The Exploitation of the Open Economic System’s Synergistic Relational Potential

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This paper proposes and depicts certain aspects that we consider to be essential in the matter of the economic systems’ relational potential utilization for their functional synergism's turning up and synergic acting in the benefit of the concerned systems (with emphasis on the open ones) and in the purpose of avoiding undesirable results. It aims at highlighting, defining and outlining the main conceptual issues, including the formalizing and also showing of certain real examples.

After a short introduction and a very synthetic review of the evolution of economic entities (from the angle of the managerial approach) to the open system form, a conceptual presentation of those systems’ potential to generate synergism by multiple connections and relations is made. The paper’s conception is based on the hypothesis that the concern and action for quantifying and exploiting the synergic relational potential of the active economic entities (including the case of complex entities, of regional or national level) would represent support and impulse for their success in competition; this specific advantage of those economic entities is perceived as being obtained out from of the conventional means.

Further on, the factorial substantiation of the growth of an open economic system’s synergic potential is made and the benefits of its turning to good account are described, but also certain problems (and examples) concerning its accounting and finding in statistic records.
The essential aspects (argumentative and to be followed to achieve synergy effects) are synthesized into a suggestive formula concerning especially the number and intensity of the established and functional links, as a result of trying to measure the exploitation degree of the synergistic relational potential that belongs to the active economic networks or systems.

Objective arguments of empirical nature result, regarding the necessity of quantification and exploitation of relational synergistic potential of economic entities (including the complex entities at regional and national level).

Keywords: synergistic relational potential, relational economy, open economic system

JEL Classification: A12, A13, D21, D01, L14, P47, P49

Introduction

The successful economic systems have in common at least three potentials that are exploited in order to point out their own competitive advantage: the field's evolution anticipating potential, the proper intellectual potential and the relational potential – and the later should be considered (i) within the analyzed system, as well as (ii) between that system and its surroundings. Despite its scale – or maybe because of the perception and methodological difficulties that it generates – the relational potential remains the least found counted datum in economic statistics. This insufficient count becomes even more inadequate as along as with the empirical experiences' diversification and the evolution of economic theories, more and more elements which are less tangible are connected to the profound understanding of systems' competitiveness at the different levels of economic life, and to its increasing. From these elements, the ability to generate synergies\(^1\) through cooperation and optimal correlation between the integrated actors comes to the fore in a defining way.

\(^1\) Or to exhibit synergism
The synergistic action represents an excellent way of reconsidering the interdependences of the competitive framework. More and more "downfalls" of some economic entities from the market showed that without an efficient cooperation and complementarily between the primary and essential competencies, the active economic systems lose the opportunity to increase the added value of their network.

Through the efficient exploitation of the global resources, the synergy effects represent the hint that the economic networks are alive, continuously processing values and adjusting to internal and external requirements. Thus, valuing synergy (benefiting from its results) represents a genuine unconventional weapon\(^2\) for those who explore in depth the relational potential of national economies, activity fields or enterprises.

What most specialized economic works on the theme of synergy are missing is the macroeconomic approach and, consequently, the whole social-human and planetary approach at a more complex level. The few existing works on this topic in Romanian – as can be seen from our bibliographical references – are, in fact, management works, which make some authors include the topic in the business area. And the fact that some economists insist upon this incited us to try a broadening of the horizon, keeping, however, the balance between the microeconomic and macroeconomic approach\(^3\).

Our approach motivation: we believe that such openings and broadenings have become urgently needed by economists in the knowledge society\(^4\), because the development of the economic science remains narrower, according as it is limiting itself to the horizon of strictly perceived

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3 The work is part of a wider research in the context in which there is the exact preoccupation for the critical point which is overrun by the complexity of a series of systems which rejects the management’s possibility, the preoccupation for synergy being related to the general economic theory like an observation and theoretical analysis.

4 We propose such a broadening of horizon because we consider it as being required by the evolution itself (and the need for improved coverage) of the economic science; and we believe that our approach will incite it whether it will be contradicted, criticized or contested – maybe by such attitudes, rather than by some of those that would eventually continue in "neutral" way the ideas that follow.
economy (mainly monetary; and mostly often in a short run). We hope that the most capable people with the broadest views (and consequently more generous regarding all aspects) will favourably react to the following issues, as we count on their benevolence and desire to further expand the research and develop the economic science.

The explanation for the fact that there are very few works regarding the topic of synergy in the spirit of economic science (economics) is based on the complexity of the whole economic life – and this complexity is growing due to the development, the emphasis of rhythms, the economic growth and technological specifics of the last decades etc.; the economic crisis itself demonstrates the lack of both theoretical and practical mastering of the complex economic, political and social realities in which we live in. Although it is not simple, the deep understanding and analysis of the synergy issue at the level of economic entity (even though it is an enterprise or firm, an individual economic business, a large multi-polarized company or other more „assembled” forms) are much simpler than any such attempt at macro- or microeconomic level.

But, paradoxically, this increased complexity itself also incorporates the reason that requires the economic science perspective's approach and analysis: more and more systems overrun the threshold towards they can be driven, the business analysis giving place to the economics by the multitude and magnitude of the elements, problems, interconnections (their functioning remains above any attempts to unique coordination).

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5 And implicitly less interested by the growing of classical approaches, just for reasons of broadening the perception and the deepen understanding in the economic thinking: these ones will not yield inquisitor "verdicts", but will "listen to another opinion", with open mind, permissiveness and superior "power of perception".

6 In the business optical or already in the economics approach

7 Here we include also the mergers – of which there are some studies in the field, of the type to which we refer in this paper.

8 The usual acceptance supposes self-regulation; we do not intend to discuss or counter-argue this approach in this paper.
Starting points. The evolution towards the open economic system

Beginning with the XXth century, the cross-network relationships (we can talk about an enterprise, an industrial centre or a national economy) have been fundamentally reconsidered.

According to the systems” theory, in the first three decades of the XXth century, the organizations' way to relate to the environment, as well as their economic system”’s functioning were characterized, among others, by a strict target- and “rule-centred organizational behaviour and other formal regulations”⁹. That is exactly why these entities are called closed and rational systems. But towards the end of this period, the scalar chain is outlined (the representation of the internal communication flow) and the "esprit de corps"¹⁰ (a theory that states that an organization is more efficient if it acts as a team), which lead to the detachment of theory Y (orienting the employees’ aims towards the organizational ones) from theory X (guidance and control by exercising authority); therefore, in the 1930-1960 period, more and more systems are characterized by the integration of the employees” personal needs within the organizational needs and by the relationship with the environment. Thereby, the closed and rational systems have evolved in closed but natural (social) systems.

⁹ Verboncu I., Zalman M., Management and Performances (in Romanian), Universitară Publishing House, Bucharest, 2005, p.46

¹⁰ Although in some bibliographic sources in Romanian the notion "espritol de corp" (the spirit of body) is used with the mention that "strength lies in unity" (see Idem p.48) in the management literature (such as the British or American one) is used the notion "esprit de corps"– taken from French –, which refers to the necessity of "encouraging harmony and overall wellbeing between employees" (Certo S.C., Certo T., Modern Management, Pretince Hall, 1992, p.36). "Esprit de corps implies teamwork" (Foote A, Dallas D., Really Bad Business Advice. A Management Handbook for the Ethically Challenged", iUniverse, Inc., Lincoln, U.S.A., 2003, p.23), that determines so many benefits for the organization, as the working team members believe more strongly in the organizational goals, have peer trust in the teammates capabilities, but also in the leadership capabilities, and the undertaken work brings individual satisfaction, including moral ones. The more the employees are happier in an organization, the more the organization is closer to success (Joseph French Johnson, Office Managements, 1919, quoted by Davis C., White-Collar Life –Corporate Cultures in Los Angeles, 1892-1941, The John Hopkins University Press, 2000, p.95 (see also the entire chapter 4, "Creating an Esprit de Corps", Idem, p.95-121).
In the next decade, however, together with the exponential growth of the technological competition at local and regional level, the economic systems became open and rational. These highlight the interfering of some economic entities’ internal processes with what lies outside of these entities, taking into account the specific situation and the capabilities of the entity and the specific context in which it operates and interacts with. The consequences of these correlations are immediate: since the 70s, the active economic systems have become open and natural (social) systems – see figure 1; the resources dependency and the correlation with the institutional theory are obvious – these elements state that, in the conditions of outlining the rules and institutionalized norms, the employees can determine new and dynamic structures which take the shape of either opportunities or constraints through their own actions. At this stage, due to the external environment’s pressures, the economic systems survive depending on who knows how to interact with those who possess the resources, giving birth to a variety of specific partnerships.

**Figure 1:** Evolution of the economic systems in the XXth century

The resulted (open) economic systems abominate the communication vacuum, the (vertical and horizontal) cooperative relationships being developed as it highlights the lack of some essential
competencies within them; accordingly, the measures of interconnecting individuals and processes, of infrastructure and development policies etc., either will enhance the economic systems' internal and external value, or (these measures) will serve as an example of solutions which must be constantly improved and aligned to the synergistic nature performances of other successful economic entities.

The fact that all current economic systems are dependent on valuable relationships between the economic entity and what lies around it is a certainty. However, the finding that some systems stand out compared to others (gaining top hierarchical position), reaching to write the competition rules for the last ones too, shows us how easy is to fail (the case of the latter's) to see that a lot of competencies are real elements of the system, capable to change the value and reputation. But where the real competencies are properly quantified and integrated in the economic activity (those outlined above), the relationship between the system's elements often turns into synergies, the mathematical aim of any connection being to achieve superior results regarding not only the simple juxtaposition of the factors but also the addition of elements that occur by some means or others; that is, "2 + 2" reach to give more than "4".

This means that the additional benefits are obtained mainly due to exploiting the human factor relationships, but also due to the relationships with/between technological, financial and social factors that influence the firm's decisions, success or failure. The structure in which such relationships are generated is called synergistic network type, or, simply, synergistic network. The more the number of elements within the synergistic network increases, the more the relational process is more complex, but also more favourable to shape synergies and implicitly, unconventional advantages.

The requirement is that “each hierarchical level and each department (...) understands the challenge as a whole, (...) knows the existent relationship of interdependency between the different roles and dimensions of self responsibility”\(^1\), the synergetic itself being the science of complex, dynamic and hierarchical organized systems' cooperation\(^2\).

\(^{11}\) Hamel G., Prahalad C. K., 2009, p. 131

That is to say, any existing connections should be used more productively, with the aim of amplifying the results that can be generated without increasing the resources' consumption; the only amplifying is related to the number of established and exploited relationships, as well as the quality of those connections (of collaboration)\textsuperscript{13}. The efforts in this regard can be called "synergistic mobilization" of the entity's (system) components. Any intercession in that direction\textsuperscript{14} begins with the identification of defining elements for synergy, which may be the estimation or the quantification itself of all useful links, following the highlight of the ways of using those "means" in the desired beneficial purposes. In terms of management, the coordination can be total, but in cases of certain interventions on some systems with a high degree of complexity, only certain components of these systems or certain ways of influencing are concerned (the rest of research on synergy being just exploratory, knowledgeable and thoroughgoing – upon certain operating mechanisms – and having not a coordinating or leading and controlling character). But irrespective of the nature of research (on management or economy), working for turning to good account the system's potential and synergy resources of the system represents its synergistic display, meaning the capitalization of its synergistic potential.

format, p.12, p. 31, p.34: http://www.complexsystems.org/ publications/pdf/synselforg.pdf, accessed on 06.04.2011 – to all intents and purposes, the whole work and all studies mentioned in this work draw attention to this. We observe that a hierarchical organized system is needed, because synergy, without coordination and control efforts (clearly endured by team responsible, departments or sectors of domestic economies etc.), would only be a chaotic process, \textit{desultory}, "difficult" to repeat and less valuable - with real chances to even become negative synergies.

\textsuperscript{13} See for this purpose the concept of \textit{relational} economic growth (Jivan A., 2000, p. 45. and the following pages). But this lays emphasis on the most important part of the relationships between traders (irrespective of their dimensions. In this work we consider above all, besides these, the \textit{intra}-firm relations (within the economic entities). The approach is highlighted a lot in the optics of \textit{new economic geography}, the European Union's policies and other later researches, within the meaning of including clusters and economic regions (considered by us as development system//units) concepts, etc., in the analysis.; the openness toward interdisciplinary and inter-correlation of reality's domains (besides the strictly economics) is also heavily increased today.

\textsuperscript{14} Please see also the next chapter (the formalization).
About the synergistic relational potential of the open economic system and its degree of utilization

The necessity of developing synergy related research is determined by the development and the further sophistication of certain relational savings that make the difference between the competitive elites and the current and future losers. Hence, “how much interconnected” represents not only the basic question of globalization process but also its essential azimuth (in the sense of benchmark).

In 1998, Michael Porter draws attention to the fact that “the need to exploit the advantages offered by the cross-business relationships has never been higher”. For all that, the importance to interconnect the functional policies of the economic system “was taken off from the management specialists’ pipeline. Instead of seeing the company as a whole, the managers turned their attention to the «core» competencies, «critical» resources and the «basic» factors of the success”. The later empiricism had its say, as the companies which were in competitive failure were able to rediscover the “wonder” of interconnection and the global interaction of their own networks.

Synergy, regardless the size of the approached economic system, presents three primary mechanisms which generate the synergy effect:

- The cooperation mechanism;
- The complementarily mechanism;
- The externality mechanism.

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16 The concept is inspired by the geographic practice – through the area of topography, remote surveillance, cartography, astronomy – meaning the angle included between the meridian of a place and the vertical plane passing through that or the place to which a distance measurement is reported.
18 See *Idem*, p. 59
Unfortunately, in the economic literature there are very few references to the relational potential of the macroeconomic level\(^{21}\); needless to say the same thing about the references to the synergistic relational potential of the open economic systems.

From the managerial point of view, it is considered that within the companies, “the relational potential of the groups is incommensurable”\(^ {22}\) (both in formal and informal structures), synergy being necessary to exploit it. Indvik and Fitzpatrick\(^ {23}\) consider that including a person into teamwork requires the coexistence of five separate components: the accessibility, the resemblance, the assessment, the (inclusion) stimulation and the relational potential. Other authors consider that leading entrepreneurs pave the way to discover infinite relational potential within the firm\(^ {24}\) through the assessment itself and the willingness to assess the team capabilities.

But such admissions and highlights of the relational potential (among the envisaged components as conditions for the integration in collaborative activities systems) should not be kept in a restrictive way at company level or at a lower lever (of working group, team level): the referred assessments are valid not only for natural persons but for legal ones:

\(^{20}\) The promoting of so-called "positive network externalities (...) are present when the costs of participating in the network are lower than the benefits of the cooperation" (\textit{idem}, p. 26-27)

\(^{21}\) Nevertheless there is a whole "arsenal" of publications about workplace relationships.


as well, being suitable, at their turn, with adequate collective (multiple) cooperation. The relational potential of an economic entity is even greater as the economic decision-makers have the capacity to appreciate the new opportunities and the facilities emphasized by the political, social and economic environment. For example, at the end of the ’80s, while the Brazilian Congress has introduced on the fax market “a wide range of customs charges (...) trying to protect the Brazilian industry profile” minimizing the cooperation with foreign fax producers, Taiwan used this opportunity to exempt the investors (in the fax domain) from tax payments and provided at macroeconomic level an open competition, the best producers being encouraged to cooperate with the internal ones (in order to develop new technologies). As a result, in 1994, while no new technologies had been transferred to Brazil and the price of the manufactured products was higher than the world average price, Taiwan ”was ranked among the top manufacturers of fax machines in the world”, benefiting from the synergy between the internal and external producers and the fiscal policies. It was only next year when Brazil abolished the customs charges for fax products having to recover many lost opportunities and to develop a synergistic relational potential which had not been undertaken before. We remind in this context, that, in a broader view, corresponding to the economy based on knowledge and new economies, including postmodern approach as well, the relationality involves competition, competiveness and cooperation.

The empirical experience has demonstrated that (in terms of applied marketing) the Internet, telephony and the interactive TV represent “facilitators of the relational interaction potential” between organizations, customers and other interested groups as well (within the company and on the market with regard to other entities). Therefore, “the information synergy (...) determines new entrepreneurial models” that guide

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25 The period over which Brazil and Taiwan had similar per capita incomes.
26 Friedman L.T., 2008, p.228
27 Idem
29 Idem., p. xii
entrepreneurs, managers, companies in general and other organizations; accordingly, before starting any economic action (company-wide business, collaboration between firms, etc.) preliminary assessments and a related organization to create favourable conditions for outlining “synergies between marketing, transactions, information technology and databases”\(^{30}\) are needed.

But speaking in general economic terms, the synergistic relational potential of the economic open system represents a more present concept, which is however little approached in economic literature.

In terms of processes utility, economic analyses have demonstrated that "more an activity combines multiple inputs, the more its utility is higher due to the exploitation of relationality growth, therefore of actually implementing a higher relationality (of several functions that – being all specialized and having superior servicity\(^{31}\) – will generate, by their synergistic combination, a greater functionality than the sum of the «input» functions), a greater utility will emerge (...). If an entrepreneur conceives and carries on the activity so that he combines more various inputs, he will produce superior utilities regarding the entering activities”\(^{32}\). The emphasis is not on the amount of input into the process, but on the combination of many, different and more varied elements; therefore, the emphasis is on diversification, in order to stimulate the relationality, as a potential to amplify the possible effects and to increase the options' panel at different levels\(^{33}\).

Therefore, the synergistic relational potential of an open economic system refers to those essential conditions of the economic system that facilitate synergies creation and synergy effects respectively, through the

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30 Ibidem, p. 254
31 Servicity represents “the assembly of induced effects – after conducting an activity– on other current or future activities (...). It is the expression of comprehensive inter-correlation between human activities (...) [defining] the added value, utility” resulted in this way (Jivan A., Servicity. More than Productivity in Service Economy (in Romanian), Sedona Publishing House, Timisoara, 2000, p. 87-89).
32 Idem
33 In science, this added utility (bank of creation) is called interdisciplinarity. And today, the economic science has a lot to benefit especially from the horizon broadening (mandatory).
optimum relation of collaboration or correlating between the system's elements in question. The synergistic relational potential of the open economic system represents in fact a "derivate" of the synergistic potential of the economic systems regarding the coordinating function of the processes which generate synergies.

Like any economic system which embodies synergistic potential, companies, industrial centres or national economies show a significant relational potential of synergistic nature as well, each economic entity having the ability to shape a relational value chain.

The synergistic network is an open and flexible one, which is oriented towards the internal possibilities and the external demands, respectively, towards the economic conditions in which the network is operating.

In order to quantify the degree of the usage of the synergistic relational potential of the economic network or of an open economic system, the accounting of mutual information flows is essential, these ones being basic elements that facilitate the shaping of multiple and valuable synergies within the economic entity. But, besides the number of activated connections (called by us, "number of mutual information flows"), we should also include in the formula their intensity and quality, that is to say the measure in which the "load" of transmitted issues (of "shared" information) through those flows is correct, appropriate to the needs and, therefore, useful. The intensity, included in the formula as a coefficient, could be measured through the number of connections per unit time.

34 Through the economic network or system of networks
35 When businesses act in a synergic manner we know that the system's potential, including the relational one, is turned to good account. The economic entities will be capable of reducing personnel turnover, customers' dissatisfactions (and implicitly the complaints), communication void, redundancies and of increasing the efficiency levels, the added values, the degree of transparency and the informational value within a financially and socially responsible system.
36 The formula of synergistic potential effectively exploited.
37 Through existing links, by information flows
38 Because wrong, few or too many (generating a jamming on the quality of exploitation) and strictly inappropriate information for the requirements could present negative, perverse synergy effects.
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(hence, numerically too), but it cannot be reduced to that unless the risk of a curtailed simplification. This coefficient will be able to gain parametric values, depending on other estimations related to the system (at least in the form of value ranking). Regarding quality, in order to shape synergy, the degree of satisfaction of the network links' information needs matters primarily, due to the fact that although mutual information flows exist (for example, in all cases of network links), this situation does not prove that such flows are enough. Therefore, everything that may guarantee the network links' superiority in value but also the degree in which all the information flows (either mutual or one-way ones) are satisfying the information needs within these network links must be taken into account. The satisfaction degree of information needs must be deducted from 100% (hence, expressed as percentages), because it deals with real and not ideal economic networks; it can be identified (for a unique moment t) either through the existing information platforms or questioning those involved in the proper deployment of some valuable information flows.

The general formula (generally valid) will be:

39 "The satisfaction degree of the network hubs' information needs" is more accurate to say, but, when somebody wants to study the synergistic potential (of any kind), she/he concentrates on that link (on its quality) that facilitates the synergy effect (2+2>4). For this, we calculate the arithmetical mean of satisfaction degrees of the two network hubs' information needs, strictly related to the network link between the two hubs, and not to others (some network hubs are the starting point of multiple links, therefore, it is better and more accurate to proceed like this, because the satisfaction degree of a hub’s information needs does not mean that it relates to all the links that converge from it but to their arithmetical mean – and the role of the Network Coordinator is to know which are those links that have the biggest synergistic potential, that is to say which are those catalyst elements of the synergistic network and where the situation should be improved).

40 See the below formula from the legend.

41 We consider the exclusive interpretation by the optics of information flows and needs as a limit of the model: the collaborations (in the manner of a “team”, irrespective of the synergizing level) suppose other aspects, too, that are overlooked by the model in this form. The good cooperation, coordination and mutual balancing of the efforts and other many facets of the synergizing are comprehensively linked by the communication issue and mutual informing, but they do not go like this. In the quality context there are, of course, a number of issues that are related to the accuracy of the transmitted information, their level, the selection (exclusion of those redundant or inadequate etc.) degree, the processing-finishing degree, the moment of transmitting and the measure to which is relevant to the real needs etc. – which are
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\[ SYNPA = \sum \frac{LA}{L} * qs \]

which may be written, for the moment t, in the next form:

\[ SYNPt = \sum \frac{LA}{Lt} * qs^t \]

If we take into account all links, meaning also the current existent and not-yet-existent ones\(^{42}\) – but which are necessary and should be established (and also activated), then we will deal with the unit, with the whole. The ideal case, when the number of links with mutual flows coincides with the number of network links, will therefore be:

\[ SYNPT = \sum (1 * qs) \]

and for the moment \( t \), it is written in the form:

\[ SYNPt = \sum qs^t \]

Where:

\( SYNPA \)\(^{43}\) = the actual synergistic potential effectively exploited, used, which can be taken into account;

practically impossible to quantify in simple enough but relevant forms. For reasons of shaping, we nevertheless consider that this simplification is satisfactory (the one undertaken in this work, at least up to now) for the present study of the research in this field. However, the quality coefficient can be introduced in the calculations using an ad-hoc appreciated value.

\(^{42}\) Or the latent links.

\(^{43}\) The \textit{SYN} abbreviation for synergy is assumed according to Stan L-M., \textit{The Necessity to Exploit the Economic Networks’ Synergistic Potential. The Synergistic Gravity Equation Model}, Lambert Academic Publishing, Saarbrücken, Germany, 2011 – where, for example, SYNGEqM represents the synergistic gravity equation model). We avoid the symbolizations with \( S \), even if some researchers use the last variant: we consider that \textit{SYN} is more appropriate because the \( S \) symbol is used in economy for other various notions, being quite common; furthermore \textit{SYN} derived from the first researches related to synergy, being an abbreviation used to represent the “Syn addition” process from the organic chemistry (chemical process that generates the
SYNP_T = the total, theoretical, nominal (of reference) synergistic potential, valid for the synergistic potential of the economic network in moment t;

L^t_A = the number of activated network links (that have/sustain mutual information flows) (in moment t);

L^t = the number of network links (in moment t);

q = quality parameter (parameter concerning the quality of information and other qualitative aspects intended by the Network Coordinators);

s^t = the satisfaction ratio of information needs (in the moment t) of the total information needs belonging to the network links.

The formula suggests logical support for considering the synergistic potential usage (including its quantifying and analyse) as a favourable factor (it may even be a condition) for the competitive advantage of the concerned systems.

Having an eye on the relational nature of synergy and on the fact that each economic entity is the result of certain increased combined effects, a series of issues rise to be questioned, namely:

- Which are those factors that increase the relational potential of an open economic system?
- How valuable are the concerned actors' benefits from their synergistic relational potential's exploitation?
- How often and how precisely the determinants of the relational synergy effects can be found in the economic statistics?

In order to approach these issues, we propose the following subheadings.

increasing of the number of the organic substitute) and we should not forget that synergy was firstly used in bio-chemistry and only subsequently in economy), or the "synchronise packet in transmission control protocol" from the domain of information systems.
The increase of an open economic system's relational potential

The synergistic relational potential’s size and complexity is strongly influenced by the existence and coexistence of internal and external factors, which are independent and/or dependent on the activity field, on the organization culture and on the competitive framework within the economic system operates. But the common element of these influencing factors upon the synergistic relational potential is the functional interdependence of the open economic system.

The more the functionality of a capacity of the system is more strongly determined by the functionality of other capacity, the more the functional interdependence of the economic system is more pronounced. Furthermore, the efficiency of certain economic entities’ components can be transferred to other components belonging to them. In the situation in which these yields are not continuously controlled over the effects, the functional interdependence risks negative synergy effects (meaning that the combined work or the factorial combination determines worse results\(^4\), than in the case in which each business unit would work independently one another, through separate efforts).

This is the reason why within the systems responsible with increasing the added value, the process control systems and the internal effects are being developed. In this case, functional interdependence is promoted not for the sake of creating a “collectivist”\(^5\) framework, but with the imperative of obtaining mutual benefits, the increasing of gained values during and at the end of production processes, the compression of reaction times and increasing information and customer value.

The economic environments that facilitate such conditions are heterogeneous, where significant intellectual resources predominate\(^6\), as

\(^4\) Unwanted
\(^5\) This term should not be perceived so simplistic or having inappropriate connotations.
\(^6\) “The economic growth is a function of \(I\) and takes place in conditions of relational growth, through more and more \(I\) agents, with more and more specializations (deepening work division), increasingly required by more and more economic agents” (see Jivan A., 2000, p.136). \(I\) factor is a concept introduced by the opposition to the \(M\)
well as technical and information capacities. The increase of their amount is
given by the imperative of "dominating" as many key resources as possible,
but the inter-functionality and growth of the synergistic relational potential
stand out as each business unit will discover that it cannot manage the
resources alone. The offered products and services must be integrated,
verified and improved from all the points of view and this fact can be
fulfilled only by a close inter-functionality. For example, within the Apple
Company, the so-called „deep collaboration” or „cross-pollination” or
„concurrent engineering”47 are promoted. „Basically, this term means that
the products do not simply move from one team to another. There are no
secretive phases of development. The process is simultaneous and organic
instead. On products there is a parallel work, with the simultaneous
engagement of all departments in endless rounds of interdisciplinary
revisions of design”48.

An observation is required: the increasing of same resources' effects
through the better "dominance" and the resources enhancement must be
analyzed by the economic science not as an indifferent potentiality
(individual, local, private, conquered due to the environment), but the

factor (to „material factors” – the material-quantitative aspects usually considered in
the classical L and K factors). It should designate all superior aspects (intellectual,
qualitative, by immaterial nature) that are involved in the economic process (of
"production") beside the material ones, being „held” by people or found in qualitative
modifications of the equipment, materials, technologies, methods, principles and
politics in action and response: idea, innovation, renewal, intellect, information,
knowledge etc., and, unlike the usual acceptance (that either ignores them or gives
them a marginal place), they are in the midst of any economic action, being the
defining element of the work. They are within (and emanate from) „deposits of human
knowledge” (libraries, databases, research centres, universities, intellectual service
office supplies, etc.), as well as within/from humans themselves (cultured, intelligent,
well-read, experts, scientific researchers and professionals) and they are used in the
economic process (too), beside the material efforts (those commonly quantified and
evolved). The prominence of these "resources” is still far from adequate in relationship with their share capital, even in the most general representations (in Economics textbooks it is learned that the technical progress is "pumped" into the
economic process as from a well, from somewhere outside...). The prominence of the
role of these immaterial factors became closer to the truth once with the approach of
knowledge society and the knowledge-based economy.

48 Idem
organization should be considered in the same optics as its components: in the logic of the whole. In other words, also the organization is part of a wider economic and social system in which we must judge its functionality and test it if it is proper to a favourable positive potentiality for the environment (overall economy, society, Mother Nature) or if the relationality within is rather a generator of negative synergies. The economic system (as well as the societal and planetary one) should not be perceived only in terms of space (expanded, comprehensive), but also in terms of temporal dimension, that is to say the long-term analysis and anticipation of effects (not just those commonly referred, in business or "short-sighted" logic of the market): the economics scientific analysis is much more demanding regarding the complexity of the analysis, than the managerial one. In this perspective – extended also to the whole system (macroeconomic, of human society, etc.) – the below must also be perceived, which are presented in the context of an organization as an economic entity level (company, economic agent) regardless its complexity.

The synergistic relational potential of the open system therefore increases as it outlines new opportunities of inter-correlation of secretive business activities. The mobilizing factors may be innovation (new techniques for the interconnection of activities, processes, individuals, entities in general) and the cultural aspects, the usages regarding cooperation and interaction between entities 49.

This synergistic potential is diminished or it may even be cancelled when the economic system does not use all the available resources/capacities/valences to the maximum and when the commitment of the human factor (as individuals, teams, collectives) – especially at the decision-making level – is a limited one. Here we notice that lack of development and the neglect of certain components of the system (for example, the infrastructure 50, inter-sectors flow 51, collaboration between the

49 At enterprise level: the adequate nature of organizational culture rewarding, not discouraging the teamwork and the strategy of stimulating the global cooperation (both horizontally and vertically).

50 The national competitiveness of Sweden in the 2006-2010 period (E.U. member country that occupied in 2010 the best position in the "World Competitiveness Yearbook" compared with other member countries of E.U. - position 20) was based on infrastructure (primary, technological, scientific, health and educational one),
economic activity fields and the educational institutions\textsuperscript{52} or the integrity of the economic entity\textsuperscript{53} and the low commitment of the (national or regional) authorities which directly influence the economic activity, the competition, the fiscal policies etc. in supporting, encouraging and even the rewarding the entities which are eager to access and use a larger number of essential resources (for example, technological and intellectual resources) in

\textsuperscript{51} Through the synergy of common inter-sectors strategies, the competitiveness of a nation can be re-launched (see http://www.zf.ro/opinii/punct-de-vedere-restructurarea-administratiei-intre-41-de-judete-si-10-regiuni-de-dezvoltare-4745858, accessed on 05.10.2010). If this fact is not accomplished (because of the lack of the economic decision-makers' initiatives) the macroeconomic level's synergistic relational potential will be low.

\textsuperscript{52} For example, at the end of 2008, 80\% of the Romanian university graduates worked in Romania in other fields than those in which they were specialized in university – exactly because of the lack of cooperation between the educational system and the economic system, the former one not being able to adapt to requests of the latter, despite the increasingly importance of the private sector in the Romanian education after 1990 (see http://www.money.ro/oamenii-de-afaceri-cer-pentru-educatie-studii-pe-piata-muncii-si-finantarea-scolilor-dupa-performante_97673.html, accessed on 05.10.2010). This fact has determined investors to additionally expend resources on both the employees' training or to "overlook" the lack of professionalism of some economic network's components; in both cases, a series of economic processes which had to be deployed have been delayed and the human nature synergistic jams became evident - for example, the front-line employees' lack of professionalism cancelled the cooperation between customers and company, even if the traded products were quality ones; or the lack of professional technocrats or clerks within the authorities that regulate the economic activity determines an excessive bureaucracy, a discouragement regarding the collaboration between companies and state and "taking responsibility" in a high degree, of payments "delay" to the state, but, much worse, delays of important investments.

\textsuperscript{53} On the ethical point of view, corruption causes the destructive exploitation of the synergistic relational potential of the economic systems.
order to increase the entity’s synergistic relational potential and the gaining of future profits.

Hereby, we observe that as cooperative attitudes make their way into the economy running on market principles (of competitiveness), they increase the chances of occurrence and exploitation of synergy effects and the growth of systemic potentiality. Furthermore, the fact was also observed at enterprise level through the diminishing of the synergistic potential when, for example, only the individual performances are rewarded and not the organizational, collaborative, group (or team) performances, or if there is an internal competition, immorality (for example nepotism), wrong allocation of competencies (even if these issues do not appear in reports). At the enterprise level too, dysfunctions may occur in the work of staff if the experience of serving clients is promoted only for the ones in the front line (sales representatives, transporters, cashiers, clerks and so on) and if the high staff turnover is growing; or if the power relationships transpose into power distance, if standardization is imposed, although there are cultural discontinuities within the synergistic network, if the position is remunerated (the function which is being held) and not the fulfilling of the function’s task, that is the behaviour etc.

The synergistic relational potential will increase as the entrepreneurs will realize also through math calculations that “the workers represent more than the sum of their parts”\(^\text{55}\). In order to obtain competitive advantage, it is required to exploit “the full potential of every individual”\(^\text{56}\); to this end, teams can be “much more than a group”\(^\text{57}\). The synthesized argument is that a business unit, acting alone, may gain a lot – this is called performance; but a system, acting in an integrated way, may generate even more- and here we talk about the synergistic/multiplicative performance.

\(^\text{54}\) Of course, without the elimination of useful valences (incentives) of the competition, but avoiding the destructive valences.


\(^\text{56}\) American Society of Mechanical Engineers: http://professionalpractice.asme.org/MgmtLeadership/Principles/Synergy_Teamwork.cfm, accessed on 12.11.2010

\(^\text{57}\) Idem
The economic science – that we need to claim over the business vision (of business) of businessmen- has the obligation to address these principles (discussed above at level of economic entity) into an inclusive and generalized optics adequate to the complexity of the national or international economic systems, without forgetting the implications which are spoken about today in the knowledge society (social, natural environment implications), everything from human, intellectual, knowledge factor (and perceiving it in that terms, as central and capital for perception and for action in economy and society).

**The benefits of exploitation the open economic system's synergistic relational potential**

The basic principle of the exploitation of an open economic system's synergistic relational potential is the superior efficiency of resources' exploitation and the internal and external capacities of the firm or of other economic entity that acts as a system of relationships – with a synergistic beneficial impact similar to higher and global levels. „The synergy effect of the interrelated functionality (each subsystem being completed in its functionality by practically all other elements of the assembly) will help balancing the whole (enterprise, national economy), everything being found in higher efficiencies (...); when the provider-client relationship is very effective, then all goes well and the related and surrounding activities will be involved in smooth operation, the possible amputations or short-circuit of some parts will be covered in terms of servicity, of overall utility, through the others' contributions; the economic and social system will be functional at high parameters”\(^{58}\).

„These increased growth of the potential (and of total yield - in the sense of functionality, of the offered services) – suggests an increasing «productivity» of the system in its synergistic entirety (mostly), but also of each «performer» (including the last-comer) – thanks to its inter-correlation with others, which can overcome its weakness and may increase the

\(^{58}\) Jivan A., 2000, p.125
personal potential; the growth is relational, not quantitative, but functional (services type)"⁵⁹.

In the economic literature, hubs and flows of the economic networks divide those networks in two distinct categories⁶⁰:

- “club” networks: participants have a common goal⁶¹, activity or service, while they are showing intertwined interests and operations, linked in parallel⁶²;
- “web” networks: participants present different activities and goals which are rather complementary than similar and are linked in series (for example a network of companies or of business units that assume certain stages of production).

- Within these types of economic networks synergy is obtained “in different ways”⁶³:
  - within the "club" networks there are achieved „horizontal synergies“: here the synergy derives from cooperation that leads to economies of scale and to so-called positive network externalities; the achieved economies of scale are valuable only for the network’s actors: the externalities occur when the cost of participation within the network is lower than the benefits of cooperation;
  - within the “web” networks „vertical synergies“ are achieved: the obtained synergies are added values resulted from the agglomeration and/or specialization effects; the key mechanism is the complementarily, synergy resulting from a specialisation process, redistributing of resources and activities related to the implied participants’ skills (see Figure 2):

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⁵⁹ Idem., p.63-64
⁶¹ This common goal is more prominent as the network’s members possess certain share of stocks.
⁶² For instance, in the case of a car rental company, the employees follow the same goal: the development of rental services. But some focus on serving partner customers, others on signing new contracts and others on taking the cars from the "served" offices’ headquarters.
The basic benefit of the exploitation of the open economic system's synergistic relational potential is the horizontal synergy, namely the multiplier effect of cooperation within a team, a company or an economic activity sector that shows a majority of common objectives. Such horizontal synergies take the form of relationships with mutual benefits, of win-win type. These synergies add value to both parties\textsuperscript{64}, the relationship making its way to a new level of the open system's performance\textsuperscript{65}.

The most obvious horizontal synergies are represented by strategic partnerships, bilateral agreements, but even within the negotiations teams.

\textsuperscript{64} Idem, p.26
\textsuperscript{65} Ibidem, p.231
In negotiations, the synergy game generally shows relational valences. According to studies and empirical experiences, it is necessary that "the setting up of strategy and negotiations tactics depending on the partner's position and requests takes into account the synergy effect of team members' abilities."\(^{66}\) This is why experts say that "the simultaneous participation of several people that form a team (...) is not only advisable but compulsory"\(^{67}\), emphasizing the "agglomeration's" benefits of heterogeneous capabilities, elastically coordinated during the event itself. According to Ito T., Zhang M., Robu V. et all-edit. (2010), in a sale and purchase (of goods) negotiation, a buyer that shows synergy within the negotiation team (therefore, synergy game) can increase its negotiation profit by up to 100\%, whereas a buyer that does not show team synergy can increase the expected profit up to 25\%.


\(^{67}\) Idem, p. 33
profit by up to maximum 5%\textsuperscript{68}. This is valid for an exercise price on a scale of 0 to 7 units (see Figure 3).

Therefore, the harmonization of internal capacities determines value addition in the context of internal-external interfering.

Other implications of the exploitation of the open economic system’s synergistic relational potential are:

- intellectual precedence: due to frequent exchanges of information and experiences within the synergistic network, the ability to select and use technology and information will determine higher yields within the active system;
- the favouring of unconventional advantages and performances: the advantages and performances of those networks that show synergies are "enriched" by second and third order compatibilities\textsuperscript{69} that, the more they involve more elements, the more difficult to imitate they are;
- shortening the correlation, communication and reaction times: the execution time of activities is optimizing, allowing its shortening in cases when saving time is beneficially (from \textit{tim}, the maximal execution time, to \textit{tim}, to minimal time); and in the case when quality requires de-intensification, it allows the elimination of some elements' overload and the use of others adequate with substitute role; the correlated increasing of the system's productivity\textsuperscript{70};
- the exploitation of relational advantages of agglomeration through the development of clusters, conglomerations, flows and interurban relations\textsuperscript{71};


\textsuperscript{69} While the first order compatibility implies "the simple matching between each activity (function) and the overall strategy", the second order compatibility "occurs when activities reinforce each other" and the third order compatibility implies "the efforts' optimization" (Porter M., 2008, p.59-60).

\textsuperscript{70} For example, at the company level, the productivity can increase in the condition of promoting the operational efficiency, after applying the total quality management (see the increasing of work productivity per hour in the Japanese industry in the 1986-1991 period).

\textsuperscript{71} For example, the development of a series of polycentric networks in the capitalist countries as the Randstad urban network, from The Netherlands, the BosWash megalopolis from United States of America and so on.
The Exploitation of the Open Economic System’s Synergistic Relational Potential

- cost reductions: due to the merge of activities and due to the administration of all network’s costs (aiming at not only the most important) a series of effective losses are reduced.

Aspects of retrieving the synergistic relational potential in accountancies and statistics

Even if the open economic systems “have the potential for high degrees of synergy”

Strictly at macroeconomic level, synergy and the exploitation of synergistic relational potential of the economic systems are completely ignored elements in the national and international economic statistics. For example, in the hundreds of pages of “The Global Competitiveness Report”, published by The World Economic Forum for the 2007-2011 periods, there is no report, concept or reference related to synergy, synergistic potential or synergistic implications of the studied systems. This fact is true also for other reports or international or national indexes regarding the economic domain, such as “The World Competitiveness Yearbook” (published by the IMD Swiss organization), the national statistical reports and so on. Nevertheless, those who benefit from competitive advantages appreciated by the international yearbooks (in the competitiveness domain) said that their success lies right in the advantage of the synergistic potential’s exploitation at national level, the advantageous cooperative relations

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72 For example, at company level, see the costs synergies of Petrom S.A. (part of OMV Group) in 2010 from eliminating the Petrom V brand.


76 In the 1996-2011 period, The National Institutes of Statistics of 40% of the E.U. member states show no report or reference to synergy or synergistic networks at national macroeconomic level.

77 For example:

- U.S.A.: The American clusters „benefit from interdependencies and produce synergy” (***, *Exports, Competitiveness and Synergy in Appalachian Industry Clusters. A Report to*
between the hives of industrial, government authorities and the assembly of the activity sectors having an important role.

But the most references to the synergistic relational potential’s value coincide with the situations of analysing the capitalization and feasibility of signing some mergers or multidimensional agreements.

According to McKinsey & Co. studies “potential synergies are generally overestimated before a merger”\(^78\). For all that, “synergy remains a worthwhile objective, with potentially enormous benefits for both the individual and the organization”\(^79\).

In 2009, D. Erik, K. Palani and K. Srinivashan conducted a study on 264 large corporate mergers from the 1980-2004 period of the capitalist world. The research concluded from the studies that the result, or, better said, the post-merger synergy gains \(^80\) are “quoted” by the mergers’ promoters at the 10.02% percentage of the "combined equity value of the merging firms"\(^81\) – that is to say, the average total synergy gains of the 264 studied mergers (see Figure 4). The resulted financial synergies from tax savings were estimated to 1.64% that is “less than 17% of the total synergies.”

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79 Idem, p.26
80 Valid for a simple fusion; these gains result „by comparing the present value of Value Line cash flow forecasts for the target and acquiring firms before the merger with the forecast for the combined firm” (Devos E., Kadapakkam P.-R. and Krishnamurthy S., “How Do Mergers Create Value? A Comparison of Taxes, Market Power, and Efficiency Improvements as Explanations for Synergies”, published by Leeds School of Business at the University of Colorado at Boulder, 2009: http://leeds-faculty.colorado.edu/bhagat/HowDoMergersCreateValue.pdf, accessed on 27.06.2011).
81 Idem, p.2
This result suggests that tax considerations are not a major source of merger gains\textsuperscript{82} but the represented amounts may be of tens or hundreds of dollars. More important however were the benefits from operating sources, the operating synergies representing 8.38\%\textsuperscript{83} of the total forecasted future values. All these synergy gains categories resulted due to "the elimination of duplicate investments"\textsuperscript{84}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4.png}
\caption{The evaluation of synergistic potential resulted from 264 large corporative mergers from the period 1980-2004}
\end{figure}

\url{http://leeds-faculty.colorado.edu/bhagat/HowDoMergersCreateValue.pdf}, accessed on 27.06.2011

In contradiction with financial tax synergies, the operating synergies relate to combining efforts that lead to added efficiency, having operating resources as reference elements (of administrative, commercial or

\textsuperscript{82} Ibidem, p.5
\textsuperscript{83} See ibidem
\textsuperscript{84} Ibidem
logistical order). The operating synergies are focused mainly on “horizontal relationships among business units to capture corporate performance”\textsuperscript{85}.

It can be concluded from the cited analysis that after a merger, it is possible that over 80% of the post-merger synergistic potential represents in fact, synergistic relational potential.

But other empirical studies suggest that the relational aspects of post-merger type synergistic actions are listed in the background, prevailing the evaluation of the top synergistic financial nature within the aimed mergers. For example, before the merger of “Chrysler Corporation” and “Daimler-Benz A.G.” (spring of 1998), the executives of Chrysler wanted to find out the potential synergies and their post-merger value and the following report of evaluating the possible synergistic potential came out (see Table 1):

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|}
\hline
\textbf{IDENTIFIED POTENTIAL SYNERGIES} & \textbf{HYPOTHESES SYNERGIES} & \textbf{COMMENTS UPON SCRUTINY} \\
\hline
Cost saving synergies & - Savings in purchasing and in new product design and development; - The savings are expected to reach up to $1.4$ billion in 1999 and $3.0$ billion by 2001. & Because the product lines of the two firms did not materially overlap, it seemed unlikely that savings would be significant through consolidated plants or distribution. \\
\hline
\end{tabular}
\caption{Identification of potential synergies of the Chrysler Corporation-Daimler-Benz A.G. merger}
\end{table}

Therefore, in this example, out of the four identified categories of synergistic potentials, a single category implies dominance of relational synergies: the real option synergies.

The fact that, in some partnerships, the relational aspects of the synergistic potential are more prevalent and in others prevail strictly the financial aspects related to assets reduction etc. is caused by the "morphology" of ratified agreements and by the activity field of the systems under "kinship".

The minimal synergy effects are resulted within the unilaterally agreements that "usually involve minimal interdependence of the partners" see Figure 5). But the highest degree of interdependence and thus also the highest level of relational synergy effects prevails within the bilaterally agreements, which are strategic alliances like cooperation agreements of joint ventures or consortiums; these bilaterally agreements involve “the linking of individual destinies to a larger extent than the

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86 Faulkner D., Bowman C., The essence of competitive strategy (in Romanian), Teora Publishing House, Bucharest, 2000, p.87
unilaterally agreements" and, accordingly, also, a more obvious relationship within the resulted system.

![Diagram of Synergy Effects]

**Figure 5:** The “dimension” of synergy effects depending on the signed agreement type

It is important to specify that within the domain of mergers, acquisitions or other forms of economic activity’s expansion, a significant part of an economic entity’s potential is found outside of it, and sometimes, even outside the domain, borders or the specific sector of activity. Furthermore, we approached the subject regardless the system's level (company, domestic economy, global economy etc.), because a proper knowledge cannot be confined to the level of business, and in economics, raising expanded horizon issues (including interdisciplinary) is a requirement in the knowledge society. The manner in which each economic entity relates with the environment represents an essential determinant of the strategic and financial success or failure of the open economic system. And the synthetic evaluation of synergistic relational potential, both at basic level, of an economic entity (within the internal relationships between processes and/or individuals), and higher levels, for any economic system (involving therefore the whole of external relations) require comprehensive, fine, detailed and color analysis, in a constructive capitalization of knowledge of business at higher magnitude complexity levels and business levels with more broadened and diversified analysis angles.

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87 *Idem*, p.88
88 See Porter M., 2008, p. 234
Such as at enterprise level, if the primary needs of the economic system remain unsatisfied for a longer time, the risk that the synergistic relational potential of the system is not fully exploited increases, exactly like the domestic economy where malfunctions may critically worsen, through declines of potentiality. Furthermore, at a worldwide level, in social and environmental dimension, today’s economy faces a major lack of needs, with all (visible) effects in the chances of benefiting from positive synergism and facing the risks of deep global systemic crisis.

Conclusions

The current economic system represents “a construction of interdependent resources constituting a whole” in which the interaction needs with the environment (physical environment, social partners, economic partners etc.), the imperative of including, collaborating and integration become more and more pronounced. Hereby, the synergistic action assumes both the costs and benefits of transition “from a vertical world (command and control) to a more horizontal (connection and collaboration) one.”

Synergy represents an entrepreneurial and real social experience; it does not mean the living networks’ stability, but the condition, and, at the same time, the hint of their mobility and strength, reflecting a number of commitments and managerial options at different levels (of enterprise, corporation, governments, economic unions, global initiatives etc.).

89 See also Buckingham M., Coffman C., First, Break All the Rules: What the World’s Great Managers Do Differently (in Romanian), ALFA, Publishing House Bucharest, 2007, p.24-25. The companies that do not present obvious premises for an increased relational potential, do not become synergistic entities; and, if synergy does not occur, the entity will be outmatched in the contemporary competitive “ocean”.

90 The persistence and widening of disparities between countries

91 Unresolved issues of exclusion, the persistence of acute poverty issue.

92 With all ecological requirements – whose solution is a known necessity, but it is temporizing, remaining at insignificant levels, while the damages come to a head.


94 Friedman T. L., 2007, p.203

95 Such as “The Black Sea Synergy” – regional cooperation initiative (in the domain of government efficiency, commerce, energy and transport, environment and fishing,
The exploitation of the synergistic relational potential of the open economic system enables the intellectual intensification (the amplification of technologies and information valorization), with all the effects that may arise, appropriate to knowledge-based economy; it enables the stimulating of the economic action's originality, within the preoccupations for optimization; regarding productivity increasing, it is likely to achieve, at its turn, in the most proper form for each type of performance, involving qualitative aspects respectively (without limitation to the strictly quantitative ones); it enables savings and added congestion, relationality, etc.

The positive synergy effects constitute special tools (different from the usual ones and superior) for obtaining advantage in the competition, but, at superior levels, cooperative ones, the positive synergy effects constitute solutions for significant problems and opportunities for the future which should not be failed. The effects of synergism are, by themselves, arguments for taking into account and exploiting the relational potential, at different analysis levels, as well as for scientific concern in order to properly understand the positive synergies' quantifying and stimulation.

In order to achieve advantageous economic results, any economic system must be able to connect the business programs with the internal relational potential and non-destructively framed in the external relational frame; through the simultaneous action of the combined efforts, the benefits will not only be of network synergy effects type, but also a relational economy with strong cultural connotations having an advanced knowledge and a complex constructive approach in centre, aiming at sustainably protecting the environment and the next generations.

research and education networks, technology etc.) that aims three levels of cooperation: (a) cooperation between the E.U. member countries with opening to Black Sea (Romania and Bulgaria), (b) cooperation between the E.U. member countries with territorial opening to this sea and other European and Asian countries from the Black Sea Area and (c) cooperation between the Black Sea Region's countries and the whole European Union (see: http://ec.europa.eu/world/enp/pdf/com07_160_ro.pdf, accessed on July 2011). In order to a thoroughgoing and developed study it is recommended to use, for example, Alexandru Jivan, Intellectual Tertiary Economics (in Romanian), Mirton Publishing House, Timişoara, 1995 and Jean Gadrey, Faïz Gallouj (Edited by), Productivity, Innovation and Knowledge in Services. New Economic & Socio-Economic Approaches, Edward Elgar, Cheltenham, UK; Northampton, MA, USA, 2002.
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