

Mathematical Modeling Social Responsibility for Dynamic Organizations

¹Farzaneh Chavoshbashi, ²Davod Hemati and ³Nahid Dehghan Afifi

¹Department of Accounting, West Tehran Branch, Islamic Azad University, Tehran-Iran

²Department of Accounting, Sama Tehran Branch, Islamic Azad University, Tehran-Iran

³Department of Islamic Education, Firuzkuh Branch, Islamic Azad University, Firuzkuh-Iran

Abstract: Dynamic organizations as accountable organizations, for transparency and accountability to its stakeholders to stakeholders for their toward performance there should express their commitment to social responsibility are through their values and ensure that this commitment throughout the organization are now and thus will have a social responsibility for their mutual benefit, so there is more and more coherent in their ethical approach takes advantage and the community and stakeholders and the organization will have better performance and strengths. Because of interest in social responsibility, in this paper dynamic model is presented for Corporate Social Responsibility of Bionic organization. Model presented a new model is inspired by chaos theory and natural systems theory based on bifurcation in creation to be all natural systems, realizing the value of responsibility as one of the fundamental values of social and institutional development that the relationship between business and work environment in the global market economy and range will be specified. First Social Responsibility factors identified, then experts and scholars determine the weight of the components and technical coefficient for modeling and paired comparison has been done using MATLAB mathematical Software.

Key words: Accountable organizations, dynamic and bionic organizations, mathematical modeling, social responsibility

INTRODUCTION

Primarily to organize and reorganize the 80 organizations and business collections on tangible assets was such as money, equipment and tools and work place etc. The human form of quantitative, numerical and hardware has been looking at.

After the 80 to miss them when the industrial economy to knowledge economy, will discuss management of intangible assets becomes more bold. Initially seemed these factors are qualitative and not measurable, Science today, but these variables also measurable and has a little. Today Index, "Dow Jones", as one indicator of economic well-known standards and elements of non-tangible assets to tangible assets in addition to measured.

Based on the Dow Jones index in 1980, the share of intangible capital in the global economy and less than half a percent while the index in 2009 this figure reached 80% is surprising.

Blanchard and O'Connor leading management schools in providing a new operating system called value management process management based on values after 2000, the top Fortune 500 companies are selected based on it, Believe that no matter how green the environment and adapt a variety of clients more competitive market and are becoming more turbulent, the organization's

internal cohesion, mutual understanding, mutual trust and alignment between human capital will require more. The method that promotes a valuable approach to achieve strategic management is new, while the benefits and effectiveness of the organization insists profitability depends on establishing a winning relationship - between all the pillars and won the right owners within and outside the organization knows.

Organization that wants to be superior than the depth of 500 organizations based on the metaphor of managing directors (CEOs) on the four pillars of customer satisfaction, employees, shareholders and other stakeholder groups should be built as a collection of living all those involved regarded as managing directors to organization reflect, feel and act in such a way that the organization takes in the best conditions.

Sign the letter C customers. The first thing that distinguishes the top companies 500 to service quality which offers our customers.

Letter E represents employees. The second thing that distinguishes the top 500 companies to provide quality of life those employees will be. Environment staff happy and motivated full time to organizations such as the owners of the optimum combination of materials and their organization can understand and where necessary materials are front organization. For an owner or shareholder letter O is used. No company cannot be

considered superior to unless following is a defined benefit or profit, but sustained profitability and long-term for all interest groups there is a moral and ethical act.

S letter also indicated that other interest groups and important. These groups can include creditors, suppliers, parts suppliers, distribution channels, or even competitors are respected. Therefore, if organizations to establish a spirit of shared responsibility and mutual trust between your organization and other people can as one of the top 500 companies are. As mentioned earlier, because the main focus on value-based organizations, human life is based so according to the intangible assets of companies are superior.

Blanchard and O'Connor 3 management approach based on values are introduced in three steps:

- **Step 1:** making values clear
- **Step 2:** Methods and currency stud mission in lives and hearts employees
- **Step 3:** In line with the mission of making every day practices and values

Value management and operational system will help the organization when the organization found its key competencies and their continued attempts to identify and improve that creates the highest value to customers (Blanchard and O'Connor, 1997).

For example, for a commercial organization which will act Tuesday moral values accountability, being ethical can be profitable and common values is to achieve organizational excellence.

Responsibility in most modern organizations and enterprises has been determined as one of three main value, Meanwhile, One of the most specific assets are intangible such as integrity, commitment, synergy, learning and the alinement. Foundations of strategic organizational management, and comprehensive live it possible for organizations to providing all the capabilities, advanced knowledge, skills and use their energy and feeling ownership and ownership are encouraged to share more of the major delegate authority to accept and be responsible .

Responsibilities under the various classifications have:

- Individual responsibility
- Team responsibilities
- Responsibility group
- Corporate responsibility
- Social responsibility
- National responsibility
- Global responsibility

Responsibility within the organization constitutes a preparation for building the human resource integration between the organization and external environment and organizational responsibilities (social) concept of

dependence on the main role in the environment, and locating and positioning the organization in the society.

Management responsibility should be individual differences (physical deficiency) is remarkable. However, the inherent differences between people and their actual and potential unequal distance, naturally elite than others are. Level expectations, but its management must recognize these spaces with adjusting to the judge about their performance is fair and this superiority in the promotion and further promote the organization to use, which inevitably pay more attention, especially with foundations to pay is associated with those selected. On the other hand management should strive to provide equal working environment and facilities for all human capital to provide the one hand and the possibility of collective responsibility is possible. The subject of recent discussions of human capital management, i.e., management of organizational talent has digits. Objective of the study is design and explain dynamic model for bionic organization that first, Factors affecting social responsibility identified and coefficient of each of them was according to the experts based on paired comparison.

LITERATURE REVIEW

American Association for the quality, social responsibility as business behavior and participation of people and organizations with regard to moral society, culture, economy and defined it as an effort knows that individuals, organizations and governments through it can positive effect on development, trade, and the community have.

Carol in a study directed several pyramid enterprise social responsibility social responsibility to each firm knows outcome following four components:

- Estimated economic needs
- General regulations
- Observance of business ethics
- Humanitarian responsibilities

The first component firms are required to meet community needs and economic goods and services required to meet different people and groups benefit from the process used to make. In the latter case they have a duty to the health and safety personnel to pay attention to their customers. Do not pollute the environment, to avoid inter-organizational transactions, exclusive and do not commit acts of discrimination of any type, Not including ethnic discrimination, gender discrimination.

The third component of responsible is business ethics. In this realm of principles there is such as honesty, fairness and respect. The fourth component is a humanitarian responsibility. Other interpretation of this component, Carol, "good citizen" is to be, namely participation in a variety of business activities that

reduced the problems of society and improve quality of life of people (Carroll, 1991).

Stewart and salmon, so define social responsibility: Way of management in accordance with the organization to conduct activities that promote positive effect on society and public goods is. In fact, Stewart and Salmon want to eliminate the negative effects on society organizations are trying to have it in order to change attitudes and behavior of users consuming the customers have followed (Solomon and Stuart, 1997).

Ballarpur Industries and CSR (2002) Limited (BILT), India, business policies adopted in such a manner that in this industry for social responsibility approach shareholders they also confirmed. This policy clearly stakeholder commitments to accept responsibility in business behavior in order to create benefits and positive effects for society and other stakeholders to be determined. Shareholders, including employees, consumers, distributors, suppliers, contractors are etc. In this regard, they believe that advanced models to describe how companies communicate Organization with the community to find? Companies tend to accept what responsibilities? Social expectations and what they are? There.

India companies social responsibility factor to achieve national unity, maintaining social wealth and value for investment and strategic alliance to link human resources with business interests and knowledge of appropriate and meaningful it as a tool for strengthening and promoting long-term shareholder value is know. The company's ethical behavior, business, affairs and operational transparency and adherence to the law to be emphasized (Ballarpur Industries and CSR, 2002).

Based on survey research and other industry in India took place, shows a positive effect on business social responsibility of organizations and activities, the regulatory framework so that the cause, effectiveness judgments systems, the effectiveness of accounting principles and reporting standards - auditing and decrease corruption in business and will be working.

The other hand, users of social responsibility strategy in organizations, consumers, investors, suppliers, employees, communication, organizational and global communities and local government and non-profit and non-governmental organizations that share their organizational performance, respectively, 75% of employees, 66% of consumers and local communities is 59% (Corporate Social Responsibility Survey, 2002).

According to a research in 2007 was done by the Toshiba group company results had suggested that an extensive poll, 37% of respondents to the company on social responsibility "excellent" and 47% "good" were evaluated, Toshiba Co. More than 190,000 people in most parts of the world of human resources as a global company one of the main factors of success in addressing its social responsibility and issue management knows it.

From the viewpoint of the group members to create effective social responsibility of these companies, consumers, investors, suppliers, employees, organizational communication and local governments and partnerships with NGOs are nonprofit. (Toshiba Group Report, 2007).

Success of these companies based on this strategy is based on the capabilities they can between the internal organization and external opportunities more efficiently and provide integration and coordination of efforts for realizing the values and vision and its strategy to achieve success in his mission. A social responsibility policy can be effective measures of strategic issues affecting every business and strategic goals to bring social responsibility. Social responsibility management firm operating a kind of competitive differentiation and a kind of insurance or guarantee for brand enterprises is my business. Enterprise social responsibility means that the organization is able to analyze and evaluate the business environment in the world market level and paid to developing appropriate organizational strategies in addition to protecting company assets, it also kind of differentiation and create competitive (Chandler, 2006).

World Bank benefits of social responsibility in eight approaches based on tangible and non tangible assets has been classified:

Improving financial performance: A continuous connection between the application of social responsibility in business and financial performance of organizations there. In the past decade, many studies focus on this area has been. Study in 2002 at the DePaul University shows financial performance organizations with a higher coefficient of social responsibility are far better than those who are having a coherent system of social responsibility has been weaker.

Reduce operation costs: Social responsibility can reduce operation costs. Improving the performance of environmental factors such as the creation and accumulation of uncontrolled waste, reducing gas leak which caused water and air pollution and reduce the entry of pollutants or chemical in nature and causes of soil improvement programs deal of life and waste management and reduction of lead intoxication environment and a considerable amount before through the preservation and optimal use of natural resources essential to create income and reduce costs is to prevent and reduce the basis of productivity and to preserve, protect and satisfied workforce and thus a significant portion of specific credit organizations through increased productivity and reduced costs of training and employment is to be stored.

Strengthening the company's credibility and reputation: Organizations and organizational social responsibility in their work over the tablet, they can come

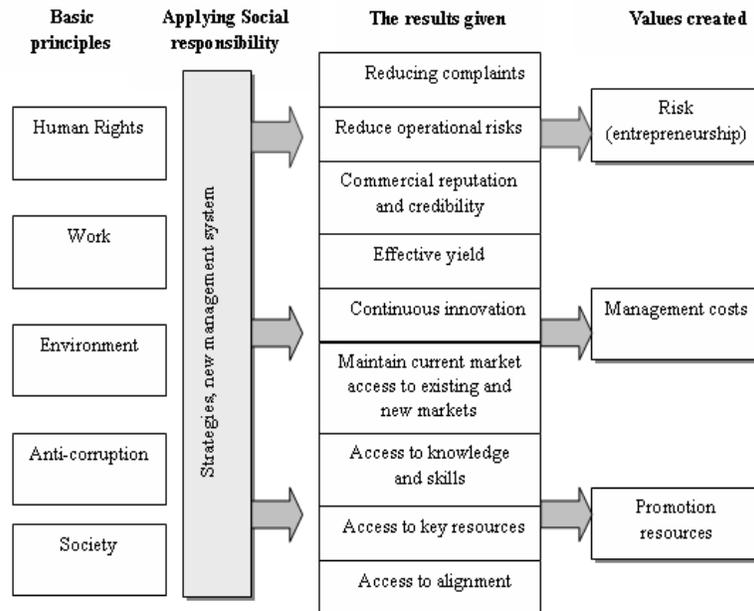


Fig. 1: The values created through social responsibility

to the credibility and reputation due to its capabilities and its potential to achieve greater market share, attract new investment and business alliances to busy.

Increase to maintain and increase customer loyalty:

Since every business, consumers must first key demands, such as price, quality, safety, accessibility and convenience to meet the studies show that customers want to buy based on value indicators - defining core business system fair, market presence based on the observance of social norms increases.

Increasing productivity and quality:

To all organizations should be on improving working conditions hence reducing the environmental impact of using human capital or increase in system decision making often leads to increase productivity. For example, organizations can improve their working conditions and workers as social capital are considered in comparison with others often experience decreased production of defective products, defective and has a higher quality of their products.

Increased ability to attract and maintain human capital:

Top organizations committed to social responsibility, often in the preservation and storage of their human capital, reduce service leave, shift the costs of recruitment and repeated commitment to education have been effective results.

Reduce cumbersome regulations:

One important advantages of social responsibility reduce regulations and non-drying flexible spatial and environmental programs

and instead formally known, including the creation of a compensation system and encouraging efficient service organizations that activity in order to reduce negative environmental effects environmental, health and safety is.

Access to the intangible assets:

Organizations with high social responsibility system in order to achieve the intangible assets like human beings, capable system, continuous learning, continuous innovation and creativity and attunement to human capital achieve such access to others that they are not easily possible and the dynamic foundation of their predominance in the market will underpin global (World Bank Institute, 2005).

Space organizations today is rapidly changing and current trends of rapid movement towards achieving more in business credit in the economy and the market and supply chain will be exacerbated. Many organizations increasingly spiritual and economic value of direct social responsibility awareness of finding and making its operations through the main business strategy and their management activities, promote organizational productivity and positive effect on society and the environment and put your account are also strengthening. By following this method not only today's profits to attend, but also build their future.

The major achievements of social responsibility for each business can be as follows:

- Increase the value and credibility of organizational
- greater access to financial resources
- Human capital enthusiastic, committed, capable and consistent

- Effective management of risks
- Healthy and safe working environment
- Customer loyalty
- Promote stakeholder confidence
- Enhance public image

Below the value created through the operation of building the value of social responsibility in organizations shows.

As shown in Fig. 1 is a strategy and policy organizations through observing and applying the principles of social responsibility and good effects results for organizations and companies will include:

- Reduced complaints
- reducing operational risk
- To increase business reputation and credibility
- effective performance
- continuous innovation
- maintain current market access to new and existing markets
- knowledge and wisdom to achieve organizational
- access to key resources, including major and tangible and non tangible

Zadek experience with Nike Inc. to suggest that any organizational responsibility system should serve to manage and guide the process.

- **First stage:** Defensive
- **Second stage:** Compliant
- **Third stage:** Managerial
- **Forth stage:** Strategic
- **Fifth5 stage:** Civil

Zadek believes that the fact that the organizations which have been stage-specific actions related to what I need so that the first phase passive movements escape responsibility, the second stage of adopting a method based on acceptance as a strategy to start accepting responsibility, responsibility of the third stage to managers about the social responsibility for solving social problems and putting it exceed the daily affairs of management, the fourth stage of entry and integration of social issues in business strategy by looking at the company's strategy to create alignment through the integration of organizational and social responsibility and final stage promote the participation of all social pillars of the institutionalization of social accountability through the alignment process to do. Reasons that these organizations do things separately as follows shall:

First organizations to defend against matters that can affect short-term affairs, productivity, reputation, profitability etc, do affect. Companies such as Shell and Royal Dutch responsibility for radiation caused by production and distribution of products denied.

The second phase should be analyzed to reduce the economic value of medium term planning to increase the

credit risk management and competitive performed. Nestle products because of health risks for infants, were under pressure: activists claimed that mothers in developing countries powder mixed with water are non-health. The company rather than trying to teach mothers to ensure children feeding overall, Necessary warnings in the commercial messages they announced.

Third stages done in organizations in terms of achieving long-term goals are. For example, Nike Inc. was found to change if its activities, maintain its current share of global sales in the chain would be impossible. These changes include adding to encourage intermediaries to achieve objectives and bonus pay was received.

The fourth steps for organizations to increase credibility in the industry environment and to achieve a better position to do as a practical example of production of the famous car companies know that their future in their ability to develop safer and healthier forms of observance of car environmental issues depends.

And finally the last stage to increase long-term economic and social value to obtain more benefits through unity and collective activities and groups do carry a sample of companies like Coca-Cola and other beverage production know that if all sectors in promoting Affairs to drink, the more responsible company and not to the laws limiting a hard against them will apply.

Zadek believes that when developing the concept of responsibility manifested in the value of the organization are two major forms of student learning, i.e.: organizational learning and social learning, which ultimately led to civil learning will be equipped.

During these five stages of evolution, learning curve responsibility system and achieve social learning as a developmental cycle and beyond organizational responsibility in which organizations can anticipate and belief unaffected by social variables predict environmental issues and respond do. Four stages of social learning, including: Latent, Emerging, Consolidating and Institutionalized are institutionalized. (Zadek, 2006).

Latent stage of social learning: Set of active and non-governmental organizations are aware of social issues. There is weak scientific evidence. Largely set by the subject business has been ignored.

Emerging stage of social learning: Media and political awareness about the social issue there is - growing volume of information studies, but there are still weak and broken. Learning from others 'experiences there is with an interactive approach to dealing with the problems.

Consolidating stage of social learning: Growing volume of activities around the topic of social organization has been created. Extensive commercial businesses focused on management problem have been established. To reach the general theory and research is through learning.

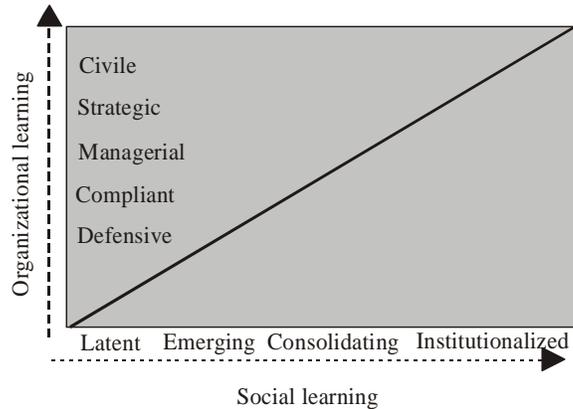


Fig. 2: Civil learning tool

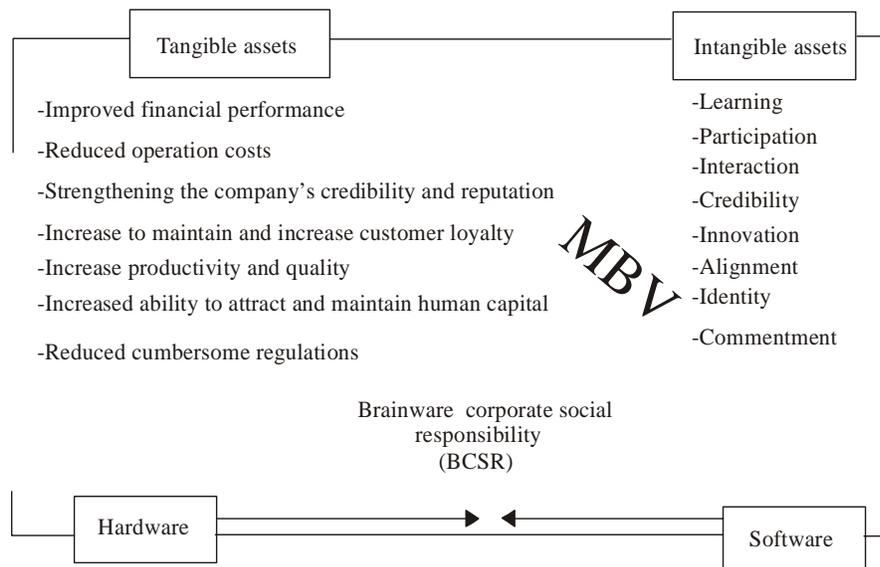


Fig. 3: Model social responsibility

Voluntary standards for interaction and social activities have been defined.

Institutionalized stage of social learning: Social alignment is achieved. Rules or forms of business are determined. Activities through a new model of business excellence are operational. Learning civil optimal product integration and integration of two types of organizational learning and social learning is shown in Fig. 2.

MODEL AND METHODOLOGY

Social responsibility synonymous with civic responsibility to create integration between the tangible and intangible assets are defined as social responsibility a way of combining elements of hardware and software is

the brainware and engine movement is in social responsibility. As the last operational model building new global strategic management of large enterprises by Fortune magazine world, based on social responsibility will be to rank as one of three basic values is chosen (Fig. 3).

The model can display graphical and computational reality knew that under it can be replaced, For this reason the models are designed that we are results of our decisions before implementation in the real environment that surely cost and high risk will be accepted, In a virtual environment and we run the simulation and we the analysis results. What this research as a mathematical model has been used is the type of symbolic models, This type of model in terms of results than other models have been applied, but due to modeling issues that this format

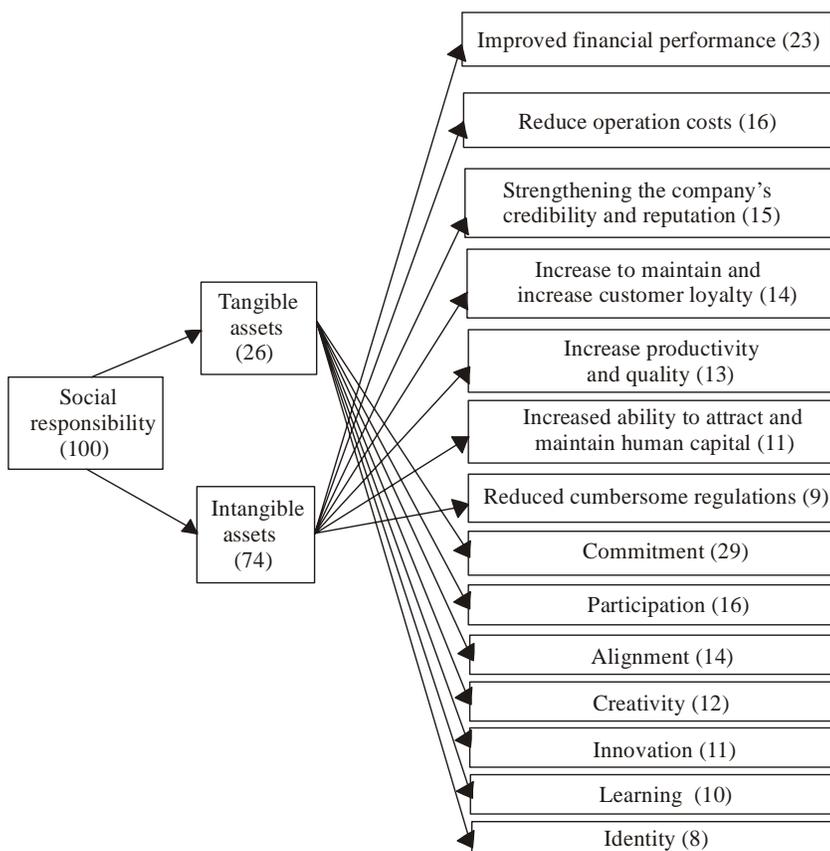


Fig. 4: Quantitative model

is very complicated and difficult, In many cases, work is difficult and even impossible.

Today, most scientists to the field of management sciences for using these models to optimize decisions and is increased effectiveness and efficiency of decision making , Because if modeling issues in this framework occur, outputs can simply decide to change the model parameters is found in cyberspace. For this purpose, weight, dimensions of each model to help the two kinds of questionnaires (Comparison of single semi-metric and paired comparison), which provide five experts in the field of management was different branches, has been calculated.

RESULTS AND DISCUSSION

Social responsibility: As is noted experts from a total of 100 score dimension social responsibility 26 score to tangible assets and intangible assets were to score 74 (Table 1).

Tangible assets: As is noted experts from a total of 100 score dimension tangible assets 23 score to improve financial performance, 16 score to reduce operation costs, 15 Score to strengthen the company's credibility and

Table 1: Measurement of social responsibility

Social responsibility	Single semi-metric	paired	Total weight	Final weight
Tangible assets	0.28	0.24	0.519	0.26
Intangible assets	0.72	0.76	1.481	0.74
Total	1	1	2	1

reputation, 14 score to increase to maintain and increase customer loyalty, 13 score to increase productivity and quality, 11Score to increased ability attract and maintain human capital and to reduce red tape in order to were score 9 (Table 2).

Intangible assets: As is noted experts from a total of 100 score dimension Intangible assets 29 score to Commitment, 16 Score to participate, 14 Score to Alignment, 12 Score Creativity, 11 Score Innovation, 10 Score Learning and to Identity to were score 8 (Table 3, Fig. 4).

CONCLUSION

As was mentioned, two types of factors tangible and intangible assets formed in interaction with each other and used to design a brain ware model for deals with social responsibility dynamic organizations. Recommended that

Table 2: Measurement of dimension the tangible assets

Tangible assets	Single semi-metric	Paired	Total weight	Final weight
Improved financial performance	0.12	0.33	0.453	0.23
Reduce operation costs	0.12	0.2	0.318	0.16
Strengthening the company's credibility and reputation	0.14	0.15	0.294	0.15
Increase to maintain and increase customer loyalty	0.17	0.09	0.253	0.14
Increase productivity and quality	0.15	0.12	0.275	0.13
Increased ability to attract and maintain human capital	0.16	0.07	0.227	0.11
Reduce cumbersome regulations	0.14	0.04	0.18	0.09
Total	1	1	2	1

Table 3: Measuring of dimension the Intangible assets

Intangible assets	Single semi-metric	Paired	Total weight	Final weight
Commitment	0.14	0.44	0.579	0.29
Participation	0.15	0.17	0.317	0.16
Alignment	0.15	0.13	0.278	0.14
Creativity	0.14	0.09	0.238	0.12
Innovation	0.14	0.07	0.211	0.11
Learning	0.14	0.06	0.198	0.10
Identity	0.14	0.04	0.179	0.08
Total	1	1	2	1

the quantitative model obtained in practice in modern organizations, according to a questionnaire designed by researchers and evaluation should be assessed for conformity with the results of field research findings to practical validity of the previous higher operational process to achieve it. In this respect, responsibility and obligations to make human capital management and staff responsibility to follow recommended:

Stages responsibility to make human capital:

- Prior to the skills of staff, to give them identity and dignity
- Values, a vision and new strategy have created with the staff and clarify.
- Interactive skills (70%) and professional (30%) see them together
- Structures consistent with the operational strategy map of making select (process structure)
- Opportunities for continuous learning prepare with, of, and together.
- Organization information with systems of human capital management prepared and aligned.
- To prevent those who are continuing to change, you are dealing with the domination.

Major requirements managers in the management responsibility:

- Fair, ethical and fair to treatment
- Respect, trust and human capital to ensure continuous
- To make employees ownership in decision-making systems and decision-making concept of maximum devolution.

- Promote interaction skills along with specialized skills
- Attention and direct involvement in the development of human capital
- An apology from the staff towards the wrong judgments and decisions
- More facilities needed for communication between management and employees
- Planning of work to correct the current work(to determine the relationship between responsibility and effectiveness)

Major responsibility in the management of personnel requirements:

- Responsibility combined with true and proper work good deeds
- Accept full responsibility for its activities and related partners (accountability)
- Manifested responsibility for team work
- Acceptance of mistakes and learning from it.

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