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Metodologia wycinka ewolucyjnego w analizie terytorialnej procesów rozwojowych
The Methodology of Evolutionary Sector in the Territorial Development Processes Analysis
Part I

The analysis of typical educational curricula of management built on the Porter's concept of the market could suggest that a considerable amount of processes and issues concerning the development of regions and enterprises have been investigated and analysed and their development depends only on efficient marketing and entrepreneurship. The problems experienced now by the world economy does not confirm this viewpoint but rather point to the need of further research in that field. There are three different assumptions that can inspire the search for new methods of management and support of development processes in the world economy.

The first issue is unemployment and unstable economic situation that does not give strong development trend, causing high investment risk and therefore reserved behaviours of investors. These data are the result of current analyses and the same trends are presented in the forecasts of international economic organisations (UNCTAD 2002). The political instability caused by the fight with the terrorism as well as the competition for the economic supremacy in the more developed and predictable markets causes that the actual market activities focus more on defending the present market position than the product development. The lack of common understanding and cooperation between the post industrial "rich North" and the poor underdeveloped countries during the conference in Johannesburg in 2002 proves incoherence in the perceiving the development processes in national economies and international cooperation.

The next issue is the considerable development of knowledge management practices and concepts thanks to increasingly common benchmarking, the best practices, designing more adaptive and innovative processes in the enterprises. Facing the challenges of globalisation processes and the development of new information technologies are the important examples of transition as they are addressed to the groups interested in the high quality and high utility products. When theory and literature is concerned the attempts in evolutionary interpretations of the market processes and concepts concerning complex adaptive systems should be mentioned. The Internet creates new communication potentials and the concept of a network is a new stimulus in the search for new solutions.

The third issue in the search for new methods in management is more situational than methodological and it concerns the role of the European Union in creating a new competitive alternative thanks to the holistic approach to the development, joining the sustaining the innovation with the systematic mechanism of its activating and widening. The issue of the global competitiveness is just being created and the example of Greece draws the attention to the existing but not activated potentials.

The bases for the Creation of Regional Development Model

Presenting of such a wide picture is in agreement with the common nowadays economic rule: "think globally and operate locally". However from the scientific standpoint discussing the problem should be limited to the regional scale. Then in spite of its local character it may become the basis for the development of bigger regions.

Concluding it can be said that considering the presented issues there is a need to search for an appropriate description of a learning region that simultaneously fulfils the requirements of

competitiveness of enterprises operating in that region as well as numerous social and environmental conditions essential for the welfare of the region's inhabitants.

The basis for further considerations are the results of systemic research conducted by P.M. Senge and referred to as the Fifth Discipline (Senge 1998)

. Defined dependence between systemic structure, patterns of behaviour and events can be an important base for searching for and investigating a new model of regional development. The final version of the methodological approach is based on the statement by Kazimierz Perechuda (Perechuda 2000) and referring an enterprise of the future and the rules of systemic thinking.

K. Perechuda synthesised the results of P.M. Senge's research concluding that systemic structure influences the patterns of conduct and consequently on the flow of events and it can be developed in a model description and projection of potential states of reality¹. The presented approach enables conducting investigation of relationships between separated elements of description of a certain object (reality) on the adequate epistemological level. The mentioned investigation is possible when the object is characterised by a relatively high level of generalisation that enables identification of state and / or process dichotomy. The variety of forms of description covers a specific informational-decision space. This part of analysis will cover (Perechuda 2000) :

1. identification of the space of analysis, that is specification of the size of the analysed phenomenon and the states (or a part) of each dimension.
2. Identification of elementary situations emerged from the association of all the states (parts) of all the dimensions.

The advantage gained is a tool that, as K. Perechuda puts it "[...] gives the certainty that no space or zone separated because of its identified elements and relations will be forgotten [...]." This tool will make possible " the logical control of the reality" via creation of specific dichotomous descriptions that are constantly verified by the observed states of the real object. The practical conclusion of this approach requires the search of new description of observed reality in the situation when the observation of the real states excess the frames of applied interpretation. Such an approach refers to "old models" while in the case of new models that has not been investigated yet, it describes the future and states that has not been recognised yet.

The complex systemic approach creates space of states built up in the result of conducts of single active elements and passive limits.

In the course of investigation the fusion of complex models description leads to the problems of adaptive complex and its development capacities.

The aim of his publication is an attempt of defining a new dichotomy of phenomena and processes on the level of region that is to lead to a new description of states in such an **organisational space** as an enterprise or a region.

Identification of the System's Dichotomies

It has been decided to treat the differentiation of system describing the development processes in a region in the categories of processes and development concepts including the problems of chaos and nonlinearity as the most appropriate to picture the problems of the region and promising the successful solutions. The literature research proves that five essential processes determining the potential description and approach to the development of a region. The fundamental process that determines the development problem but that is not taken into consideration when the economic processes are modeled is the evolutionary process determining the whole of civilisation development (Stewart 2000). The most important element of this process is evolutionary progress understood as a change requiring specific conditions to be fulfilled. Its main task is to ensure such a level of progress that brings all the participants the growth of benefits when compared to the situation before the change took place. Such a solution is possible thanks to considerable

¹ in a quoted study presented by K. Perechuda the example Medelejew's element tables was used not only as a form of classification, but also it forecast the directions and results of the future research, which proves the correctness of such systemic approach.

innovative changes in the structure of relations, new knowledge creation and the value change in the participants' activities. It can be also noticed that the process of evolution spreads and it covers still new objects interconnecting them in the process of cooperation and increasing common benefits. Therefore the number of participants is still growing as well as the level of order and self-organisation ensuring the further growth of the system by the constant increase of common benefits. In the presented considerations the scope of cooperation exceeds the boundaries of traditionally perceived organisation to the interorganisational space. In this situation a region becomes one of the possible objects – a new type of organisation with a specific regulatory function towards other organisations. This leads to the introduction of holon structures and multiagent structures management.

The evolutionary progress classifies and verifies emerging changes. This is possible because each change requires adequate potential to be introduced as well as progress in every direction. Changes that do not bring progress undergo negative selection in competitive struggles. However evolution can not be narrowed to the process of selection. Too strict selection leads to the oversimplification of the system as a whole. That is the reason why the evolutionary processes are supported by adaptive complex, which is created simultaneously to the process of selection and increases the differentiation of the system through the search for the new areas of competition by its less competitive elements. The system to be able to adapt should possess a relevant portion of selection stimulating its creative development and increasing level of differentiation caused by still new locations and capabilities.

This form of evolution is possible thanks to a man and first of all to human mind with its abstract constantly developing representation of reality. The growing human consciousness is constantly being developed through experience and learning. This unique mechanism enables a man to shape consciously the process of his own evolution.

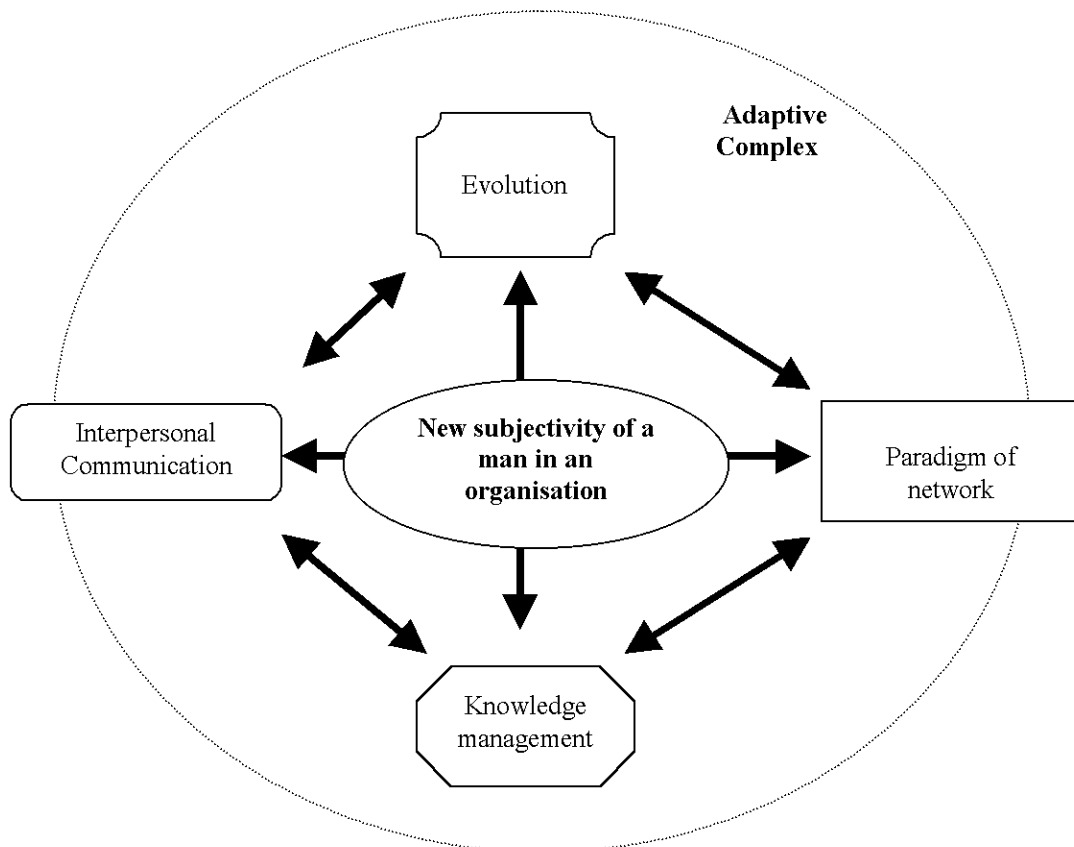


Figure1. The main elements of approach to the management in the new economy (source: A. Mazurkiewicz)

The concept of a network is the next important element of the dichotomy in the model of regional development. The interpretation of economic relations in a form of a network is commonly known and it has been investigated for a few recent years. Additionally, the practical image of the network is built by the Internet. The problem is that we can perceive the importance of this interrelation but the adequately complex and developed network infrastructure does not exist, and therefore we cannot manage the interrelations in the networks or between them. The methodology is being developed but on the other hand the practice needs ready solutions and tools. The need to monitor and control the economic development leads to territorial divisions and to stimulating this development with the help of territorial cohesion and balance. The network is stimulated through locating its elements in physical space. Therefore however the regional or territorial approach shows several disadvantages still it is necessary as a means of development processes regulation. Arbitrary borders imposed on the network links do not respect the natural and historical conditioning based on physical presence of specific elements determining the form of development.

This is the reason why the territorial approach should perceive the economic relations and links as a sum balancing different network connections including their global relations. The dynamic character of economic transformations caused by the global competition (global selection) results in the fact that this network is in the process of constant change and transformation and therefore it brings new chances to those looking for a new place or niche. The amount of continually happening changes brings not only partial and temporary connections among agents leading to strategic alliances. The permanent element of those transformations becomes the market value of an identity and its constantly developing competencies. The learning nodes of the network compete for satisfying their specific needs more or less typical, of global or local character. This way clusters responsible for socially determined needs. Those clusters consist of individuals, teams or organisations operating and adapting to larger organisations or teams thanks to their abilities to learn in accordance with their real relations and niches of activity (Holland in: Waldrop 1992).

The third important factor is knowledge creation and legitimating it in the form of intellectual capital as well as its transfer not only within a single organisation but also in the scale of the region. The problems concerning unemployment and the lack of understanding and agreement in the most basic issues among the post-industrial and developing countries shows the deficiencies in the field of knowledge creation and flows between intellectual and material capital. An organisation responsible for the economic outcomes has uncontrolled spheres of operating in which appear deficiencies observed in longer periods of time and wider scope. This problem can be solved by analyses of individual processes of knowledge and capital creation. Thanks to analyses of full development trajectory of individual people it is possible to estimate their input into the development of specific environments or even other people. Therefore it is possible to observe the organisational culture of specific groups, teams or people. Such a thorough analysis lets identify personal development or recognise degradation and determine their reasons. The observed phenomenon leads to definition of intellectual capital inflation (Mazurkiewicz 2002) that is understood as the lack of ability to undertake a different market activity caused by the loss of intellectual competitive edge. The other reason is the exterior costs transferred by the organisation to its own outcomes through decreasing the intellectual and material capital of its former employees. Phenomena of this kind should be observed in a supraorganisational scale and balancing the effects of enterprise operations and other organisations should have the territorial character. Different forms of influence of all the regional organisations such as contracts, products or employment policy should be monitored and controlled. The size and scope of this phenomenon is not indifferent for the overall competitive capabilities of the region, which should be interested in the highest possible intellectual and material potential of its inhabitants. The network organisations of the new type can in a substantial way counteract to the process of intellectual inflation by preserving the subjectivity of economic process participants. The detailed analysis of knowledge creation process should take into consideration the individual character of communities of practice ²

² this covers all the communities creating knowledge in an unconscious way in traditional organisations with the whole burden of conditioning and dependencies of that type of organisation.

consisting of individuals who shape their knowledge on the bases of representations and organisational culture. The result of learning depends on the nature of specific communities of practice, the time required for experience exchange, the number of participants and the range of communication connections.

The important factor is also the influence of different individuals participating and competing in the process of knowledge creation within an organisation. The presented scheme leads to the question on the role of traditional organisational culture in the process of knowledge creation and the development of the individual and group participants of his process. Then we should ask about the organisational and social values on the process of knowledge creation. All of them are elements of evolutionary change. The following problem is the process of creating and legitimising new values in the context participation of individuals in different teams and relations. Then considering the problem of knowledge in the wider territorial context different channels of knowledge in a region should be identified and described including such connections as communication and public media, migrations and humans.

The fourth element is communication. In the described model of regional development and the approach to the learning society in the process of change as well as creating knowledge different means of communication face a very important challenge. So far the physical contact in the process of cooperation has guaranteed the high quality of transmission of information and knowledge, experience, values and the whole of cultural heritage. The process of building up global communities stimulates the new forms technological development. [...] For technology to become an integrated part in specific work practices, the technology should be able to create a virtual space for mutual engagement that substitute complements the physical space of interaction and engagement [...] (Broendsted; Elkjaer 2000). Thus it seems that a compromise between the high standard and quality of transmitted messages and the need of mass communication is necessary. As the technological means at our disposal are not adequate we will need a specific space to assure the possibility of high standard knowledge conversion in a team / community. This need will most probably determine the direction of the future of ITC technologies towards mass and global transmissions. This direction together with individual ITC communication will serve not only the transmission of information but also that of knowledge and experience. These factors will determine the popularity of certain centres of development and the network will get specific physical orientation of the places in which technical knowledge is being created (Mazurkiewicz 2002).

The new concept of communication within and beside an organisation, in communities of practice and problem solving teams is referred to as a „joint enterprise” (Broendsted; Elkjaer 2000) and it operates on the basis of negotiations and opinion exchange on the pictures of objects experience. The picture of a new experience may be enriched by such an exchange and the objectivisation of observation. Finally, engaging in computer mediated as well as in “real” community of practice (COP) should create shared repertoires of stories discourses, norms and so on within the specific COP. Except for some specific context of education and knowledge creation the concept of communication changes its meaning. Its task becomes ensuring us more freedom in the access to information what increases the possibilities of creating and developing individual knowledge and value. Communication is to assure an access to the data and knowledge bases but it also should become a space for negotiating the social values and creating social knowledge and wider than individual or team social contexts. As it has been presented in figure 1. The new subjectivity of a man emerges from the evolutionary processes, knowledge creation, social network structure and the processes of communication. In the presented considerations this role of a man is the result of operation of the system with characteristic development features and objectives. The new subjectivity of a man becomes an element of management and an organisation is only a form to fulfil this aim. The approach to the analysis of supraorganisational space lets to evaluate people on the basis of their cooperation with an organisation and also after this co-operation has stopped. This balance serves to estimate the results of relation a human – an organisation and it allows to control the processes development processes in a wider social and regional scale. Organisations that do not

provide any impact to the development of their employees cause the slowdown of the general regional development. Thus in the case of knowledge creation and influence on individuals leadership becomes an essential value also on the supraorganisational level.

The Investigation of An Evolutionary Sector

Presented picture of transformations and processes of changes of the structure of civilisation relations in accordance with the Fifth Discipline approach requires the identification of the space and scope of analysis of its states and basic dimensions. As it has already been emphasised the process of evolutionary change will be central to the presented considerations. Multilevel character of evolution needs to be restricted to the sphere of consciousness evolution excluding components of biological evolution. They are important but they should not essentially influence the analysis on the social level. Substantial scope of evolutionary sector is based in the sphere of conscious processes of the human mind³. The entry level is the level of organisational culture and cognitive representations of individuals.

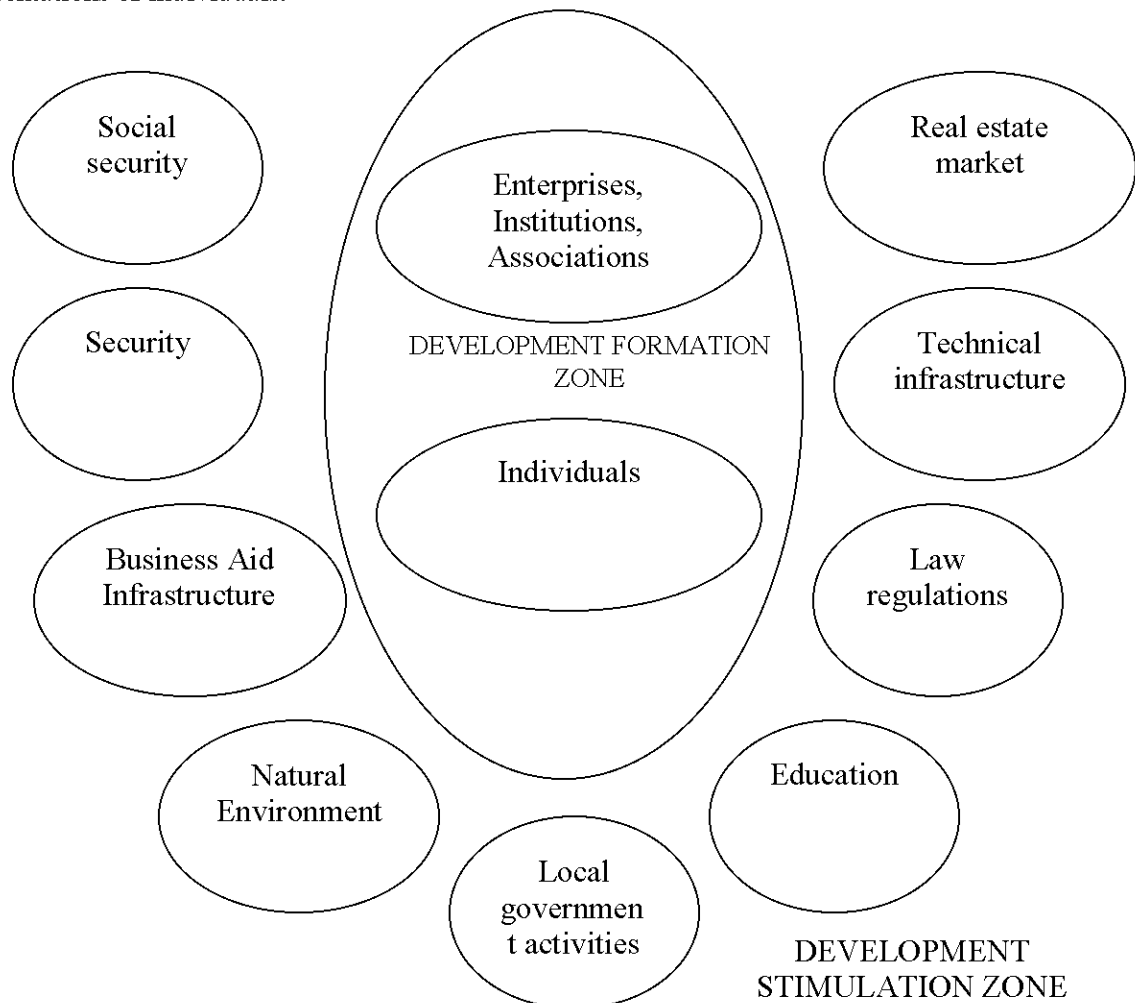


Figure 2. Zones of evolutionary sector analyses (source A. Mazurkiewicz)

The next level covers the mutual influence between people and shaping of the process of socialisation including evolutionary games and processes of selection. The next level is the organisational, regional and supra-regional level. Temporal and spatial limits of evolutionary sector can be practically selected in accordance with the research objectives. The current analysis is based

³ the approach is based on John Stewart's concept but it's also the result of K. Popper's works.

on a town's quarter (district) which has been studied over the 12 years of economic transformation in Poland. Data acquisition and classification were based on division of the district into two zones forming the conditions of activity in a given area. The zone encompasses most frequently local institutions but also those on the regional level are included. The study focused on the most significant areas: infrastructure, business aid system, security, natural environment, local government, education, legal regulations, technological infrastructure, social security.

The methodology of case studies has been applied to analyse the enumerated elements. The study describes living standards and conditions for economic activity in the researched area within 12-year period. Behaviour of organisations (businesses) and individual people and groups of people corresponded to specific local and external conditions. Research of the area is formulated in accordance with the levels of analysis of evolutionary processes. The first level is the level of individual people. The study of typical cases was concentrated on: individual analysis of intellectual capital, development trajectory of individuals in comparative arrangements. Moreover, a study of knowledge creation and influence of local social values, motivation and chosen strategies as well as strategic potential of adopted career opportunities was carried out. The following part of the study is devoted to analysis of mutual informal relations in a team (group) process of knowledge creation and trust (Fukuyama 2000). The study concentrated on evolutionary game of individuals and their behaviour in selection processes. The study was extended to inter-organisational behaviours taking into account power relations as well as situations caused by various limitations and their influence on knowledge creation processes. The corporate investigation concentrated on the analysis of the case studies dealing with the relations between knowledge sources, individual creativity and organisational games conducted by different examples of bio-conduct resulting on the urge of survival by individuals in given population. The study of top levels was concentrated on estimation of external relations, intensity of exchange of information, knowledge and contacts but also internal distortions aimed at evoking changes and participation of forming elements in the process of emerging transformation.

Main problems

The specific analysis can be outlined in the main points:

- Building of local networks and creation of conditions for social division of labour.
- Chains and networks of value in the knowledge creation process.
- Individual niches of knowledge creation
- Development trajectory, including the structure of individual intellectual capital, the flows between intellectual capital and material capital, the analysis of positive and negative radii of mutual influence.
- The nature of evolutionary changes in the sector and influence of the individual conduct on other individuals, the influence of insufficient control systems on the results of evolutionary process within an organisation and in the supraorganisational space.
- Analysis of individual and group change potential
- Action strategies - barriers - structural conditions

The results of the study should enable analysis of behaviour of a given evolutionary sector as an adaptive system and analysis of adaptation process as well as undergoing transformations. The described transformation is an attempt of the search for such ways of regional holon transformations, in which balancing of growth processes in four basic spheres intellectual, economic, social and ecological, will be possible.

Conclusions

The picture created by the analyses of the evolutionary sector should point out to the conditions of successful conducting the transformation comprising the knowledge processes in a region. Applying the concept of network for description of mutual relations is helpful in determining positive and negative influence of individuals on each other, individuals on organisations and organisations on individuals as well as organisations on organisations in local and global scale. Relations between nodes of the network should show directives for the holon structure capable of controlling growth processes and promoting balanced growth. Information and knowledge transfer relations as well as number and intensity of bonds should lead to proper relations between selection and adaptation processes due to creative processes carried out by individuals aware of evolutionary processes. Previous researches concentrated on the organisations that did not take into account initiating and creative role of individuals. Unemployment regarded as a result of inflation of intellectual capital introduces proposition for control of creative processes in regional economic structure.

Virtual and dynamic approach to the economy taking into consideration the fact that the flow of people and knowledge diminishes the position of corporation as a research centre but even more precisely it can picture ineffective processes that are structural and in effect are responsible for unsustainable growth.

Further statements concerning the research results will be presented as an overview of research analysis in the part II of another study.

Bibliography:

- Jens Broendsted, Benete Elkjaer „Toward a Unified Perspective on Learning Theories and Understanding of Technology in: Organisational Learning and Information Technology” Paper for 7th Annual Human Resources Management and Organisational Management/Behavior (HRMOB) Conference Charlotte, NC, USA October 2000
- Francis Fukujama “Social Capital and Civil Society, IMF Working Paper, April 2000,s.3
- John Holland “ The Global Economy as Adaptive Process” lecture given at Santa Fe Institute, 1987 in M. Michell Waldrop “Complexity, the Emerging Science at the Edge of Order and Chaos” 1992
- Artur Mazurkiewicz “Model of Regional Management Instruments in Economy Based on Innovation and Communication” Congress ERSA 2002 Dortmund 27-30.08.2002
- Artur Mazurkiewicz “Miejsce i rola przedsiębiorstwa I przedsiębiorczości w zarządzaniu regionalnym” w: „Zarządzanie współczesnym przedsiębiorstwem” pod red. Wiesława Kowalczyńskiego Dialog Warszawa 2002 s. 207 - 270
- P.M.Senge „Piąta dyscyplina. Teoria i praktyka organizacji uczących się” Dom Wydawniczy ABC Warszawa 1998
- John Stewart “*Evolution's Arrow The Direction of Evolution and the Future of Humanity*” The Chapman Press, PO Box 76 Rivett, Canberra, 2611 Australia. First published in 2000.
- UNCTAD World Investment Report 2002
- „Zarządzanie Przedsiębiorstwem Przyszłości Koncepcje Modele Metody” pod red. Kazimierza Perechudy Placet Agencja Wydawnicza W-wa 2000 Wydanie I s.19