Firstly, it relates to the overall membership value ranging from 50.13% to 50.98%, which are just above the acceptable level of 50%. This suggests that describing high organization global mindset using the five traits of organization climate, organization structure, organizational communication, organizational decision making

and organizational leadership carries with it a greater fuzziness. It may indicate there are other traits, beside these five traits presented, involved in describing organization global mind set with high level.

Secondly, we noted that for organizations with high global mindset two characteristics namely, organizational climate and organizational structure vary in their levels between medium and high. The two traits that are in high level with a membership higher than 50% are organization decision making (with membership 67%), and organizational leadership (with membership 56%); whereas organizational communication is at high level but with a membership value of 44%. It suggests that organization with high level of organizational decision making and high level of organizational leadership, and to some extent high organizational communication will most likely have high global mindset. Thus, we can conclude the primary determinants of the high organization global mindset are high levels of organizational decision making and organizational leadership, and to some extent high level of communication. The other two traits of organization climate and organization structure are secondary determinants.

### The Optimized Rules Describing Organizational Global Mindset at Medium Level

Table 3 presents the first six rules that characterize an organization with medium level of global mindset; while the full set of 200 rules are generated by the system.

**Table 3: Fuzzy Rules of Organizational Global Mindset (Medium Level)**

Organizational Mindset Generated Results																
Total Evaluation Time L.L.V (2) = 2953 ms; Population Seize = 200																
L.V.V= Linguistics Variable Value; MV1= Membership Function Value within Population; MV2= Membership Function Value within Subgroup; OMV= Overall Membership Function																
Organization Climate			Organizational Structure			Organizational Communication			Organizational Decision Making			Organizational Leadership			Organizational Mindset	
L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	MV1	MV2	L.V.V	O.M.V
2	50%	65%	1	43%	43%	2	60%	57%	2	48%	43%	2	60%	61%	2	0.5465
2	50%	65%	1	43%	43%	2	60%	57%	1	21%	26%	2	60%	61%	2	0.5430
2	50%	65%	2	38%	35%	2	60%	57%	2	48%	43%	2	60%	61%	2	0.5430
2	50%	65%	1	43%	43%	2	60%	57%	2	48%	43%	2	60%	61%	2	0.5430
2	50%	65%	1	43%	43%	2	60%	57%	1	21%	26%	1	17%	17%	2	0.5430
2	50%	65%	3	19%	22%	2	60%	57%	2	48%	43%	2	60%	61%	2	0.5402
<b>Max MV2</b>																
Org. Climate		Org. Structure		Org. Communication		Org. Decision Making		Org. Leadership		Org. Mindset						
<b>2</b>	<b>56%</b>	<b>1</b>	<b>43%</b>	<b>2</b>	<b>57%</b>	<b>2</b>	<b>43%</b>	<b>2</b>	<b>61%</b>	<b>[(2) ; (0.5465)]</b>						

It is noted that the five factors organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership grouped as fuzzy rules have a significant relationship in indicating the global mindset of an organization at medium level. The fuzzy rules that describe organization with medium global mindset show a membership (OMV) slightly higher than the value of accepting the fuzzy rule, which is 50%. This suggests that there is greater fuzziness in describing organization global mindset with medium level through the five traits of organization climate, organization structure, organizational communication, organizational decision making, and organizational. This indicates the possibility that there are other traits, beside these five traits presented, involved in describing organization global mind set with medium level.

For organization with medium global mindset, we noted that the characteristic namely, organizational climate (with membership 63%), organizational communication (with membership 57%), and organizational leadership (with membership 61%) are invariant at medium level, while that of organizational structure varies between low, medium, and high, and the factor organizational decision making varies between low and medium. It suggests that organization with medium levels of organizational climate, organizational communication, organizational leadership will most likely to be of medium global mindset. Thus, we can conclude the primary determinants of the medium organization global mindset are medium levels of organization climate, organizational communication, and organizational decision making. The other two characteristics namely organization climate and organization structure are secondary determinants that can vary but with compensatory effect from the other.

As a summary and comparison of the three level of organizational global mindset, it is noted that the five factors organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership grouped as fuzzy rules have a significant relationship in determining the global mindset of an organization. The overall membership function (OMV) of organization global mindset was: 72.36% at the low level, varies between 54.02% and 54.64% at medium level, and varies between 50.13% and 50.98% at high level. It should be noted that we reject the fuzzy rule if its membership function is below 50%.

When the organization global mindset is at the low level organization climate and organizational structure are fixed at low level. In one of the rules, organizational communication appears to be at high level but with a membership value of 0%, indicating that high organizational communication is never associated with low organization global mindset. Thus, we can conclude the primary determinants of the low organization global mindset are low levels of organization climate and organizational structure, and medium level of organization communication. Further, when organization global mindset is at high level, the two traits that are at high level are organization decision making and organizational leadership. Organizational communication is also at high level, but with an unacceptable membership value of 44%. Thus, we can conclude the primary determinants of the high organization global mindset are high levels of organizational decision making and organizational leadership, and to some extent high level of communication. In addition, when organization global mindset is at medium level; the three traits that are at medium levels with a membership value higher than 50% are organization climate, organizational communication, and organizational decision making. Thus, we can conclude the primary determinants of the medium organization global mindset are medium level of organization climate, medium level of organizational communication, and medium level of organizational leadership. The table 5.B below summarizes the highest overall membership value (OMV) of organization global mindset rules and the membership value (MV2) of each traits included in the fuzzy rule.

**Table: 4- Three Level Summary of the Highest Overall Membership Value (OMV) of Organizational Global Mindset**

Organizational Global Mindset	OMV	Membership Value (MV2) at Maximum Value				
		Organization Climate	Organization Structure	Organization Communication	Organization Decision Making	Organization Leadership
<b>High (3)</b>	0.5098	3 (22%)	2 (44%)	3 (44%)	3 (67%)	3 (56%)
<b>Medium (2)</b>	0.5465	2 (65%)	1 (43%)	2 (57%)	2 (43%)	2 (61%)
<b>Low (1)</b>	0.7236	1 (80%)	1 (60%)	2 (80%)	2 (70%)	2 (70%)

From the table 4, we could say:

- (i) All overall membership value (OMV) exceeded threshold value of 0.5 and therefore suggesting that the five traits are adequate to capture the organization global mindset.
- (ii) High decision making and high leadership are the primary determinants of high organization global mindset while the other traits are not significant.
- (iii) Medium organization climate and medium organization leadership are the primary determinants of medium organization global mindset while medium organization climate is the dominant.
- (iv) Low organization climate, low organization structure, and medium organizational communication are primary determinants of low organization global mindset while the other two traits are secondary.
- (v) There is a high correlation between level of organization climate and the level of organization global mindset.
- (vi) There is greater fuzziness when using the five traits to capture organization with high level global mindset, suggesting there may be other potential characteristics that need to be considered.

### **Discussions and Conclusion**

This paper found that Organization Global Mindset is well explained by the factors organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership. It found that the level of organization global orientation in all the three level set; low, medium and high; are well explained by the five factors organization climate, organizational structure, organizational communication, organizational decision making, and organizational leadership. The findings suggest that we could not consider that organization is globally oriented or not based only on the individual and managerial elements such as leadership and decision making; they demonstrate the effects of organizational processes such as organization structure and organization communication in addition to organizational context, which can be captured by organizational climate. This research supports the work of Adler and Bartholomew (1992), Conner (2000), Aycan (2001), McCall & Hollenbeck (2002), Boyd (2003) Begley and Paul (2000) who claimed that it is not sufficient at multinational level to have few executive with global mindset; all employees should excel in balancing global consistency with local responsiveness. They believe that corporate global mindset is a combination of mindsets of all members of the company, who are shaped by the administrative heritage and structure of the organization.

Furthermore, the three dimensions of organizational characteristics namely organizational communication, organizational decision making and organizational leadership are dominant in establishing the organizational global mindset and perspective. Organizational communication refers to the interaction between individuals and groups within organization. Organizational decision making refers to the process of taking course of action, and organizational leadership is the ability of management to bring everyone in organization together. Those three dimensions are the most important factors that drive organization characteristics toward global orientation. It demonstrates in order to have a high global oriented organization, the levels of leadership and decision making should be at high level combined at least with a medium level of organization communication as a pre-requisite element. It concludes the non-linearity effects of those dimensions on organization global orientation. It argues that organization global orientation is a result of the combination effects of the factors of the dimensional model proposed with this study where the leading factors are organization leadership, organization decision making, and organization communication. It suggests that overall effects on organizational global orientation could be compensated by the dimensions of the model if one of the dimensions misses to reach the proposed value, but it should to achieve at least the minimum requirement of the dimension level.

Overall, the paper found that organizational decision making, organizational leadership, and organizational communication are the key drivers in considering organizational global orientation. It demonstrates that in order to have a high level of organizational global orientation, the two factors of organizational decision making and organizational leadership should be at high level, where organizational communication should be at least in medium level. The findings show that in order to enhance global orientation within organization, the leadership style should be a global oriented one with an ability of approaching business deals with a holistic global view whilst organization should adapt a supportive decision making that encourage global orientation and support the global oriented leadership style. Also, it shows that organization communication should be enough informative within organization to keep people within organization well informed about leadership orientation and decision that have been made in favor of organization global objectives and goals. Anderson and Narus (1990) suggest that there is positive relationship between communication and cooperation. Therefore, communication positively affects cooperation, which leads to a better alignment within organization toward vision and goals of the entity. Taken as a whole, the findings are aligned with the previous research in this line such as the work of Thomas and David (2004), and Gupta and Govindarajan (2002), as well as the work of Kozminski (1993) that explains the processes of organizational communication and its importance in the international business and management context.

### **Limitations and Further Research**

This paper did not distinguish between different Malaysian's business sectors, and firms' size. It studied the organization global mindset phenomenon regardless of the characteristics and environments of different business sectors. It presented a generic approach that might require a further improvement and investigation to be well tailored to each business sector conditions. The research utilized genetic algorithms method in generating the full space of possible rules within the proposed model based on 47 executives and business negotiators feedbacks. Thus a larger sample and other optimization techniques are encouraged to validate more the provided results within this paper.

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