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Zaliwski A.

*in*

Giannias D.A. (ed.), Mergos G. (ed.).  
Selected readings on economies in transition

Chania : CIHEAM  
Cahiers Options Méditerranéennes; n. 44

2000  
pages 157-164

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=800095>

To cite this article / Pour citer cet article

Zaliwski A. **Organization, structure and information technology**. In : Giannias D.A. (ed.), Mergos G. (ed.). *Selected readings on economies in transition*. Chania : CIHEAM, 2000. p. 157-164 (Cahiers Options Méditerranéennes; n. 44)



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# ORGANIZATION, STRUCTURE AND INFORMATION TECHNOLOGY

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## **ABSTRACT**

This paper gives a brief review of the different aspects of strategic use of information technology and emerging organizational structures, especially in the service context. The dynamically changing situation and new organizational forms (virtual or network corporations) reveals new challenges for managers and IS analysts. They should reply with radical organizational changes and strategic IT applications. The combined effect of the organizational changes with IT can reshape a firm's strategic position to give it a sustained competitive advantage. This is especially important for countries undergoing economic transformation, like Poland. In the case of Poland, an introduction of strategic IT applications was inherited after years of ruling under a socialist economy.

## **KEYWORDS:**

INFORMATION TECHNOLOGY, POLAND

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## **PARADIGM CHANGE**

The industry paradigm focuses (Gumesson, 1994) on production and on large scale operations and is technologically oriented. During the communist times we could see characteristic attributes of the industry paradigm in the Polish situation. Some of these were:

- central government planning economy
- supplier oriented market
- standardized production and service
- quality enforced by administrative rules
- prevailing role of heavy industry and mining
- no competition (all enterprises were government owned – a highly monopolized economy, excluding private agriculture which did not exist in the other communist countries)
- fixed prices and stable market - no need for the introduction of marketing and advertising
- customer demands were always bigger than production
- inadequate organizational structures and procedures
- computers were used, if used at all, simply for data processing for abnormally extended reporting purposes
- smaller exchange rate and outdated technology
- laws, rules and regulations became rituals and were often more important than the final result

- well defined customers were placed in a fixed place inside the overall system
- work conditions and salaries were not dependent on the quality of work

All the above conditions created the stable situation which was slow and invisible, but in an inevitable way drove the socialist economy to starvation.

Since the prevailing changes in the beginning of the 90's, post-communist economies with their own weakness have become open for influences from the West. The privatisation (still too slow), and the opening of the market for western companies is causing in peoples' minds, a similar effect like the American corporation invasion on the West European market in the 50's or the Japanese invasion on the American market. Competition between companies has begun. The opening for western markets has forced an improvement on the quality of Polish products. The establishment of many new private companies and privatisation has caused changes in the GNP structure. Better functioning firms offered more employment but charged greater taxes for social activity. Socialism only takes into consideration the last part of the previous sentence. A stable economic environment without competition does not generate problems for solving and needs for change. Therefore the old management, in general terms, is not prepared to take on new challenges.

The industry paradigm is not only specific for communist countries, but also for many western organizations. Some of the industrial paradigm attributes are taking place in many large American corporations, and in state owned enterprises and organizations in western countries.

The service paradigm has originated from service management, especially from the marketing area, but is also supported by quality management. It is a natural extension of the TQM idea from the area of industry to all processes, including both industry and service delivery. Customers are the center of interest and the focus is on the relationship between customers and service delivered by the staff. In relation to the process category, it is rooted in service delivery (Gumesson, 1994):

"I have chosen to use the term service society and see services as the vantage point. The terms information society and knowledge society promote means, not outcomes. The term post-industrial society indicates that we are departing from manufacturing, which we are not. Manufacturing as well as the production of raw material, including agricultural products, are conditional for services. Without goods, the economy dies. The shift to services in focus is a shift from the means and the producer perspective to the utilization and the customer perspective".

The new emerging paradigm is customer-oriented. According to Huete (1995) the following factors characterize the new model in the best way:

- value investments in people as much as or more than investments, in tangible assets (development of skilled employees who care, and the use of this powerful resource to gain competitive advantage).
- use technology to support front-line workers, not just monitor them
- make hiring and training no less critical for front-line employees than for executives
- link employee rewards to employee performance at every level

In developed countries the shift to the service paradigm has taken place in all types of organization, but the time needed for this transformation is long. Organizational changes should be connected with the proper application of IT, to maximize the impact of 'sustained competitive advantage'. This transformation is difficult in developed countries. How can it be achieved in Poland, where during the last 50 years there has been a 'sharp production oriented paradigm'. The greatest difficulties are the mentality of management and the

current state of IT applications inherited from the last decades.

## **EMERGING ORGANIZATIONAL FORM**

This paradigm shift, which has taken place in many western companies, has redefined service throughout an organization. In connection with the paradigm shift, new forms of organization have arisen. This kind of organization can be called network or virtual corporation (Gummesson, 1994):

"This is the beginning of a new type of firm where the future possibilities of IT have only just begun to be exploited. Organizing a network business requires continuous creation, transformation and maintenance of amoeba-like, dynamic processes and organizational structures".

And: "In order for a network organisation to exist in the long term it must have a 'heart', a core of competence [...] This core is usually associated with a unique product of service, an ability to innovate, a unique marketing method or a financial strength. From that core, a texture of alliances and contacts can be woven and the boundaries of the organization fade away into thinner shades of grey and merge with other organizations".

Badaracco (cited in: Gummesson (1994): describing transformation from traditional corporation:

"Firms were... islands of managerial co-ordination in a sea of market relationships. .. Companies are now breaking down barriers which, like the Berlin Wall, have endured for decades. Their managers are now working in a world that consists not simply of markets and firms, but of complex relationships with a variety of other organizations".

The economy of former communist countries is undergoing prevailing changes, which one might even consider to be a massive turnaround. Changes in the economy bring about the accelerated learning of basic management rules, especially in the growing private sector. The question regarding the speed of changes and what the role of information technology as an enabler of changes is, has emerged.

## **FAST OR SLOW CHANGES**

According to Davenport (1993), while professionals in quality are focused on stepwise refinements and improvements, BPR people are aiming toward radical reengineering and innovative improvements in processes.

According to a 1993 industry survey conducted by Deloitte&Touche, CIOs indicate that the actual benefits of BPR projects generally fall short of their expectation. On a scale of 1 to 10, the average ratings on such categories of BPR benefits as quality, cost reduction, and competitiveness are all below 5 (Teng, Kettinger, 1995).

The re-engineering of business processes as a radical break of process structures is connected with great risks: Hammer confessed that seventy per cent of all BPR projects in which he was involved failed. However, the opportunities are also great. Where as programs of TQM aim at reaching improvements of 30 to 40 percent, Hammer and Champy report cases of redesign where process times have been shortened by a factor of 100 (Kutschker, 1995).

In the widely cited CIGNA project (Caron, Jarvenpaa i Stoddard, 1994) it was possible to achieve a 3 dollar benefit for every invested dollar. However, the increasing number of failures, cause discussion about the sense of radical process re-engineering (Davenport and

Stoddard, 1994). For example, Paul Strassmann (1994):

Re-engineering fits neatly into patterns of past revolutionary movements: In each case, the leaders call for uncompromising destruction of existing institutions.

And in another place: Hammer's dogmatic pronouncements - as well as his sentence structure - resonate with the radical views put forth by political hijackers like Robespierre, Lenin, Mao, and Guevara. [...] It is an unlikely coincidence that the most widely read book on reengineering carries the provocative subtitle *A Manifesto for Business Revolution*. .. [...]. Keep in mind that another popular polemic, also bearing the title "Manifesto", successfully spread the premise that the only way to improve capitalism is to obliterate it (Strassmann, 1994).

Reengineering seems to be an interesting approach for the Japanese firms. Japan loves business reengineering or at least reading, hearing, and talking about it. The Japanese-language edition of "Reengineering The Corporation" by Michael Hammer and James Champy sold more than a quarter-million copies in just six months (Boyd, 1994), but BPR in Japan is almost nonexistent. Naoki Wakai, a software industry service analyst at Dataquest Japan Ltd. in Tokyo, notes that the very concept of reengineering poses a problem. "Japanese only know BPR through translated books, which doesn't explain how to do it," he says. "So it's an empty slogan, or it's misunderstood as traditional change." It seems to me that John Boyd (1994) is a little confused as to why Japanese people do not use a good thing, which is widely used in American companies. As an obstacle he sees lack of information technology applications:

"Dataquest Japan's Wakai: "Top management doesn't understand the difference between data, information and intelligence. They only see IT as a productivity enhancer."

Most Japanese work in large, open offices that minimize the need for electronic mail. [...] Also, regular meetings with business clients are customary for maintaining the close relationships Japanese businesses thrive on. When physical meetings are impractical, the phone and fax are always at hand (Boyd, 1994).

For many authors this is not a disadvantage. Boyd (1994), Ohmae (1990), Peters and Waterman (1982) and Kutschker (1995) have found that factors such as personal communication with clients, is what distinguishes excellent functioning companies.

Any way to improve the way people work must be evolutionary not revolutionary in order for it to be effective. The long history of miscarriages of centrally planned radical reforms, in addition to reengineering's as-yet-dismal track record (as acknowledged by Hammer himself in an interview last summer), suggest that evolutionary approaches deliver better and more permanent improvements (Strassmann, 1994). This approach is called by Strassmann - BPI - business process improvement. The first step - one that reengineering proponents generally skip - is gaining widespread support for change; after all, lasting improvements in business processes can be made only with the support of those who know the business. Leadership's primary task is creating conditions for continuous, incremental and adaptive change (Strassmann, 1994).

The source of improvement must be sought in the ability of the people who make up the company to solve its operational problems. A company's most important asset, and the source of its improvement dynamics, is the knowledge that is stored in the minds of its people (Munoz-Seca, 1994)). All too often firms make changes by downsizing. Abrupt cutbacks responding to a steadily deteriorating financial situation are a sure sign that management has been incompetent or asleep (Strassmann, 1994). In every case the reason growth is threatened, slowed or stopped is not because the market is saturated. It is

because there has been managerial failure.

(Levitt, 1975):

The railroads, did not stop growing because the need for passenger and freight transportation declined. That grew. The railroads are in trouble today not because the need was filled by other means of transportation (cars, trucks, airplanes, even telephones), but because it was not filled by the railroad themselves. They let others take customers away from them because they assumed themselves to be in the railroad business rather than in the transportation business. The reason they defined their industry was because they were rail-oriented instead of transportation-oriented; they were product-oriented instead of customer-oriented.

While Hammer's BPR requires external consulting service, BPI depends on the firms employee involvement. Process improvement in BPI takes place during the whole firm's life. The object of BPI is the creation and promotion of an environment which can support organizational learning. In this environment, knowledge gathering will be a permanent activity instead of shock therapy offered by BPR. The organizational structure should support organization functioning and should support fast information flow. In the above mentioned case we can talk about organizational learning.

## **A LEARNING ORGANIZATION AS AN ANOTHER WAY TO TURN AROUND**

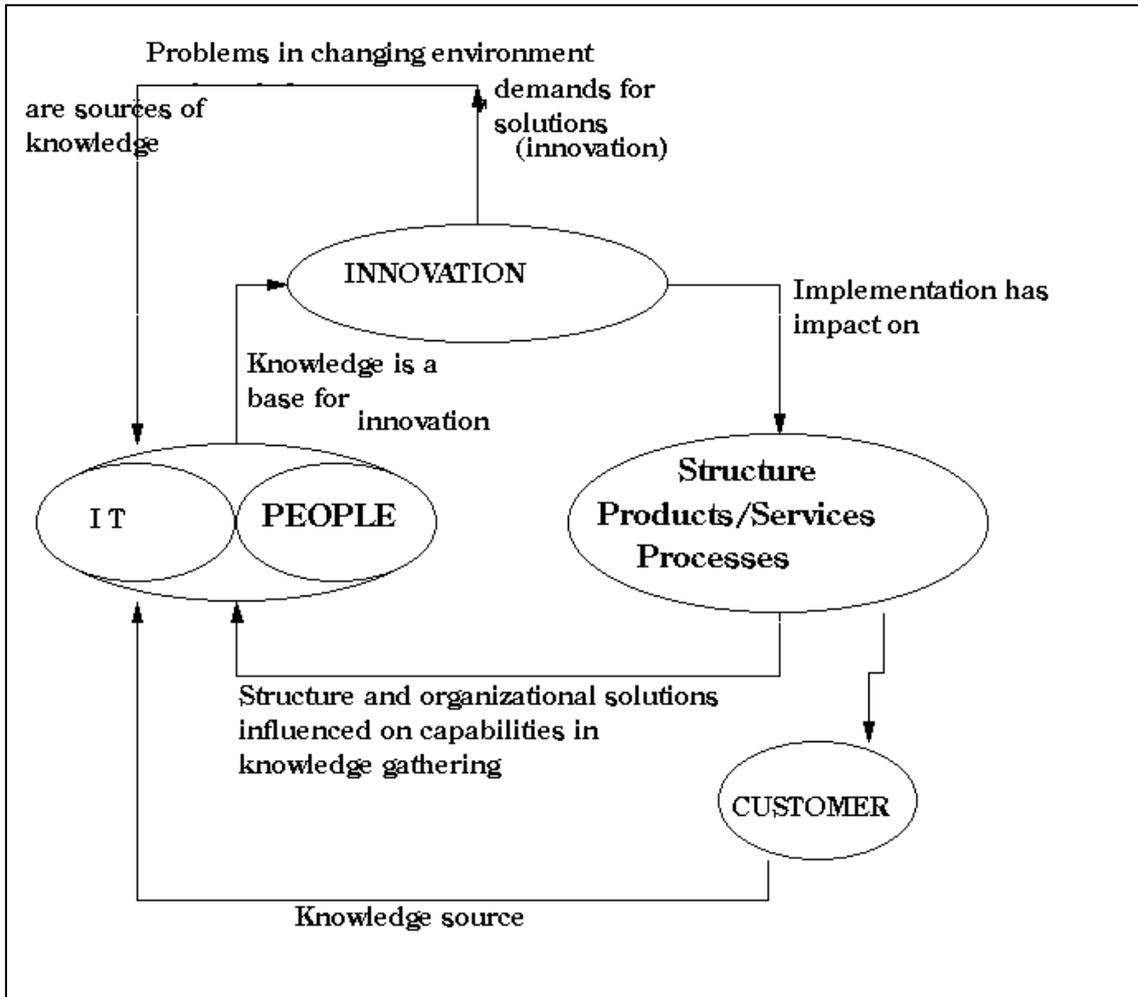
Every organization does not perform solely but in a fast changing environment. Conditions under which this activity is going on are the consequences of outer factors (market forces, government politics, and the activity of business organizations) as well as inner factors (a complication of producing process, a multiplicity of innerstructure, fluctuations of staff etc.) Links to the past decide about future possibilities. The environment in which management must operate is constantly changing. Business and its environment are more complex today than ever before, and the trend is leaning toward an increasing complexity. All managerial activities revolve around decision making. The manager must construct a model describing a real life problem and next find the potential solutions to the modelled problem and evaluate them. The information needed for the decision process can be obtained from a decision support system. The main part of people's activity can be made into a model of reality. We can reason about real situations by using models. In the past, model environments were created from the survival point of view. This model in the past reflected our survival skills: "Either hunt or be hunted". In the present the question we desire to answer has changed: For example "in which firm on the stock market should I choose to invest ?", "How can I find food. .. in a supermarket?", "Where can I park my car in... Cracow?" Generally speaking we should now look at a firm function in a competitive environment. We can interpret competition among firms as a competition among models inside their information systems.

People learn mainly through problem-solving. The end result of learning through problem-solving is the creation of a mental model, which is also an enhancement of the learning capabilities. The prevailing view of learning organization emphasizes increased adaptability (Senge, 1994). Peter Senge recognizes two types of learning adaptive and generative.

"But increasing adaptiveness is only the first stage in moving toward learning organizations. The impulse to learn in children goes deeper than desires to respond and adapt more effectively to environmental change. The impulse to learn, is at heart, an impulse to be generative, to expand our capability. This is why leading corporations are focusing on generative learning, which is about creating, as well as adaptive learning, which is about coping".

## CONCLUSION

**Fig. 1.** The role of knowledge in organizational development



The current competitive environment (Fig. 1) requires reaction in two directions: product customization and effectiveness in production and distribution area. How the firm is viewed in the environment depends on innovations which customize product or service to market needs, and depends on innovations concerning improved production and distribution processes. This is because reaction time for market and competition challenges requires fast implementation of innovations. The background for innovations comprises structure and a wide knowledge base about processes (collective know-how), which consists of the formal knowledge stored in information systems and the informal knowledge in people's brains. Organization structure should promote fast information flow and support organizational learning.

*Innovation is doing new things or doing old things in a new way.* Another definition based on Quinn (1979): *Creation and entering new solution for new or identified needs.* If we consider the nature of innovation, we can see that the most important source for innovations are people employed in the organization. Changes as a result of innovations can cause new problems. Next, innovation and further changes are needed. Problem solving causes learning processes and an increased volume of organizational knowledge, which is a background for subsequent innovations. A wide knowledge base is the most productive source for changes.

Successive innovations decide about a firm's development and competitive advantage on the market. The above process can be supported by information technology. Information technology can support processes or constructions that contribute to organizational learning (Huber, 1991):

- Knowledge Acquisition: Acquisition of declarative knowledge is achieved by monitoring the environment, using information systems to store, manage and retrieve information.
- Information Distribution: Information distribution refers to the process by which an organization shares information among its units and members.
- Information Interpretation: In order for information to be shared, such information must be interpreted.
- Organizational Memory: Organizational memory refers to the repository where knowledge is stored for future use.

For years, information systems (Loveman, Rayport, 1994) have been used for planning and control purposes, but outstanding service providers are developing information systems to predict customer and supplier behavior, and to determine the most effective practices in serving customers. These systems result in an accumulated experience that becomes an important source of competitive advantage over time in services.

The general question that arises is to what extent organizational changes, resources and information technology can be combined to obtain maximum competitive advantage? The still extending Polish economic cooperation and opening for other markets, require improvements of the competitiveness of Polish companies. Western companies have become service oriented which gave them an advantage over East European firms. Extending such techniques as JIT and TQM to service area may bring the expected shift from manufacturing to service paradigm. Also the proper use of IT should bring better results in introducing necessary organizational changes. This could be possible when management perceive the potentials of IT and expresses requirements toward IS's. IS on one hand is a component of corporate strategy but on the other hand it is a powerful tool for defining and creating the strategy. Giving the competitive advantage IS should be difficult to imitate by competitors. Bharadwaj et al. (1993) list the following sources of sustainable competitive advantage (SCA) in service industries: scale effects, cost and demand synergies, product, processes and managerial innovations, brand equity, communication of good effects, corporate culture, and information technology.

IT can aid in attaining an SCA by (1) providing companies with new ways to outperform rivals, through lowering costs and /or enhancing differentiation; (building barriers to entry, building switching costs, and sometimes completely changing the basis of competition; and (3) entirely spawning new business (Porter and Millar, 1985).

These opinions are not popular among Polish managers as well as systems analysts. The lack of strategic view and strategic IT applications was inherited after years of socialist economy. The dynamically changing situation reveals new challenges for managers and IS analysts. They should reply with radical organizational changes and strategic IT applications.

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