Effective Factors on Managers Decision-Making Style in Organizations
(Viewpoints of Senior Executives using AHP Technique)

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Abstract
Decision-making is considered as one of the most pivotal processes in any organization and as the main task of managers at all ranks. The aim of this research is setting the priority of effective factors on determining the kind of decision-making style of managers in organizations from the views of senior executives using AHP technique. In this regard, 20 senior executives of private organizations in Tehran were asked for their opinions about the priority of effective factors on decision-making style of managers, Scott and Bruce model, by using AHP stages and it was concluded that emotional intelligence training, data collection, and risk are respectively the first three priorities and creativity and prediction power of managers are the last two priorities. According to organization managers' opinions, these factors can affect the kind of decision-making style of managers in organizations.

Key words: Decision-making style of managers, Scott and Bruce model, AHP.

1. Introduction
Most scientists consider decision-making as the essence and basis of management. In their idea, management is nothing except decision-making and a successful manager can be known as a successful determiner. Also in real world, management is combined with this matter and a manager has to make a kind of decision in doing all tasks. One of the issues that all managers are continually dealing with is decision-making. Decision-making and management are so inseparable that have been known as synonyms. Two important points in decision-making and policy-making (in public organizations) are: "most managers fail to analyze how they make decision", and "most managers know decision-making as a partial activity rather than a process approach."
In codified guidelines and major and operational decisions of organizations, a collection of Do's and don'ts have been drawn and selected by total counting and regarding all selections and based on comprehensive measures through a process and are dictated to the organization to perform as a logical decision. An organization is an instrument that is designed to achieve special purposes and these special purposes are the navigator for decisions and cause to select a desired and optimum solution.
Decision-making is selecting a guideline among two or more options in a preventive manner for reaching to a special purpose or output with lowest possible risk. So decision-making forms the central core of planning. A plan cannot exist unless the decision is developed. Managers always encounters situations that need a decision to be made. This matter shows the influence and very important role of decision-making tasks in all managers' tasks and organizational processes. The main tasks of managers in management literature are: planning, organizing, leading, supervising, controlling, and decision-making. To analyze and describe these two subjects, we will describe the stages of decision-making process and survey the state of decision-making by Scott and Bruce, Simon, Heresy and Blanchard models and the decision-making sample of Johns.

2. Decision-making:
One of the most basic activities in organizations is making decisions. These decisions may be the guideline for the organization or may only deal with daily activities of staff. These decisions may be made after months of data collection and negotiations or without any attention and discussion in a moment. They may be made by individuals or in groups. Decisions will be different in their level of competency. Kuntz believes that decision-making forms the principle and basis of planning. Because this is obvious that a design, plan, policy and strategy cannot exist unless someone in somewhere had made a decision. A manager usually considers decision-making as his own main task, because he practically sees that he always thinks about which way he should choose or what he should do, who should be responsible for which task, and when, where, and how the task should be done.

Schneider regards a practical difference between two kinds of motivations, i.e. motivation for aim, and motivation for reason. The first one is conscious and can be explain clearly. On the other hand, "for reason" motivations are unconscious or semi-conscious that are the productions of former experiences in life or former organizational situations. Many great theorists are careful about using mental history as a device to explain the decisions and actions of political leaders. Many decision-making theorists, like most political historians, believe that knowing the politicians biography may help to make the deepest motivations and values of ones who make specific decisions. These types of explanations can very easily take place in the brain of someone who has a very active and prominent vision instead of careful analysis of real evidence. Assumptions are made that managers' decision-making is logical and they constantly choose the best solution that has the highest value among different solutions with attention to specific constraints. A complete logical decision maker, initially identifies the problem properly and defines it and in addition to having a specific and clear target, different stages of decision-making process lead him toward the best solution and offer maximum output and achievement to goals.

Decision-making is only the act of selecting among alternative solutions or available options about which we have no certainty and finality. Through the last generation, intentions from decision-making as a mere abstract choice among available options that is done to make background of desirability, has been directed toward decision-making as a gradual process that is also composed of minor selections and agreements between organizational interests and mental pressure of competitors. Management process can be break down to decision-making and performing the decision. Hence, some experts consider decision-making and management as synonyms and regard it as the heart of the organization, because managers spend most of their time and energy making decisions and surely all of the important tasks of management require making decisions. They make a decision to solve a problem or take a new action and then they take their decision to action. In the action stage, it is the decision that forms the framework of staff's activity in an organizational unit or in a whole organization. In other words, a manager's decision identifies the task of organizational operations. So decision-making is a sensitive and important activity. Although all of us make decisions in our life, all of us are not successful in making our decisions. What is certain is that many factors affect our ability to make decisions. Studies conducted on decision-making, show that the major effective factor on an accurate decision-making is related to ways that a person will adopt in the evaluation of possible options. Except a few exceptions, e.g., when a person is completely sure about what he does, decision-making is always along with probability, i.e. there is always the probability of success and failure. Therefore, improvement of decision-making skills means that everyone should enhance the differences among options 1.

2.1. Effective factors on decision-making

1. Rational factors: That is, measurable factors, such as cost, time, predictions, and etc. There is a general tendency to pay more attention to these factors and forget about non-quantitative factors.
2. Psychological factors: Human participation in decision-making phenomenon is clear. Factors such as decisive personality, talent, experience, perception, value, and role are important factors in decision-making.
3. Social factors: Others agreement, especially those who are influenced by the decision, is one of the important issues in decision-making. Regarding these factors reduces the resistance of others against the decision.

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2Pate, Larry; "Improving Managerial Decision making";
4. Cultural factors: Environment has numerous cultural layers that are called the culture of region, culture of country, and global culture. The culture of organization itself should also be considered. These cultures affect individual or organizational decisions of managers in the form of the accepted norms of the society, practices, and values.

2.2. Decision-making process

Decision-making processes are various and generally can be placed in three categories:

1. Individual decision-making: Individual decision-making of managers can be discussed under two types. The first type is rational approach that shows how managers try to make decisions. In further sections we will discuss this and its strengths and weaknesses. The second type is the limited rational approach that explains how a decision is really made despite of limitations in time and facilities that a manager has to deal with.

2. Organizational decisions: Organizations have a combination of managers within them that make rational or intuitive decisions with the difference that there is not only one manager who makes decision in organizations. In organizations, in addition to several managers, a number of departments and offices and different opinions and even other organizations are involved in the identification of the problem. The internal structure of the organization and the degree of stability of external environment of the organization affect making decisions. There are three kinds of process relating to organizational decision-making. These are: Scientific approach of management, Carnegie's model, and trash container model. Scientific approach of management is a continuation and expansion of a rational approach of decision making. This approach was formed during World War II. At that time, using mathematics and statistics in big military problems was introduced and research on operations was effective as a new science in development of weapons and military systems. Management science is one of the suitable tools for organizational decisions when the problems are analyzable and variables are identifiable and measurable. Of course this approach has some problems too. For example, the lack of judgment position and applying human perspectives are some of the weaknesses, because in any conditions, quantitative information cannot transfer all of the features of a system to someone who makes decisions.

2.3. Decision-making style of managers in organizations

Managers of organizations usually consider several criteria simultaneously in making decisions in choosing an option among several options. The criteria are sometimes similar and sometimes mutual and antithetic. The most famous styles, also examined by the present study, are: Scott and Bruce decision-making model, Herbert Simon's model, ethical decision-making model of Jones.

2.4. Scott and Bruce decision-making style

Scott and Bruce paid more attention to internal features and individual differences of people in their studies about decision-making style of people and the relating effective factors, and accordingly, they presented five decision-making styles as general styles of decision-making. These five styles are: Rational decision-making style, intuitive decision-making style, dependent decision-making style, immediate decision-making style, and avoidant decision-making style. We will discuss each style in this study.

- Rational decision-making style: This style states the willingness of the person who decides to identify all possible solutions, evaluate the result of each decision in all aspects and finally select the optimum and desired solution by the person when he is exposed to decision-making situations. In other words, in this style the decision for occurred problem is precisely definable and the person who makes the decision follows a consistent and well-defined process to select and perform the best solution and achieve goals. People who apply rational style make their decisions based on a complete search and comprehensive analysis of all available information from internal and external sources.

- Intuitive decision-making style: Intuitive decision-making is an unconscious process that is obtained from inductive experiences. In this style of making decisions, the person who makes the decision does not have a
clear logic about the accuracy of his decision, but he does what he thinks is right based on his insight and internal intelligence. People who apply intuitive style do not refuse the rational analysis of the problem completely, but they believe in some cases like a critical situation, uncertainty, and when they are exposed to a large amount of unprocessed data, complexity of problems, and critical situations where there is no possibility of collecting available information about the problem and systematic and precious study of available information, intuition and internal intelligence help them to make proper decisions and can have an important role. Three important sources of intuition and inner insight in this style are:
1. Intrinsic/innate responses: Intrinsic responses are originated from human unconscious, are non-teaching and instinctive from the human born.
2. General experiences: This source of human intuition is formed by learned experiences during previous courses and positions.
3. Centralized training: This training is for reduction of person's dependency on completely rational analysis in vague and unknown situations and improving intuitive skills.

Therefore, it can be said that intuitive decision-making is more comprehensive and flexibility in flustered and unknown environments.

- Dependent decision-making style: This style indicates a lack of intellectual practical independence of the person who makes decisions and his reliance on others support and guidance in time of making a decision. Managers who apply dependent decision-making style are required to have someone on their side to act completely according to his statements. Such people, instead of consulting with others and making the final decision by themselves, are completely dependent on opinions of other people.
- Immediate decision-making style: Immediate decision-making style indicates the sense of urgency in the person who makes decisions and his willingness to make the final decision as fast as possible. In other words, managers who use immediate decision-making style make their main decision immediately when they are exposed to a decision-making position.
- Avoidant decision-making style: People who use avoidant style, postpone the decision as far as possible when they are confronted with a problem (or opportunity), to refuse any response to the occurred problem. Therefore, the avoidant decision-making style can be defined as the effort and tendency of the person who makes decisions to avoid making any decision and to avoid decision-making situations as possible as he can.

2.5. Herbert Simon's decision-making style

Herbert Simon considers decision-making as the essence of management. Decision-making is one of the inseparable components of management and has been manifested in any task of management. In identifying the policy of the organization, in goals development, designing of organization, selection, evaluation, and in all actions of management, decision-making is the main component and the essential pillar. Managers are constantly faced with situations in which they should make decisions. The quality and nature of these decisions determine the amount of success and fulfillment of organizational goals. In other words, the amount of fulfillment of organizational goals indicates and demonstrates the effectiveness of decision-making system of managers. Herbert Simon divides decisions in two ways:

Planned decisions: Are decisions that are made based on habits, rules, or existing procedures and are made to solve problems with a fine structure. Although these decisions can be made to solve simple and complex problems, in more disorganized and newer decisions that need more commitments, it is more difficult to make planned decisions. Whenever we deal with a set of repeated problems that their constituents are analyzable, predictable, and definable, the decision-making process is programmable and mostly adopted by lower level managers. But it should be considered that using planned decisions limits the managers' freedom of action.

Unplanned decisions: are decisions that are made for unusual and particular problems and occur by chance and are made to solve problems with a bad structure. If a problem does not occur repeatedly and can be solved by identifying a policy, it will be solved by making unplanned decisions. Many problems force managers to make unplanned decisions. Higher level managers in an organizational hierarchy should be more powerful in making unplanned decisions. In fact, for higher level managers, the power of making unplanned decisions is very important.
2.6. Decision-making style of Hersey and Blanchard

In this model, four management styles are defined according to task-oriented and relationship-oriented dimensions.

Task-oriented approach: it is the possible extent of organizing and describing of the task of followers on how, when, and where tasks and assignments should be done. This method is characterized by establishing completely clear organizational patterns, communicative channels, and successful approaches in doing affairs.

Relationship-oriented approach: is the personal relationship between the leader and group members as much as possible by opening communicative channels and social-emotional supports and facilities or approaches.

Four decision-making styles that are used in this model according to readiness level of subordinates are:

- Imperative style (dictatorial): In this style a manager makes the decision in a dictatorial manner, i.e. without asking anyone to help, he makes the decision by himself and tells it to followers how, when, and where to do a task. This style is effective when subordinates are unable and unwilling.

- Consultative style: In this style a manager takes some information from subordinates, before making a decision, and ultimately he makes his decision. In this style the manager not only provides guidance, but also makes it possible to have a discussion and description. This style is effective when subordinates are unable but willing.

- Collaborative style: In this style the manager allows subordinates to participate in decision-making because they are able to do so. Here the manager’s suitable behavior is two sided: communication with high support and low guidance. This style is effective when subordinates are able but unwilling.

- Delegating style: In this style the manager delegates some of his credentials to subordinates and he monitors their performance. It is effective in situations that employees are able and willing.

2.7. Ethical decision-making style of Jones

Ethical criteria are a set of values and regulations that define right and wrong. These criteria define acceptable and unacceptable behaviors that in a more comprehensive perspective are: 1. distinguishing between right and wrong, 2. defining of topics (problems) in terms of spiritual words, and 3. using spiritual principles for a practical situation.

In every situation, decision-making requires an understanding of organizational culture and its potential interaction with management decisions. Because organizational culture is a system of shared beliefs and values that is created within an organization and guides its people behavior, it can play an important role in risk-taking and risk aversion of senior executives of organization.

Ethics researchers have discovered several aspects of the analysis of ethical perspectives and decision-making processes. However, these barriers indicate the difficulty of interpreting and applying real experiential principles in relation to scenarios with a morality content. One way to begin to focus on research, and in ones turn begin to reduce some of these problems, is using a frame work for ethical decisions. This framework makes it possible for researchers to study and search the specific behaviors or areas. One of the applicable frameworks is the model that was proposed by Jones (1991).

3. Theoretical framework of research
In this research, studying and comparing these four models according to their characteristic, the decision-making model of Scott and Bruce was used.

4. Research methodology

This research is an applied research and it is a documented open kind of data collection, so that library research has been used for theoretical basis and a questionnaire has been used for data collection. To determine the validity of the questionnaire the opinions of university professors and experts were used. Then according to received suggestions, the questionnaire was revised and corrected. The questionnaire consists of two parts: the first part is related to data collection for applying the AHP model, and the second part prioritizes the factors from the managers' view. The questionnaire was distributed among 20 senior executives. The flexibility of model and using AHP approach provide the possibility that different weights are given to associated parameters based on necessity and use of these tools in business and different processes. Since AHP technique is based on group decision-making, it was necessary to convert the collected data to an integrated form through questionnaires.

5. Data analysis

To analyze the raw data obtained from questionnaires, first all the pair comparison matrices for each respondent should be combined in the form of an integrated matrix. The geometric mean method, which is the best method to combine comparative tables of group members, was used to combine matrices. When the opinions have equal importance, following formula is used to calculate the geometric mean. (Scarron 1380)

\[ \bar{a}_{ij} = \left( \frac{N}{\pi a^k} \right)^{\frac{1}{N}} \]

If the opinion of the group members has a special priority ratio, the following formula is used:

\[ \bar{a}_{ij} = \left( \frac{N}{\pi a^{(wk)}} \right)^{\frac{1}{N}} \]

After the integration of pair matrices, pair comparisons matrix will be as follows:
Table 1. Pair comparisons integrated matrix of decision-making style.

<table>
<thead>
<tr>
<th>Decision-making style</th>
<th>Rational decision-making style</th>
<th>Intuitive decision-making style</th>
<th>Dependant decision-making style</th>
<th>Immediate decision-making style</th>
<th>Avoidant decision-making style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational decision-making style</td>
<td>sig .011</td>
<td>sig .59</td>
<td>sig .098</td>
<td>sig .045</td>
<td></td>
</tr>
<tr>
<td>r .341</td>
<td>r .25</td>
<td>r -.226</td>
<td>r .272*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intuitive decision-making style</td>
<td>sig .38</td>
<td>sig .013</td>
<td>sig .611</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r .12</td>
<td>r .333*</td>
<td>r -.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependant decision-making style</td>
<td>sig .604</td>
<td>sig .002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r .072</td>
<td>r .406**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immediate decision-making style</td>
<td>sig .029</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidant decision-making style</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*p&lt;.05 ; **p&lt;.01 ; n=55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After this step, first we should make normal the numbers of comparative tables to extract the priorities and then get the weight of each factor through determining the average of each row. Finally, after calculating the compatibility rate for pair comparison matrices, effective factors in this technique will be determined.

Normalrij = \frac{d_{ij}}{\sum_{i=1}^{m}d_{ij}}

Table 2: normalized matrix

<table>
<thead>
<tr>
<th>Decision-making style</th>
<th>rational</th>
<th>intuitive</th>
<th>dependent</th>
<th>immediate</th>
<th>avoidant</th>
</tr>
</thead>
<tbody>
<tr>
<td>rational</td>
<td>1/4.3</td>
<td>0.303/1.303</td>
<td>0.238</td>
<td>0.5445</td>
<td>0.24568.</td>
</tr>
<tr>
<td>intuitive</td>
<td>0.709</td>
<td>6.64/13.12</td>
<td>6.87/8.052</td>
<td>1/1.3</td>
<td>0.1547</td>
</tr>
<tr>
<td>dependent</td>
<td>0.217</td>
<td>5.48/13.12</td>
<td>1/8.052</td>
<td>0.145/1.3</td>
<td>0.6873</td>
</tr>
<tr>
<td>immediate</td>
<td>0.074</td>
<td>1/13.12</td>
<td>0.182/8.052</td>
<td>0.150/1.3</td>
<td>0.24587</td>
</tr>
<tr>
<td>avoidant</td>
<td>3.3/4.3</td>
<td>1/0.303</td>
<td>0.762</td>
<td>0.2155</td>
<td>0.12795</td>
</tr>
</tbody>
</table>

In the next step, the compatibility rate was calculated for combined pair comparison to determine the compatibility of comparisons which means how much, the obtained priorities from group members can be trusted. Experience has shown that if the compatibility rate CR is less than 0.1, the compatibility of comparisons can be accepted. Otherwise, the comparison should be done again. To calculate compatibility rate matrix, first the weight vector of WSV was calculated based on this equation WSA=A.W
The second step is calculating the compatibility vector \( CV \) through this equation

\[
CV = \frac{WSV}{W}
\]

\[
CV_1 = \begin{pmatrix} 1.84 \\ 2.19 \end{pmatrix}
\]

\[
CV_2 = \begin{pmatrix} 3.767 \\ 3.262 \\ 3.042 \end{pmatrix}
\]

The third step is calculating the special amount that is the average of \( CV \).

\[
\lambda_{\text{max}} = \frac{1}{n} \left( \sum_{i=1}^{n} CV_i \right)
\]

The fourth step calculates the consistency index \( CI \) through this equation

\[
CI = \frac{\lambda_{\text{max}} - n}{n - 1}
\]

and the final step is calculating the compatibility rate that is obtained through this formula

\[
\text{Compatibility rate} = \frac{\lambda_{\text{max}} - n}{n - 1}
\]

that for effective factors on managers' decision are: 0.013, 0.025 that indicates the priority matrices are trustable from the managers' view. The results of calculations related to compatibility rate and matrix are shown in following table:

<table>
<thead>
<tr>
<th>Effective factors on determining the style of decision-making</th>
<th>WSV</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of emotional intelligence skills</td>
<td>2.671</td>
<td>3.767</td>
</tr>
<tr>
<td>Collecting and receiving data</td>
<td>0.708</td>
<td>3.262</td>
</tr>
<tr>
<td>Risk</td>
<td>0.219</td>
<td>3.042</td>
</tr>
<tr>
<td>Creativity</td>
<td>0.507</td>
<td>1.84</td>
</tr>
<tr>
<td>Prediction power</td>
<td>1.673</td>
<td>2.19</td>
</tr>
</tbody>
</table>

The results showed that all matrices had a suitable compatibility rate. Using SMART approach and prioritizing factors according to Scott and Bruce, the weight for each factor was calculated.

Training of emotional intelligence skills > collecting and receiving data > risk > prediction power > creativity.

According to obtained weights and arrangement of options, the effective factors on decision-making style of managers in organizations are prioritized from the senior executive's view, using AHP technique.
Table 4: the matrix of prioritizing effective factors on implementing of management knowledge.

<table>
<thead>
<tr>
<th>Effective factors on the style of decision-making</th>
<th>WHNT</th>
<th>WH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training of emotional intelligence skills</td>
<td>0.42</td>
<td>0/309</td>
</tr>
<tr>
<td>Collecting and receiving data</td>
<td>0.16</td>
<td>0/257</td>
</tr>
<tr>
<td>Risk</td>
<td>0.26</td>
<td>0/216</td>
</tr>
<tr>
<td>Creativity</td>
<td>0.04</td>
<td>0/121</td>
</tr>
<tr>
<td>Prediction power</td>
<td>0.09</td>
<td>0/097</td>
</tr>
</tbody>
</table>

6. Conclusion

Based on the findings of this research, training of emotional intelligence skills is effective on decision-making approaches of people, so that it increases the use of intuitive decision-making style and reduces the use of avoidant, dependent, and immediate decision-making methods. Therefore, it can be concluded that the reinforcement of emotional intelligence as a combination of personality threads allows a person to manage and improve his cognitive processes through knowledge, perception, adjustment, and control of emotions.

The second factor in managers' decision-making, based on the model used in this study, is to collect information. One of the most important tools in making appropriate decisions in organizations is accurate and reliable information. Managers can make important strategic decisions through accurate information obtained from different ways. Risk, creativity, and the prediction power of managers are respectively the other factors that affect determining the kind of decision-making style of managers.

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