The New Method for Ranking of Corporations Based on EFQM

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ABSTRACT

One of the key problems of the Iran’s industries is the lack of competition. The indeterminate nature of the market is one of the significant aspects of the aforementioned plight. There is not sufficient information in the market thus dealings and transactions are not effectuated. In case the extant data escalates, customers will make better purchases and the manufacturers will be encouraged to make endeavours to maintain or increase their market share. The problems of the vague nature of the market have been put forward for the Iran’s computer Industry too. A vast search has been implemented regarding the ranking background all over the world, the ranking techniques and methodologies and the appraisal blueprints of the organization. The output of this task is the development of a model to examine corporations. Any particular corporations may be analysed based on the three categories known as the input, processing and output fields. A quantitative technique is utilized to complete the aforementioned pattern. Each corporation’s marks are calculated based upon the potential growth and current efficiency, and then the corporations will be ranked on the aforementioned basis.

1. Introduction

The whole world is undergoing changes in an incredibly swift rank. The velocity and the variations of the alterations have left a great impact upon all the human societies. The economic power escalation, the industrial headway, the commercial units depends upon the suitable and efficacious management of the entire aspects of the organization. Plenty of nations may have elapsed epochs during which they may have served as industrial leaders nonetheless they have been discarded after a while or doomed to be condemned for keeps. There are oodles of other tiny corporations which commenced their activities with the least facilities and assets. Today they are ranked as the top-notch nations of the world. Long-term planning, accurate definition of objectives, initiative-bearing investigations, organizational creativity, the quality of products and services, the ongoing upbringing of the human labor, technological management and so on and so forth are among the determinants ameliorating the economic capabilities contributing to the organizational survival in the global field [17].

The chief quandary of the extant managers is designated as encountering the environmental developments. The information conveying entia are quite crucial to clarify the role of the mart. Such entia assist the decision-makers to adopt accurate decisions by presenting punctual accurate and suitable data. The institutes which rank corporations are among the aforementioned group which has a pivotal role in the industrial field. These institutes pinpoint their situation in the competitive field based upon the dissimilar indices and variables through presentation of the superior industrial corporations. The above fact causes the feeble companies to take note of the gap that exists between those companies that the superior ones. Then they adopt an appropriate strategy to attain them. Then dominant corporations will consolidate their position by defining schemes and strategies. The presentation of data is an appropriate opportunity for investors to make suitable ventures. The whole set of the aforementioned factors bring about a touch competition in the mart and tough competition has plenty of advantages which eventually causes the social development [18].

There are plenty of institutes all over the world which rank the corporations based upon their working field. Some of the most significant ones are Fortune, Forbes, Business Week, and so on and so forth where diverse corporations are ranked based upon the indices and variables. The planetary ranking-setting organizations have been institutionalized all over the world. The industrial organization has inchoated to rank 100 super companies based upon one variable on a limited manner. Since the structure of the aforementioned ranking is dynamic, the ranking is effectuated based upon the dissimilar indices and variables but the chief needed point is the lack of ranking or any organization responsible for this task within the advanced industry field and the computerized corporations.

This output article is a research task which has been defined aiming to rank and classify the process-bearing corporations and the presentation of a new methodology to categorize Iran’s computerized incorporations. Having pinpointed the literature review of the research, the proposed method will be presented. Then the Iran’s informatics corporations will be ranked based upon this methodology.

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2. Literature review

There are variegated institutes all over the world which rank corporations. These ranking are effectuated based upon the dissimilar quantitative and qualitative methodologies and indices with regard to the targets that the aforementioned institutes follow. A particular methodology has to be developed to rank informatics corporations, and then the ranking will be effectuated on this basis. Three types of studies have been effectuated in the field of the literature review: the probing of the ranking corporations, examination of the prevalent methodology in the relevant literature, surveying diverse appraisal methodologies of organizations. Every single one of these data units will be expounded as follows:

2.1. Electronic commerce concepts and basics

The ranking procedure and trend in outlandish institutes have been investigated in this section. Thus 12 top institutes of the world have been pinpointed which are as follows: Fortune, Business Week, Financial Times, Forbes, Globe Finance, Canadian Business, Financial Post, Asia Week, Industry Week, Far Eastern Economic, Information Week, and Silicon Valley, each one of the aforesaid institutes have disparate indices and rank corporations based upon particular methods.

1. Fortune*: Fortune which is an American magazine is one of the most well-known ones in the field of ranking all over the world. The aforementioned magazine ranks the corporations in diverse fields every year. These rankings are as follows: Fortune 500, Global 500, 100 best to work for, Global most admired, American most admired companies, 100 fastest growing, small business 100, 50 best for minorities, MBA’s top 50 employers and china 100.

2. Business week*: The aforementioned magazine is an economico-commercial one. It presents specific ranking of the corporations that the most well-known ones are as follows: 50 best performers, business week globalization. The aforesaid magazine has the information technology 100 apart from the two aforesaid ones.

3. Far eastern economic review*: a particular institute by the name of Acnielsen which is a planetary one in Hong Kong has foregathered the data pertinent to 500 individuals in 12 nations. The above data have been ranked based upon the financial non-monetary and economic indices.

4. Financial post*: The Canada financial post research institute which is affiliated to the Canada financial post ranks the Canadian commercial activities as entitled “business FP 500”. This institute methodology is founded upon a ranking whose essentials are financial indices.

5. Information week*: the aforementioned institute appraises 500 top corporations in 22 industrial groups with regard to the initiatives they adopt in the information technology field.

6. Industry week*: the aforementioned corporation proffers dissimilar ranking of the manufacturing and industrial corporations. The two cases cited below are exemplifications. IW 1000 (it classifies 1000 copusetic general corporations as well as IW 500 (500 ace American manufacturers).

7. Forbes*: Forbes institute is a research organization which has disparate rankings. The aforementioned rankings are in diverse fields such as individuals, nations, etc. The aforesaid institute effectuates its ranking in three zones known as America, Europe and Asia based upon dissimilar criteria. The aforesaid institute has six types of ranking as follows: Forbes 500, 200 best small companies, Forbes 400 big best companies, Forbes international 500, global 2000, largest private companies.

8. Financial times*: this is a research institute which presents diverse rankings. The aforementioned ranking is effectuated in diverse Asian European nations and those all over the world. The aforementioned institute has several diverse types of ranking which are expounded hereinafter: global 500, US 500, UK 500, top 100 Latin American, and Europe 500.

9. Asia week*: Asia week presents ranking of the corporations which are disintegrated as regards the geographical zone, nation and industry. The countries included in this ranking are as follows: Australia, china, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, Taiwan, and Thailand. The methodology utilized by this magazine to make ranking comprises indices such as the takings amount, sale quantity, the gain percentage out of sale, and the receipts of the shareholders. The aforementioned institute has particular indices based upon this methodology.

1. www.fortune.com
2. www.businessweek.com
3. www.fear.com
4. www.croquet.com/finpost
5. www.informationweek.com
6. www.industryweek.com
7. www.forbes.com
8. www.financial.com
10. **Silicon Valley**: Silicon Valley is the name of an internet site which categorizes generic corporations. The ranking that this site presents are founded upon financial indices, such as takings, sale and the benefit-making features.

11. **Globe Finance**: this is a research institute which presents diverse ranking under dissimilar titles. Up-market Canada corporations are introduced in this ranking. They gain their information by establishing correspondence with the aforementioned corporations. The ranking presented by this institute are as follows: Top 1000 companies, 300 biggest private companies, 300 biggest companies by market, 100 biggest companies by capital market, 50 biggest tech companies, 50 biggest employer, 50 top-performing stocks, top crown crops.

12. **Canadian Business**: this is a ranking institute which is active in Canada. The aforementioned institute presents two types of ranking for Canadian corporations (Tech 100, investor 500)

### 2.2. Ranking Techniques

Many papers have proposed analytical models as aids in conflict management situations. Among the numerous approaches available for conflict management, one of the most prevalent is Multi Criteria Decision Making (MCDM). Decision-making problem is the process of finding the best option from all of the feasible alternatives. In almost all such problems the multiplicity of criteria for judging the alternatives is pervasive. That is, for many such problems, the decision maker wants to solve a MCDM problem. In classical MCDM methods, the ranking and the weights of the criteria are known precisely [12, 5, 11, 6]. MCDM may be considered as a complex and dynamic process including one managerial level and one engineering level [15]. The managerial level defines the goals, and chooses the final “optimal” alternative. The multi criteria nature of decisions is emphasized at this managerial level, at which public officials called “decision makers” have the power to accept or reject the solution proposed by the engineering level. These decision makers, who provide the preference structure, are “off line” from the optimization procedure done at the engineering level [19, 20]. The engineering level of the MCDM process defines alternatives and points out the consequences of choosing any one of them from the standpoint of various criteria. This level also performs the multi criteria ranking of alternatives [9, 10, 3]. MCDM is one of the best techniques as regards the ranking techniques that sundered into two groups: Multi Objective Decision Making (MODM) and Multi Attribute Decision Making (MADM). There are different techniques in MCDM. Some of the most significant ones are: TOPSIS, Linear Assignment (LA), LINMAP, ELECTRE, AHP, Taxonomy, DEA, BORDA, VICOR, and so on.

### 2.3. Evaluation Models of Organizations

There are different models to evaluate organizations. Some of the models are as follows:

1. Corporate Excellence Diagnosis (CED) [23]
2. European Foundation for Quality Management [2]
3. Balanced Scorecard [13, 14]
4. Strategic Cost Reduction & Performance Improvement (SCR&PI) [16]
5. Malcolm Baldridge National Quality award (Besterfield et. al. 1999) [1]
6. Deming National Award [7]
7. Systematic Approach [22]
8. Capability Maturity Model [4, 17]
9. Total quality Management [18]
10. Value Chain [20]
11. Success Diamond [21]

### 3. The Proposed Methodology

Two factors have been utilized to ranking of the computerized corporations: the current efficiency and potential growth. It goes without saying that any corporation which has a suitable extant situation and pleasant potential for growth will have a higher ranking and will be more attractive for the investors. Having perused the diverse paradigms explicated in the pertinent literature, a particular pattern was extracted out of combining the system theory and the EFQM Model. Three scopes known as the input, processing and output have been designated in the system theory. Nine criteria known as Leadership, People Management, Policy & strategy, Resources, Processes, People Satisfaction, Customer Satisfaction, Impact on Society, Business Result have been defined in the EFQM. The above cases are intermingled and then spelled out within three scopes known as the inputs, processes and outputs (Figure 1).
The proposed methodology to ranking of informatics corporations is as follows:

**Stage 1: Weighting To the Three Fields**
According to experts of Iran’s informatics corporations, the weight of the input field is 0.2, the processing is 0.3 and the output is 0.5.

**Stage 2: Constructing the Decision Matrix**
The decision matrix is formed as follows.

<table>
<thead>
<tr>
<th>Company</th>
<th>The variables of the current efficiency</th>
<th>Variables of the growth potential</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Input</td>
<td>Process</td>
</tr>
<tr>
<td>A_i</td>
<td>a_i</td>
<td>b_i</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>A_m</td>
<td>a_m</td>
<td>b_m</td>
</tr>
<tr>
<td>Weight</td>
<td>w_1</td>
<td>w_2</td>
</tr>
</tbody>
</table>

Defining the abbreviations as follows:

- A_i : the jth corporation
- a_i : the input field data in the current efficiency as belongs to ith corporation
- b_i : the process field data in the current efficiency as belongs to ith corporation
- c_i : the output field data in the current efficiency as belongs to ith corporation
- a'_i : the input field data in the potential growth as belongs to ith corporation
- b'_i : the process field data in the potential growth as belongs to ith corporation
- c'_i : the output field data in the potential growth as belongs to ith corporation
- w_j : The weight of jth field

**Stage 3: Constructing the Normalized Decision Matrix**
Since the extant data of the aforementioned matrix are not homogenous, it is necessary to normalize them. Standard norm is utilized to normalize these data. A standard digit is defined as below for each element of the decision matrix which is availed as the foundation of the subsequent calculations.
\[
Z = \frac{X - \mu}{\sigma}
\]

\(Z\): the standard digit of each element in the decision matrix
\(X\): the element available in the decision matrix whose standard digit has to be computed
\(\mu\): the average data of a column
\(\sigma\): the standard deviation of data available in a column

Since some of the extracted elements of the previous stage are negative, the ensuing formula is availed to make positive all the elements pertinent to the column.

\[
Z_{\text{New}} = Z_{\text{Old}} + |\text{Min} Z_j|
\]

\(Z_{\text{New}}\): The new element
\(Z_{\text{Old}}\): The element remaining from the previous stage
\(\text{Min} Z_j\): The smallest element in J column

**Stage 4: Ranking**

A specific digit is calculated by making a well-proportioned average of the entire indices which will be availed to rank corporations on this basis. The pertinent amount of the aforementioned digit is as follows.

\[
(I_j w_1 + P_j w_2 + O_j w_3 + (I'_j w_1 + P'_j w_2 + O'_j w_3)) = \text{the number of the current efficiency} + \text{the number of the potential growth} = \text{the total score of each corporation}
\]

\(I_j\): is the input score of the jth corporation out of the current efficiency
\(P_j\): is the processing score of the jth corporation out of the current efficiency
\(O_j\): is the output score of the jth corporation out of the current efficiency
\(I'_j\): is the input score of the jth corporation out of the potential growth
\(P'_j\): is the processing score of the jth corporation out of the potential growth
\(O'_j\): is the output score of the jth corporation out of the potential growth

Since two types of weights have been designated for fields, it can be pointed out that the above formula is utilized two times. The ultimate marks extracted in this stage will be the basis of the ranking.

The ensuing modes are defined to identify the current efficiency and the potential growth with regard to the scores each field has gained (Figure 2, 3).

<table>
<thead>
<tr>
<th>Very Low (E)</th>
<th>Low (D)</th>
<th>Middle (C)</th>
<th>High (B)</th>
<th>Very High (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\text{Max} Z)</td>
</tr>
</tbody>
</table>

**Figure 2:** The appraisal spectrum of the current efficiency

Max Z: is equal to the largest standard element in each column.

<table>
<thead>
<tr>
<th>Very Low (- -)</th>
<th>Low (-)</th>
<th>Middle (+)</th>
<th>High (+)</th>
<th>Very High (+++)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\frac{\text{Max} Z}{5})</td>
<td>(\text{Max} Z)</td>
</tr>
</tbody>
</table>

**Figure 3:** The potential growth appraisal spectrum

Hence the ranking of each corporation can be computed with regard to the above two spectrums and the amounts calculated from the previous stage for each field. The current efficiency can be categorized in five modes known as very good, good, intermediary, feeble, and too feeble. The potential growth is classified into five modes known as mighty, powerful, intermediary, feeble and too feeble, for instance.
if a corporation gains the score of $A^+B^-D^+$ (A is the output field, B is the processing field, and D is the input field), that is to say, the current efficiency of this corporation is very good in the output field, good in the processing field but feeble in the input field. The growth potential of the aforementioned corporation is respectively strong, feeble and intermediate in the above three fields. Thus the total ranking of the corporation among other ones may be declared as well as the extant and future situation of the corporations in disparate fields.

The ensuing cases may be enumerated when collating this technique with those cited in the subject matter literature:
- The aforementioned techniques have a joint soft or hard paradigm which will be availed to explore the data. The comprehension of such techniques is due to the utilization of relatively complex mathematics paradigms which can’t be displaced so easily.
- Most of the above techniques can’t be suitable when the number of alternatives exceeds particular quantities.
- But the proposed methodology is much simpler to apprehend as collated with others utilized in operations research.

4. An Illustrative Example (Iran’s Informatics Corporations)

As it was expounded before, the Iran’s informatics corporations ranking is effectuated through qualitative variables. Thus each corporation is considered as a system which has input, processing and output units. The eventual score of each corporation is equal to the average weight of the three components of input, processing and output. Two modes are p

<table>
<thead>
<tr>
<th>Corporation Name</th>
<th>Scores</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABNA</td>
<td>$E^-\quad A^+\quad D^+$</td>
<td>1</td>
</tr>
<tr>
<td>Data Rasa</td>
<td>$D^-\quad B^+\quad A^-$</td>
<td>2</td>
</tr>
<tr>
<td>Dadepardazi</td>
<td>$A^+\quad B^{++}\quad C^{--}$</td>
<td>3</td>
</tr>
<tr>
<td>Neyestan Rayaneh</td>
<td>$E^-\quad C^+\quad E^-$</td>
<td>4</td>
</tr>
<tr>
<td>Kimagaran Sarzamin Rayaneh</td>
<td>$B^-\quad C^-\quad E^{++}$</td>
<td>5</td>
</tr>
<tr>
<td>Iranian telecommunication industries</td>
<td>$E^-\quad A^{++}\quad D^-$</td>
<td>6</td>
</tr>
<tr>
<td>Pooya</td>
<td>$D^-\quad C^+\quad D^-$</td>
<td>7</td>
</tr>
<tr>
<td>Arsham Koosha</td>
<td>$E^{++}\quad A^+\quad C^+$</td>
<td>8</td>
</tr>
<tr>
<td>iran data system</td>
<td>$D^-\quad B^{++}\quad E^{--}$</td>
<td>9</td>
</tr>
<tr>
<td>Tina Samanesh</td>
<td>$E^-\quad B^+\quad E^-$</td>
<td>10</td>
</tr>
<tr>
<td>data processing of Tehran electricity</td>
<td>$B^+\quad A^+\quad E^{--}$</td>
<td>11</td>
</tr>
<tr>
<td>Informatics services corporation</td>
<td>$A^-\quad C^{++}\quad E^{--}$</td>
<td>12</td>
</tr>
<tr>
<td>Behineh Kar Noavar</td>
<td>$E^-\quad B^-\quad D^-$</td>
<td>13</td>
</tr>
<tr>
<td>The consulting managers data</td>
<td>$E^+\quad B^+\quad E^{--}$</td>
<td>14</td>
</tr>
<tr>
<td>Tehran computer</td>
<td>$E^-\quad C^-\quad D^-$</td>
<td>15</td>
</tr>
<tr>
<td>Yas Arghavani</td>
<td>$E^-\quad B^{++}\quad E^-$</td>
<td>16</td>
</tr>
<tr>
<td>Parallel processing technology</td>
<td>$E^-\quad C^{++}\quad E^-$</td>
<td>17</td>
</tr>
<tr>
<td>Sanaray</td>
<td>$E^-\quad C^+\quad E^-$</td>
<td>18</td>
</tr>
<tr>
<td>Azerbaijan data spreading engineers</td>
<td>$E^-\quad B^+\quad E^-$</td>
<td>19</td>
</tr>
<tr>
<td>Information technology expansion kernel</td>
<td>$E^-\quad A^+\quad E^{--}$</td>
<td>20</td>
</tr>
</tbody>
</table>

The aforementioned upshots may be analyzed from two aspects: the corporation managers and the investors. For instance the MABNA Corporation is the corporation which has obtained ranking No 1. The above corporation has a very feeble input with low potentials. Nonetheless it has a copasetic processing with high potentials. The pertinent output of the above corporation is intermediate with great potentials. This corporation manager can obtain good results by monitoring good inputs. The investors may expect to have a pleasant income out of this corporation. If he intends to have a long-term view, it will be crucial for him to assist the corporation to upgrade the germane inputs. This analysis can be presented for other corporations too.

Having obtained the aforementioned output, a cognoscence’s session was held with some of the corporation’s specialists to quantify the upshots of the output. Then the pertinent results were presented to them. Most of the persons corroborated the task outputs subsequent to holding numerous debates over the conclusions.
5. Conclusion

One of the significant factors bringing about further competition and investments in a market pertains to the utilization of thorough and fruitful data. One of the useful pieces of information in a market is relevant to the ranking of the available corporations. In this paper two cases have been examined: and potential growth as observed in most planetary investigations of world economic forums. In case the current efficiency of a corporation and the pertinent potential growth is fine, it will gain a high score in ranking. Then it will be more attractive for investors. The entire disparate aspects of a corporation have to be scrutinized to extract the shadow variables. Such variables will be taken from diversified sections. The methods pertinent to the organizational evaluation will be identified on this foundation. Having pursued diverse blueprints, a combination of systematic theory and EFQM Model will be developed. The above cases will be merged in the combination pattern. Then they will be designated based upon three scopes known as the input, processing and output. In other words, the point to be divulged within such ranking concerns the success rank of a corporation to adsorb inputs, processing and the output quality. The data pertinent to the aforementioned variables have qualitative and quantitative aspects. They will be classified on the amount of available information.

References