Virtual Enterprises: A New Strategy of Development Organizations

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ABSTRACT

Economic growth in the developed countries suggests that governments have played a quite effective role in achieving the goals and outlooks by developing appropriate policies (industrial, agricultural, etc.) that determine the scope, type, and method of state intervention in the economic sectors of the country, including industry. Governments play different roles in economic growth, but along with laying the grounds for sustainable development, enabling the capabilities of organizations and economic institutions, and improving the mechanisms for transaction between economic sectors, they also reinforce, promote, and recreate mechanisms for the country by developing rules and regulations as well as innovative mechanisms. One of the approaches to industrial and economic development in Iran is to create and reinforce development organizations in the context of market failure after the Third Socioeconomic Development Plan. However, because in the fourth and fifth socioeconomic development plans the possibility of presence and interference of the governments or their representatives—development organizations—has been authorized in certain cases, development organizations have begun leading their activities and plans in cyberspace with the management and governance of virtual enterprises.

Key words: development organizations, market failure, virtual enterprises, economic-political development plans, development strategies of virtual enterprises

Introduction

The quick formation of human civilization became feasible with the establishment of organization. Organizations laid the foundations of human civilization. Organization is a socioeconomic system in which a group of people gather to perform certain tasks and achieve certain goals; it is consciously structured so as to contribute to more effective achievement of goals [1]. A review of the process of industrial development in developed and industrialized countries reveals that in different periods, governments have played significant roles such as policy-making, supervising the implementation, helping in the interaction between sectors, and providing services. The most important role of governments in developing countries is to stimulate the development process or to define its scope and method of intervention in the economy. Therefore, policy-making for the development of economic sectors is to respond to the challenge whether governments must interfere or a free, active, and effective economic system must govern the relations between economic sectors. The experience of industrialization in advanced countries suggests that governments have played an influential role in the economic development of countries by adopting appropriate industrial policies which in turn define the scope, type, and methods of state intervention in the economy and industry [2]. One of these policies is the establishment and reinforcement of development organizations in the Third Social, Economic, and Cultural Development Plan in Iran.

Development organizations are established with respect to the conditions, characteristics, and requirements of the economy and industry and the strategic orientation of the economy, industry, and technology in the absence of similar organizations. The purpose of development organizations is to increase the wealth of the society, promote the standards and quality of life of citizens, and provide employment, and it also designs services for industrial development.

The basic role of the government in economic development is preparing the grounds for equal capability and capacity building in economic entities, while fostering new activities for the country which are of no interest to the private sector due to lack of financing, high risks, low productivity, or any other reason. One of the tools used in this process is the establishment of public and/or private...
development organizations and science and technology policies in the context of market failure.

But after experiencing development and reinforcing the role of development organizations in five-year plan (Iran’s Third Political-Economic Development Plan), and based on the performance of development organizations such as IDRO at the end of this plan, the fourth and fifth development plans in Iran defined the activity scope of development organizations in the areas where the private sector is not able or willing to invest.

Today is the age of innovations, and this period is accompanied by new organizations that are able to lead this complexity, dynamism, and transformation. The perspective of organizations and companies has changed with the changes in the competitive environment. No organization is able to do everything by itself, since the required costs of investment for research and development, product design, process transfer, and replacement of modern tools are very high and the vertical integration of these organizations does not allow them to maintain their competitive ability in all activities. It is better for organizations to adopt outsourcing strategies. Outsourcing means the goods and services that were previously produced within the organization are purchased from others. Thus, in order to respond to the environmental needs, new forms of organizational structure—e.g. virtual enterprises—have appeared whose major characteristics are: outsourcing; network communication between the departments; flexible organizational borders; dependence on knowledge personnel [3].

The Role and Position of Development Organizations:

Development of the industry and industrialization of the economy of a country is a process that changes the direction of economic value creation pattern and weight of a country toward the industry based on technology and through making industrial businesses more competitive. The basis for competitiveness of companies, institutions, and organizations is their internal capability founded on a network of external local relations. A business cannot in and of itself supply all the materials and pieces necessary for producing the final goods as well as all the required services and resources; thus, it becomes dependent on a larger system where other institutions produce and supply these services. Production and supply of these services and resources that can include business support services, technology, human resources, and information may be the business of other companies that operate in the context of relationships based on free economic system. In order to achieve a proper level of capability in the business, there needs to be a supply and demand system for business support services, network development, technology, human resources, and information and this system must meet the needs of competitive businesses. This mechanism (supply and demand system) is usually not formed; however, studies suggest the imperfection of the market and its possible shortcomings referred to as “market failure”.

Market failure is a situation where a business wants to promote its capabilities by supplying raw materials and enhancement processes from the local network outside the company, but this system is unable to provide these services and this is where the government intervenes. But due to legal restrictions within the constitution or the advantage and capabilities of private organizations, the governments choose a representative. According to the administrative policies of article 44 of Iran’s Constitution, state intervention in the economy is restricted to certain areas and the ground is set for the presence of the private and cooperative sectors. In fact, due to the limited state intervention, development organizations are responsible for the role of industrial development in Iran. Some of the development organizations around the world are Malaysian Industrial Development Authority (MIDA), Malaysian Technology Development Corporation (MTDC), Agency for Science, Technology and Research (A*STAR), Institute for Studies in Industrial Development (ISID), Korean Institute for Science and Technology (KIST), and the Middle East’s largest development organization, Industrial Development And Renovation Organization Of Iran (IDRO) [2].

Market failure and its functional shortcomings are the main reasons for the governments’ decision to design and establish development organizations. Indeed before extensive implementation of development plans, these countries must take effective measures at the policy level in order to enhance the business environment in different sectors such as industry, agriculture, services, etc. It has always been underlined that development plans are discussed as a complement to the market, not a replacement [1].

Virtual Enterprises:

The word “virtual” is defined as that which does not physically exist, but is made to appear to be so. Nowadays, the concept of virtuality in the view of general public has made people inside and outside organizations experience a new phenomenon called the cyberspace. The term “virtual enterprise” was first introduced by [4] . [2] were the first to discuss the idea of “virtual corporation” in their book. Virtual enterprises cover a broad range of economic and non-economic activities of an organization. Children socialize with their virtual friends through videogames and the internet in a cyberspace. Students enroll in virtual universities or schools and step-by-step advance through academic
levels. Surgeons virtually direct their operation team in other countries or even continents. The students of navigation or piloting fight with simulated warships or warplanes in a completely virtual environment. Many companies use this opportunity and convince their employees to work at home. For instance, Microsoft Corporation is active in 78 countries with 50 thousand employees [5], consisting of skilled programmers from Europe, America, Alaska, India, Bengal, Korea, Arab countries, Iran, etc. whose only way of communication is the Internet. They perform their duties and receive their wage without physical presence in the company. Working in the cyberspace is, without doubt, an essential element of organizational governance in the modern age. Virtual enterprise is defined as follows:

- Virtual enterprises is in fact a type of network organization without a permanent core company. In a network structure, a core company is responsible for making connections with the departments that supply the basic services for the organization. Through networks, the core connects to these departments which carry out the activities of the organizations. These organizations are sometimes referred to as virtual enterprise. Of course it must be noted that virtual enterprises do not have a permanent core company and are merely formed by temporary alliances [6].

- Virtual enterprise is a small, central organization whose main resources are supplied by other organizations. A virtual enterprise is structurally decentralized and rarely has any specialized departments [7].

Virtual Enterprises: Future Strategy for Today:

A new spectrum of organizations is emerging where physical, manageable boundaries of common organizations do not exist. Different organizational cultures and management styles are merged. It lacks many of today’s occupations and some jobs are redesigned. Information technology and cyberspace make changes in the structure of the organization and one of its manifestations can be observed in virtual or cyber enterprises.

Globalization of economy and trade has increased the number of boundaryless organizations and the expansion of geographically dispersed organizations. To adapt to recent changes in the business arena, organizations have initiated fundamental changes in their structure of which one can mention the smaller size of other organizations and expansion of network communication among them for success in today’s competitive markets. In the contemporary age, organizations are faced with an ever-changing and unreliable environment and to survive therein they must have high flexibility and responsiveness to the needs of the market. Meanwhile the new communication and information technologies (ICT) are of utmost importance as the catalysts of these changes and these technologies are often considered as the factor for change in a knowledge-based environment. The fast growth of ICT has laid the foundations of globalization and has led to decentralization. Thus, we increasingly witness the redesign of traditional organizations into dynamic and flexible ones which are based on the structure of virtual enterprises [7].

These organizations imply a new type of consolidation among dispersed groups and departments which are now connected with the help of communication networks, thus forming a new association. Virtual enterprises are an instance of future organizations where complexity, extent, and volume of operations are such that they cannot be administered as a centralized and unified organization; rather they need other organizations to continue their operations. Generally, the advantages of these organizations are greater adaptability, shorter response time, and more specialized responsibilities. However, they also have disadvantages such as increased conflicts, less loyalty, and high risk.

The structural properties that are taken into account for efficient governance of affairs in development organizations are:

**Flat structure:**

Horizontal structure in an organization reduces the levels of management, facilitates communication, and links human resources [8].

**Different organizational forms:**

In this type of organizations, time and place are not considered as limitations and different methods can be applied such as multi-purpose groups, orders from outside the organization, and intra-organizational communication.

**The greater role of ICT:**

Different information and communication technologies such as e-mail, fax, and telephone facilitate and expand relationships within virtual organizations [8].

**Having clear boundaries:**

Unreliability due to changes in the business environment necessitates being flexible. The need for flexibility can only be satisfied with the presence of small and flexible organizations that are able to constantly respond to the demands and needs of the customers. Small organizations must realize that responding to the needs of the market is feasible only through their operational cooperation. Cooperation among the independent branches of the organization...
must be established as a network within the virtual organization. This assistance and cooperation is realized through sharing competencies (and resources) or through a combination of working methods or sharing in consultations [9].

Using common resources:

The primary characteristic of a virtual organization is sharing of competencies and resources of the partners indifferent activities. Partners within a virtual organization complete each other and through sharing enable each other to provide a service or finish a project. By establishing a virtual organization and through cooperation and sharing in resources, an effective and flexible form of organization emerges none of the partners and collaborators of the organization can individually achieve it [9].

Fig. 1: The evolution of virtual enterprises. Procedures for designing virtual enterprises in development organizations

Decentralization:

Another characteristic of the virtual organization—like many other network structures—is the geographical decentralization of activities. Due to the connection between partners and the use of ICT, the working location is of no importance. Nowadays, communication can easily be established between the remotest parts of the world within a few seconds through the Internet. This leads to the disappearance of traditional organizational characteristics [9].

Change in partnership:

A virtual organization can be composed and established differently at any time. At some point, a company may be a part of a network that constitutes the virtual organization along with other networks. In another period, the virtual organization may be a combination of other organizations. Lack of local centralization and defined boundaries in a virtual organization lead to questions regarding the limitations associated with these organizations. When we discuss virtual organizations, goals are often temporary and in fact a virtual organization, as a combination of relationships between people and organizations, can directly expand for performing a new project—often with a new combination and form [10].

Management style:

Virtual organizations which are founded on trust rarely require leadership in its classic sense. Trust in the strategic alliance is a prerequisite for any of the partner organizations. Additionally, in strategic alliances and agreements trust means preservation and creditability of the processes, contracts, and agreements.

Basically, trust in virtual organizations is based on trust between the individuals. Common trust, goals, and ideals—that emerge from the very beginning as an organizational culture—enables the
organizations to be flexible and adaptive to environmental conditions and events. On the other hand, the leader of a project in a virtual organization is somehow responsible for composition and formation of the virtual organization. Sometimes the needs of the partners make the quick formation of a network difficult [11].

*The temporary nature:*

Certain ideas are discussed regarding whether temporariness is one of the characteristics of virtual organizations. Some consider this characteristic essential and regard the organization as temporary in terms of customer demands and relationships between partners. A virtual organization can also have an indefinite duration and thus the organization remains active so long as there is demand by the customers or the cooperation between the partners is profitable.

In the structure of a virtual enterprise, organizations proceed in a way that gradually the problem of presence of companies and even employees in a physical network and in a certain time frame loses its existence. In these organizations, the issue of certain time and place for an action or duty loses its traditional definition and what matters is the correct and logical application of new information, communication, and other technologies [12]. Thus, the development organizations in Iran must focus on the characteristics of virtual organizations such as flat structure, different organizational forms, temporariness, lack of definite boundaries, use of common resources, etc. in order to well exploit the power of human resources and internal capabilities, and they must consider the following measures as their priority:

1. Creating virtual work, virtual employee, and virtual environment
   The development of ICT in the country necessitates acknowledging the concepts of virtual work, virtual employee, and virtual enterprise. Thus, due to the need of businesses to change, development organizations have realized the importance of this issue in exploiting the capabilities of the country.

2. Developing instructions, administrative directive, corporate charter, and virtual structures
   It appears that the instructions and procedures of interaction between development organizations and virtual enterprises must be developed in terms of defining the project, evaluating the work, payment, etc.

3. Using an intermediary method for establishing non-virtual centers and such for completing the path to initiating virtual enterprises
   Until the instructions, procedures, and rules are developed for initiating virtual enterprises, one can use an intermediary method, i.e. creating a real structure and company for monitoring the coordination between the elements of a virtual structure.

4. Using an IT-based company for leading the process of outsourcing and certain activities
   Establishment and development of virtual organizations in Iran must be defined within the national policy for technology development and by means of modern tools such as advanced hardware, software, and network equipment. The experience in other countries, including East Asian countries, has shown that the development model of boundaryless organizations which are basically dependent on technology development and innovation can lay the foundations for knowledge-based economic development [13].

5. Development organizations must be concentrated within the three dimensions of virtual structures
   Virtual life or “moving beyond time” means the members can be fluid or flexible. Virtual existence means the members of the organization can be geographically dispersed or “beyond place”. Virtual ability means that the organization has access to required resources and technologies in all its borders. Thus, the virtual organization can be designed and organized by focusing on the three dimensions of virtual structures (figure 2). At the origin of these axes a completely non-virtual organization is formed. In fact, any organization that possesses these three elements can be called a virtual organization.

![Fig. 2: Development model of virtual enterprises.](image-url)
**Virtual Organization**

**Virtual Corporation**
A network of small firms

**Virtual Enterprise**
A network of beams

**Virtual Workplace**
Virtual working procedures

Fig. 3: The overall structure and formation process of virtual organizations

**Discussions:**

Industrial development is the increased share and importance of industry in national production (i.e., increased importance of industry through the path of science and technology development in national economy). Therefore, industrial, scientific, and technological developing at the level of businesses can happen only when businesses become more competitive. The competitive ability of businesses is based on a network of local connections outside the businesses which is a junction where industry, academia, and government meet [6]. Due to the administrative policies of article 44 of the Constitution, the government cannot interfere in all the areas and the space must be provided for private and cooperative sectors. Thus, development organizations such as IDRO are the major agents that can operate in the form of virtual structures and enterprises in order to resolve market failure by interfering in product market, labor market, and capital market. According to Gilbert’s model, development organizations can focus on the three dimensions of virtual organizations, i.e. beyond time, beyond place, and virtual capability. Thus, the development of virtual organizations can occur by creating instructions and procedures for the development of all these three variables. Considering the fact that one of the technologies that are now dominating all the international criteria and regulations is information and communication technologies, the notion of time and place finds a new meaning in development organizations. The important issue is the proper application of ICT in line with the mission and ideal [8]. Thus, in a development organization, one of the most important factors for creating virtual enterprises is to change its structure and nature. Technology and structure are multidimensional concepts. In essence, technology is associated with structure, but this relationship is not simple and direct. Human capabilities have experienced three ages of development, i.e. agricultural age, industrial age, and information age; the fourth evolution is the virtual age which will lead to new circumstances where most of the daily activities of human beings occur in the cyberspace and virtual enterprises are the precursors of this change.

**References**