

THE MEASUREMENT OF STRATEGIC THINKING TYPE FOR TOP MANAGERS IN IRAQI PUBLIC ORGANIZATIONS-COGNITIVE APPROACH

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This research suggests that strategic thinking can be measured depending on cognitive logic. By developing Jung's model, we can reach a new model, which consists of five thinking types of human beings. The strategic thinking type stands at the central part of this model. This is due to the fact that this type of thinking, which has become essential to every modern manager, is the function of all other types of thinking. A strategic thinker is the main changing agent in every organization. The cognitive approach applied refers to thinking as a bridge between the environment and observed behavior. Behavior is a direct reflection of thinking. It is not just a reflection of environment and its stimulus, as behaviorists believe. Strategic process matches cognitive logic much more than behavior logic does. Depending on (*Z*) test, we can statistically define the area of the type of strategic thinking. This area shows that strategic thinking is a unique type of thinking which can be measured through a combination of attitudes measurement and thinking process measurement. The validity of this model is checked by the strategic change attitudes of the respondents. The result shows that the measurement of strategic thinking suggested by our model is valid. Nevertheless, the researchers believe that this result can not be fullproof unless more research tests their claims.

INTRODUCTION

The importance of strategic management came into the spotlight during the second half of the twentieth century. The increase of the complexity of the environment, made previous management approaches, unsuitable for the sudden and fast paced changes in the organizational environment. The complexity of environmental changes did not just affect the way of organizational interaction with its environment, but also the way of thought and research in the field of management and organizational behavior. The approaches which preceded the strategically approaches are based on reactive organizational behavior. It seeks to find the appropriate individual behavior for a specific stimulus that requires finding tools to measure the responses of managers and other individuals to specific situations and stimuli. These tools examine the apparent behavior of individuals to measure instantaneous or expected responses. The behaviorists, who adopted the philosophy of logical Positivism, have contributed in focusing the attention on this method of research, especially since this philosophy depends heavily on experiments and applied researches.

Despite the evident difference between the contingency believers and behaviorists, whether in their applied logic or in their pragmatic approach, this did not prevent both groups

from adopting the same method of research as a basis of measuring individual responses through apparent behavior towards the environment or organizational variables. This similarity may be due to the belief of both schools (The contingency school, and the behavior school) that the individual and the organization are a reflection of the environment, despite the differences in defining the concept of the environment between the two schools. Behaviorists concentrate on psychological environment and social environment, whereas the definition of the environment is expanded to include political, economical, law, and psychological changes, which surround the organization. So, the concentration on apparent behavior became a focus of interest of researchers. The complexity of knowing and measuring what happens inside the human beings increased the attractiveness of this approach. Thus, the measure of attitudes remained one of the most important tools used in managerial researches.

But the appearance of the strategic approach which emphasizes the proactive action, and the importance of dealing with changes in the environment and organization, requires a new method in management research and organizational behavior which is compatible with the logic of this approach. Strategic management takes into consideration the futuristic dimension more than the contingency. It also concentrates on the importance of organizing action within its environment and not the opposite. So, proactive actions of managers are the center pole of strategic management without disregarding the importance of opposite adaptable actions, which are demanded by the situation or circumstances. Therefore, it is not enough just to study the responses of managers towards external pressures, as it is not enough just to study the apparent behavior of these managers, because these responses are instantaneous, and may not be a reflection of their futuristic view, which is what strategic management concentrates on.

The importance of cognitive approach logic becomes evident in the study of strategic behavior for top managers in organizations. This approach brings light to the importance of the roles and thinking abilities of managers in managing their organizations. In other words, putting the behavior as a stage following the thinking stage which is considered the basis of that behavior.

Behavior is the reflection of thinking, which takes into consideration the environment and its unexpected events and it is not a direct reflection of the environment. Therefore, the cognitive approach makes thinking a bridge between the environment and behavior.

The difficulty that faces researchers who adopt the cognitive approach is applicative more than it is theoretical; how can the thinking of individuals be measured? Despite the attempts, which were done by doctors and psychologists in this field, the results of researches have not been conclusive till now. That is the reason for researchers of strategic management adopting many of the research tools, which were used by the behaviorists and situation lists especially in measuring attitudes. This paper presents a step forward in the various attitudes and the measurement of thinking through showing a model for measurement based on cognitive approach logic. This research paper aims to measure the type of strategic thinking of top managers in Iraqi public organizations starting from the supposition that the presence of this type of thinking is the best administrative method which can be used to interact with the modern organizational environment.

The research population was made up of general managers of public administration organizations in Iraq, due to their main role in making and executing strategic decisions. Out of the total number of the research population (590) general managers (1) a stratify random sample was taken from this population made up of (160) general managers (2) distributed between the different ministries government (3) and that represents (27%) of the research population.

THE CONCEPT OF STRATEGIC THINKING

Because of the evidence of the relationship of thinking with the competitive position, the scholars looked towards using the term strategic thinking as a substitute for traditional directions of strategic management which is concentrated on strategic planning (Younis, 2000). This term became an expression of the exceptionally good situation of the successful organizations and became the major pathway that administrations must pass through so as to face the challenges of modern day environment (Jaugh & Glueck, 1988). Person (1999) showed that the basic concepts of strategic thinking are centered around the present situation of the organization and what could be done in this context. Stamp (1984) clarified that strategic thinking involves the definition of the different methods to reach the individuals chosen aims, and specifying the activities which those individuals need to reach the place they desire. Rowe & Mason (1994) mentioned that strategic thinking generates a concept regarding the changes of circumstances and how they take place. The Hamilton strategic management group (1999) pointed out that strategic thinking shows clearly the stages necessary to start fixing the basic poles for the future of organizations. Ohmae (1982) also showed that the initial step in strategic thinking is the search for a clear concept of the exceptional characteristic of each element from the situation faced by the organization. After that comes the use of the full abilities of the human brain to reshape the element in the most useful way.

Despite the ambiguity and distortion which sometimes surround the term, but there are important conceptual characteristics can be described as follows (Al- Obiedy, 1998).

1. Strategic thinking expresses the Consciousness State of the strategic leader in the performance of their duties.
2. Strategic thinking is the result of the interaction between leadership characteristics expressed by skills, experiences and abilities of the leaders, and the characteristics of the internal and external environment of the organization. As the strategic leader is affected by the complex environment variables, he may also influence the formation and development of those variables. The strategic behavior of the organization will be shaped, then by this interaction.
3. Strategic thinking expresses the ability of creative thought for organizations leaders.

This kind of thinking is the main source for facing organization problems which became more complex in nature and far from simple logic based upon successive routine procedure. In this paper the concept of strategic thinking is concerned with the mental process in which the interaction of the mind's abilities and the environmental variables to define the opportunities and the threats that face the organization, the strengths and weakness of this organization, and how to deal with them insure continuous survival and development of the organization.

MEASUREMENT OF STRATEGIC THINKING

Most studies specializing in strategic thinking depended on a behavioral approach through measuring some external situation, which are believed to be able to uncover human thought. In accordance with the yields of this approach most of the studies that have been conducted measure different types of thinking but none concentrated on measuring strategic thinking. Indeed many different types of human thinking have been classified by different

researchers according to their school of thought. Because of the great number of these classifications we will be satisfied here to demonstrate some examples of them to prove that none were concerned with the measurement of strategic thinking. Table (1) below show examples.

TABLE 1
Thinking Types

Younis 2000	Mason 1986	Scott 1986	Robey & Taggart 1983	Arnoff 1977	Mc Kenney Keen 1974	Name Year Type
				*		Conceptual
				*		Telepathy
		*			*	Perceptive
		*			*	Receptive
		*			*	Systematic
		*			*	Intuitive
*	*		*			Analytical
			*	*		Heuristic
*	*					Holistic
*	*					Concrete
*	*					Abstract

Source: The researchers

The available literature does not exhibit a specified method for measuring strategic thinking depending on cognitive approach logic, which is based on the internal makeup of the thinking process initially. There is a need to explain the concept of (cognition) and the (cognitive approach) so that the differences are clear between cognitive and other approaches in the way of explaining the thinking process:

1. Cognition represents the result of interaction of two thinking processes information collecting or observation and evaluation or judgment of the informations collected or observed. In other words, the behavior of individuals is processed by the cognition which shapes their attitudes towards the behavior which must be adopted.
2. Cognition approach emphasizes the proactiveness of managers and, in doing so, it goes along with strategic approach.
3. In accordance with the cognitive approach, the reaction of external stimuli, culture, experience, and values of the managers.
4. Behaviors of managers using the cognitive approach are not just a reflection of the data, which have been collected. The thinking processes consist of two stages; data collection and data evaluation. So, any data must be examined carefully to reach the cognition.

The measurement of strategic thinking based upon the cognitive approach

The thinking according to cognitive approach is considered to be the linking bridge between stimulant and behavioral response. The central theory gives an explanation for the thinking depending on this basis. The main supposition for this theory is that the evident characteristics of the thinking process depend on the brain activities. The theme of this theory is based on the continued interaction between environment stimuli and operational responses which take place in the brain activities, which is called "cognition" (Vinacke, 1974,). What has been mentioned above means that the thinking abilities of managers which are based upon their cognition will bridge the gap between what has happened and what must happen. In other words, the initial effect of the managers and the changes they make in their organization are based on their thinking abilities, by which they can specify the steps that they need to take in order to insure survival and sustain growth. This can be done through complex brain activities, which rely on collecting information and evaluating it, and making judgement to reach a correct vision about the position in which the organization must be in. That requires a knowing of all the points of strength and weakness, the fields of work, and the dangers involved. Then comes the method of action to represent the appropriate response, or cognition based behavior. (Al-Zaydie, 2000).

According to this logic, Researchers have tried to know the mechanisms by which the brain performs the thinking process. Two directions appear in this regard. The first physiological tried to explore this process through brain surgery to know the function of each part of the brain. But these trials are still going on, and have not presented up to now any conclusive answers. One of these efforts that has been presented by Robbey and Taggart. In their study, they aimed to measure the types of thinking of managers depending on problem solving, which very often shows different types of human treatment of information. The study concentrated mainly on brain operations, based upon the physiological make up of the brain, which is made up of two sides; the left side and the right side.

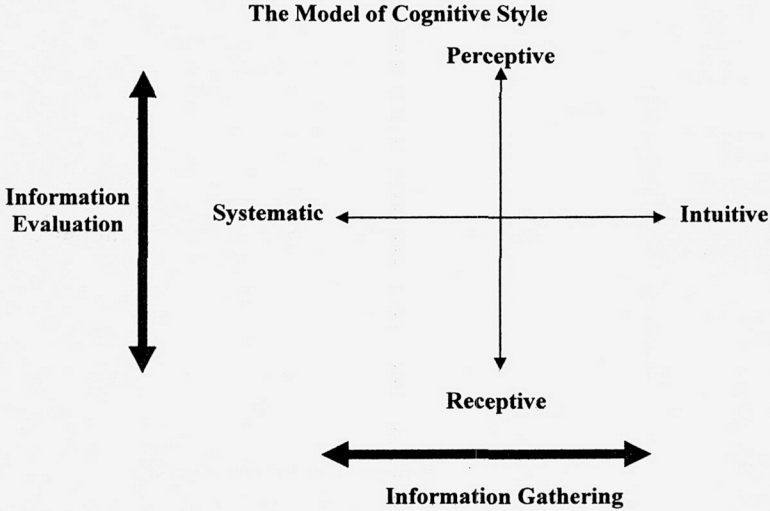
The "cognitive style" was adopted as the best type for problems solving. This style measured through using the following international measurement:
Vasr helyi Q.-- Used for Psychological description which shows cognitive preferences of the decision maker.
Minnesota Q.-- Used specifically in analytic administrative studies.
Myers – Briggs Q.-- For personal types of decision-makers.
(Al- Samarraie, 1995).

Mintzberg also mentioned that the abilities of individuals differ in the way they deal with situations when they face other situations which require larger operations from the non-dominant part of their brain (the right or the left side of the brain) (Mintzberg, 1976).

As for the second direction in the measurement of thinking, it is psychological and depends on the division of the thinking into two stages; collecting information and evaluation or judgement.

One of the studies which adopted this direction was presented by Mckenney & Keen (1974) who suggested a model based on the idea that there is not only one right way for problem solving by managers, called "The model of cognitive style" which is shown in Figure 1.

FIGURE 1

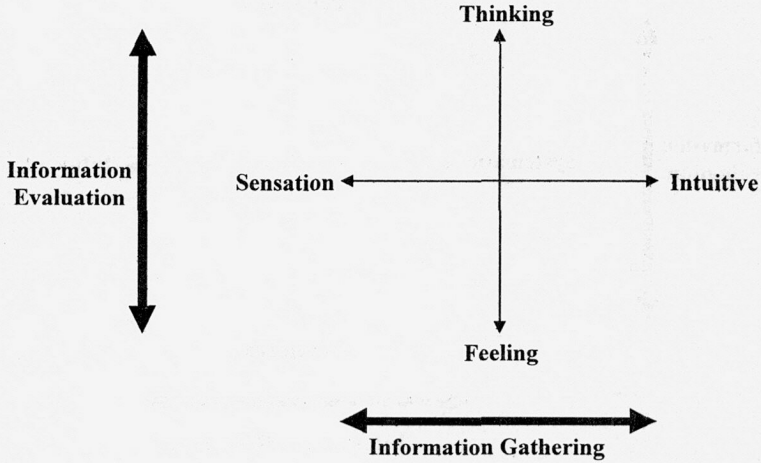


Source : Mckenney, James I & Keen Peter G.W, 1974. Harvard Business Review, May-June, 79-90.

This model depends on the interaction between the two stages of the thinking operations (collecting and evaluating information's) based on Jung's theory. The stage of collecting information is represented by two types of styles-- the first is perceptive which is characterized by concentration on the different elements and understanding it through the storing of information, taking into account the similarities and difference in expectations. The second type is the receptive which is characterized by the sensitivity toward stimuli and by concentration on details and not relationships. As for the stage of information's evaluation, there are also two types. The first is the "intuitive" which depends on examining the solution by trial and failure and desire to change from one method to the other. The second type is "systematic" which is characterized by categorizing the problems according to the series of methodical steps, which need to be taken, to solve the problem. Another model for problems solving is presented by Hellriegel, Solcum and Woodman (1989). It depends also on the division of the thinking operation into two stages which are: collecting information and evaluating or judging them, as in Figure 2 below:

FIGURE 2

Problems Solving Model



Source: Hellriegel Don & Solcum, Jr. John. W & Woodsman Richard. W.

The collection information stage includes also two types of thinking: intuitive and sensation. The stage of information evaluation or judgement making is divided also into two types. The first is “feelings” which is human self-evaluation of phenomena. The second type is “thinking” which depends on logic in judgement making regarding the matters it faces. As it may be observed both models did not show how strategic thinking is measured. Nevertheless, this research relied on the second model for developing a new measure meant for strategic thinking types.

Depending on Jung’s theory of personal types, which is suited the aims of this research, this measurement relies on the psychological functions or the two mentioned stages of thinking, which are collection information and evaluating. The stage of collection information is made up of two dimensions, the first is sensation and the second is intuitive. The stage of judgement or evaluation is also made up of two dimensions: the first is logic and the second is feeling. As the whole measurement is made up of 20 questions, every question has a choice of two answers through a pointer scale of 5 degrees.

The questions which are single numbers e.g. Q1, Q3, Q5, etc, are related to information collection, and questions which paired numbers e.g. Q2, Q4, Q6, etc, are concerned to evaluation and judgement. Through the interaction of the stages and the dimensions of which they are made, the types of thinking are classified into four categories.

These categories are:

- 1- The sensation - feeling type of thinking (S.F).
- 2- The sensation - logic type of thinking (S.L).
- 3- The intuitive - feeling type of thinking (N.F).

4- The intuitive - logic type of thinking (N.L).

S. F includes the evaluation of facts on personal and human basis. Persons who use this type tend to be very organized and specific in detail and pays a great deal of attention to the details, and needs of individuals, if those needs do not cross over the interests of the organizations. S.L is based on a specific analysis of the causes of the problem takes place. Detailed information is preferred. Persons with this type use mostly quantitative methods in solving complex problems. N.F persons depends on intuition in making their decisions and taking advice from employees, with the belief that the ideal organization is one, with very less persons with this type having rule and work guidelines. Lastly the type N.L is the combination between intuition and scientific thinking with a high ability of classifying, analyzing, imagination, as well as the preferences of having information from different sources. They also respond to employee needs positively. These four types of thinking are considered the most commonly used types of thinking, but they don't describe strategical thinking types.

In order to measure this type of thinking, the researchers have reached the conclusion that this type combines all four types of thinking in instantaneous interaction without favoring to any extreme type. This may be regarded as a development to Jung's theory of personal types, in which only one type is dominant over the rest of the types. The strategic thinking is the 5th type to be added to the other types which researchers have measured, but it is interactive not static. Thus strategic thinking is viewed as a comprehensive thinking type which is formed by the interaction of all other four types.

As Peter & Waterman (1982) have said, the interaction of the four types result in inventiveness in the organization and the development of a correct futuristic view of the environment, its changes, and how to respond to them.

Since that is the essence of strategic thinking, therefore it must take rightful place between the four types. Figure 3 shows the model of measuring strategic thinking.

The shaded area represents the area where the interaction between the four types takes place. The borders of this area define threshold of the strategic thinking. In order to specify the dimensions of this type mathematically so that it can be measured accurately was necessary to specify four point's equilibrium between the extreme and the moderate attitude toward every type of thinking. After specifying these four points, an area of strategic thinking will be shaped. At this area the interaction between the four other types of thinking takes place. The movement towards any extreme makes the individual use the type of thinking. In order to specify the strategic thinking, it has been supposed that all four types have normal distribution, between individuals. Here test Z came to be relied onto specify the point of equilibrium at 0.05 degrees for added accuracy.

$$Z = \frac{y^{\circ} - \mu}{S_x}$$

where : Z = the table value at level of confidence (0.95).

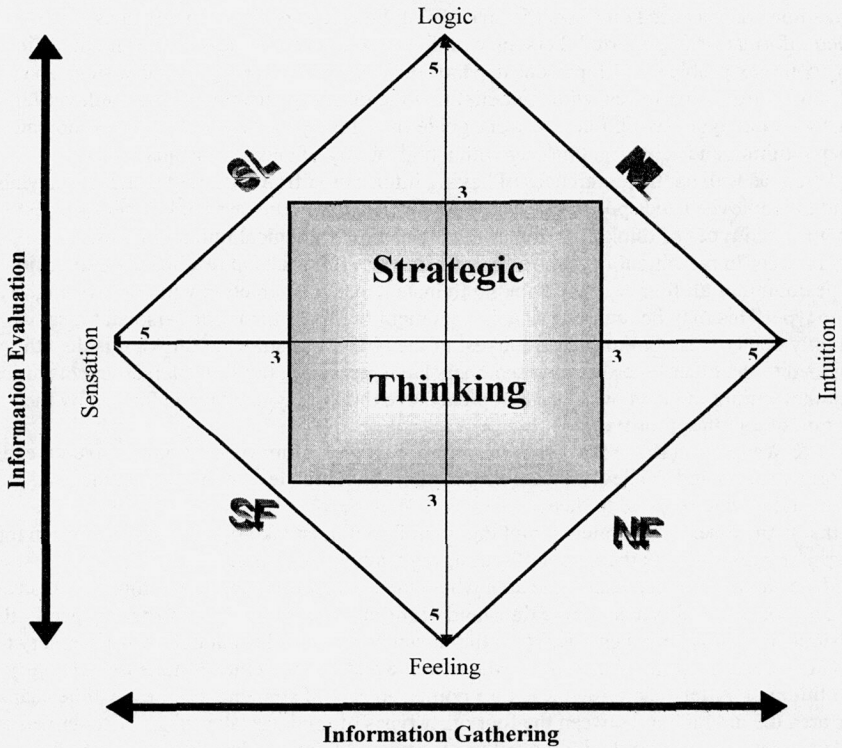
Yo = the value need to be given.

μ = the mean of estimation.

Sx = standard deviation.

FIGURE 3

Model of Measuring Strategic Thinking



Source: A modified version of an earlier model developed by Hellriegel, Don and Solcum, John. W and Woodsman, W.

Since the original measurement is made up of 20 questions, each has two choice of answers on a scale of 5 degrees, thus each stage of thinking will compose of 100 degrees at maximum, distributed equally between two dimension of each stage (50) degrees for each dimension shown in Figure 3. After using the Z law, the point of equilibrium was found to be 31 on all four dimensions.

Thus all answers which fall in this area represents STRATEGIC THINKING. In order to gauge the strategic thinking tendency among Iraqi general directors (GDs) in public administration, a questionnaire has been developed based on the above mentioned basis. A sample of 166-GDs has been selected, which represent 29 percent of the total (GDs) population. Only 160 questionnaires were valid for analysis. Table 2 and 3 describe the demographic attributes of the sample.



TABLE 2
Gender and Age of the Sample

Total		Female		Male		Sex age
%	Freq.	%	Freq.	%	Freq.	
28	44	67	2	27	42	30-39
65	104	33	1	66	103	40-49
8	12	-	-	7	12	50-59
100	160	100	3	100	157	total

TABLE 3
The Educational Level of the Sample

TOTAL		Language humanities		Law & Politic		Mana-gerial		Econo-mical & Planning		Agri-culture		Pure Science		Engin-eering		Professional specialize Education level
%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	
49	78	39	6	64	16	47	15	44	7	31	4	36	8	58	22	Graduate
9	14	15	2	6	3	13	4	12	2	-	-	23	5	2	1	Higher diploma
18	29	23	3	13	3	25	8	25	4	15	2	14	3	16	6	MS
24	39	23	5	17	4	15	5	19	3	54	7	27	6	24	9	Ph.D.
100	160	100	16	100	26	100	32	100	16	100	13	100	22	100	38	Total

After checking the answers of the research sample, 20 managers (13% of the sample) were categorized by strategic thinking. The rest of the samples were distributed among the four dimensions as in Table 4.

TABLE 4

The Distribution of the Sample According to Thinking Type

Symbol of type	Type of thinking	Frequency	Percentage
NL	Intuitive – logic thinking	3	2 %
NF	Intuitive – feeling thinking	-	-
SF	Sensation – Feeling thinking	1	0
SL	Sensation – logic thinking	136	85 %
T	Strategic thinking	20	13 %
-	-	160	100 %

Decision-makers using strategic thinking (the 5th type) are characterized with:

1. Continuous interaction between the two brain halves, which means the use of whole brain capabilities.
2. Their disbelief in environmental determinism which goes along with the essence of strategic thinking, which emphasizes the role of managers in effecting their environments.
3. Obvious tendency toward future and change.
4. Since strategic thinking is the result of interaction of all the other types of thinking, so it must also have the characteristics of the other types of thinking.

In order to check the validity of the established measurement, the researchers measured managers' attitudes toward the strategic change as an indicator of the strategic thinking of those managers. The strategic management literature suggested that decision makers who are characterized by strategic thinking are more willing to make strategic changes than other managers (Al-Zaydie, 2000, p.132). So a hypothesis has been established which tries to test this suggestion. For the purpose of checking the validity of this suggestion, Table 3 shows the mean of the sample attitudes towards strategic change for the type of thinking (SL) and strategic thinking type (T). The other types have been discarded due to the small number of individuals in the sample who are characterized as thinkers in these types. Their total was 4 out of 160 managers (2.5 % of the sample). The remaining managers, show either (SL) type or (T) type of thinking.

TABLE 5

T Test

T Test	Standard deviation	Mean	Type Symbol	Type Number
1.172	5.89	80.57	SL	4
	6.611	82.25	T	5

The T test proved the validity of the hypothesis. To test the relationship between the type of thinking of the managers and their attitudes toward strategic change, the Spearman correlation test has been used.

The results of the test show that the strategic thinking type is more strongly related with strategic change, than the sensation-logic thinking type (SL) despite the fact that both types had a statistical significance level, But the level of significance of the strategic thinking type, as well as the strategic change and strategic thinking, were positive, opposite to the relationship between the (SL) type and strategic change, as shown in table 6.

TABLE 6

Relations between Strategic Thinking and Strategic Change

Type	Correlation	Significance Level
4	-0.231	0.007
5	0.43	0.05

CONCLUSION

This research aims to find a suitable scientific tool to measure managers' or the individual's way of thinking toward situation or stimuli which they face. Most behaviorists did this by measuring the responses of the individuals, which is shown by their apparent behaviors. But this research adopted the cognitive approach. So, it tried to measure how individuals use their mind to think about the situations they face. The literatures suggest four types of thinking which can be measured. The strategic thinking, which has become essential to manage today's organizations and masters their environments, has never been measured on the basis of cognitive logic. Depending on Jung's model, on one hand, and the concept of strategic thinking, on the other hand, the researchers suggest a new model to measure managers' thinking. This model consists of five types of thinking. Strategic thinking is regarded as a function of the reaction between the other four types of thinking.

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