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# Designing Strategic control Model in order to realize purposes of 20-yaer Landscape document in Islamic Republic of Iran

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## Abstract

*Strategic control is one of the important parts of strategic management, which enables managers to have control on all stages of strategic management process and avoid its probable deviations. Organizations can evaluate different parts of strategic management through strategic control and they can also support those domains, which faced some problems and need more support than other parts. The main objective of the present study is to design and assess strategic control model in order to realize purposes of 20-year landscape document in Islamic Republic of Iran. In order to achieve targets of the study, survey study would be conducted. Among strategic mangers and experts and also among academic masters and scholars of management science, 20 people would be considered as population of the study. According to their properties and form of statistical population, Delphi method would be applied. Required data would be also collected using library studies and alternative questionnaire. Obtained results from the study indicate that human-oriented strategic control would be significant in order to control strategic purposes of 20-year landscape document in Islamic Republic. In addition, strategic controls would be effective in realizing strategic purposes to 75% as the independent variable of the study.*

**Keywords:** Strategic management process.

## Introduction

If an organization tends to be effectively in consistence with its properties and environmental requirements, it has to apply for sure strategic control. Nature of environment is the factor that can improve process of strategic control. The first objective of strategic control is facilitating organizational learning process. Such learning would conduct organization forward through requirements of external environment on it[1].

It should be mentioned that in the current situations, resulted pressures from globalization of economics or global organization of commerce have led to positive and negative results and influences for objectives of landscape document. The issue has also made international business area to face serious challenges. The challenges would need programming and implementing adequate strategic controls. Strategic controls would help managers to consider some changes such as change in competition nature and some effective factors in progress of organizations.

Significance of strategic control would be resulted from basic facts in organizations. Strategic control would be considered as a source of rapid changes and unpredictable source. Strategic control would explore basic issues and changes and conduct required assumptions through controlling strategy process[2].

Some factors can be considered as serious issues in our society as follows: Lack of a comprehensive strategic control system in facing with different strategic situations. Enhancement of competition in industry and global changes would lead to feel need for effective and comprehensive controls. The controls are not existed academically in Iran. Presence in international competitions would need providing sufficient sensitivity in managers in order to show response against environmental changes. Lack of its presence for long time would provide conditions for countries to exit competition scene. Necessity of providing sustainable competitive advantage through constant exploration of internal power and weakness points and external threats, which would be possible just through designing an adequate information system.

In general, significance of conducting studies in regard with strategic control can be resulted from some factors as follows: Environmental turbulence in recent years has forced organizations show constant and rapid responses. In this regard, designing basic and gradual controls depended on environmental conditions would be an essential issue. Flexibility and adaptability with environmental changes need recognition of internal power and weakness points and using external opportunities and threats. This would be possible through a comprehensive strategic control system. For organizations, having bright and clear view one effective external factors and progress in achieving goals would be significant. This would be also possible through applying control system[3].

Good response to opportunities against turbulence and integration of information and signs in a competitive view need presence of an efficient control system.

In order to manage and run strategic complexities and rapid response to threats and environmental opportunities and also in order to make flexible strategic decisions, an adequate control system would be required.

Recognizing request in external environment, which is rapidly under changes, wide application of response methods, systems and options would be required. The best solution in this regard can be applying an updated and exact information system, instead of periodic analysis systems.

Through designing an adequate control system, required data in regard with decision making in complicated situations can be provided. In addition, flexibility of strategic options would be also provided for possibility of adequate response against unpredicted changes of environment[4].

An efficient control system would integrate dispread efforts of managers and would avoid dispread decisions. Designing a control system would provide conditions in organization in order to integrated movements in context of environment[5].

Therefore, awareness of managers about modern techniques and methods of strategic control and preparation for competition in local and international level would be significantly essential for organizations.

**Dematel technique:** In this technique, systematic structuring process would be assumed as a series of information, which can lead to achieve an integrated and defined model of clear relations among factors. DIMATEL method is one of the applicable methods in systematic structuring of identified factors. The method is based on principles of Graph Theory. The method, similar to Delphi method, has applied proved and common methods on industrial engineering domain, which are based on mathematic factors. Moreover, application stages of the method would be presented in structuring effective factors in internal elements of strategic controls and strategic goals.

**Identification of system's constituent elements:** At the present study, the aim by constituent elements of system is the same effective factors in strategic controls, which has been presented in figure-1.

The mentioned factors have been identified using Delphi method and questionnaire no.1 as well as based on opinions of scholars. Hence, communication network of elements has been formed with 4 main groups of factors. DIMATEL analysis method has been also conducted per 4 mentioned main groups.

In system2, the mentioned stages have been also iterated. It means that effective factors in strategic goals have been identified. As it is obvious in figure-2, communication network of elements has been formed in 6 main groups of factors. In addition, DIMATEL analysis has been also applied per 6 mentioned main groups.

**Forming diagram of elements' influence:** In this stage, constituent elements of system1 has been placed in pea point of a diagram and relations among the stations or points, would be determined for example in form of influence of elements on each other. Comparison among elements has been done in paired form and for this purpose; a questionnaire (no.2) has been designed and regulated. In the mentioned questionnaire, judgments of scholars about intensity of influences of elements on each other have been questioned. (figure-1)

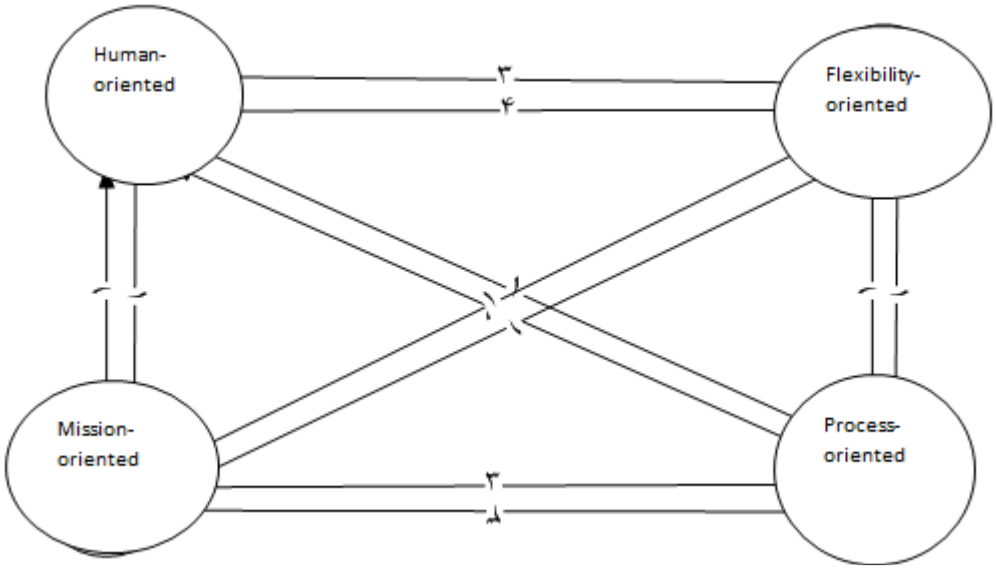


**Figure-1**
**Influences of strategic controls on each other**

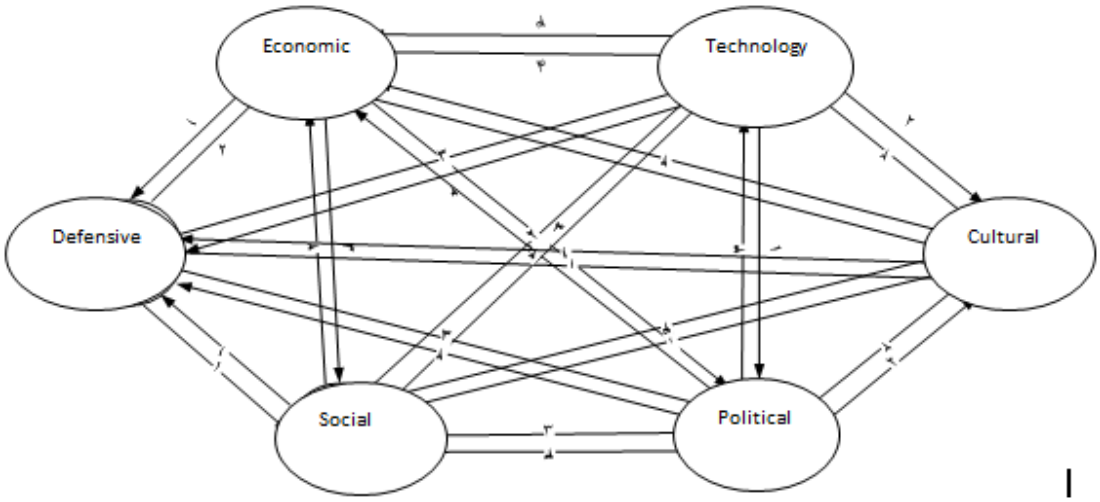


**Figure-2**
**Influences of strategic goals on each other**

In system-2, the same stages have been also iterated. In this regard, ranked 6 goal groups of landscape document have been placed in pea points of the diagram. Relations among the points have been also determined in form of elements' influence in each other. Comparison of elements' influences on each other has been done in paired form and judgments of scholars have been also questioned just for direct relations among elements. For example, intensity of influence of economic goals in defensive goals has been equal to1; all remained direct relations have been also illustrated in figure-2.

**Determining rule of group decision making:** At the present study, intensity of influences of elements has been questioned in form of scoring from 0 to 4. The intensity of influences and such scores would be determined as follows: Very high influence (score: 4), High influence (score: 3), Low influence (score: 2), Very low influence (score: 1), No influence (score: 0).

It should be mentioned that because of avoidance of judges for selecting "average" level, and also as a result of deviations in results, the mentioned intensity has been ignored. Due to different ideas of scholars about intensity level of influence of elements on each other, final analysis has been conducted based on "median" of their opinions.

**Implementation stages of analytical network process in the study:** At this stage, due to network structure of figure1, general structure, super matrix or same initial matrix has been determined. According to figure1, which has shown correlation among strategic controls and goals, initial super matrix would be calculated as it is obvious in table-1.

**Formation of comparative matrixes and controlling their adaptability:** At this stage, comparative matrixes of strategic controls; their correlations with each other; goals; and their dependence on each other have been formed. The adaptability among them has been also controlled. The stages have been explained as follows: Matrix of internal correlation among strategic controls and goals (matrixes $W_{22}$ and $W_{23}$).

Correlation between strategic controls and goals has been calculated using DIMATEL method as it was obvious above. Obtained results have been also as follows (normalized matrix of T):

At this stage, total correlation matrix (T) has been normalized, so that internal matrix could be obtained. Hence, elements of each column were divided to sum of relevant elements. It should be also mentioned that the mentioned matrix would be applied in formation of super matrix in order to show internal correlation among strategic controls and goals.

Matrix of internal correlation among strategic controls ($W_{22}$),

**Table-1**
**Structure of initial super matrix (non-harmonized)**

| | Clusters | | | |
|---|---|---|---|---|
| | **Strategic goals** | **Goal** | **Strategic controls** | **Strategic goals** |
| W→ | 0 | 0 | 0 | 0 |
| | Strategic controls | 0 | $W_{22}$ | $W_{23}$ |
| | Strategic goals | 0 | $W_{32}$ | $W_{33}$ |

$$w_{22}= \begin{matrix} C_1 \\ C_2 \\ C_3 \\ C_4 \end{matrix} \begin{bmatrix} 0.240 & 0.301 & 0.258 & 0.273 \\ 0.365 & 0.264 & 0.298 & 0.285 \\ 0.204 & 0.209 & 0.189 & 0.252 \\ 0.192 & 0.227 & 0.251 & 0.190 \end{bmatrix} \quad (1)$$

Matrix of internal correlation among strategic goals ($W_{33}$)

$$w_{33}= \begin{matrix} G_1 \\ G_2 \\ G_3 \\ G_4 \\ G_5 \\ G_6 \end{matrix} \begin{bmatrix} 0.171 & 0.188 & 0.180 & 0.184 & 0.185 & 0.182 \\ 0.177 & 0.159 & 0.176 & 0.172 & 0.166 & 0.170 \\ 0.144 & 0.148 & 0.134 & 0.139 & 0.149 & 0.139 \\ 0.183 & 0.178 & 0.178 & 0.170 & 0.184 & 0.190 \\ 0.167 & 0.171 & 0.175 & 0.170 & 0.157 & 0.169 \\ 0.158 & 0.157 & 0.157 & 0.166 & 0.159 & 0.149 \end{bmatrix} \quad (2)$$

**Matrix of paired comparison of goals based on strategic controls ($W_{32}$):** At this stage, significance coefficient of each goal has been obtained due to strategic controls and using paired comparison (based on 9-point clockwise scale). The significance coefficients have been as follows: how much is priority of social goal (G3) in compare with political goal (G2) due to human-oriented strategic control? Obtained value in this regard, due to opinions of scholars, has been equal to 7. In order to make given weight for these goals valid, their adaptability value has been also controlled and has been equal to 8%. Results have shown that, since adaptability rate of the matrix has been 8% and the value is smaller than 0.1, judgments of scholars could be valid and feasible.

## Methodology

Applied method at the present study has been survey method and has been conducted using Delphi technique (survey of scholars). Required data have been also collected using library method and standardized questionnaire. In order to conduct paired comparisons among factors, 5 kinds of questionnaire have been designed and opinions of scholars have been questioned. Average value of their answers was used for matrixes of DIMATEL and Analytical Network Process. Additionally, in order to test influence of each internal element, DIMATEL technique has been applied. In order to determine causal relationship among independent variables (strategic controls) and dependent variables (strategic goals), Analytical Network Process method has been applied.

Delphi technique could be also applied through participation of participants from different geographical places. Contrary to Name Group technique, in which opinions of scholars would be gained through face to face discussions, Delphi method would apply questionnaire in order to collect their ideas[6].

Delphi process includes gaining opinions or ideas through questionnaire about a specific issue; purifying them; and then submitting results to participants. The survey would be done for several times, so that agreement can be achieved about solution[7]. However one of the main limitations of the mentioned techniques is its time-consuming nature, Delphi method won't include limitations resulted from face to face connection of mental movement and signs of group thinking[8].

One of the significant issues in regard with Delphi method is that participants should have enough information about applied subject of the study. The participants would be known as Delphi Panel. Selection of qualified individuals for Delphi Panel is the most important part if the method, since validity and feasibility of results would be depended on knowledge and information of the participants.

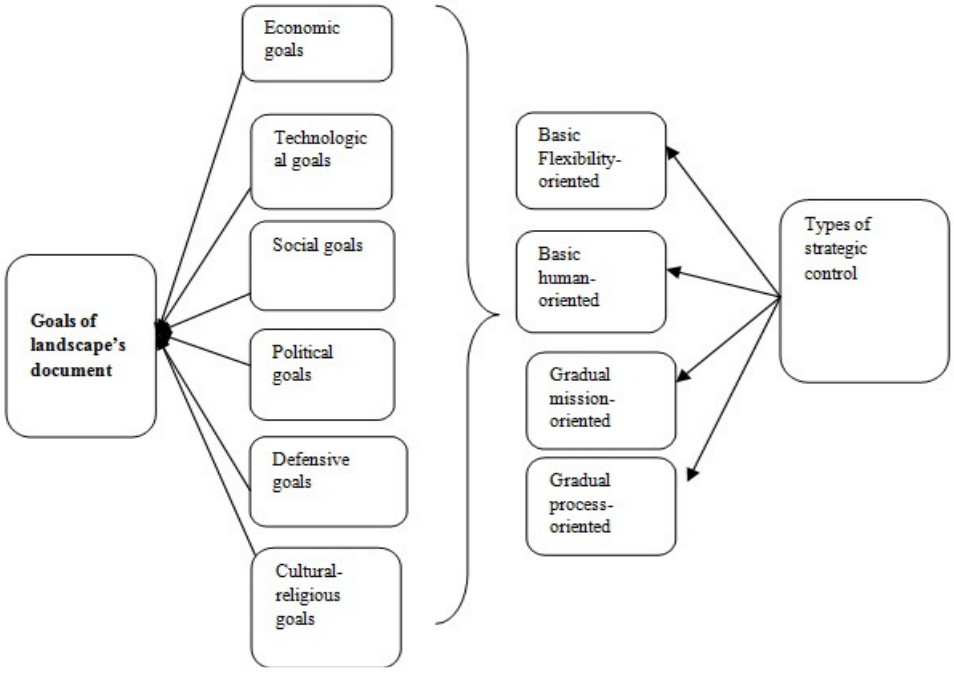


**Figure-3**
**Flow Chart**

## Result and Discussion

**Forming diagram of elements' influence:** In this stage, constituent elements of system1 has been placed in pea point of a diagram and relations among the stations or points, would be determined for example in form of influence of elements on each other. Comparison among elements has been done in paired form and for this purpose; a questionnaire (No.2) has been designed and regulated. For example, intensity of human-oriented strategic control (C1) influence on flexibility-oriented strategic control (C2) has been equal to.

$$r = [r_i]_{n\times 1} = \left[\sum_{j=1}^{n} t_{ij}\right]_{n\times 1}$$

$$c = [c_j]_{n\times 1} = [c_j]'_{1\times n} = \left[\sum_{j=1}^{n} t_{ij}\right]_{1\times n} \quad (3)$$

Total row (R) refers to arrangement of those elements, which have strong influence in other elements such as C2 in matrix 5. The variable would be considered as causal variable.

The total column (J) refers to arrangement of those elements that are strongly affected such as C3. Arrangement of elements in column (R) shows hierarchy of effective elements and arrangement of elements in column (J) shows hierarchy of affected elements.

Actual location of each element would be cleared in the final hierarchy of columns (R+J) and (R-J). In fact, (R+J) refers to total intensity of an element in terms of cause or effect. (R-J) refers also to position of an element along the axis of latitudes. The position would be cause if (R-J) is positive; and it would be also effect while (R-J) is negative.

Result: human-oriented and flexibility-oriented controls can be considered as causes and mission-oriented and process-oriented controls can be considered as effects.

**Table-1**
**Matrix 5: arrangement of influence/ influence of elements in each other based on total correlation matrix T**

| Arrangement of elements | Based on total row (R)-(influence) | Arrangement of elements | Based on total column (J)-(influence) | Arrangement of elements | Based on (R+J) | Arrangement of elements | Based on (R-J) | Type |
|---|---|---|---|---|---|---|---|---|
| C2 | **5.45** | C3 | **4.77** | C2 | **10.07** | C1 | **0.84** | Cause |
| C1 | **4.87** | C4 | **4.71** | C1 | **8.90** | C2 | **0.84** | Cause |
| C4 | **3.93** | C2 | **4.61** | C4 | **8.65** | C4 | **-0.78** | Effect |
| C3 | **3.87** | C1 | **4.03** | C3 | **8.63** | C3 | **-0.90** | Effect |

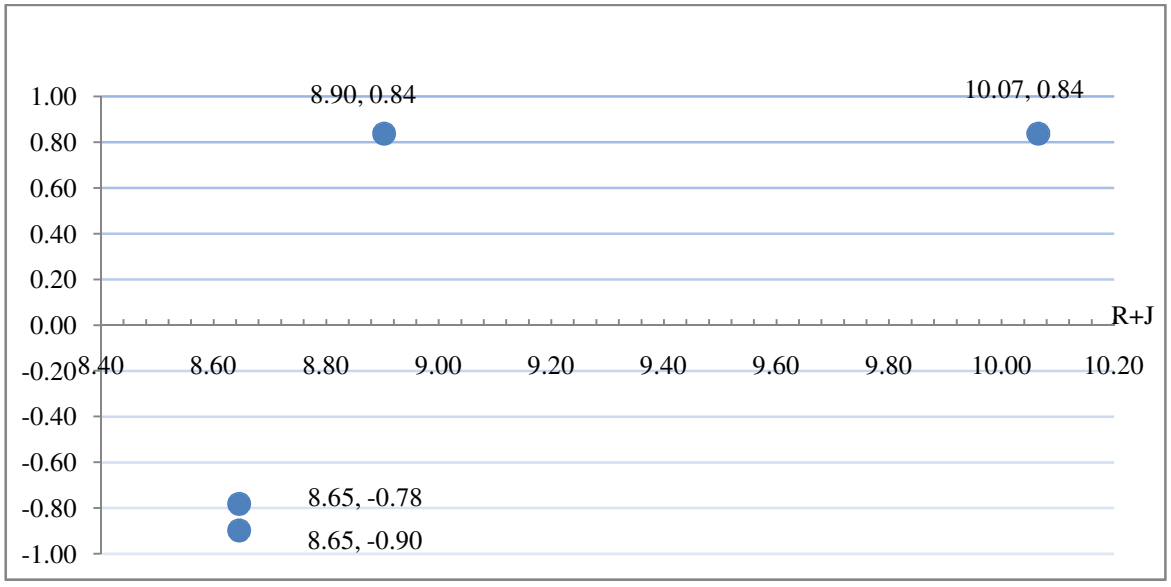


**Figure-4**
**Position of strategic control elements in the hierarchy**

**Using hierarchical structure to improve perception of decision makers:** Being aware of arrangement of elements based on their influence in other elements (R); arrangement of elements based on receiving influences (J); and final structure of causes (positive R-J); and effects (negative R-J) in addition to their intensity in terms of cause or effect (R+J), can lead to significant improvement of decision makers' perception about structure of applied issue. Obtained results from hierarchical structure are as follows: Matrix 5 indicates that naturally, effectiveness of elements (R) is different from their effect arrangement (J). Column R indicates that, element C2 (flexibility-oriented strategic control) has had the most rate (30%) and element C3 (mission-oriented strategic control) has had the lowest rate (21%) of effectiveness in other elements. table-2 has presented effectiveness rate per %.

**Table-2**
**Effectiveness rate on other elements (strategic controls)**

| Strategic controls | Effectiveness rate (%) |
|---|---|
| C2 | %30 |
| C1 | %27 |
| C3 | %22 |
| C4 | %21 |

Column J indicates that element C3 (mission-oriented strategic control) has had the most rate (26%) and C1 (human-oriented strategic goals) has had the lowest rate (21%) of effectiveness in other elements. Table-3 has presented effectiveness rate per %.

**Table-3**
**Effectiveness rate in other elements (strategic controls)**

| Strategic controls | Effectiveness rate (%) |
|---|---|
| **C3** | %26 |
| **C4** | %25 |
| **C2** | %22 |
| **C1** | %21 |

In this stage, constituent elements of system1 has been placed in pea point of a diagram and relations among the stations or points, would be determined for example in form of influence of elements on each other. Comparison among elements has been done in paired form and judgments of scholars have been questioned just for direct relations among elements. For example, intensity of influence of economic goals in defensive goals has been equal to1. All remained direct relations have been also presented in figure-5.

**Determining hierarchy or structure of effective factors (calculation of total rows and columns in T matrix and identifying causal factors)**

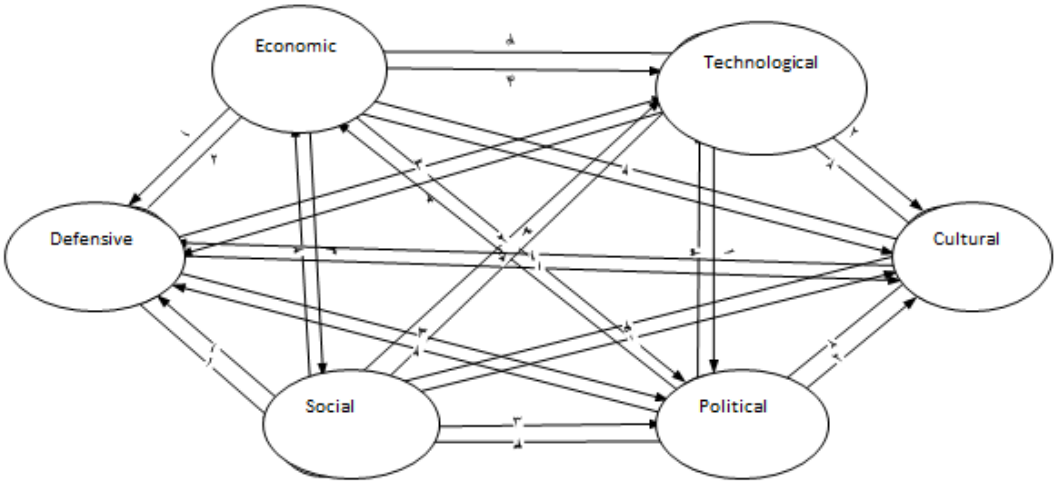


**Figure-5**
**Effective strategic goals in each other**

**Table-4**
**Matrix5: arrangement of influence of elements in each other based on total correlation matrix T**

| Arrangement of elements | Based on total row (R)-(influence) | Arrangement of elements | Based on total column (J)-(influence) | Arrangement of elements | Based on (R+J) | Arrangement of elements | Based on (R-J) | Type |
|---|---|---|---|---|---|---|---|---|
| G1 | 13.039 | G4 | 14.130 | G4 | 27.067 | G3 | **2.795** | Cause |
| G4 | 12.936 | G2 | 13.539 | G1 | 26.220 | G5 | **0.260** | Cause |
| G2 | 12.166 | G1 | 13.181 | G2 | 25.705 | G1 | **-0.142** | Effect |
| G5 | 12.041 | G5 | 11. 781 | G5 | 23.822 | G6 | **-0.346** | Effect |
| G6 | 11.344 | G6 | 11.689 | G6 | 23.033 | G4 | -1.194 | Effect |
| G3 | 10.229 | G3 | 7.434 | G3 | 17.663 | G2 | -1.374 | Effect |

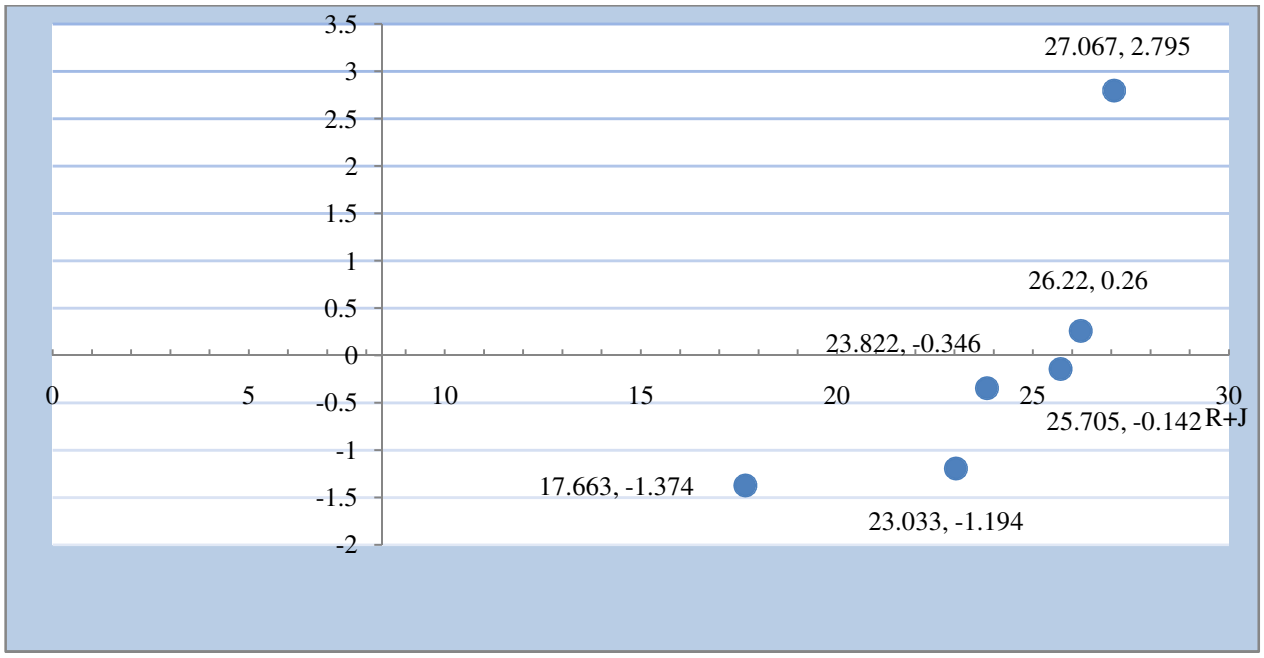


**Figure-6**
**Position of elements in strategic controls**

**Using hierarchical structure to improve perception of decision makers:** Being aware of arrangement of elements based on their influence in other elements (R); arrangement of elements based on receiving influences (J); and final structure of causes (positive R-J); and effects (negative R-J) in addition to their intensity in terms of cause or effect (R+J), can lead to significant improvement of decision makers' perception about structure of applied issue. Obtained results from hierarchical structure are as follows: i. Matrix 5 indicates that naturally, effectiveness of elements (R) is different from their effect arrangement (J). ii. Column R indicates that, element G1-G4 (economic and technological strategic goals) has had the most rate (18%) and element G3 (social strategic goals) has had the lowest rate (141%) of effectiveness in other elements. Table-5 has presented effectiveness rate per %.

**Table-5**
**Effectiveness of elements in other elements (strategic goals)**

| Strategic goals | Effectiveness rate (%) |
|---|---|
| G1 | %18 |
| G4 | %18 |
| G2 | %17 |
| G5 | %16 |
| G6 | %15 |
| G3 | %14 |

Column J indicates that element G4 (political strategic goals) has had the most rate (20%) and G3 (social strategic goals) has had the lowest rate (10%) of effectiveness in other elements. Table6 has presented effect rate per %.

According to table-6 and based on principle of strategic adaptability (adaptability of goals with controls): i. In order to control economic goals in 2 positions with relative weight of 69% and 63%, flexibility-oriented strategic control would be good option. ii. In order to control science and technology goals with relative weight of 79%, flexibility-oriented strategic control would be good option. iii. In order to control social goals in 2 positions with relative weight of 76% and 59%, human-oriented strategic control would be good option. iv. In order to control political goals in 2 positions with relative weight of 76% and 14%, human-oriented strategic control would be good option. v. In order to control cultural goals in 2 positions with relative weight of 47% and 9%, human-oriented strategic control would be good option. vi. In order to control defensive goals in 2 positions with relative weight of 71% and 19%, human-oriented strategic control would be good option.

In order to control strategic goals of landscape's document, flexibility-oriented and human-oriented strategic controls would be significantly useful and efficient.

**Table-6**
**Effect rate of elements (strategic goals)**

| Strategic goals | Effect (%) |
|---|---|
| G4 | 20% |
| G2 | 19% |
| G1 | 18% |
| G5 | 16% |
| G6 | 16% |
| G3 | 10% |

**Table-7**
**Compositional table of matrix of paired comparisons**

| Goals of landscape | Human-oriented strategic control G1 | Flexibility-oriented strategic control\|G2 | Mission-oriented strategic control G3 | Process-oriented strategic control G4 |
|---|---|---|---|---|
| Economic G1 | | 0/630<br>0/699 | 0/218<br>0/533 | 0/151<br>0/614 |
| Science and technology G2 | | 0/798<br>0/237 | 0/138 | 0/064<br>0/268 |
| Social G3 | 0/594<br>0/76 | 0/249 | 0/157<br>0/324 | |
| Political G4 | 0/761<br>0/144 | 0/166 | 0/073<br>0/083 | |
| Cultural G5 | 0/477<br>0/096 | 0/322 | 0/151<br>0/060 | 0/050 |
| Defensive/security G6 | 0/717 | 0/064 | 0/195 | 0/088<br>0/117 |

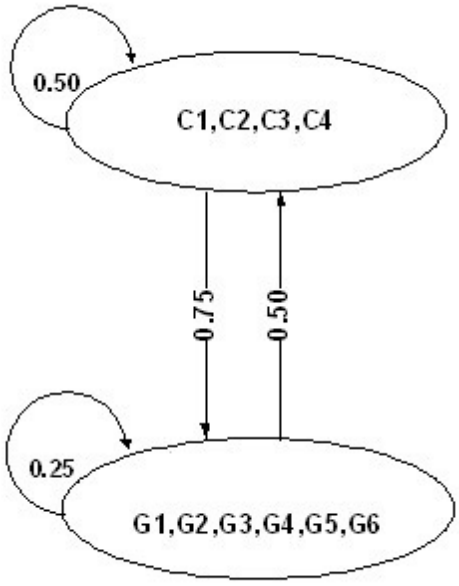


**Figure-7**
**Final model of the study**

## Conclusion

In order to answer research questions; different models of strategic control were investigated. Components of the models were also identified. In addition, 4 kinds of strategic controls were considered as follows: human-oriented; flexibility-oriented; mission-oriented; and process-oriented strategic controls.

Afterwards, goals of landscape's document were also studied and 65 goals were explored from obtained results. The goals were ranked in form of 6 main groups of goals including economic, technological, social, political, cultural and religious, and finally defensive goals.

At the next stage, using paired comparison method and DIMATEL technique, effectiveness rate of all 4 controls were analyzed. Obtained results showed that flexibility-oriented and human-oriented strategic controls respectively with effect rates of 30% and 27% were the most effective variables in 2 other mission-oriented and process-oriented controls. In addition, mission-oriented and process-oriented controls were the most affected ones than others with respectively rates of 26 and 25%.

In regard with effectiveness and taking effect of strategic controls, economic goals have had the most effect (18%); and social goals have had the lowest effects with rate of 14%. However, in terms of taking effect, political goals with rate of 20% and social goals with rate of 10% have had the lowest rate of taking effects.

In order to answer the question 4, effects of controls were examined in 2 different positions. At the first position, goals were investigated based on human-oriented strategic controls and obtained results indicated that social goals with relative value of 76% have been in the first position. Then, the goals were studied based on flexibility-oriented controls and obtained results indicated that economic controls with relative value of 699% have been at the first position. In regard with process-oriented strategic control, economic goals with relative value of 614% have been in the first position. And finally, in regard with mission-oriented strategic control, economic goals with relative value of 533% have been significant.

At the second position, contrary to the first position, strategic control has been investigated based on economic goals and obtained results indicated that, flexibility-oriented control with significance level of 630% has had more relative rate than others. In science and technology, flexibility-oriented control had been more significant than others. In regard with social goals, human-oriented controls; in political goals human-oriented controls; and also in cultural goals human-oriented controls; and for defensive goals, flexibility-oriented controls have been significantly considered.

In order to answer the last question, paired comparison techniques, DIMATEL method, and analytical network process have been applied. Obtained results from the experiments are as follows: 4 applied strategic controls have affected to 75% strategic goals as a cluster. Instead, 6 strategic goals as a cluster have affected strategic controls to 50%. In addition, internal elements of strategic goals have affected each other to 25%. On the other hand, internal elements of strategic controls have affected each other to 50%.

In general, it could be mentioned that human-oriented and flexibility-oriented controls would be significantly applicable in order to control strategic goals of 20-yaer landscape document in Islamic Republic of Iran.

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