

# Virtual Organization as a Product of Information Society

Jerzy A. Kisielnicki  
 Faculty of Management  
 Warsaw University  
 Szturmowa Str. 3  
 02-678 Warsaw, Poland  
 E-mail: kis@ocelot.uw.wz.edu.pl

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*The aim of this paper is to present the basic principles of operating of a new type of an enterprise – virtual organization. Virtual organization is a product of the information era society. This idea is based on the free access rule. The reason for creating the virtual organization is to increase profits. The profit of individual companies operating as the virtual organization is bigger than in the case of operating separately. The virtual organizations are the result of the Information Technology (Networks, Databases). The aims, principles, activities, strategic analysis and future tendencies of the virtual organization applications are presented and discussed.*

## 1 Aims of the virtual organization

Current civilization development is often called the post-industrial era or era of an information society. Not always one can realize that this transition is tied with many consequences, which can be positive but also dangerous.

The basic thesis which is to be substantiated here is that the era of the information society will cause creation of completely new forms of organizations as well as new elements in the traditional ones. The new organizational forms are created in the macro scale as a new form of global and multinational organizations and in the micro scale as local organizations. These organizations are not always completely new organizations. The new forms are often created by a transformation of the already existing ones. Such organizations are called "virtual organizations". Virtual organizations allow gaining new, until now unpredictable, profits but also bring some new threats. Opportunities and threats will be presented in a further part of this paper referring to the strategic analysis of the virtual organization.

The name "virtual organization" is a new term which is not always well defined. To define it the following questions should be answered:

- what is the virtual organization?
- is it modification of an already existing organization or is it completely new entity, which needs revision of the current terminology of the theory of management?

- what is the reason for creating a virtual organization?

The word "virtual" originates from Latin, where *virtualis* means effective and *virtus* means power [11]. The word "virtual" denominates something that may theoretically exist. Information system specialists use term "virtual memory" to name memory volume available for users disposal independently of the physical memory size.

The virtual organization represents a new type of organization, which could be created due to development of Information Technology - especially expansion of global information networks and large databases. It is also a reaction to the demands of free market and necessity of being on competitive edge [5]. The ultimate definition of a virtual organization has not been prepared yet. It can be assumed that it is a derivative of the virtual reality ideas. Certainly, it is related to the new possibilities that came from modern Information Technology.

Virtuality is described by the nature of essence, not by characteristics of physical properties. That is why one can talk about virtual organizations, virtual services, virtual travels and virtual activities. Virtualization of activities is adopted, for example, in jet pilots' training, foreign language courses and sales of tourist services. Thanks to virtualization, training is cheaper and less time consuming. In the literature of the subject the following descriptions of the virtual organizations can be found:

- A temporary network of independent companies
  - suppliers, customers, even previous competi-

tors – connected by means of the Information Technology, in order to share skills and costs of access to new markets [2].

An artificial entity, which because of its highest utility for the client and based on individual basic competence realizes integration of independent enterprises in the processes (chain processes) of the product creation, where there are not necessary any additional investments on co-ordination and not diminishing the importance of the client due to its virtuality. [10].

Generally, every author presents the subject in individual manner. Therefore, every definition, including the above ones, can be questioned. Probably, in the first definition the aim of the virtual organization narrowed too much the idea of these organizations. In addition, the description "temporary network of independent firms" is hardly acceptable. If any organizations co-operate in particular area, their independence in functioning is certainly limited.

As far as the second definition is concerned, the phrase "artificial entity" is not precisely defined itself and the statement that they do not require any additional expenses for co-ordination is not always true. That is why it is assumed that the virtual organization is based on voluntary access of its members, who enter into a different new kind of relations in order to get more profit than in the case of traditional operations. It is not necessary to get any formal agreement prior to performing activities together. The duration of such co-operation is defined by this organization, which first decides to terminate it as being no longer profitable. Without this member, the virtual co-operation can exist further if the other members decide for this. In addition, new members can extend this organization [5,6].

It is assumed that the virtual organization can not be defined only by classical theory of organization. It is not so obvious that the virtual organization possesses all attributes necessary to classify it as an organization. The theory says that the organization can be separated if there is peculiarity of aims, formal structure and a preservation of knowledge. The virtual organization fulfils the basic feature; the peculiarity of aims. The existence of the two remaining features can be questioned. The virtual organization continuously transforms. It is connected with other companies, not necessarily virtual ones. Its cardinal characteristic is an adoption to new requirements, due to changes in the external environment. The organization maintains relationship with virtual organization as long as it is effective. Which means that the members of the organization are convinced that it is more profitable to remain in the organization than to be outside. The virtual organization can operate in every place where the profits are expected. Therefore, the profit is the aim of

this type of an organization. It is strongly emphasized in the literature that in the virtual organization all members are connected and nobody is discriminated or favored. The virtual organization shortens the distribution and decision making processes, which as the result brings reasonable profits to the connected companies.[1]

When the management system topology is considered the virtual organization can be, to some extent, compared with the management system of an amorphous organization. Access to such organization is free but some rules are enforced. Withdrawal is not limited, either. Each member of such an organization operates on its own account as well as a part of the organization. Figure 1 shows important characteristics of the virtual organization – it can be a member of many other virtual organizations but also can operate as an independent organization functioning according to e.g. commercial law.

The following criteria allow one to distinguish the general types of virtual organizations:

- scope of activities: single line or multiple lines
- range of influence: local, national or global organization
- clients: organizations working for the specialized clients or the general clients.

Organizations, which co-operated in the virtual mode for a long time, are often willing to formalize it and to set up a legal alliance. In such a case the virtual organization mutates into a traditional one. From client's perspective a virtual organization is satisfactory when it operates in a similar way and as well as a traditional one. As it will be shown later, the client should not be aware that his order is executed by a virtual organization. She focuses on the results only: e.g. a properly completed order. As it was said before, the organization establishes virtual relationship only when the profits are bigger than the profits achieved from traditional operating.

## 2 Information technology as integral part of the virtual organization

Information technology enables the creation of virtual organizations. It is a basic management infrastructure for these organizations. There are two major elements in this infrastructure: global computer networks and large, distributed databases.

The World Economy Summit, which took place in Davos (Switzerland) in February 1997, had as its motto "Building network society". Such network relations are showed in Figure 2. They can be elements of

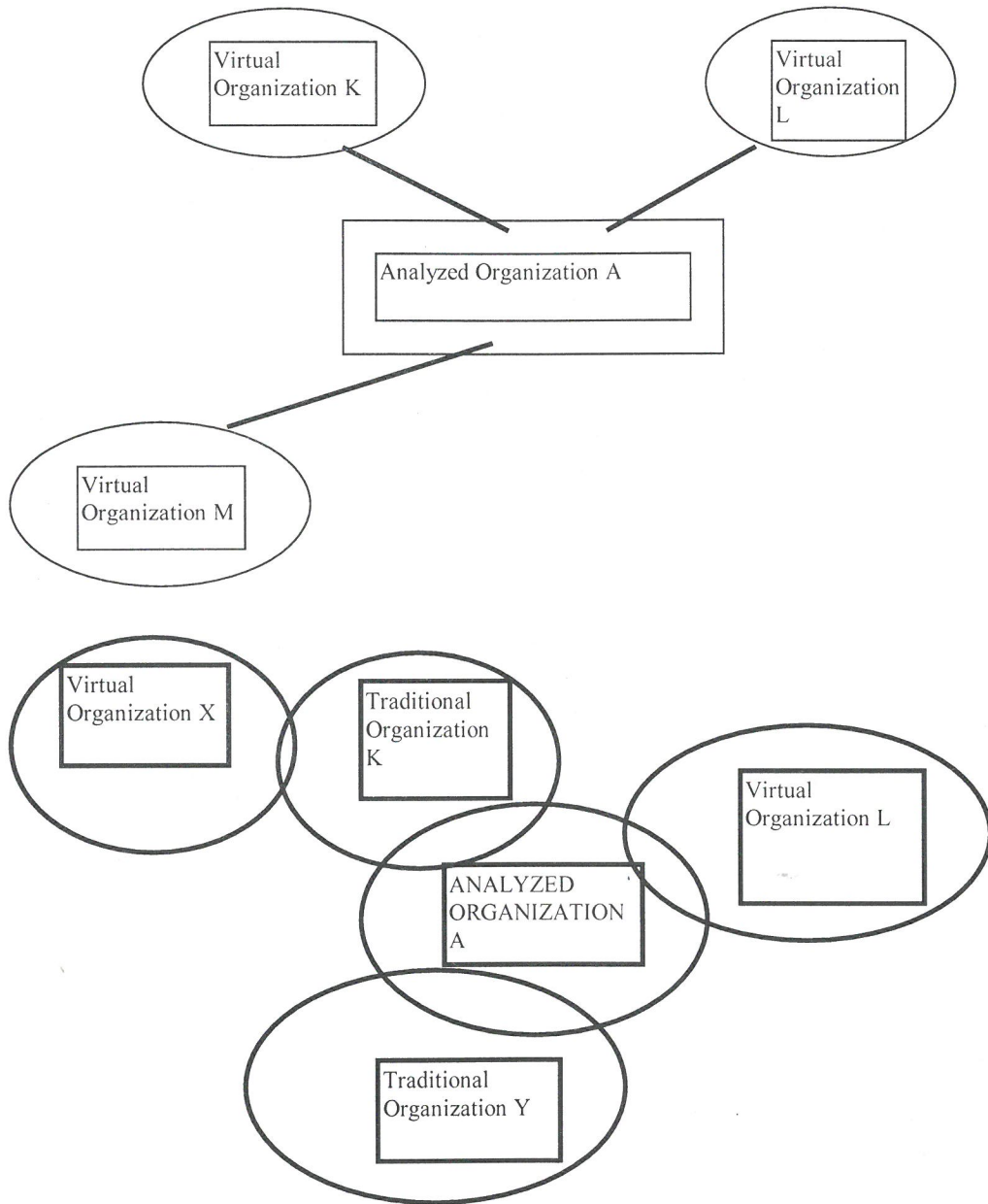


Figure 1: Examples of relationships between the traditional and virtual organization.

global networks like the Internet or some smaller network, for example limited to one virtual organization (e.g. and Intranet). It can also be a network of a WAN type or metropolitan area network of type MAN. Computer network is a medium of communication between different virtual elements of organization.

The success of any firm depends on its access to the information and its ability to utilize it efficiently. Information Technology changes the character of communication processes between the partners. It is no longer traditional, face- to-face contact between the sales person and the customer. Right now, it is an electronic or virtual interaction. For example, a Warsaw based client may use services provided by an organization located in Warsaw to buy a property in Spain. Organization, which gets the order, can execute it in traditional way or can set up the virtual organization. Thanks to such organization the client can have a look on the chosen house and neighborhood or even make transaction without leaving Warsaw. The procedure is as follows: client places the order for buying a particular property in any organization, which provide such service. Looking for an offer the local organization can create a virtual organization with a similar Spanish company. The alliance can be set up to perform only one, particular transaction or can remain longer. Effects can be observed in all the parties involved. Client gets what he wanted without spending any additional money for travels. Organization fulfilled client's requirements and receives the provision without keeping a representative abroad. The Spanish organization gains new clients and markets without any significant investments. This transaction would impossible without involving elements of Information Technology, which allows transmitting multimedia, like voice and video, simultaneously with the regular data.

Additional, virtually connected organizations can extend number of parties involved in the transaction. For example, these could be banks or notary office, which service the deal from financial and legal side. The scheme of such relations is presented in Figure 2. Client sees the complex virtual organization as one unit, despite of serious differences between each member. Furthermore, he or she is not interesting whether the another client's transaction is performed by the same or slightly different virtual organization. In reality, the situation can be even more complicated. For example the client is going to buy a property at the Mediterranean or Aegean Sea seaside. The client specifies requirements and declares that does not have any preferences about country, where the property is located in. In such case territory to search through increases. Organization intends to satisfy client's order should establish virtual relationships not only with the Spanish organizations but also with the Greek, Italian, and French, ones. The client, at the same time, can make use of legal or financial consulting services. The

advising organization can represent the client in contacts with the searching organization. To execute the order according to Spanish law the advisor can create virtual relationship with a local notary office. The following groups can be involved in this transaction, depends on chosen variant:

- group of independent virtual organizations,
- team consist of virtual and traditional organizations,
- number of traditional organizations.

It is assumed that the execution of the order by the group of virtual organizations is the most profitable way. However, before making final decision a comparable economic calculation should be performed.

The significant support for the virtual organizations come from the Data Warehouses. These new organizations are told to be "children" of the Information Technology. That confirms W. Titze's statement: "At the end everyone who manages 10 billions dollars using six computers is an virtual entrepreneur" [13]. Why six is needed is not said, but obviously, control is possible only if information is available, especially rare information.

### 3 Strategic analysis of virtual organization — anticipated directions of expansion

There can be made a hypothesis that virtualization is a way to increase competitiveness of the organization. In order to define direction of the future expansion of the virtual organizations the following strategic analysis models were used: market forces analysis of M.E. Porter [8] and SWOT analysis [12].

#### 3.1 M.E. Porter's strategic analysis.

In the Porter's conception the organizational analysis is based on analysis of the five factors, which define its attractiveness:

- level of competition between the organizations offering similar goods or services,
- influence of suppliers and possibility of imposing a pressure on the organizations,
- influence of customers and their pressure on organizations,
- risk of introducing new, competitive products to the market,
- risk of introducing substitution products to the market.

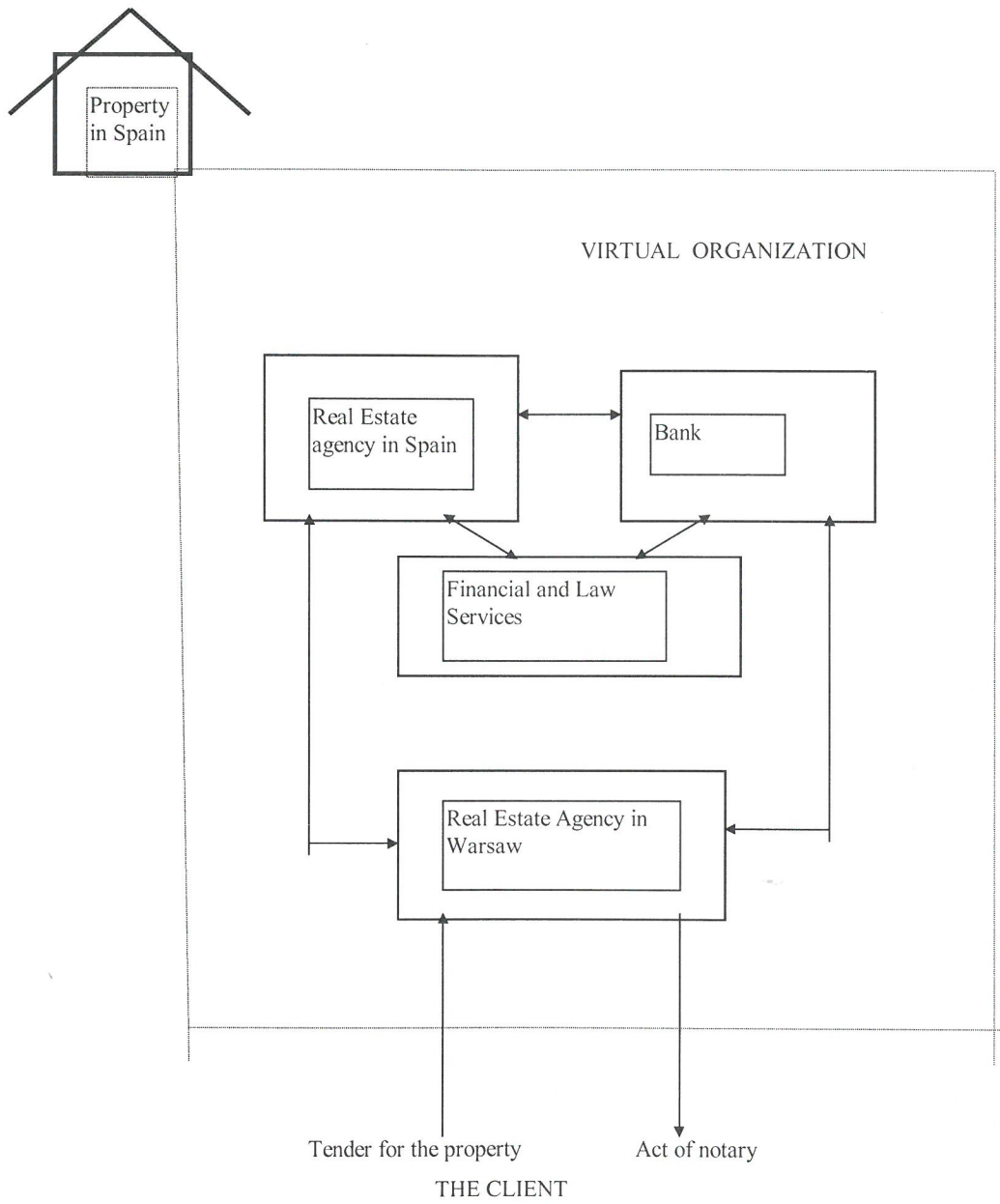


Figure 2: The diagram of connections in hypothetical real estate virtual organization.

Relations with the organizations offering similar products or services allow creating new alliances. In such alliance, even the current competitors can find a place. The alliance lasts as long as is profitable for the parties. That relationship gives a chance to show the negotiation and partnership skills. Suppliers and customers are no longer on the opposite sides but they create alliances to keep common policy e.g. pricing or quality policy (the second and the third Porter's factors). It is very convenient for the organization and does not require time consuming and burdensome negotiations. Virtual relationships allow for early identification of threats due to introduction of new products or substitutes (the fourth and the fifth Porter's factors).

### 3.2 SWOT analysis

The analysis includes assessment of the current organizational and environment situation and anticipation of its change in the future. During analysis, the following elements are investigated: Strengths, Weaknesses, Opportunities and Threats. Table 1 shows the analysis of these characteristics prepared for a hypothetical virtual organization. In this table some selected elements of the estimation of the virtual organization are shown. To analyze a particular organization the table may be more detailed and has to be prepared especially for the given organization.

Sometimes some opportunities can become threats under special conditions. For example, Internet is seen as a huge opportunity for expansion of virtual organizations. In fact, this global network allows organization to operate on countrywide or Europe-wide base. Theoretically, it is possible to extend operation area into Australia, New Zealand, Africa and so on. Unfortunately, according to the professional magazines there are more and more problems with the Internet. The most frequent issues mentioned are long connecting time, especially in peak hours, and data security. Telecommunication operators say that the communication traffic stops telephone nets. Therefore, additional significant investments have to be made in order to increase the quality of the infrastructure to the level necessary for proper functioning of the virtual organizations.

In spite of the legal sanctions hackers see cracking the database as a challenge. There is a lot of news how fast the database security precautions are broken, even in the governmental agencies. Without solving these problems, it is hard to expect rapid development of virtual organization, especially in financial area.

The nearest future will show whether the market accepts the virtual organizations. The question is if such organizations will be created and appropriate formal and law regulations will be elaborated. Although presented strategic analysis was prepared for hypothetical

organization it seems, that it is an attractive organizational solution.

Everyone, who has the necessary technical equipment - it means a multimedia computer and an access to the computer network - and is able to use the information resources, can enter the virtual organization. This is one of the easiest and the cheapest ways of creating private organization. The legal issue is to create a suitable definition of the virtual organization in commercial law and to prepare such regulations, which will guarantee equal right for the participants and profits sharing proportionally to their involvement to the business.

The virtual organization operates as "transparent company", which means that all actions can be observed by competitors. This way the organization is forced to operate in a responsible manner. Its image is affected by the actions performed by other virtually connected organizations. Moreover, there is no common administration, buildings or properties, neither a common supervision nor control. Because virtual organizations influence each other only in a limited way, the aspect of trust between companies should be emphasized and special procedures should be undertaken to develop it.

There is not any doubt that virtualization can increase competitiveness of the organization. However, it should be remembered that management of such organization needs new, techniques, different than traditional. This is a separate problem which is only mentioned here. For example, there should be verified procedures of negotiation, which run immediately without the initial stages described in books as "Getting to yes". In the future, the virtual organization is going to be an interesting alternative for currently functioning organizations. The perspective of achieving high level of operational stability by a virtual organization, which does not have any formal structure seems very interesting and gives a chance to get more competitive advantage on the market. These subjects are very interesting themes for interdisciplinary researches, including professionals from economy, sociology, management or law areas.

## 4 Application

Development of the virtual organization is highly related to development of the Information Technology. Apart from new solutions available in the future, it is possible now to point to those domains of activities where application of the virtual organization should bring the most significant effects. We can define the following areas:

- different type of trades, like real estate sales, foods wholesaling and others,

Strengths	Weakness
1. High flexibility of operation. 2. High speed of transaction. 3. Common policy of organizational activities. 4. Transaction costs reduction. 5. Reduction of investments necessary for organizational development. 6. Minimizing amount of legal services necessary to perform transactions. 7. Bringing into virtual organization the best competencies of each partner.	1. Necessity of heaving financial resources required for development of Information Technology, which include: a/ global networks, b/ large databases. 2. Necessity of trust between all members of the virtual organization. 3. Possibility of joining incompetent or unreliable organization. 4. Difficulties in collecting fees from the party that caused failure 5. Lack of formal supervision and possible difficulties in co-ordination of transaction execution.
Opportunities	Threats
1. Fast reactions on changes in the environment, especially on the emerging market niche. 2. Execution of transaction despite of any law, organizational and other barriers. 3. Possibility of utilizing the up-to-date methods and management techniques. 4. Possibility of co-operation between parties, which in other conditions would never co-operate. 5. The information alliances operate over custom borders. 6. Reaching new group of clients. 7. Lack of cultural, race and other prejudice between parties of the transaction.	1. Technical equipment inefficiency noticed in networks e.g. In the Internet, where full multimedia transmission is hardly available. 2. Lack of law regulations in respect of operations and responsibility to the members and clients of virtual organizations. 3. Lack of clients' and companies' readiness to use virtual organization services. 4. Psychological resistance, caused by changes in the way of performing transactions.

Table 1: SWOT analysis for a hypothetical virtual organization.

- sales of tourist services for individuals or tour operators,
- different kind of services like banking services.

These three basic application areas seem to be the most effective for the virtual organizations. However, the range of possible applications can be much wider including consulting or designing information systems.

Right now, it is difficult to show operating virtual organizations. The company which can be regarded as a virtual one is the company which uses electronic money - Ecash. The system has been design by Dutch company; DigiCash [9]. It is completely different concept than the idea of electronic cards, because it reverses cash payments in the real world. Digital notes that, as in reality, have value, unique serial number and safeguards against falsifying are used in the transactions. Traditional banks like the Mark Twain Bank in United States and Merita Bank in Finland are the central points of the system. Banks like Deutsche Bank and Advance Bank form Australia is going to join the system. Client, using special software withdraws some amount of money, which is "deposited"

on PCs hard disk in the form of digital records. After that, the client can do shopping in virtual or traditional stores.

A lot of tourist agencies and personnel agencies as well as consulting companies present some characteristics, which are unique for virtual organizations. They also advertise themselves as such organizations. One of such examples may be travel agency "Rosenbluth." The owners of the agency decided that developing the company in a traditional way, which meant buying the existing travel agencies or creating new ones all around the world was not acceptable for them because of the costs and time. So, they created a network of 1300 offices in 40 countries using virtual organization principles.[3]

Sometimes, organizations like mailing bookstores consider themselves as virtual organizations. It is rather a marketing slogan, because the management usually assumes that client should associate such new phrase with the most modern level of services. However, to classify a bookstore as a virtual organization many conditions have to be fulfilled. Client should have a chance to choose a book almost like in a real

bookstore.

We can make a hypothesis that the development of the Information Technology will cause rapid increase in the number of the virtual organizations. This statement can be considered true because SWOT strategic analysis of the virtual organization indicates advantage of the S.O. factors over the W.T factors. It means there is supremacy of strong sides of organization and its opportunities in the environment over weaknesses and threats. Creating virtual organization or taking part in a system of such organization it should be remembered that apart from profits there is possibility of losses, especially in situations which are not under our direct control.

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