A Methodological Approach for the Possibility to Solve Synergy Effect between Theory and Practice for Globalisation Management

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Abstract
In the previous works the author discussed various aspects of the course of globalization processes. The essence of the problem was to search for the possibilities of steering these processes in the proper way. This paper presents the proposition concerns the realization of interdisciplinary research. This research consists in summing up the results obtained within various sciences.

Keywords: Globalization, Effects, Technology, Methodology, Methodological Tool.

1. Introduction

Globalisation is understood as speeding up the process of internationalising economy consisting in the dynamic growth of commercial, capital and services turnover. This is the effect of the increasing tendency to treat the whole world by a greater and greater number of enterprises as the sales market. Hence, globalisation hastens economic growth, at least in some regions, and at the same time it increases the demand for using the natural surrounding which constitutes a clear negative feature of the current development. Transnational concerns do not carry out research to fulfil the mission for the mankind, but to build a competitive advantage in the market. After all the market is saturated and it offers more than customers would ever be able to buy. Moreover, production methods are so perfect that it is difficult to speak about the differences in similar products. Whoever wants to survive in the global market must concentrate on developing and implementing new technologies, new products, new management processes, new marketing forms, new distribution forms. He must also decrease the costs – not lowering the quality at the same time.The necessity to protect new solutions cause that patent activities get intensified. Patents, apart from protecting innovations or inventions, constitute the source of high income. For example, IBM earned 1,5milliard USD on licences in the year 2001. The whole USA economy obtained about $40 milliard on licences export. In the same year the USA economy made about $ 90 milliard on copyright. These are the biggest USA export positions. Far bigger than the export of such products as cars, aircraft, pharmaceuticals, etc. The important element of this development is a government policy. Since 1980, in the USA, there has operated the bill which ensures private companies an access to the inventions and innovations made within the projects financed by the state money.

2. Todays Globalisation Effects

According to UNDP: „At present 20% of the poorest people on the Earth possess 1.1% of annual world revenue, whereas in 1991 there were still 1.4% and in 1960 - 2.3%."

According to the data elaborated by AT Kearney & „Foreign Policy" the most global country is Ireland. Its position results from strong connections with other countries as far as trade, investments and the high factor of integrity with the global community are concerned. The next countries are: Switzerland, Sweden and Singapore. The USA is on the 11th position. The ranking comprises 62 countries, including among others the Czech Republic on the 15th position, Germany on the 17th, Hungary on the 23rd, Slovakia on the 27th and Poland on the 32nd position.

Joseph Stiglitz (Nobel Prize Winner, „More Instruments and Broader Goals: Moving Toward the Post-Washington Consensus", WIDER, January 1998) as a Vice President of the World Bank continued the activities of his predecessor Michel Bruno who claimed: "our research does not confirm a widespread opinion that the governments are condemned to choose between balance and growth. The most effective is such a policy which promotes these both things simultaneously."

This statement results from many-year research carried out by Amartya Kumara Sen (Nobel Prize Winner 1998). A.K. Sen introduced to economics, among others, the category of life quality (HDI – Human Development Index), showing at the same time that the term GNP (Gross National Product) does not say much about the real development of the economy in the examined region of the world. So, it is at the same time the contradiction of Kuznetz Industrialization Theory, according to which in the introductory stage of modernisation (economic development) social injustice increases in order to decrease later on.

The factor HDI is used by UN – UNDP (United Nations Development Programme).

It is also possible to indicate even more radical statements about the understanding of the economy.

For instance, a very well-known American futurologist H. Henderson wrote that there is no difference between the concepts of industry development in capitalism and communism. What he had in mind was, of course, the strategy of „Flag Ships" which was obligatory in the USA until the 60-ies. („From Economism to System Theory and New Indicators of Development", in: "Technological Forecasting and Social Change", Vol. 37, pp 213-233).

There are also other methods proposed to adapt economic analyses to the current quickly changing situations. The example. In the non-market, apolitical Institute „Redefining Progress" a new meter was elaborated: GPI - „Genuine Progress Indicator". The designed aim of using this meter is to eliminate the doubts which the use of GNP (Gross National Product raises. The GPI meter takes into account only those transactions included in GNP which, in a considerable way, contribute to the improvement of society welfare. The justification of this way of reasoning is described in detail in many publications, for example: Baker L., „Real Wealth: The Genuine Progress Indicator Could Provide an Environmental Measure of the Planet's Health, E.Magazine, June 1999, pp. 37-41.

Many elaborations appear on opinions about the current state of the world economy. Their source are the analyses carried out by public and also independent generally known organizations. The conclusions concerning the state of the global economy are usually very critical. Here are some of the known opinions.

In a longer perspective the biggest challenge the world community is confronted with the fight with poverty and the creation of the world which takes into account the needs of all people. It results from the research that the reason of wars are not ethnic differences, but the mixture of various reasons among which poverty is the factor of cardinal significance. (James D. Wolfensohn The President of the World bank, 'Financial Times' 2001, 10, 24).

The world experiences now the period of increased uncertainty. The boom that appeared in the leading well-developed countries clearly has weakened and although there are still some grounds to expect improvement in the future, obtaining it will not be easy. These uncertain perspectives are reflected by the financial markets, and it is seen in the drop of share prices and a sharp increase of costs for most debtors. The problems are faced, first of all, by the economy of developing countries. The increasing integration of world markets causes that economic weaknesses or political uncertainty are felt in a more intense way. It leads to increased reluctance to risk.

Nowadays the global free market which formed after the collapse of the USSR is also collapsing and because of the similar reasons as these in the USSR. Neoliberals, like Marxists, are economic fanatics. They believe that all the countries accept the same uniform economic system and the same political institutions. In their opinion nothing will prevent the worlds from transforming into one free market.

Although it sounds improbable the institutions such as International Monetary Fund are based on this ideology. The problems of Argentina and Indonesia are different, but IFM has got the same solutions for both.

When the communism was falling Russia was a militarized area of old fashioned technique, but IFM believed that it could be transformed into the market economy in the western style.

The campaign promoting the Anglo-Saxon model of capitalism spread all over the world. No wonder this approach to the economy did not produce the expected results.

As far as Russia is concerned, a neoliberal episode belongs to the past: this country has chosen a way of development which is more appropriate for its history and conditions. The economic storms were best braved by the countries, which like India and China did not agree to a model propagated by IFM.

Obviously the ideologists of the Fund deny the fact that their solutions have not succeeded – they only have not been implemented in full. Each country tried the same solutions but the trials ended in disaster and involved huge costs incurred by societies (similarly, there exit Marxists who defend the central planning of the national economy).

Yet, free market is retreating not because of the price people pay in such countries as Argentina, Indonesia and Russia. It is so because this model ceased being attractive to the countries which once were its keenest spokesmen. Because of the slump in the capital markets the USA withdraws from the global policy of free trade and inclines towards a traditional policy of protectionism. It is not surprising. Throughout the whole history America has tried to protect its own markets against competitors. When America made this turn, neoliberal policy lost its most important supporter. Thus, in practice the world gets to the older and more durable model. It is assumed that in the future various

economic systems and different forms of government will coexist (John Gray, professor of London School of Economics, 'Liberalism').

Globalization can be also understood as the increase of accessibility to the information about the events that are temporally, spaciously and culturally distant. This access shows the reasons of changes and processes on the world scale.

Globalization is also the increase of the dependence among the phenomena in the markets which geographically do not neighbor with one another. This leads to total scattering of responsibilities for the world economy and for investment risk. These are the masses of small investors, money-grubbers and entrepreneurs that take over the risk previously run by big manufacturers. And this raises the risk of losing control over the economy and flow of cash.

The characteristic of the present times is that we perceive less and less clearly the long-term consequences of the present decisions and phenomena.

For many years a great number of critical studies referring to the present way of managing the global economy have been published. These are generally the works of the leading specialists in that branch of activity. This refers also to the vast majority of Nobel Prize Winners. Here are some of the opinions. After the Nobel Prize Ceremony in the year 2001 over 100 Nobel Prize Winners announced the appeal warning against a new Great Depression and demanding solidarity of the rich North with the poor South.

Immemorial capitalism truths such as: economic growth, full employment, financial stability, increasing real salaries and wages, seem to disappear slowly. If capitalism is to stay something must be changed. (Lester von Thurow, professor MIT, 'The End of Capitalism').

The economy means psychology, sociology, politics and philosophy. The traditional idea of economics requires revising.

The assumptions of economy theorists that a man is an egoist interested only in increasing his own profits does not find confirmation in research. The research shows that more than 40% people behave in a corporate way towards their partners, even if they have a contact with them only once, so nobody could punish them for their egoism. (Reinhald Selten – Nobel Prize Winner 1994).

Economics describes the static reality, when the real world (including the economy) is very dynamic. Therefore, it is necessary to be careful to state that we understand the course of economic processes. The fact that we have learnt the rules governing the economic processes in the past does not mean that we understand how economic entities will behave in the future. The surrounding reality is constantly changing, also the principles describing economic entities behavior undergo constant evolution (North Douglass D., Nobel Prize Winner 1993, "Understanding Economic Change and Economic Growth", Warsaw, 2002).

In the last decades a simplified view on fundamentals and practice of economic growth has become rooted. Two decades of using a neoliberal economic policy have brought the developing countries disappointing results. In Latin America the rate of economic growth was at that time low and was characterized by considerable changeability. In turn, only a few countries of the socialistic economy in Eastern Europe and the former USSR have achieved the level of production before 1990. The neoliberal experiment did

not prove effective in Africa, either (Dani Rodnik, professor at John F. Kennedy School of Government at Harvard University, 'Project Syndicate').
At present the notion of social changes is associated with the notion of modernity. Modernity contains all the up-dated aspects of changeability: industrialization, urbanization, mass culture, democratization of politics, the development of technique and sciences. The transfer from the traditional society to the modern one is understood nowadays as progress. This ideal picture has little in common with the reality, because all social changes generate various maladies. Many researchers deal with this subject matter. They describe the negative effects of modernity in different branches: economics, politics, ecology, social structure, systems of values, corporate mentality, morality and manners, culture, every day life. It is generally said that each change causes the negative social effects whether the introduction of this change was right or not. The changes break the existing stable order; they stop continuity and disturb balance, break habits and customs. The change, even when progressive, expected, triumphal, has a bad impact on the society – it means its disorganization, throwing the society off their balance (Professor P.Sztompka. Trauma kulturowa. Druga strona zmiany społecznej, MBA, 5/2000, Warszawa).

3. Technology

On the scale of the whole globe there exists a large system as a whole. It may have the name „The System of Instrumental Civilization" [SIC] (Adamkiewicz, 1995c). The main properties of the SIC system, such as social, economical, organizational and technical are independent of regional differences. The SIC system is still in transformation and develops independently of the boundaries.
The main problem is that the SIC system absorbs more and more resources only for its needs, only to support its self-existence and for the future development. One may think that this great universal system has a great impact on all people irrespectively of various divisions which exist among groups. The essence of Instrumental Civilization consists in the fact that each man makes use of various technical devices.
In all contemporary considerations the sense of the existence of technical products consists in performing certain roles for people. Yet, this is not the case. There are many more kinds of devices which exist only because there are other machines. Therefore, while analyzing the problem in this way, one reflects upon all the relations only from one side, that is from people's side.
The relations that connect that system with people, societies, are not only the relations which result from human needs and expectations. A significant part of these relations result from the needs of a technical system. The lack of such an approach led, for instance, to the situation in which people got aware of ecological threats too late.
Lately the belief in causative force of modern technology and its usefulness for the progress has weakened considerably. It also turned out that the problems resulting from the noncontrolability of technological and organizational processes can be limited neither territorially nor politically. Moreover, that there is not such an iron curtain that could effectively separate itself from them.

In the 20th century natural and technical sciences gave the illusion of effectiveness, mainly because they could accurately predict the results of experiments in laboratory conditions. It seemed then that there was dependence between facts and mathematical functions and the formulas of logic consistency. The majority of the phenomena and processes that in the other half of the previous century were accepted as the victory of rational mind and organization over chaotic matter already in the 90-ies showed that they gave both positive as well as unexpected and dangerous consequences. It turned out that traditional natural and technical sciences offered only the illusion of effectiveness (Bronisław Misztal, a professor at The Catholic University of America, Washington D.C.).

In February 2001 European Commission accepted the resolutions of the discussion on a product policy in the document „Green Paper on IPP". At the end of the year 2001 „White Paper on IPP" was published. The problem aroused the interest also of OECD, WTO, UNCTAD, WTO, ISO and other organizations (environment - related product policy/product - related environmental policy- European Commission: DGXI, Integrated Product Policy. A study analyzing national and international development with regard to Integrated Product Policy in the environment field and providing elements for EC policy in this area. Final Report, 1998, SPRU, Ernst & Young, p. 30. p.. 87).

4. Methodological Approach

In interdisciplinary research it is necessary to have in mind very general principles of the system theory and cybernetics. You can't use the methods which have been elaborated for engineering sciences. Therefore, it is advisable to get to the philosophical, logic and mathematical fundamentals. There are a lot of propositions to describe the systems (the systems models). For the description of any system it is possible to use each of these definitions. The choice can be based on personal preferences (the author's views) or formal (mathematical) possibilities of the chosen way of describing the system.

The key issue is, however, to create the fundamentals for the analysis of the processes that occur in the system and that join the system with the surrounding.

Not all the propositions of the systems description directly lead to the possibility (method) of examining these processes.

The elasticity of methodology is absolutely essential in the systems research, for it can turn out in the examination that some sets of relations were erroneously considered as non-essential.

5. Analitical Problem

It results from the previously given information that the problem of a globalization analysis is very complex. The reason for this is a great number of processes which have an influence on what we call globalization. Most of these processes have been scientifically researched.

The research took place within various disciplines: economics, management, ecology, sociology, psychology, political sciences, ethnology, studies of religions, history and others. The majority of research results should not raise any doubts.

They are generally known and very often quoted in various elaborations and statements. These results are also mentioned by politicians and people who have a great influence on steering the global economy.
Partly, there is also a conviction that particular processes interact with one another. Some elaborations show that there is an awareness of the existence of synergy effect.
This means that these results can not constitute the basis for taking decisions concerning practical activities in any area of operation. Therefore, some research that is called interdisciplinary research is undertaken.
Nowadays it consists, for example, in taking into consideration in the economic research the results of a different discipline. It means that they are analyzed according to the methodology applied in economics.
That is why this research cannot be regarded as interdisciplinary. Each scientific discipline contains its own hierarchy of significance of the considered parameters, it also has its own methods of their analyses and evaluation. Hence, the use of the results of some other discipline does not guarantee the determination of the synergy effect level. The results then will be distorted due to the application of a different methodology of research.
This is a general malady in scientific activities which came into being in the first half of the 20th century when more and more numerous barriers among scientific disciplines appeared and are still appearing.
In this situation it is doubtful whether the effectiveness of using research results as the basis for taking decisions in practical activities is right. It is worth adding that at the present moment people managing decision taking processes generally make next mistakes interpreting research results according to their own views. These views usually have little to do with the results of research. This is so because they serve only as the pretext, and not the source, of decisions.
Moreover, it is not accepted that professional practical activities have their own precise procedures. One of them is the theory of projecting. Unlike what the world of scientists and, depending on it, the world of politicians think the development of technique and technology is based on this kind of methodology. So called scientific discoveries or inventions constitute only the impulse for technique creators to work.
Unfortunately, this truth can not be comprehended by decision makers because of a very widely advertised (and not true) contribution of science into the development of a civilization current shape. Thus, it is necessary to undertake such research whose results will make it difficult for decision makers to manipulate them in a decision taking process.
So the only really existing way to improve the discussed situation is the realization of global processes research with the use of system methodology. The research should be based on very general principles of the system philosophy which ought to serve the elaboration of an appropriate methodology for definite practical problems which have not be considered or realized very carefully.
The generally known and popular kinds of system theory are not adequate for this purpose because they were created for the needs connected with solving problems in technical sciences. They are burdened by mathematical apparatuses adapted only for

such tasks. Yet, technical problems are too simple in relation to social changes occurring on our globe. At the same time it is necessary to state that mathematical methods which can be useful in solving tasks of a very general character should be sought for.

6. A Proposal of a Methodological Tool

Synergy research has its own specificity. It consists in the necessity to take into account all the relationships existing among the systems elements. Yet, it is not possible. Therefore, it is vital to have the method to determine the set of relations relevant from the point of view of the research aim. This method should also allow completing the examined set of relations during the examination.

The proposal consists in applying „Einstein's Indexed Tensor Notation" into global processes analyses. This record is based on the theory of geometry elaborated by Riemann. The necessity to use this record appears only when a mathematical presentation of the problem is of nonlinear character. This means only when the analysis with the use of a big number of parameters of various numerical values is undertaken. Usually in such cases the equations are simplified by removing the parameters of a small numerical value. Even if these parameters are not removed, their values disappear from the set of equations after it has been solved. Even when the technique of supercomputers (e.g. Cray) is used.

It is now essential to explain this problem briefly to people who currently do not deal with mathematics applications. Let's say that we want to determine the value of synergy in the problem defined by 20 parameters. Each of these parameters has to be treated as a process because its values change in time. So, in order to determine the value of synergy effect all these 20 parameters must be treated as variables in the set of mathematical equations. Thus, we will have 20 equations in this set. The sets of equations for the needs of Relativity Theory had probably 21 components. The traditional solution of such a set causes a vast number of simplifications. Especially, when one parameter has the value of the order of 1000 and another one of 0,0001. In this situation the latter will be eliminated even though it may have a decisive significance for synergy effect. This information is not lost, however, when the proposed method is used.

Besides, the use of this method is relatively simple. The only problem is the lack of uniform terminology in professional literature.

The tensor account whose origins were created by Ricci, Riemann and Christoffel was developed by researchers from Relativity Theory. Its basic advantage is a tremendous simplification of the arguments connected with the introduction of mathematical dependencies and a reduction of work connected with transforming these values by making them dependant on a definite set of coordinates which, in turn, creates the possibility to carry out a more and more objective analysis of general unchangeable features of the examined phenomenon. It is worth adding that this record is used in some disciplines of technical sciences. Of course, in a far more simplified form.

Tensor is a set of values called tensor components which are the functions (processes) that in the transformation (the change made) of the set of coordinates (metric space) always constitute a linear combination of these values in the previous set of coordinates.

This linearity is created by situating the tensor components in Riemann's multidimensional space defined by the curvilinear set of coordinates. This set is defined by the tensor of space metrics. In this way we can reduce each nonlinear set of equations to the form of a set of linear equations. This set is then taken to be solved. Having obtained the results of the solution of the set of equations, we can return (although we don't have to) to the nonlinear form by putting on this tensor its tensor of space metrics.

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