Editor Charis Vlados

Studies on Southeastern Europe and the Greek Economy

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Notes on Contributors

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Dr. Nikos Deniozos is a Hellenic Coast Guard Commodore (ret.), a former Commandant of the Hellenic Coast Guard Special Operations Unit, former Commandant of Hellenic Coast Guard Anti-Drug Unit, former Head of Hellenic Delegation at EUROPOL in The Hague, and former Central Harbor Master at Central Coast Guard Agency in Chalkis, Hellas. His last position before the voluntary retirement was the Director of the Hellenic Coast Guard's Civil Defense and Civil Planning Emergency Directorate. He has participated in numerous projects of FRONTEX concerning the illegal immigration combating, and at NATO's PBOS committee regarding the strategic maritime transport as a national expert. He has taught Maritime Economics at Hellenic Coast Guard Cadet Officers

School—Hellenic Naval Academy, as well as the lessons Ports Security and Navigation Safety at H.C.G. Cadets Guards school. He holds the following degrees: Hellenic Naval Academy, Coast Guard Officers Cadets School; Athens University of Economics and Business, Department of Economics; Masters (M.Sc.) in Regional Development; Masters (M.Sc.) in Quantitative Methods applicable in Decision-Making; Ph.D. in Regional Development; Postgraduate Diploma in Defensive and Strategic Studies; Graduate from George Marshall European Centre for Security Studies.

Athanasios Falaras has completed his bachelor's degree at the School of Applied Mathematics and Physical Sciences at the National Technical University of Athens and master's degree at Information Systems (MIS) at the University of Macedonia. He is now a Ph.D. student at the University of Macedonia. Having a strong mathematical background, he is interested in the appliance of exploratory statistical analysis methods (correspondence analysis, hierarchy clustering, factor analysis) on the field of agricultural innovation. As the academic path defines that every academic persona must have a broader range of interests than just a specific field of study, he is also interested in economics and international relations, specifically on the way broader geopolitical advances in Southeastern Europe affect the course of the Greek economy.

Dr. Charis Vlados Dr. Charis Vlados holds a Ph.D. (Mention très honorable) for his thesis on the types/forms of evolutionary integration of the Greek enterprises into globalization that took place in the Research and Studies Center on Multinational Enterprises (C.E.R.E.M) of the Paris X, Nanterre. He has established and developed the "Stra.Tech.Man approach" in the field of business dynamics. He has worked with various research institutes and as a business consultant in Greece and abroad for approximately twenty years. He is now lecturer (academic tenure) with the Department of Economics of the Democritus University of Thrace and also teaches at the MBA of the University of Nicosia and the University of the Aegean. He has authored 12 books and has more than 100 scientific contributions in academic research and consulting.

Contents

Introduction

We are experiencing a phase of profound restructuring of world capitalism. Several phenomena and developments lead us to observe a restructuring and crisis that take place upon the previous phase of globalization. In our view, the current global crisis is a socioeconomic "gameplay" of planetary reach, where the balanced and healthy reproduction of the past globalization is over. Moreover, we should notice that this theoretical approach cannot be a superficial or sporadic one but structural and systematic.

The main conceptual thread of this book argues that, in every substantial contemporary approach to globalization, we must understand the particular historical/evolutionary nature of the global socioeconomic space in its unity. We must examine together, in their dialectical adaptation and co-evolution, all the dynamic dimensions: economic, technological, social, and geopolitical.

In this context, the study of geo-economic and geopolitical dynamics in Southeastern Europe and Greece invites us to examine many partial dynamic dimensions. These dynamics unify the levels of spatial analysis (local, national, international, and global),

competitiveness (articulated in micro-meso-macro level), and development (both in terms of firms, various sectors of economic activity, and business ecosystems).

The purpose of this volume—which is a collection of published articles by the "Stra.Tech.Man Lab" research team—is to present critical issues concerning the broader region of Southeastern Europe and how they are interrelated and influenced by the level of development of the Greek socioeconomic system. Exploring these studies collectively for the needs of the volume, we can see that the crisis of the Greek socioeconomic system is part of the overall problematic development of the region. In the background, the nations of Southeastern Europe seem to share common attributes and perspectives concerning their business, political, social, and cultural environment.

Moreover, this collection examines in detail the crisis and restructuring of the Greek socioeconomic system. In our view, it is clear that this crisis is neither accidental nor temporary. On the contrary, already from the beginning of the last decade, we started to realize that we are facing radical changes and new challenges, both internationally and within the Greek economy and society. Finally, these profound changes and challenges call for activating new types of evolutionary understanding and articulating new sets of policies at all levels. This repositioned perception and practice would preserve geopolitical security and enhance socioeconomic development in the region.

As a result, we think that this volume contributes to viewing contemporary problems identified in the region from multiple perspectives. It starts with and presents the specific Greek case while proposes economic policy solutions that can enhance the competitiveness of different socioeconomic systems in the Southeastern Europe region (strengthening innovation capacity, improving competitiveness, ameliorating geo-strategic decisions, and reinforcing local development procedures).

In particular, the volume contains five articles:

I. *Development dynamics in Southeastern Europe: The challenge of the new paradigm of cooperation*

The dynamics of globalization transform the evolutionary nature of capitalist phenomena structurally, at all levels. No

enterprise or institution and sector of economic activity is cut off today from cross-sectoral relationships formed within the dynamics of globalization. As a result, there is an urgent need to create a new paradigm of strengthening the international relations of cooperation, especially in socio-economic systems and regions of the world that seem to be lagging in terms of competitiveness, such as the region of Southeastern Europe.

In this context, we argue that a prerequisite for a new paradigm of cooperation is to resolve how competitiveness unfolds in evolutionary terms within the globalized context. To this end, we suggest that the co-evolution of the socioeconomic space that hosts the activities of firms and the specific cross-sectoral structures that concern them generate the phenomenon of competitiveness. This evolutionary perception of competitiveness is the basis for understanding the cooperation-competition relations and the new paradigm of co-development that Southeastern European countries need to integrate to meet future challenges.

II. Search for competitiveness and entrepreneurial evolution in the global environment: An approach of development dynamics based on the Greek productive system

The Greek socioeconomic system, as well as systems of similar development (such as the Balkans), undergo a process of profound transformation, primarily due to the firms that survive and compete on their interior. In the age of globalization, different production systems appear to be developing organically since simultaneous global-local relationships influence them by transforming their structural characteristics. In globalization, which is a continuous and simultaneous dialectical process of homogenization and heterogeneity, we cannot examine validly any socioeconomic system in separation from one another.

In this context, the firms themselves exhibit organic characteristics, according to the way they articulate their strategy, technology, and management (Stra.Tech.Man synthesis). After studying the Greek case, we find that at the heart of the continuous transformation of the "physiology" of firms lies the way these firms think (philosophy) and act (processes). This conceptualization, which places the innovative business action at the center of the socioeconomic system, suggests that the overall

level of development depends on the competitiveness of firms, primarily. In the case of Greece, it seems that "monad-centered" firms constitute the majority. These firms base their strategy on their instincts solely, make sporadic choices in their technology, and their management is attached to practical experience. Furthermore, these firms exhibit a relative weakness in generating innovation while giving the overall tone and rhythm to the relatively weak development of the Greek economic system. This finding can suggest and explain why Greece has entered into a developmental-evolutionary spiral of low competitiveness, which incubated the subsequent crisis for the entire national production system.

III. Energy security in the Balkans and the energy economy of Greece

This article focuses on the energy path that Balkan nations follow in recent years. Although the Balkans is an area of low energy significance, we emphasize in this article, through recent energy developments, the emerging geo-economic role that we expect from Balkans to play in the global energy policy chessboard. Moreover, the EU plays a vital role in the energy policy of the Balkan countries since it constitutes one of the largest importers of energy raw materials and is heavily dependent on hydrocarbon imports.

The Balkan region is an East-West and North-South intersection, where we encounter today various energy interests. Following the discovery of hydrocarbons in the eastern Mediterranean region, we present how existing and in-process gas pipelines intertwine with the broader strategy of the Balkan states, the EU, Russia, and the US. We argue that in order for Greece to achieve its energy safety goals, it must first increase its energy autonomy and improve cooperation with other Balkan states. In this way, Greece will be able to exert meaningful influence by intervening directly or indirectly in decisions regarding various implemented projects in this fragile region. Balkan crude oil and gas transportation networks are critical strategic drivers in the ongoing energy competition between the West and Russia.

IV. The multiple perception of innovation: The case of micro and small enterprises in the Region of Eastern Macedonia and Thrace

This article aims to study the multiplicity in the perception of innovation, taking as a case study the Greek region of Eastern Macedonia and Thrace, which is one of the least developed regions in Greece and Europe. After presenting critical theoretical milestones in the conception of the innovation phenomenon, we analyze the findings of one qualitative field research we conducted in the region of Eastern Macedonia and Thrace on a sample of micro and small enterprises. What we find is a remarkable distance between the perception of innovation in these firms of the less-developed region and some of the fundamental characteristics of "best practices" of innovation provided in international literature.

V. Crisis and entrepreneurship in Greece: Present, past and evolving trends

The current phase of crisis and restructuring of globalization is transforming in-depth the entrepreneurship dynamics at all partial socioeconomic systems of the planet. A vital feature of this transformation is the competitiveness that different socioeconomic systems are capable of articulating, which depends primarily on the innovative potential of their firms.

After studying the case of the Greek crisis and the structural transformation of the Greek socioeconomic system during recent years, we try to identify how this crisis of entrepreneurship evolves. In the background, it seems that the morphology of the entire business ecosystem in Greece deals with severe competitiveness weaknesses. The analysis of the Greek firms in terms of their Stra.Tech.Man "physiology" contributes to this scientific dialogue, by also proposing policy solutions and recognizing a possible future outcome of the Greek entrepreneurship.

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1 Development dynamics in Southeastern Europe: The challenge of the new paradigm of cooperation [1]

Charis **VLADOS**

Introduction

The present contribution investigates the new challenges of sustaining, strengthening, and reproducing the cooperation dynamics of the socioeconomic formations of Southeastern Europe in the evolutionary context of the contemporary phase of globalization.

Initially, we should recognize that the current situation in the broader Southeastern Europe cannot be characterized as satisfactory. It is not only the fact that various traditional divisions and conflicts are maintained and often exacerbated with unpredictable consequences. Nor the fact that the issue of security remains fragile and increasingly costly in general socioeconomic terms. More to the point and mainly due to the above, it becomes apparent that the current development dynamic in the region remains generally weak, shallow, and of small scope. In the era of globalization, Southeastern Europe seems to remain stuck in the role of the "problematic periphery." The European development dynamic (Figure 1) continues to concentrate on its advanced

capitalistic center (Germany, France, UK) and reproduce without integrating Southeastern Europe (Dunford & Kafkalas, 1992).

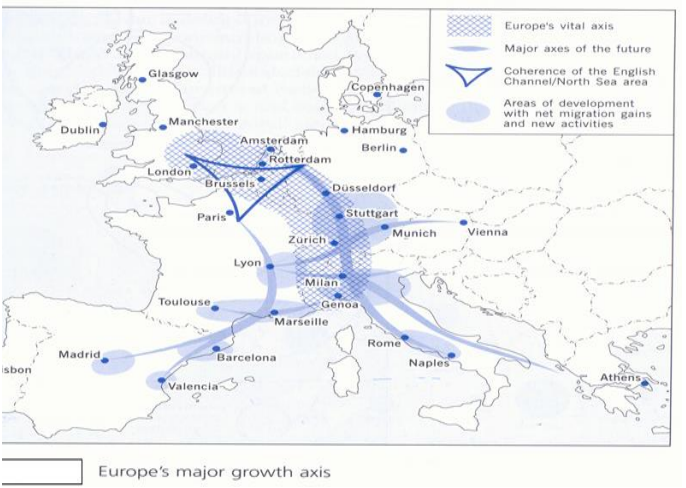

Figure 1. *Major development dynamics in Europe. Based on Dunford and Kafkalas (1992)*

Consequently, many "certainties" and mechanistic "developmental" approaches of the past, appear weak in the globalization era in providing a reliable analytical framework in order to study Southeastern regional development. Many analytical simplifications, dichotomies, and rigidities, "especially common" within the field of the conventional development economics and international relations, seem to have exhausted their interpretive resources. Therefore, it is no surprise that various criticisms and re-orientations in terms of theoretical elaboration are gradually crystallized, in the context of the relevant scientific research (Cercle des economistes, 2000; Durand, 1993; Furtado, 1990; Gorz, 1988; Griffin, 1989; Hugon, 1989; 1997; Lucas, 1988; Sachs, 1997; UNDP, 1999).

At the core of the process of revisiting the contemporary viewpoints regarding the issue of development, is the dynamic of globalization itself. This fact does not cease to transform the evolutionary nature of global capitalism in all its dimensions, in all business, spatial, and sectoral contexts. This redefinition of the

deeper architecture, rules, and normalcies of global capitalism necessarily invokes new approaches to its generic and national specific dynamics.

In the center of the theoretical reorientation emerges the imperative of a new conception of cooperation, a new paradigm of cooperation encompassing all the diverse regional entities of the planet, a point which seems particularly important for the sensitive region of Southeastern Europe (Spilanis & Vlados, 1994; Vlados, 1996).

The evolutionary context of globalization

Nowadays, the concept of globalization in the public debate, unfortunately, tends to be relegated mainly to facile interpretations and sweeping generalizations, effectively detracting from its analytical and interpretative content. Most of the relevant academic research efforts are confined to a static framework for studying traditional international economics and politics.

Nevertheless, globalization does not constitute in any way an age-long established order of things: it cannot be reduced to a constant, repetitive state of equilibrium. Instead, it is manifested in terms of a dialectical process of a complex systemic flow, which continuously and necessarily undergoes qualitative transformations and shifts in terms of participant socioeconomic formations (Braudel, 1985; Crozet, 1993; Dicken, 1988; Gilpin, 2002; Lafay, 1996; Michalet, 1985; Wallerstein, 1979).

Indeed, the dynamic of globalization does not cease to evolve as an expanding—and at the same time deepening process—of structural unification of the modern world. It also does not cease to build an unbreakable evolutionary unity of the individual socioeconomic agents, gradually becoming more dense and robust in interactions and co-determinations, in uniform spatial terms. In this way, the global socioeconomic space becomes continuously more functionally and indivisible (Figure 2).

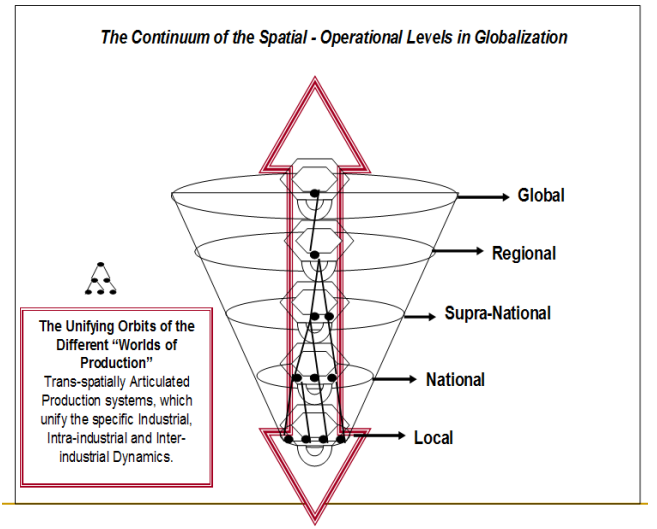

Figure 2. *The dialectic of unification of the socioeconomic territories in the global process*

More specifically, the emerging and progressive continuity of different spaces within the process of globalization establish themselves dialectically upon the structural "backbone" constituted by the unifying trajectories of the different "worlds of production." Within this structural background of the dynamic of globalization, various productive systems are articulated incessantly, which are being progressively integrated through the individual sectoral, intra-sectoral, and inter-sectoral dynamics pervading and continually transforming them. These are precisely the dynamics that effectively make a dent in the ethnocentric logic of national socioeconomic space and thus challenge our conventional wisdom. In this way, the dynamics of globalization itself constitutes the dialectic mechanism integrating every socioeconomic system (Figure 3).

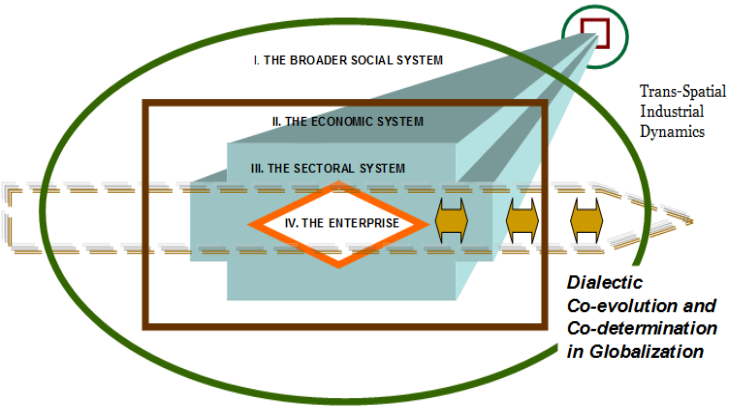

Figure 3. *The socioeconomic space as a systemic entity of four structural subsystems: the broader social system, the economic system, the sectoral system, the enterprise*

The evolving identity of globalization seems to reflect on the deeper level of socioeconomic development of virtually every place on the planet: more or less advanced. This fact is observed simultaneously on the consumption and the production side, as well as in more particular socioeconomic terms.

Hardly any locality, nowadays, can be insulated from the dynamic of globalization. More and more systemic links among the various socioeconomic systems of the planet, even the remotest ones, are becoming stronger and denser. In this direction, the rigid view of the "autonomous development" seems inevitable to sap its analytical rigor.

That is because globalization is not merely the reduction/breaking down of barriers encountered "as of yesterday" by the economic flows, and it is not condensed easily into a superficial process of market deregulation on an international level.

Competitiveness as a synthesis of the dynamics of the firm, space and industry structures on a global scale

Under these conditions, the issue of competitiveness in the context of globalization is gradually emerging as the new epicenter

of the development and international relations debate. Furthermore, the sustaining and reproduction per se of competitiveness is viewed as the necessary condition for every far-reaching process of socioeconomic development across the board (local, national, international, and global). In this way, a new logic of local-regional development appears to be gradually emerging, which calls additionally for an integrated, synthetic mode of understanding.

Arguably and in general terms, competitiveness refers to the ability to offer, as an independent socioeconomic agent, products and services to markets (local, national, or international), in a sustainably efficient fashion within the variant conditions imposed by competition. Namely, it is the ability to produce, sell, profit from, and grow in the context of globalizing competition. (Figure 4):

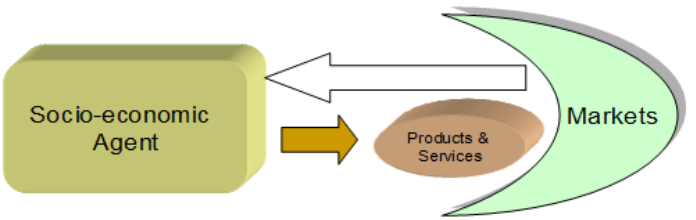

Figure 4. *The general definition of competitiveness*

Such definition is admittedly not erroneous, but within such extensive definitional scope, many researchers apprehend many different things in a highly divergent fashion, resulting in many relevant issues remaining vague and shadowy. In effect, the pursuit of such skin-deep approach to competitiveness is degenerating into rigidly mechanistic, one-dimensional and dichotomous strategic activities by the involved enterprises (Competitiveness Policy Council, 1992a; 1992b; 1993; 1994; Dertouzos, Lester, & Solow, 1989; Dunning, 1997; Best, 1990; Lado, Boyd, & Wright, 1992; Nezeys, 1994; Reve & Mathiesen, 1994; Scott, Lodge, & Bower, 1985).

In particular, common among these ventures is the following dichotomy:

– Either competitiveness is conceived exclusively as a close property of the socioeconomic space (commonly referred to as the "national space")

– Or it is conceived exclusively as a closed property of the firm (commonly referred to as the "national firm")

The above dichotomous approach to competitiveness is incomplete analytically, thus it cannot but remain interpretively ineffective in every bid for coherently conceiving the Development phenomenon within globalization[1].

Consequently, there is no genuinely comprehensive approach to competitiveness, neither in the gross hierarchies of the different socioeconomic spaces (cities, regions, countries) based on their "calculated" competitiveness nor in simplistic benchmarking practices among enterprises "overlooking" the spatial and industrial dynamic of their field of endeavor[2]. On the contrary, we must conceive competitiveness and development in organic and evolutionary terms. Otherwise, a legion of unanswered questions will inevitably accumulate.

For, in reality, there is no universally correct way of defining competitiveness in the absence of specific characteristics of the incumbent local firms. Similarly, a cogent definition is not feasible without a specific socioeconomic space accommodating and fertilizing the activity of the incumbent firm (Vlados, 2004).

On a deeper level, as the dimensions of space and firm are always realized dialectically within the specific evolutionary sectoral/inter-sectoral productive systems that pervade the conventional local, national, and peripheral boundaries, the

[1] This reasoning is not difficult to grasp. First, it is evident that within the same socioeconomic space operate enterprises more or less competitive and successful. If the exclusive determinant of competitiveness was space, then why the various operating firms in that space exhibit diverse competitive performance? In other words, if competitiveness could be defined exclusively in spatial terms, then all firms in the same space would have the same competitive ability. This, of course, is improbable.

[2] In practice, these common simplifications on the competitiveness metric provide facile interpretations that misguide every intervention on the development issue.

concept of competitiveness cannot be approached in the absence of this environmental dynamic reliably.

Simply put, competitiveness in the global era is always the dialectic synthesis between:

– the incumbent firm
– the socioeconomic space accommodating its action and
– the idiosyncratic industrial dynamic surrounding and activating the whole competitive process (Figure 5).

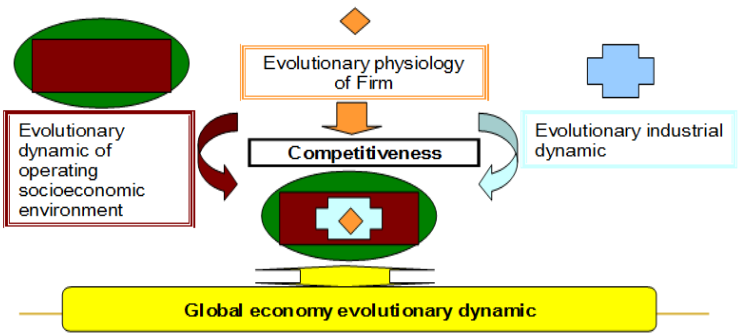

Figure 5. *Competitiveness is created and reproduced within globalization as a systemic evolutionary grid: space-firm-sector*

Thus, in reality, competitiveness in the globalizing process is simultaneously produced by

A) the accommodating socioeconomic space
B) the incumbent firm and
C) by the materialization within the specific historical context of productive and industrial structures and dynamics articulated on a global scale.

These three dynamics generate and regenerate competitiveness constantly and should always be included in every discussion of development within globalization[3]. Essentially, the above triad

[3] Metaphorically speaking, the manifestation of competitiveness (and the attendant development dynamic produced) is not but the child of a seamless dialectic: it is generated neither exclusively by its progenitor (firm) nor by its mother (socioeconomic space). Competitiveness always contains a mix of elements from both parents before establishing its trajectory in specific sectoral terms.

forms the basis for a cogent analysis of competitiveness and by extension the whole development phenomenon within globalization (Figure 6).

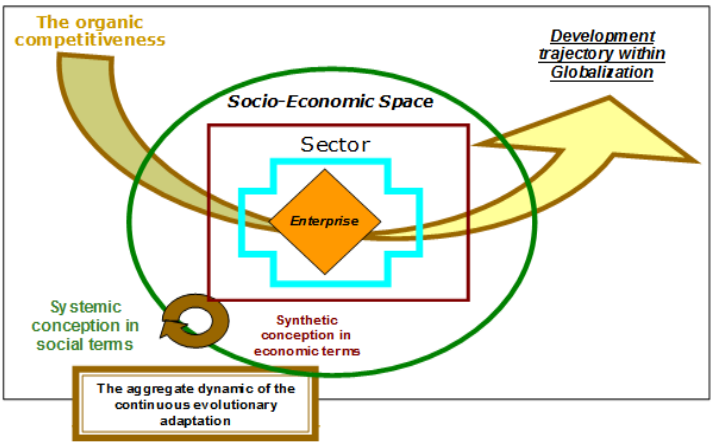

Figure 6. *The unitary pattern of reproducing the organic competitiveness within the global process*

In this way, it is clear that in theory and practice, competitiveness should not be viewed neither as the exclusive product of the operating environment nor the "autonomous firm" in its interior, nor independent of the peculiar dynamic of the industrial systems that assimilate it evolutionarily. Competitiveness is always the dialectic synthesis of the three dynamic dimensions. No dimensions from the firm-industry-space can be bypassed without detracting from the bid for analyzing the developmental issue in the age of globalization.

Here we deal with three distinct evolutionary spheres, each having its structural trajectory. They altogether form a systemic whole that defines competitiveness as an organic-strategic product of the uniform system. So, in order to better understand the dynamic of competitiveness within globalization, we must always study the historical osmosis of the three spheres. Any analytical effort at deconstructing the triad ends up severely myopic.

Our proposed approach to competitiveness and the whole development issue should have the following character:

– Organic: given that it always relates to evolutionary socioeconomic entities that base their adaptation on consistently systemic terms articulated on a global scale

– Strategic: given that it is a product of the choices pursued by the specific incumbent agents.

By extension, a new valid methodological perspective of studying the "idiosyncratic" local development phenomenon cannot constitute but a consistently and constantly inter-firm, inter-spatial, and inter-sectoral investigation.

Toward a new theoretical consolidation of competitiveness, attractiveness, and development/crisis of the socioeconomic space in the global era

In practice, the definition and application of a unified approach to competitiveness and regional development in globalization proves useful for many reasons. First, it allows us to understand how the pursuit of competitiveness itself of a spatially defined socioeconomic formation presupposes a systematic augmentation of its attractiveness (Figure 7).

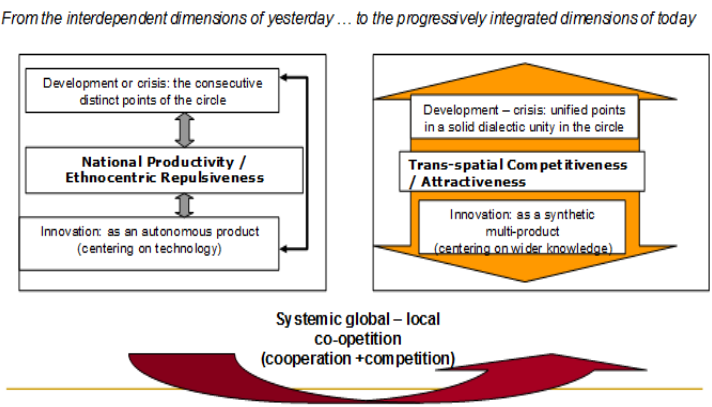

Figure 7. *The necessary transition to a unifying understanding of the central dimensions of the development process and globalization*

It is not possible to produce/reproduce a long-term development perspective in every socioeconomic space without an active interest by the incumbent firms on functional and spatial terms[4]. It is not possible to sustain long-term local development by sustaining the same structural and functional characteristics of the accommodating socioeconomic space.

In contrast, when a place manages to attract new business investment, enterprises begin to form and operate, thus releasing the development potential: new external economies are created, new potential for cooperation and joint practice emerge, new opportunities emerge for all the components of the productive and social web.

Thus, the same attractiveness of a location is not viable and sustainable if it is not based on an apparatus capable of constructing and reconstructing the competitive advantages afforded by the socioeconomic space itself to tits incumbent corporate agents.

At this point, it is clear why one cannot perform analytical division of the dual development phenomenon of attractiveness and competitiveness: the attracting of investment initiatives strengthens competitiveness and, in turn, competitiveness reproduces the attractiveness of the socioeconomic space, at every level. Here crystallizes the pattern of the substantial spiral of development in the global era[5].

As the attractiveness of socioeconomic space is increased in globalization terms, a new relevant space emerges containing new opportunities for upgrading the future development trajectory[6].

[4] Because firms are always offering occupation, produce income, create wealth: without them, the socioeconomic formation enters a vicious circle of underdevelopment. Without viable firms and industry potential for competitive sustainability, every place and country are consigned to poverty and corruption inevitably.

[5] That is why the bid for bolstering competitiveness is oriented increasingly toward attracting multinational players to the local/national markets, despite a consistent demonizing and ominous prophesizing by globalization malcontents.

[6] The least attractive socioeconomic space is reduced to a defensive behavioral pattern. Whatever interventionist action by the state cannot reverse the status quo within globalization.

The socioeconomic space is structurally unified through the constant pursuit of competitiveness, thus making a sufficient dent on the activity of ethnocentric mechanisms.

Toward a new paradigm of cooperation

The application of the previous conclusions can help in the progressive formation of a new paradigm of cooperation within globalization. This process, undoubtedly, requires the upending of several conceptual fixations of the past. In particular, it calls for a new mindset vis-à-vis the issue of cooperation, which could contribute substantially, according to our estimations, to the establishment of a rapid and stable trajectory of socioeconomic development for Southeastern Europe. The essential elements of such reorientation can be summarized as follows (Figure 8):

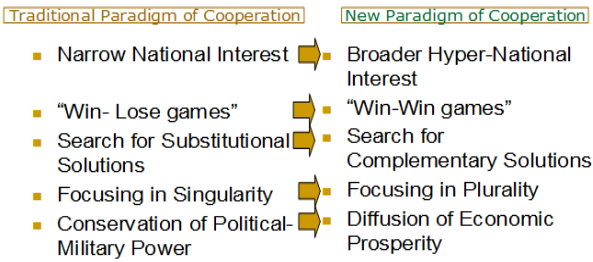

Figure 8. *Towards a new paradigm of cooperation*

- A passage from a cooperative logic limited by the pursuit of the short-term, narrow national interest to a cooperative logic that can serve the long-term broader hyper-national interest in globalized terms.
- A passage from a cooperative logic seeking to secure an ever-larger "piece of a fixed-size pie" at the rival's expense to a one where all the participants can benefit through the constant enlargement of the "pie."
- A passage from a cooperative logic seeking to supplant the "neighbor" in the development game to a cooperative logic of systematic pursuit and leveraging of various complementarities (economic, cultural, scientific).

- A passage from a cooperative logic where the "defending of the singularity" gives its place to a perception that is open to the leveraging of diversity.
- Finally, a passage from a cooperative logic where the bargaining power of the region's countries is not based on the preservation of their political and military power, but on their ability to contribute to the diffusion of prosperity in their "neighborhood."

Perhaps the most optimistic point of the present discussion is the view that the elements of this new conception do not seem now to constitute manifestations of some romantic and utopian notions: they appear to form the necessary condition for every "player" to be able to look forward to a significant standing in the game of the future in our region.

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2 Search for competitiveness and entrepreneurial evolution in the global environment: An approach of development dynamics based on the Greek productive system [2]

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The adaptation of the Greek socioeconomic system to the globalization dynamics: Central methodological orientations

The idea guiding this research study was born from the effort to provide cohesive replies in unified socioeconomic terms to the composite and evolving socioeconomic changes that are being produced by the insertion of firms into globalization — avoiding the pitfalls of viewing them in fragmentary, pseudo-dynamic ways, but seeing them instead from a holistic, dialectic, historic and evolutionary perspective (Boulding 1970, 1981; Bourdieu, 1980; Boyer, Chavance, & Godard, 1991; Boyer & Drache, 1996; Coriat & Dosi, 1995; Delapierre, Madeuf, Michalet, & Ominami, 1983; Delapierre, Moati, & Mouhoud, 2000; Delapierre & Zimmerman, 1991; Gully Pecqueur, 1995; Lafay, 1996; Nelson, Winter, 1982; Schumpeter, 1934, 1942).

The present paper draws[1] on the adaptation of the Greek productive system to the globalization dynamics. The integration of the Greek firms into globalization was not cut off analytically from the broader dynamics of the Greek socioeconomic formation. More specifically, the insertion of Greek firms into globalization, and of the total productive system which they fabricate, was understood as an organic part of the modern total restructuring of the socioeconomic structures and dynamics at a global level (Vlados, 2004).

Our principal objective is to challenge the nowadays dominant research approaches regarding globalization, which are usually exhausted interpretatively in their "superficial," random manifestations.

As a rule, in such types of approaches prevail:

- Either scattered macro-statistical data (almost always consisting in simple and uncombined "macro-measurements"),
- Or unconnected and incoherent micro-studies of "special cases" (almost always lacking a sufficient total socioeconomic theoretical perspective)

Such approaches can often be ineffective. Ultimately, it should not come as a surprise that any interpretative attempt of this type rarely manage to go beyond the level of describing "simple symptoms"—thus failing to probe the structural causes and the deeper structural dynamics of globalization (Berger & Dore, 1996; Best, 1990; Borelly, 1990; Boyer, 1995; Boyer *et al.*, 1997; Crozet, 1993; Dicken, 1988; Gilpin, 2002; Michalet, 1985).

In this study, instead, we formulated our analytic targeting towards a relatively "heretic" research orientation: we proceeded

[1] The contribution put forward in this article draws on and extends the method of the doctoral thesis of the author on "The dynamics of the triangle of strategy, technology and management: The insertion of Greek firms into globalization," which was carried out in the Centre for the Study and Research of Multinational Companies (C.E.R.E.M) of the University "Paris X, Nanterre." In particular, this thesis had as its primary objective to model the types/forms of integration, incorporation, and transformation of the enterprises operating in Greece, into the dynamics of globalization as the latter has been shaped in the last decade of the 20th century.

by probing more deeply into the experiential, historical data of the transformation of the enterprise itself within globalization, and in integrated socioeconomic terms (Boyer & Durand, 1998; Caves, 1971, 1982; Chandler, 1962, 1977, 1990; Coriat & Weinstein, 1995; Durand, 1993; North, 1990).

In particular, we defend the position that the firm (on the local, national, or international level) is a central socioeconomic institution-organization, while all its forms and activities can constitute a new reliable analytic center of approaching the globalization dynamics itself. In this manner, we propose as a focal point for approaching the total socioeconomic content of globalization, the physiological evolution of the enterprise itself.

Deliberately, the analysis does not limit itself within narrow ethnocentric terms, trying in this manner to interpret the entire process of integration of the socioeconomic system and the different enterprising activities effectively. Every partial phenomenon-dimension in this study is understood as a single ring of an expanding chain of systemic interactions within the modern totalizing global dynamics that we call globalization (Vlados, 2004, 2005, 2006, 2007).

In this manner, the research topic was understood as a unique, historical, and spatiotemporally defined expression of a much broader process of multiform strategic competition and intensive qualitative transformation on an inter-spatial, globalized level (Best, 1990; Bratton, 1996; Braudel, 1985; Coriat & Dosi, 1995; Dosi, 1988; Freeman & Perez, 1988; GEST, 1986; Hugon, 1989, 1997).

In practice, the insertion of firms into the globalization is approached as a composite totality of inter-spatial, inter-sectoral and inter-corporate phenomena, multifaceted by nature, multiple and uninterruptedly evolutionary. A totality of socioeconomic phenomena that demands, as a sine qua non for its logical analysis, a systematic interdisciplinary research stretch and a constant combinatory qualitative-quantitative investigation of its various socioeconomic dimensions.

As a result, this initial synthetic research orientation of the present study imposes an indirect redefinition of the "boundaries" of the scientific field that usually hosts research topics of this type. The most customary in the specific research field comparative

static approach (usually, with a narrow macro-economic content and exclusively focused on the fragmentary financial manifestations of the phenomenon of globalization) has been replaced here with a dynamic-evolutionary perspective.

By this methodological orientation, the integration of firms (as also of any other similar system of socioeconomic phenomena) into globalization, could be examined in an integrated manner only at the intersection of different axes of socioeconomic research, as these are being shaped in our days within the broader unifying research field of modern socioeconomic sciences[2].

In this manner, the main lens, which the present study used to focus on theoretically, was constructed as a systematic effort of simultaneous convergence and re-synthesis of different (and mostly heterogeneous) related research programs and directions. Against the multiple and intersecting "paths" of modern social and economic scientific research and choice of topics, beginning at the area of management of enterprises to the theory of economic development, through the economics of innovation and economic history, to finally terminate at the strategic development of enterprises, the present study attempted to retain open the channels through which new interpretative cross-fertilizations could emerge.

The practical application of this combinatory interdisciplinary research logic led the research to several points of theoretical re-synthesis. For these points, the explanatory "plot," as it is developed, manages (a) to retain every utilized theoretical "fiber" complete and intact, (b) to integrate these "fibers" organically into a new totalizing evolutionary viewing of the insertion of firms into globalization and, at the same time (c) to analyze the developmental dimensions of the globalization process.

[2] The present approach tries to unify and cross-fertilize interpretatively the macro-economic, micro-economic and meso-economic dimensions of the phenomenon of the insertion of firms into globalization, without cutting it off, in explanatory terms, from its deeper socioeconomic consistency and continuity. In the present study, therefore, the economic dynamics are not cut off from its co-producing and co-produced social dimensions: the perspective of a broader inter-disciplinary examination is kept open.

Theorizing development dynamics in a global context

The study of the phenomenon of development, in the context of globalization, does not allow for simplifications, unhistorical generalizations, and mechanistic views: ultimately, the theory of development can no longer be a domain of selective accumulation of scientific specialization (Griffin, 1989; Higgins, 1990; UNDP, 1999; Wallerstein, 1979; Wortzel, 1997).

This fact holds at least to the extent we can honestly claim the creation of a credible explanatory and predictive theoretical approach (Cercle des economistes, 2000; Durand, 1993; Hunt, 1989; Lipietz, 1977, 1985; Perroux, 1966, 1969, 1973, 1981; Polanyi, 1944; Sachs, 1997).

Even more, the process of socioeconomic development in the context of globalization seems to "sustain"—not to mention that it aggravates—the fact that this process is starting and it can undo certainties and familiar dogmatic places. Essentially, it reestablishes the concept of socioeconomic development.

So, there is no room for evasions and one-dimensional developmental scope (Rostow, 1960; Fukuyama, 1992) both on a theoretical and practical level, any more. The developing evolution of every inserted socioeconomic system in the process of globalization is a profoundly controversial, dialectic process: the insertion of every socioeconomic system in globalization seems to be in real life understood only:

- Through the unit and the controversy of historically specific controversial socioeconomic dynamics that construct it.
- Through the alteration of "qualities" for every connected factor and internal places of action.
- Through constant reformation of its socioeconomic dimensions, in the endless "denial of denial" of its evolution.

As a result, a whole and evident socioeconomic approach of the phenomenon of development in the context of globalization must always be located in a steady evolutionary understanding of its particular historical character: the living story always lays inside the developing future of every firm, every space, and every domain of economic activity.

Based on such an evolutionary version, it may also be understood that nothing is static or/and always taken in developmental terms for the subpart local, national, and regional systems that do not stop to intervene more and more in the phase of globalization. Moreover, it is substantially ineffective to analyze globalization as something neutral, serial, and by nature, everlasting with existent developing balances.

❖ In this way, every development-theoretic aspect that attempts to preserve its validity has to pass from fatalism, from gross generalization to a synthetically active condition of a completed and dynamically relational comprehension. It should go through an inflexible focus on developmental quantities, to developmental structures and qualities, from a mechanistic approach of development in its socioeconomic perception.

❖ In such a new frame of understanding of the developmental dynamics, the production and reproduction, the maintenance and the continuous reinforcement of competitiveness of institutions and socioeconomic domains of action in the globalization acquire critical importance. Without the effective and permanent production/reproduction of its competitiveness, no agent of action and no socioeconomic system can be developed in the context of globalization.

The insertion of Greek firms into globalization

The central question of the background of this study (Vlados, 2004) can be formulated directly as follows:

"How is the insertion of Greek firms into globalization get actualized and shaped?[3]"

From this research, it became clear that the question as to the insertion of Greek firms into globalization can no longer be "dealt with" in an integral way from within the usual, to date dominant, homogenizing conventional macroeconomic ethnocentric syllogistic and interpretation.

[3] Although the previous question appears as a priori trivial and straightforward, answering it in this study demanded to overcome a good deal of "self-evident truths," as these are depicted in relevant contemporary international literature.

There thus arises the question (though rarely openly admitted) of the insertion of Greek firms into globalization can no longer be validly examined on the basis of the typical, fragmentary method of international economics and according to the one-dimensional and rigid methodological specifications of the neoclassical tradition[4] (Ohlin, 1933; Krugman & Obstfeld, 1994; Samuelson, 1949).

Approaching the insertion of Greek firms into globalization can no longer be viewed as "yet another linear object" of the standard international economics[5].

Thus, totally contrary to what is prescribed by traditional economic theory (which continues to dominate, directly or indirectly, the relevant international literature), the attempt to fully understand the insertion of Greek firms into globalization has been shown to bear particular resemblance to a "Darwinist adventure" (Vlados, 2004, 2005, 2006). It resembles an evolutionary "trip" of socioeconomic adaptation and selection, inside a constantly mutating global reality wherein new species, new structures, new ways for playing the game, new clashes and new equilibriums never cease to emerge, to crystallize; to subsequently destabilize and decay; and finally to retreat in order to make room for newer ones.

In particular, the central question of this study is based on three interweaved analytical levels. The attempt to cohesively approach the insertion of firms into globalization imposes on our study its analytic restructuring and theoretical synthesis on all three of the following levels:

[4] In this field, P. Samuelson emerged as the "transformer" of the neoclassical approach. In particular, see the following: (Samuelson, 1949).

[5] In reality, it is not a simple, spatially enclosed, and one-sided phenomenon: in practice, it obeys no pre-defined, static, and repetitive routine. More generally, the study of any socioeconomic insertion into the new global reality inescapably demands new interpretative tools so that it can be understood validly. New methodological perspectives are required, interpretative convergences, and re-syntheses, way beyond those offered by the analytic tools of traditional economic science.

1. The totalizing level of the socioeconomic evolution in terms of the global economy (level of macro-dynamics).

2. The micro-level of the firms operating in Greece understood as evolutionary socioeconomic constitutions-organizations, decision-making agents that materialize activities, conceptually distinct, and categorically self-sufficient (level of micro-dynamics).

3. The intermediate level of the sectoral incorporations of economic activity, as these are shaped in Greece and as influenced by the forces and the dynamics that spring from Greece and extend out of it (level of meso-dynamics) (Morvan, 1991).

These three analytic levels are accentuated progressively as theoretical nodal areas of the conceptual arsenal that involves the integrated examination of the insertion of Greek firms into globalization.

At this point, we should highlight two central conclusions of methodological order, as these emerge from the present proposition:

A. First of all, we ascertain that any attempt to divide and separate even one of the above three analytic levels (macro, micro, and meso level), any isolated analysis outside the synthetic model as formulated in all three analytic levels necessarily results in a radical interpretative weakening of the other two[6].

Essentially, the globalization dynamic itself is a continuous process of the closer and denser systemic interconnection of its structural components and factors: in this way, it directly demands, of any attempt to research it validly and scientifically, an increasingly higher level of synthetic, dialectic interpretative logic.

[6] In practice, if one cannot approach all three spheres of analysis together, in combination and via one another—within their dialectic co-definition and co-evolution—and as these manifest in particular socioeconomic terms within globalization, each one is doomed to remain permanently "dark" and without results. The "tree" of the insertion into globalization, seen in a fragmentary, separatist and narrowly broken-down way, will not merely hide the forest for the trees, but their very roots also. In this manner, the innermost engine of the insertion into globalization remains hidden.

Otherwise, the "battle" for its valid theoretical interpretation can be considered "lost from the outset."

For this reason, we estimate, based on the direct experience from the present study, that the traditional "respect" for the strict borders between microeconomic and macroeconomic theory seems saturated: on the contrary, it can deprive modern socioeconomic research of a great deal. More generally, the era of "valid" fragmentary approaches to globalization seems to be gone for good.

B. Second, the research orientation followed here helps us understand that the attempted, in this study, theoretical re-structuring cannot be final—neither is it possible to ever be: this research study aims at suggesting a pathway for a new generation of research work that should delve more deeply into the particular thematic.

Globalization cannot be utterly perceptible, as definite and permanent condition over time. Globalization is not a static field, with already set rules that are already defined "once and for all." It is, on the contrary, a continuum, an ongoing procedure of reproducing positions and controversial trends, maintaining in the meantime an open, evolutionary prospect.

Ultimately, globalization itself is not a static or completed state of affairs: it is a continuous dialectic process of multifaceted socioeconomic transformation. New analytic categories, new theoretical concepts, and interpretative combinations have to emerge concurrently with the structural, qualitative transmutation of the globalization phenomena they interpret. The theoretical work of interpretative adaptation to the new emerging conditions can never stop. When reality is changing in a revolutionary way, theoretical comprehension cannot rest on the analytic "conveniences" of yesterday—or else it delays impermissibly.

Based on these, we can understand that globalization is essentially the dialectic mechanism of inserting every socioeconomic system into it. Furthermore, by overcoming every blind expectation for total and unhistorical conclusions, we can comprehend how any evolutionary integration should be examined concurrently:

I. In a way that takes into account its historical nature,

II. In a way that is comparative and powerfully dependent on the contemporary adjustment of the other socioeconomic systems into globalization.

In this progressively globalized framework, the problems of socioeconomic development have a new "geometry" compared to the past.

Competitiveness, attractiveness, and development

In practice, the definition and application of a unifying framework of approaching competitiveness in the context of globalization can prove useful for various reasons.

Firstly, it gives us the opportunity to comprehend that the claim of competitiveness itself (Competitiveness Policy Council, 1991, 1992, 1993, 1994; Dertouzos, Lester, & Solow, 1989; Nezeys, 1994; Reve & Mathiesen, 1994) of localized socioeconomic structure presupposes the systematic increase of its attractiveness (Delapierre & Milelli, 1995; Scott, 1988a, 1988b, 1998; Spilanis & Vlados, 1994; Veltz, 1996; Vlados, 1992a, 1992b, 1996).

It is not possible to produce or repeat a long-term developmental prospect in any socioeconomic realm in the absence of active interest in location and operation on the part of enterprises (which might be of local, national, and multinational scope) (Aydalot, 1984, 1986a; Crevoisier & Maillat, 1990; Dunning, 1993; Dunning & McQueen, 1981). It is not possible to support or upgrade the developmental prospect of a particular area independent of the attraction of new investment interest and the maintenance of viability of the already established sector-based/intra-sector productive system that it hosts (Furtado, 1990; Storper & Christoferson, 1987; Storper & Scott, 1988; Storper, 1997).

Thus this attractiveness of a specific place, in general terms its ability to attract and sustain the viable business interest, cannot be viable and sustainable if it is not based on a mechanism capable of structuring and restructuring the competitive advantages that the socioeconomic environment itself can offer, to the agent that choose to function within it (Lado, Boyd, & Wright, 1992; Michalet, 1999). At this point, it is intelligible why no one could analytically divide the two aspects of development, namely attractiveness and competitiveness: the attraction of investment initiatives stimulates

competitiveness and competitiveness recreates the attractiveness of a socioeconomic domain. It is here that a new developmental structure ensues. It is, however, a structure particularly demanding in its constitution and activation.

In practice, in order for a socioeconomic space to become and remain competitive, it should be able to draw viable business interest in globalized terms and, conversely, in order to draw this interest, it should prove that it can "nest" the competitive ambitions of enterprises that it hosts in a global context. This fact is valid as long as the business-investment interest is becoming increasingly more difficult to be divided in terms of localized, national terms[7].

Inevitably all state-centered, introspective, and inflexible mechanisms of "growth" gradually lose their effectiveness.

Thus the question of developing a strategy in a globalized context takes on new content: it ceases to concern the domain of national enterprises and national state mechanisms exclusively. In this way, a new vital question arises: each socioeconomic formation, in each level of division (local, national, or regional), should make its cohesive strategy for development. In this way, the theoretical pair of competitiveness and the attractiveness of the developmental domain in the context of globalization, as we conceive it here, introduces a new perception of spatial development, much more comprehensive, more adaptable and different than that of "traditional ethnocentrism." The socioeconomic space ceases, in this context, to be necessarily a simple uniform and passive national space, historically fossilized within its national border. The socioeconomic domain is now understood as a continuous and unified entity as it is expressed in

[7] Thus, a more attractive a socioeconomic space is for the business activity in globalized opportunity terms, the more chances it has to upgrade his developmental prospect in the future. The least attractive domain is limited to a developmental "defense game," which gradually appears to be more and more difficult: whatever state intervention, whatever individual enterprise intervention is made, it cannot reverse the tendency (Veltz, 1996).

terms of local place, country, or regional formation (Dicken, 1988; Dunford & Kafkalas, 1992; Gibb & Wieslaw, 1994)[8].

And at this point, it should be noted that the international developmental experience in the context of globalization proves that the deeper and more longer-lasting factors of attraction of qualitatively better business interest lie in a completely different direction from any "labor cannibalism." What today attracts the "best" firms to the socioeconomic spaces is found in the multifaceted exploitation of the system of production, reproduction, diffusion, and assimilation of dynamics of collective knowledge and innovation that the socioeconomic domain to them which hosts them can offer.

Finally, the techno-economic, broad and multiform, knowledge that distinguishes the surrounding socioeconomic space, the capability that it has to draw, assimilate and promote innovation, is the very one that attracts today the business interest with the most significant potential for growth and development. Because the broader dynamic of know-how and innovation that particular socioeconomic domain can offer is what finally constitutes the main aim of the most advanced capitalistic firms nowadays: what they really look for is knowledge, nothing less (Coriat, 1976, 1990, 1991, 1994; Dosi, 1982, 1988; Delapierre, Moati, & Mouhoud, 2000; Freeman, 1982; Guellec, 1999; Scott, 1987; Winter, 1984).

It is essential to a large extent that the dimensions of technological innovation and cognitive progress receive now the central place in most of the "new theoretical approaches" of development (Romer, 1986, 1990; Lucas, 1988). Moreover, it becomes more and more explicit that the capacity for innovation in broad cognitive terms—not in strictly technical terms of acquisition of new machines—is rendered the safest sub-layer and the more

[8] A special note is due at this point. It is undeniable that this strengthening of the attractiveness of the socioeconomic space does not only mean "lower wages" or more substantial subsidies or "more flexible environmental legislation" and increased "social inertia." In order to make a socioeconomic domain attractive for long in the globalized business context, it is not necessary to transform it into a "paradise" of decadence and social disregard: it is all the opposite.

powerful vehicle of growth of a location in the context of globalization.

In this way, the analytical unification of competitiveness and the attractiveness of a socioeconomic domain open roads that lead us to a new cohesive comprehension of the phenomenon of development-crisis of the location itself.

As capitalism goes through a new phase of development (Boyer, 1979, 1986, 1995; Boyer & Durand, 1998; Cercle des economistes, 2000; Dicken, 1988; Durand, 1993; Scott, Lodge, & Bower, 1985; Veltz, 1996, 1997, 2000), as the search for productivity in terms and with disposal of "push back foreign interests" gives its place in the claim of competitiveness attracting "foreign capital" and as the innovation replaces radically in culture and exploitation of extensive knowledge in the inner core of socioeconomic shaping, the "chemistry" of socioeconomic growth changes its more profound quality.

Growth ceases to materialize and to crystallize as an independent phase in the socioeconomic development: as the speed and the complexity of the developmental process continues to increase, new least "clean," symmetric forms of growth-crisis are shaped globally. Situations where it is rendered more and more evident that the current growth does not do anything more than planning the terms of tomorrow's crisis, where tomorrow's crisis will not make anything less than hatch structurally tomorrow's growth. The competitive development and the crisis of adaptation are embraced unbreakably and move together.

Therefore, in this theoretical reorientation, it can become comprehensible that we no longer can articulate any valid developmental action in globalization without complete prior integration into the historical questioning of the particular competitiveness-attraction of the particular socioeconomic space that concerns us. Thus it can become perceptible that the developmental phenomenon (in its indivisible nature as "growth-crisis-growth" cycle) always depends on the frames of dialectic synthesis between:

- The shared dynamics between different firms.
- The socioeconomic space these firms belong.
- The globalized sectors of production.

In this way, one can focus on the substance of global dynamics: here, the underlying mechanism of production of competitive advantages is born and reproduced in the context of globalization and, at the same time, from here "is guided" the dynamics of globalization itself.

That is why, in the root of incessant inversions, what is presented as more and more necessary in theoretical terms is extensive and, at the same time, a cohesive frame of analysis of the developmental phenomenon in the context of globalization and not any dogmatic view against or in favor of it. A systematic and open-minded frame of analysis that, instead of neglecting the evolutionary dynamics of enterprises (which is always found in the root of each developmental process in capitalism), it is being placed in the heart of a completed theoretical approach of development. Finally, it appears, in increasingly direct terms, that we need a new framework of public intervention (not strictly governmental and nation-centered) along with a new conscience of collectiveness for the real reinforcement of the developmental process: in all countries of the modern world and Greece as well.

The evolving world of enterprises: The case of the Greek productive system

The background of our theoretical proposition lies, in particular, in studying the evolutionary synthesis of the three central dimensions of the firm: strategy, technology, and management. Every firm produces and reproduces these dimensions, aiming at the effective innovation that will allow its competitive survival and development within globalization. These three innate, but also dynamically adaptable dimensions (a firm's strategy, technology, and management) define, ultimately, in a continuous and dialectic fashion, the particular structural Stra.Tech.Man triangle that characterizes the enterprise: the Stra.Tech.Man triangle, which in essence always regulates the entire evolutionary course of every enterprise in its environment (Vlados, 2005, 2006, 2007a, 2007b) (Figure 1).

Figure 9. *The Stra.Tech.Man core of the enterprise*

our previous research in the field of enterprises that operate in Greece and different sectors of economic activity, we conceived that the productive ecosystem in Greece at the phase of globalization is threefold: This means that it centers and developed around three poles of entrepreneurial "physiologies."

In practice, we realized that each type of enterprise conceives its operational reality (philosophy) and functions (processes) in different ways, in terms of management, technology, and strategy as well. These differences of organic nature actually emerge in each ring of the functional chain of enterprises, as it is presented in the tables that follow (Tables 1, 2, and 3).

Table 1. *The central type of management in Greek enterprises today*

Type of management	"Monad-centered" enterprise	Mass enterprise	Flexible enterprise
Central logic	Practical experience	Specialization	Participation
1. The programming	Oriented towards the immediate reaction with the supply of short term solutions	Oriented towards imposing long term quantitative goals	Oriented towards a stable spirit of quality and continuity: systematic unification of the short and the long term
2. The organization	Based on a flow of functional roles and overlapping responsibilities	Based on a stable and generally inflexible hierarchy	Based on the participative autonomy of functional groups and with constant openings of decentralization
3. The employing	Concentrated on the quest of the employee who has field practical experience	Concentrated on the quest of expertise and an "undemanding" employee	Concentrated on the quest of the creative employee, co-worker
4.The development of human resources	The point is realized as non-relative with systematic actions from the enterprise side	The point focuses on specific, narrow and sectional, functional areas	The point extends to the continuous enriching of knowledge of all the hierarchy levels and between all sections
5. The move	Focuses on the production of secure relationships with the activation of a unique character of "traditional, paternal family"	Focuses on financial, pure and restricted motives	Focuses on moral and visional motives with a long-term prospect
6. The leadership	Based on the "boss" personality	Based on rules, routines and strict details	Based on the support of the "open mind" and with a character that cultivates the advice rather than command giving
7. The control	In between a varying strictness and personalized controlled interventions	Centralized, based mostly on clear and formal reports	Decentralized and interval: an attempt of accepting the control on the work and at the same time "in" the worker
8. The communication and coordination	Mainly spontaneous and informal: it gets activated when the "problem already exists"	Mainly vertical, upwards to downwards: the information is carried linearly	Mainly mixed type and double way: vertical, horizontal, and diagonal in the organization diagram. The information is carried in cross-sectional networks

Table 2. *The central type of technology in Greek enterprises today*

Type of management	"Monad-centered" enterprise	Mass enterprise	Flexible enterprise
Central logic	Sporadic	Linear	Networked
1. The technological vigilance	Oriented towards the instant profit from the use of any technological "opportunities," accompanied by a total lack of systematic focus on the evolving technological surrounding	Oriented towards the systematic profit from the use of pre-located technological boundaries, focused mainly on the internal technological tradition of the enterprise	Oriented towards the systematic profit from the use of technology accompanied by the effort of creating a progressive unification of the internal and external resources
2. The draw of technology	Based on a static selectiveness: "The trustworthy supplier of technology chooses for us"	Based on single-dimensional selectiveness through "minor steps"	Based on strong selectiveness with constant and robust character
3. The innate creation of technology	Restrained, focused on the quest of a "better standard"	Moderately restrained, focused on constant improvement of the quantitative results	Developed and long-lasting: focused on constant improvement of all the qualitative aspects of an enterprise
4.The assimilation of technology	Conceived according to a logic specific and entrenched in the workplaces: work that needs a direct solution	Conceived according to a mechanistic logic which is usually used up in narrow functional/ sectional terms	Conceived according to an organized logic: an effort of incorporation in terms of employee-group-industry
5. The diffusion of technology	Sectional and enclosed in separated works "As long as the head worker knows"	Enclosed in separated productive functions/sections	Cross-sectional, total with multiple double-edged destinations
6. The application of technology	Dominated by a focus on the personalized work: its base is the "experienced head worker"	Dominated by a focus on the official administrative structure: its base is the "superior administrative executive"	Dominated by a focus on the cross-sectional development: its base is the creative collaborator of the next-door department
7. The evaluation of the technological effort	Concentrated on occasional imitations: from point to point, worker to worker, work to work, rarely though total	Concentrated on the evaluations of the technical efficiency: usually strictly understood as a race of quantitative improvements	Concentrated on the evaluations of total technological efficiency: understood by a multi-synthetic way
8. The technological composition	Based on the personal skills and talent of the craftsman	Based on specific pre-imposed procedures and methods	Based on the participation, the creativity and the collective talent of the whole group

Table 3. *The central type of strategy in Greek enterprises today*

Type of management	"Monad-centered" enterprise	Mass-collective enterprise	Flexible enterprise
Central logic	Sporadic	Linear	Networked
1. Total strategy prospect	The quest of the short-term success by avoiding the direct dangers	Guidance by process of repetitive quantitative plans	Progressive intake of a unifying spirit for the total of the dynamic dimensions inside and around the enterprise
2. The nature of the business plan	Based on an informal procedure based on the "secret thoughts" of the businessman	Based on a systematic and "bureaucratic" methodology	Based on a comprehensive methodology aiming at the data composition clear and "open" at the same time
3. The observance of the general environment of the enterprise	With a circumstantial/superficial character	With an inflexible "calendary" character	With constant and steady reflective character in systematic terms
4.The observance of the eminent, sectoral and local competitive environment of the enterprise	Usually made in urgent terms: "We must win directly" …or/and "why did we lose?"	Usually made in terms of broad controversial understanding of concurrence (as a game of zero-sum)	Usually made in terms of progressive inter-structure of the changes (as a game of a positive-sum)
5. The observance of the internal environment of the enterprise	Concentrated on the direct initiative of the owner-"boss" without a precise method	Concentrated on the evaluation of the functional efficiency, on the base of detailed administrative controls	Concentrated on the evaluation of the total efficiency of the organism-industry on the base of completed quantitative-qualitative controls
6. The use of the strategy dimensions	Focused on the dimensions of the direct market profit with repetitive character and nothing more	Focused on the simple combination of the internal functional advantages with the needs of the market in a comparative static logic	Focused on the inter-fertilization of the inherent advantages of the industry with the evolution of the broader tendencies of the market and the economy. In a constant search of "emerging synergies"
7. The evaluation of the strategy, composition	Unclear and personalized: based on the "intuition" of the owner	Formalized: Based on the reproduction of the benefits of the upper hierarchy and in a second level of the stockholders	Multileveled and functionally included in the industry: based on the strategic "democracy" and the search of constant industrial evolution

8. The part of the strategy in the quest of the business success and "perfection"	According to a particular mixed version: opportunistic and, at the same time, conservative. The horizon of development of the capital sustains, in most of the cases, short and "moderate"	According to a usually internal understanding. The horizon of use of the capital remains split between the short and the long term	According to a constant dialectic understanding of the internal and external environment of the enterprise. The horizon of the use of the capital lays between the short and long time without the quest of quick gain

The above tables allow us to raise specific questions. First of all, they show that the differentiation of three different types of firms is neither surfaced, coincidental nor easily reversible: on the contrary, their differentiation is deeply structural and, in fact, physiological.

This is the reason why these three types of firms function as structural poles of the industrial ecosystem in Greece. Even if they do not express a static regrouping, they manage to crystallize the forces of cohesion and centripetal reproduction of the system of firms in Greece. Moreover, thus, we understood through the process of experienced control in our research that while the mixed Stra.Tech.Man types are possible and real these always depend on a restriction of familiarity in the combination of different reasonable strategy, technology, and management dimensions that they compose.[9]

[9] According to our previous studies (Vlados, 2005, 2006, 2007) in the Greek socioeconomic environment, the "monad-centered" firm still dominates while the mass enterprise often finds significant difficulties to develop. On the contrary, flexible enterprises are not encouraged by the Greek environment, and also they do not gain much according to the "qualities" that they provide.

In particular, as far as the enterprises functioning in Greece are concerned, it is ascertained that, since the 1980s, the process of integrating themselves into globalization has been neither "free access heaven," nor a "hell with no distinctions." Even more, from the present study, it is also becoming apparent that certain forms of enterprising activity in Greece—usually branded as "less developed" compared to the stereotype of the "big capitalist firm"—do not at all appear to be "by definition" doomed within globalization.

Indeed, it is a severe error to believe that under the general title of a "firm that operates in Greece," it suffers any static, uniform and homogeneous situation of things.

On the contrary, in the real, evolving ecosystem of firms in contemporary Greece, many types of "animal-firms" exist and develop. Firms different in the way that they think and function, in the way that they conceive the interior and the exterior environment, they act, they adapt, and they mutate in globalization. It is worth examining this more carefully.

This awareness can finally have great practical importance. While the real, living firms cannot incorporate big eclectic openings (Nelson & Winter, 1982; Winter, 1984), they cannot tolerate significant physiological transformations in their Stra.Tech.Man terms in their interior and their "great natural jumps" from one day to the other are not also possible. They do not exist, therefore, "magical metamorphoses" (Gorz, 1988) in the domain of firms, at least in Greece, from the decade of the 1990s until today: and this will not possibly change in the future easily.

Precisely, the viable evolution of an enterprise is always carried out under the term co-evolution and the three spheres of Stra.Tech.Man that characterize it in its natural root. Thus one should not expect automatic metamorphoses and marvels (Belasco & Stayer, 1994; Senge, 1994; Waterman, 1990).

Furthermore, the above tables may give rise to specific other reflections. They make explicit that "monad-centered" firms tend to give to the rings of the chain of their thought and action answers somehow scattered, spontaneous, least systematic, least reliable with a cohesive scientific scope, least attractive in ideological terms. Moreover, as they constitute the majority of firms in Greece, this appears to have nodal importance.

It is not surprising that "monad-centered" firms constitute the majority in Greece; they dominate because they manage to suit each other. The critical question is, however, the degree to which they will continue to do so in the rapidly globalized future and in what way.

As we have already examined, the game of competitiveness in a globalized context is not static. It is not enough to suit each other, but modern firms should also expand. Here comes the most critical

problem for the reproduction of the "monad-centered" firms—and not exclusively these—in Greece today. To a large extent, these firms—never, however, all together—present a significant weakness in "expanding" creatively in sectoral, intersectional, and sub-sectoral terms. Furthermore, precisely, this danger of "stretching" places the dynamics of globalization of the involved sectors of economic activity in the first position. Thus apart from its globalized prospect, the question of the evolution of the productive web of the Greek economy cannot be answered (Vlados 2004).

In practice, a significant part of "monad-centered" firms in Greece—and a significant part of the massive ones—nowadays appears that it cannot be "stretched upwards." On the contrary, it subsides, trying to defend oneself. What does this mean? Let us be explicit on this matter.

The heterogeneity of firms in Greece does not cease to extend in the dynamics of globalization. Furthermore, as the heterogeneity of firms increases in a generally negative inter-sectoral course for the Greek economy, many units, on the contrary, accomplish to go "from the better to the best." In most of these cases, it is about dynamic firms-hybrid in terms of Stra.Tech.Man. It is about, essentially, firm types of the new generation (Figure 2).

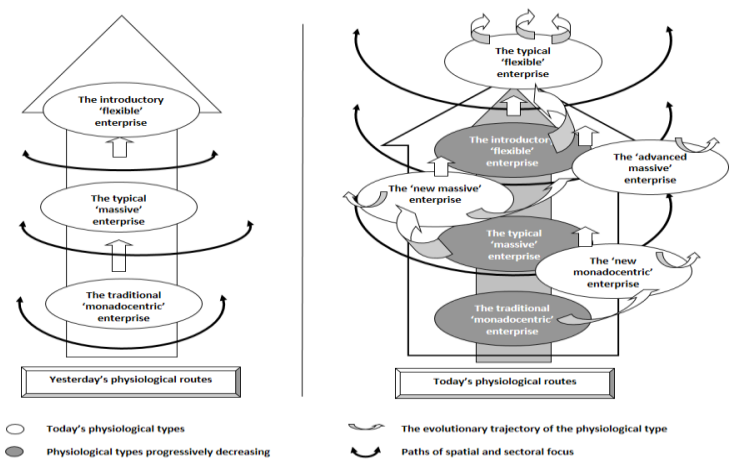

Figure 10. *The extending heterogeneity in the search/maintenance of competitiveness: The integration of Greek firms in globalization*

The old types of the three kinds of firms are proved to be the most vulnerable in the game of globalized competition: they recede to backstage the attention (Vlados 2004). The newer, evolved representatives of also three types are proved most durable and hopeful physiologically. As they tend to accept in a more and more intensive way resorting to multinational participation, alliances, and coalitions. These multinational "linkages" increase the margins of sector-based refocusing drastically and, at certain times, the possibilities of fast physiological evolution of "Greek" firms.

- The new "monad-centered" enterprise, faster, more intelligent in choices, with selective assimilation of "mass tools," more extrovert and certain times reinstalled in countries that can offer it the advantages that it knows how to develop (cheaper daily payments, complicated bureaucracies: for example, without surprises, Balkans; Hazakis, 2000).
- The new mass enterprise and the "advanced" mass enterprise—the last with systematic openings in the flexible model—that accomplish progressively to develop certain, mainly inconspicuous until today, advantages of our national socioeconomic system (monetary stability, evolution of domestic consuming model, single European market, specialized scientific potential and not "desperately" expensive) as certain obstacles continue to recede.
- The formal, authentic flexible enterprise, as the descendant of the early introductive form of flexible enterprise that we knew the previous years that manages to become more and more aggressive in the claim of departments of the market of high specifications in the world market.

A big part of firms that function in Greece, sometimes even without realizing it, they subside in the globalized hierarchy of their sectors of activation towards the easier but also poorer, less demanding but also more efficient sub-sectoral parts of the global market. As all the sectors of economic activity do not cease to convert qualitatively globally, evolving in a continuous process of reformation of structural components and their hierarchies, a big part of firms in Greece show that they are led to the less productive and hopeful domains of "world worksite," to the least fertile in

added value and strategic interest sub-rings of production into the globalized distribution of work.

Moreover, the most essential is not anymore the sector of the activity itself as a field of report and targeting. The essential question is not that the productive national web is turned to "traditional" sectors supposedly. All the globalized sectors hide important occasions of profitability and future growth: all of them. The most critical question is which role you protect, and you cultivate in the globalized sector where you function: that of the pioneer or that of the, obligatorily always cheaper, follower, the appeased imitator, and the "delayed student."

It is not enough for the different kinds of firms to fight in order to ensure their survival: their environment should also "help" allow such a thing. Furthermore, in this context, we inevitably see the role of public intervention as a vital dimension of a new creative course of firms and our entire socioeconomic structure in the context of globalization.

Shortly, the entire national productive system, in general terms, seems to be directed—more precisely it is pushed, mainly, passively—in less exigent in terms of the quality part of globalized sectors of production: and where there is no more space of further recede, it is destroyed. The problem, therefore, is that we are led to produce—the way we produce—what they can produce as good as the cheaper producers, in the frames of continuously intensifying global competition.

The main orientations for a new approach to the development process in the global era

Under these comprehensions, we conceived and theorized in an introductive approach the strong co-evolutionary articulation between the central dynamic dimensions which guiding the development process in the globalization era (Figure 3).

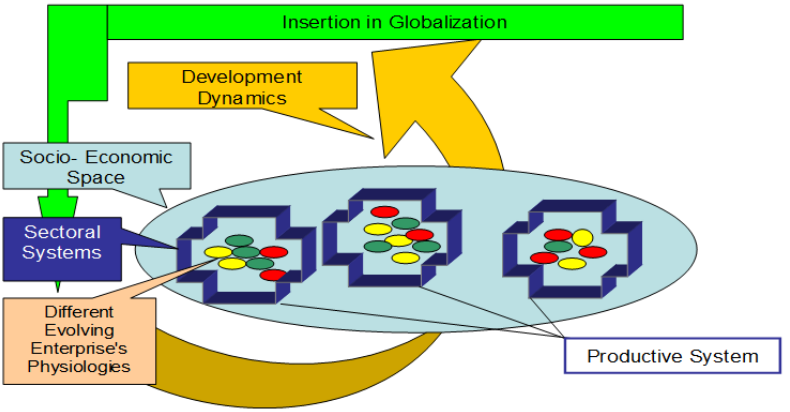

Figure 11. *The articulation of the central evolutionary cycle*

Into the inner environment of different sectoral systems, there is, in continuous evolution, a multiplicity of different types of business physiologies. Every sectoral part of each productive system is determined evolutionary from the transformation of the business physiologies, which the firms are composed. The total of the sectors of economic activity to a specific socioeconomic space reflects its production system morphology. According to this morphology, the development dynamics of each one socioeconomic space is articulated evolutionary in the globalization process. In this manner, the specific way that every socioeconomic space is inserted/reinserted to globalization is defined.

To the next step, the development dynamics in globalization rearranges the partial components of the procedure, beginning from the transformation of the fractional physiologies of firms, in the context of this cyclical evolutionary advancement.

Substantially, the main analytical propositions of the present alternative method can be summed up in the following nine central methodological orientations:

1. The insertion of the firms operating in each spatial level—as well as the progressive incorporation of the total of each socioeconomic system—should be understood as a multiple and composite evolutionary phenomenon, which is being structured in an increasingly powerful systemic manner, and within conditions of unstoppable transformation of its core composing

factors/dimensions on a scale that is spatially expanding and tending to planetary width.

2. Every logical analysis of any relative phenomenon of corporate integration into globalization needs to focus on the parallel study of the qualitative and structural transformation of the total of the broader socioeconomic factors and forces which the continually evolving global dynamics contain, include and unify. Eventually, there can be no clear and complete theoretical approach, of any partial socioeconomic phenomenon, in the absence of a unifying and cohesive context of perception of the unstoppably evolving globalizing dynamics.

3. In the confines of the globalization process—and not only in it—it is being proven that not all firms are the same. Moreover, their differences are not exhausted simply in matters of size, quantities, spatial, or sectoral targeting, which usually attract the main research interests. On a much deeper level, it is proven that the most essential differences between firms are defined and encapsulated at the level of their very evolutionary physiology: particularly, at the level of their unique perceptual mechanisms (philosophy) and of the idiosyncratic ways of action/activity they adapt, inter-functionally, within themselves (processes).

4. In practice, every firm possesses and activates its unique evolutionary physiology, which can be encoded analytically and impressed evolutionarily in dynamic Stra.Tech.Man terms. Thus, every enterprise possesses the particular and idiosyncratic physiological limitations and opportunities which distinguish it in evolutionary terms from all others. In this manner, it is becoming understood that every enterprise can, and indeed, should discover and cultivate its physiological path and competitive orbit to manage to adapt evolutionarily and with an active and viable fashion into the transforming globalizing dynamics.

5. On the contrary, it is ascertained that the attempt to produce and re-produce a firm's competitive capacity, is becoming a multiple and evolutionary question: an evolutionary-dialectic question that bears no one-dimensional, static, unhistorical and spatially and sectorally "locked" dimensions and definitions. In practice, the survival and development of any firm within globalization are increasingly demanding correct "fitting" and

constant "stretching" of idiosyncratic physiological potential (Stra.Tech.Man potential) within the unstoppably evolving environment (socioeconomic space) where the enterprise exists on a global, inter-spatial scale.

6. At the structural root of the entire globalizing process lie the thought (the plan) and the activity (the action) of the capitalist firm itself. Therefore, at its deepest, the capitalist firm, as a living and adaptable socioeconomic institution-organism, is becoming, in our days, the central evolutionary engine, and, at the same time, the central evolutionary product of the globalizing dynamics itself.

7. In total, as a nodal demand of the globalizing capitalistic dynamics is being reproduced the search for competitiveness via effective innovation, on the part of the firm: such innovation, in particular, that involves the continuous synthesis/resynthesis of a firm's specific strategic, technological and managerial potential (what, in this study, is called "dynamic Stra.Tech.Man triangle").

8. Precisely, at this level is also seated the deeper mechanism that produces and reproduces the firm's competitiveness, and, in a broader sense, those systems that surround it (spatially and in sectoral terms). At the same time, this mechanism constitutes the internal physiological engine that claims and defends its profitability within an environment of globalizing competition. Ultimately, here are laid the foundations of the central evolutionary mechanism of survival and development, as well as of every other form of a jointly produced socioeconomic entity within globalization.

9. Eventually, the globalization dynamics itself, as it is being shaped evolutionarily, is proving, unhesitantly, that it will not pause to wait for those players that are inert, "assured," and relaxed. The fertile evolutionary insertion of any socioeconomic agent into globalization demands increased self-knowledge, constant experimentation and vigilance, and the highest degree of reaction speed in the face of change.

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3 Energy security in the Balkans and the energy economy of Greece [3]

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Introduction

Balkans is an area without energy sufficiency. It is a potential energy corridor which together with Nord Stream (and possibly with Nord Stream 2) will be the primary energy routes, covering adequately and safely the transport of energy raw materials from Caspian region and other areas, the needs of European Union, the world's largest importer of energy raw materials and hydrocarbons. Although all Balkan countries are pro-European, the EU's energy sector remains uncoordinated as the relative interests of its member states are different (every member state has its energy ambitions) (International Energy Agency, 1994).

All Balkan countries allege their geographical position as a strategic asset, and each one tries to highlight its own "virtues" in order to be preferred by the great powers as business partners. Turkey, Greece, Bulgaria, and Serbia have a particular geographical advantage, while Romania, Moldova, Bosnia & Herzegovina, Albania, FYROM, and Montenegro are considered as countries that can be bypassed (especially about Turkey's

corridor). However, the geographical location alone does not seem to be enough to make a Balkan country business partner with significant power. This complex environment, such as Balkans, requires alternatives to meet energy objectives. Every country must ensure supplier dispersion, energy security, excellent expert advice, appropriate energy infrastructure planning, and specialized investment incentives. These must be applied in an appropriate legal framework that has to be created based on current data.

Every Balkan country has its energy security priority as identified by the International Energy Agency-IEA (1999): for example, ensuring uninterrupted availability of energy sources at acceptable prices. In order to achieve its own energy goals, Greece must have an unambiguous energy policy. Its main goals are the increase in its energy autonomy and the improvement of its cooperation with the other Balkan countries. For that reason, it has to utilize its advantages, appropriately associated with the various issues of its Balkan environment. In this way, Greece can ultimately be able to exert substantial influence by intervening directly or indirectly in decisions that affect Greece's future. Balkan crude oil and gas transport networks are the critical strategic factors in the ongoing energy dispute between the West and Russia. So they are particularly crucial for Balkan countries' energy policy (International Energy Agency, 1995).

Energy safety: Ensuring stable and unimpeded energy supply

Energy security (Figures 1 and 2) implies the diversification of producers and energy supply channels. The eastern Mediterranean Sea as a production area and the Balkan peninsula as a transit region increase the geo-economic importance of countries significantly in the time of finding the relevant deposits within the Exclusive Economic Zones (EEZ) of the Republic of Cyprus and Israel (Bielecki, 2000).

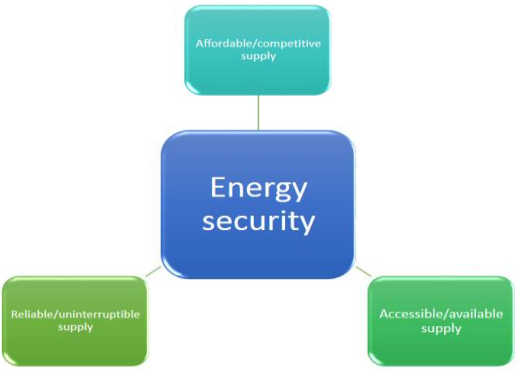


Figure 12. *Defining energy security.*
Source: Buchan (2014).

Short term strategies	Long term strategies
• Safe energy supply	• Increase of energy performance
• Enhancement of energy coordination of Member States	• Increase in energy production
• Enhancement of EU's GAS COORDINATION GROUP role to monitor developments in natural gas supply	• Diversification of supplying countries and supply routes
	• Integration of internal energy market
	• Construction of connection infrastructure
	• Develop a common external energy policy
	• Protection of vital energy infrastructure

Figure 2. *Energy security strategy.*
Source: Buchan (2014).

Oil pipelines

The Burgas-Alexandroupolis pipeline was designed to meet the Greek energy goals with the capability of transporting 35 million tons of Russian crude oil per year from Novorossiysk to suburban Burgas and from Burgas to Alexandroupolis, and from there to be channeled to international markets. The Bulgarian government rejected the project due to American pressure, and there is little chance that it will be revived in the light of Russia's energy restraint by the West. Shareholders in this pipeline would be the Russians (51%), the Bulgarians (24.5%), and the Greeks (24.5%) (Greene, 2000). Besides, despite the signing of various agreements

between the three countries directly involved, Russia never guaranteed some minimum quantities for transportation to ensure the pipeline's competitiveness (Asia Pacific Energy Research Centre, 2000).

There is also the AMBO pipeline between Bulgaria, FYROM, and Albania, which was designed and never implemented as a rival project of the Burgas-Alexandroupolis pipeline, which would exclude Greece. This pipeline, which would have an actual capability of transporting 40 million tons of crude oil, did not attract international business interest, despite the interest of those three countries plus Italy and the initial support of the US.

The Pan-European Oil Pipeline (PEOP) project is also frozen rather definitely. Five countries (Romania, Serbia, Croatia, Slovenia, and Italy) signed in 2007 a declaration to create a pipeline for the transport of crude oil from the Caspian Sea in a route starting from Constanta via Serbia, Croatia, and Slovenia to Trieste. Besides, this pipeline would reduce a large number of oil tankers supplying Trieste and could supply directly six refineries on its route (two in Romania, and one respectively in Serbia and Croatia). Even in this case, the energy diplomacy of Balkan nations proved ineffective since this plan was not a priority of a Western factor, such as a state or business entity.

The only integrated pipeline which was recently built and operated in the Balkan region but had insignificant importance for the international market was the 210 km long pipeline from Thessaloniki to Skopje. This pipeline was the project of Hellenic Petroleum SA, and it covered the needs of its refinery ("OKTA") in Skopje. However, the refinery is inactive from 2012 because the FYROM government sued the "OKTA" company[1].

Gas pipelines

Because global crude oil reserves are rapidly declining and crude oil has been linked to severe ecological problems, natural gas has emerged as a desirable energy source of high value. Based on

[1] The Greek minister of foreign affairs, Nikos Kotzias, speaking on Skopje on August 26, 2016, to FYROM ambassadors said they had agreed with his counterpart to build a pipeline for the transportation of oil derivatives from Thessaloniki to Skopje and later a gas pipeline.

an agreement signed in 2003, the connection of the Greece-Turkey gas networks took place in 2007. The pipeline (continuation of the Balkan Tbilisi-Erzurum pipeline) starts from Karacabey in western Turkey and ends at Komotini. In April 2009, Greece and Bulgaria agreed to establish a natural gas interconnector (IGB) to connect the Greek National Natural Gas System (NNGS) with the respective Bulgarian from Komotini to Stara Zagora. The 180km long IGB emerged as a top priority project for US diplomacy due to its contribution to decreasing the energy dependency from Russia. This pipeline would flow from both sides and has the potential of supplying Bulgaria with at least 30% of its annual energy consumption[2]. It is planned to transit a total of 5 billion cubic meters of natural gas per year from Greece to Bulgaria. It is also planned to transit reversely, from Bulgaria to Greece, about 1 billion cubic meters of natural gas. The IGB is expected to meet the needs of neighboring countries (Romania, FYROM, and Serbia). For this purpose, it was linked to the IBR pipeline (Ruse-Giurgiu), which is also scheduled to operate in 2018. The northern extension will be the construction of the BRUA pipeline, which is going to link Bulgaria to Austria through Romania and Hungary, while the IGB will have the potential to serve Ukraine and possibly even the Baltic states.

The long term failure to agree on the construction of the Nabucco pipeline (whose route would skip Greece) has resulted in the idea of creating an alternative gas pipeline by the SOCAR Company in Azerbaijan in cooperation with the Turkish company BOTAS. That pipeline, the Trans-Anatolian, will have the capability of transporting 16 billion cubic meters of natural gas per year, with the scope of reaching the 32 billion cubic meters gradually. This pipeline's route will start from Azerbaijan, cross Georgia and Turkey and end up in Central Europe. The TANAP construction project was announced in 2011, and its construction will finish according to the plan in 2018. In 2013 it was announced that besides SOCAR (58%) and BOTAS (30%) in the construction of the TANAP pipeline a 12% would be covered by BP.

[2] Additionally, Bulgaria has been granted access to the liquefied gas storage facility in Revythousa.

The extension of TANAP is a 550km pipeline on the Greek territory called TAP (Trans Adriatic pipeline)[3], which is under the consortium of the energy companies SOCAR, Snam, BP, Fluxys, Enagas, and Axpo. TAP will have an annual capacity of 10 billion cubic meters of natural gas and the potential to increase that by 100%. This pipeline represents an investment of 1.5 billion euros, which will directly spawn 2,000 new jobs in Greece, and it is also estimated to create 8,000 indirect job positions and 400 other jobs of archaeological interest. The TAP is planned to bifurcate at Fier (Albania), into Italy via the Adriatic Sea and to Croatia via Montenegro and Bosnia and Herzegovina as the Ionian Adriatic Pipeline (IAP). TAP might also facilitate the strengthening of the Greek-Albanian cooperation, which is facing obstacles because of the 2009 signing of the bilateral agreement between Greece and Albania on the delimitation of the continental shelf and other maritime areas.

The initial plan for the construction of the ITIG (Poseidon) pipeline, which was designed to transport gas from Russia through Turkey and Greece to Italy, finally did not take place due to disagreements from the US and the European Commission. The main reason was the maintenance of Russian energy dependence. The construction of the South Stream gas pipeline was agreed in 2007 between the Russian Gazprom and the Italian EMI. The pipeline was projected to have a route starting from Novorossiysk and through the black sea to Burgas (Bulgaria). From there, it would head to central Europe via Serbia while a part of the pipeline would start from Bulgaria and would end in Thesprotia (Greece). From Thesprotia, the pipeline's route would end in Italy. In December 2014, Russian President Vladimir Putin announced the cancellation of the South Stream construction due to barriers from the European Union. So Russia announced the construction of the TurkStream pipeline and the construction in Turkey near the Greco-Turkish borders of a final Russian gas distribution center. A new route would be created starting from the distribution center and ending in Europe. TurkStream will have the capability of transporting 31.5 billion cubic meters of natural gas per year.

[3] The Shah Deniz II consortium preferred this project against the 1300km Nabucco West pipeline, part of the original 4000km Nabucco pipeline.

TurkStream will have two routes. The first one will supply the Turkish market, and the second one will go through Greece in the other states. Gazprom will fund the undersea part of TurkStream. As has been reported, the land sector of the TurkStream will be divided into two lines. The first line belongs to the Turkish BOTAS company and the second to BOTAS (50%) and Gazprom (50%). Following the relevant agreements, the construction of the second line will begin in 2018.

The cancellation of South Stream, which would turn the Balkan states pro-Russian, could increase the geopolitical importance of TAP. If TurkStream and TAP pipelines are built and operate finally, Greece will upgrade its role on the Balkan energy map and become a strategic energy hub, because IGB strengthens the security of energy supply in the wider Balkan region. In an uncertain geopolitical region, Greece is going to emerge as a stabilizing power and a beneficial factor in meeting Europe's energy needs. It is no coincidence that the IGB project is one of the top seven priority projects of the Energy Interconnection Initiative. Currently, the South Stream project seems to have been abandoned despite the statement by the Russian Energy Minister that under some guarantees from the European Union, the project could start again. In August 2016, Bulgaria took the initiative as Prime Minister Borisov and president Putin communicated about this matter. However, the subsequent visit of Turkey's President Erdogan to Russia resulted in a statement that restarted the TurkStream project, as Putin said that Bulgaria's good intentions without unreserved legal guarantees were not enough to trigger the construction of South Stream. Indeed on October 10, 2016, an agreement between Russia and Turkey was signed in Istanbul to implement the TurkStream project in action by 2019[4].

The need to re-launch the Greek Stream project, which is part of the Turkish Stream on Greek territory, came as a result of the Turkish Stream agreement. Turkish Stream could be extended to Hungary via FYROM and Serbia as Tesla Stream. Despite the fact that the European Commission has approved the Tesla Stream as a Project of Common Interest (PCI), starting in Nea Mesimvria

[4] The signature of the agreement does not guarantee the execution of the project, as Russian and Turkish interests are not entirely the same.

(Greece) and ending at the node of Baumgarten (Austria), the section from the Turkish-Greek border to Macedonia is not covered and Russian Foreign Minister Sergei Viktorovich Lavrov said on November 2016 in Athens that the extension of the TurkStream is possible only if the European Parliament approves it. It is, therefore, possible to qualify for an alternative connection option with Tesla Stream (either via TAP or via ITGI), and it is also expected to be, like the IGB, a two-way flow. On October 14, 2016, DESFA and the company managing energy resources in FYROM signed an agreement for the construction of an interconnection line, approximately 160 km long for the transportation of natural gas from New Mesimvria (Greece), to Stip (FYROM) (International Energy Agency, 2016a).

If the creation of the energy hub at the Greco-Turkish borders will take place, Greece is going to emerge as a gateway to Russian gas in Europe. Nevertheless, also Turkey will be upgraded as well since the dependence of Russia and the EU from a demanding and aggressive neighbor of Greece will increase. In case (for any reason) of Greece's refusal to allow the extension of TurkStream through its territory, Bulgaria is the only alternative, which tries to become an energy gateway to natural gas in Balkans.

As far as Turkey is concerned, Bulgaria has the same importance as Greece in fulfilling its energy goals. Bulgaria has a 2,200 km gas distribution network connected to Greece, Turkey, and FYROM, and its planned connection with Serbia via South Stream stopped when the project was shut down at its initial stage. Under a Russian-Bulgarian agreement in 1998, Bulgaria had secured its gas supply (from its only supplier, Gazprom, which also has a share in the natural gas supply network) until 2010 and facilitated the provision of Russian gas in Turkey, Greece, and FYROM. Greece and Bulgaria rely heavily on energy issues from Russia. Sometimes their interests are competitive. However, they have agreed on mutually beneficial cooperation, which is ensured through the construction of the IGB pipeline.

The former Bulgarian Minister of Foreign affairs (2010-2013) Nikolai Mladenov, in his speech in an investment conference held

in Varna (6-7 September 2016), referred[5] to the importance and viability of this project for the construction of the "Balkan" gas distribution center costing 1.5 billion euros. Gas is expected to originate from Russia, Azerbaijan, and as well the floating gas liquefaction terminal expected to operate in Alexandroupolis. In this terminal, with a budget of 380 million euros, the Bulgarian PPC has expressed its intention to participate with a 25% share[6] (BP Amoco, 1999). In August 2016, according to Bulgaria's Energy Minister statement, there is now a real possibility that Iran will have the capability to supply this station with natural gas at 3-4 years. He also added that a relevant expert meeting would examine the possibility of transporting gas from Iran to Bulgaria through Armenia and Georgia.

Mladenov pointed out that the plan to build a gas distribution hub near Varna is the first completed Bulgarian energy project that corresponds to Bulgaria's national interest in diversifying energy suppliers, given its strategic location at the crossroads of major European transport routes. Mladenov said that: Whether it will be implemented depends on our partners and us because the implementation of this long term plan demands cooperation with the EU, the neighboring countries, and Russia, which will continue to be a significant factor in the energy sector. How exactly this plan will be implemented also depends on our ability to work on achieving a long term national priority through careful diplomatic and economic moves. He also added that the European Union's strong support for the project is the first sign of success. As a former head of Bulgarian diplomacy, Mladenov emphasized that Bulgarian diplomacy would play a key role. Bulgaria's Prime Minister has proposed to hold a tripartite meeting (Bulgaria, European Union, Russia) to decide on the implementation of the project. According to Bulgarian officials, the factors that justify optimism for its implementation are the strong support from the European Union, the expected significant increase in gas consumption in the Balkans and the fact that there is no such other regional hub in the region. However, even though the EU is

[5] Bulgarian newspaper "24 hours" on September 7, 2016.

[6] Historically and statistically, natural gas is cheaper than liquefied natural gas, but we do not know how prices will change in the future.

energy-dependent from Russia, it continues to help the US plans for the Russian energy blockade. On the other hand, the European Union does not have adequate alternatives to reduce its energy dependence on Russia. Even the increased supply from Norway or Algeria cannot ensure energy efficiency for a growing European energy market.

The Greek side is interested in ensuring an alternative source of energy supply so as not to depend on Turkey. It is reminded that the supply from Greece via Ukraine will cease in 2018. The creation of pipelines passing through Turkey binds several countries, including Greece, and particularly in the current tense political landscape in Turkey, which turns into a totalitarian state, threatening its neighbors. So energy projects that would strengthen the Turkish economy would not be beneficial. Given the high consumption needs of the European Union (about 450 billion cubic meters per year), Greece also welcomes the agreement between Russian and Germany from which Nord Stream 2 is going to be constructed. This pipeline will blunt the tensions between Russia and Europe, benefiting the Eastern and Balkan countries, which are located at the forefront of Russia. It is essential to have in mind that the Borisov government had decided to freeze three critical energy projects with Russian participation. That fact demonstrates how Bulgaria is politically dependent on the West[7]. These were three typical examples of energy diplomacy by the West at the expense of Russia with a disproportionate cost for Bulgaria. Bulgaria is heavily dependent on Russia (crude oil 90%, natural gas 95%, and nuclear fuel 100%).

Regarding oil and gas drilling started in spring 2016 (the relevant competitions were held in 2012), this took place in the Han Asparuh deposit in the Black Sea by French Total (40%) in a joint venture with the Austrian OMV (30%) and Spanish Repsol (30%). On October 28, 2016, the Bulgarian Deputy Prime Minister Tomislav Donchev announced that oil was found without further

[7] After stopping the construction of the nuclear plant, the Russian side appealed to the International Chamber of Commerce, which decided that Bulgaria's PPC should pay 550 million euros in compensation to Russian Atomstroyexport. The amount owed had increased due to interest to 628 million euros by the end of September 2016.

clarification. The agreement stipulates that the French company will have to make two deep drillings near the sea border with Romania. The issue of energy projects in Bulgaria is linked to unemployment and immigration. As an executive of the opposition said: we cannot afford to see two million Bulgarians emigrate because they have no jobs. On 2 November 2016, the Bulgarian government approved plans for a five-year contest about oil and gas extraction in Northwest Bulgaria, its most impoverished region.

Furthermore, Tomislav Donchev said that his country intends to retain the ownership of existing gas infrastructure for national security reasons, but it is ready to offer the possibility of forming a joint venture for this particular planned gas hub project near Varna. 50% of the new company's shares will be offered for sale, while the gas management company will be Bulgartransgaz's subsidiary.

It is underlined that the Russian company Gazprom was not present at this conference and that the Bulgarian government's answers to the relevant questions did not satisfy those who put them. Donchev said that without Russia, the project would not be "so sustainable," but the Bulgarians are determined to move ahead with the Turks as a Russian substitute, apparently having a link between Turkey and Varna. Bulgaria coerces Turkey to speed up the process of building a two way Turkey – Bulgaria interconnector. Bulgaria has secured 50% of its funding from the European Union. On the other hand, Bulgarians are increasingly suspicious of Turks, who use the Turkish minority as a mean of political pressure against the Bulgarian government. In early September 2016, Bulgarian Prime Minister in a speech to his party youth, he highlighted the long term risk posed by Turkish investments.

However, Bulgarians seem to prefer the undersea connection through a pipeline with Russia in order to further promote natural gas in Europe, despite reviving South Stream. The feasibility study for the project is scheduled for 2017, while the final investment decision is going to be taken in 2020. The project construction will start in 2021. Moreover, Gazprom has announced that it does not intend to renew the contract relevant to the transport of Russian

gas through Ukraine, which expires at the end of 2018. On October 24, 2016, Gazprom Managing director Alexei Miller met with President Putin. During this meeting, he said that "I can surely say that the construction of both routes of the Turkish stream can begin. They may have been completed by the end of 2019".

The influence of Gazprom (the world's largest natural gas company, which owns and almost all of Russian gas reserves) and Lukoil (the second largest company in Russia) is well-established in the Balkans. Lukoil has a strong presence in Bulgaria and Romania. It owns the massive refinery of Neftochim (in Burgas) in Bulgaria, where it has made its most substantial investment outside of Russia. It has also secured a monopoly on the gas market in Romania since 2001. Besides, it has become the only supplier of state-owned Rom-Gaz. In Ploesti (Romania), the Petrotel refinery belongs to Lukoil. Romania, which is significant in size and market, it has the lowest dependence on imported energy raw materials among all Balkan countries, while serving as a transit country for gas transportation from Russia via Ukraine to Bulgaria, Turkey, and Greece.

Russia exercised intense diplomacy actions during the 2000s in an attempt to make Serbia entirely dependent on Russian energy raw materials combined with Russian investments in the Serbian energy sector, where two companies are active. The first one is SrbijaGas, which supplies exclusively Russian gas under an agreement up to 2021, and the second one is Gazprom's JugorosGas. As Serbia and Russia are both Slavic and Christian orthodox countries, they have developed cooperative initiatives between them. The diplomatic exclusion of Serbia from European countries due to the Yugoslav wars and the poor performance of the Serbian economy played a significant role in this approach. A key role for Russia-Serbia relations plays the fact that Russia, as a permanent member of the UN Security Council, blocked Kosovo's membership in the UN. In January 2008, an agreement was signed on the purchase of 51% of Serbia's state-owned hydrocarbon company (Naftna Industrija Srbije, NIS) by Gazprom for 400 million euros. In return, the Russian company had an obligation to invest 500 million euros in the Serbian energy sector by 2012, and a month later, a new Russian-Serbian agreement was signed on

Serbia's participation in the South Stream pipeline. The following months, new agreements were signed that provided the establishment of a joint venture for underground gas storage in Pancevo, near Belgrade. The cancellation of Bulgaria's South-Stream participation due to the US involvement did not allow the implementation of the Russian-Serbian agreements.

On the other hand, Russia penetrated in Republika Srpska, securing a majority stake in two refineries and an oil company. Gazprom's bargaining power is firm due to the intra-Balkan competition that is often imposed by geography and the insignificant Balkan market as a whole. If the European Union was able to negotiate by representing all its member-states, this could balance Russia's and Gazprom's bargaining power. The European Union, as a whole entity, could dictate terms and impose solutions due to the size of its gas demand, obviously putting also other issues at the negotiating table. In any case, it is not in Russia's advantage to negotiate versus all the European Union members-states but instead negotiating with each one separately and threatening them with alternative solutions that can offer to third parties, e.g., blocking Bulgaria, preferring Turkey's solution. The united voice of the European Union could say to Russia: "Take it or leave it." However, even the most influential European state alone cannot prevail over Gazprom on negotiating.

In this case, Turkey has an advantage over Bulgaria, due to the size of its market. Turkish soil is a natural corridor for the necessary energy flows from the Caspian Sea to Western Europe, and Turkey is trying to exploit its geographical position by pursuing its priorities (e.g., joining the European Union). Due to its geographical position, Turkey is also a vital hub for Russian neutralization. On the Russian side, by securing Turkey's co-operation makes Europe weaker. EU relies on Turkey as an alternative to any Russian energy offer to the West. Bulgaria cannot play Turkey's role. It can be circumvented because of its insignificant market size easily. If Russia can bypass Ukraine, which is the shorter energy corridor to central Europe, it is even easier to bypass Bulgaria, which is geographically smaller and politically and economically weak. The same goes for any other small Balkan state.

Following the recent localization of large quantities of natural gas in the eastern Mediterranean Sea and despite the recent Cyprus-Egypt energy agreement, there is the prospect of constructing the East Med pipeline, to cover the energy needs of Israel, Greece, and Cyprus. East Med pipeline will have the capability of transporting 8 to 10 billion cubic meters of gas in Europe, through Crete and Peloponnese to the point of interconnection with the Poseidon pipeline (continuation of ITGI) in Thesprotia. This route may be extended through the Balkans, where new branches could be constructed as final route destinations (Παρίσης, Ι. (2013). In particular, the discovery of large natural gas quantities in the maritime area between Cyprus, Lebanon, Israel, and Egypt in 2011 created new geopolitical data in this area. Cyprus and Israel negotiate the possibility of the East-Med pipeline, which is going to link them with Greece and Italy. This pipeline could be an alternative option from Russia[8].

The construction of the East-Med pipeline and its extra gas supply from the Caspian Sea, Iran, Egypt, and the Persian Gulf will abolish Russia's monopoly as an EU supplier and will diminish Turkey's value as an energy node[9]. Indeed, there is a degree of mobility in the energy sector in the southeast Mediterranean sea. Due to the pipeline in Israeli and Greek EEZ, Turkey is pushing for the solution of the Cyprus dispute, to control the transfer of the region's gas to Europe on its behalf[10].

High-level contacts have taken place between the EU, Italy, Greece, Cyprus, and Israel. The aim was to prepare a Summit between the Energy Ministers of every country in April 2017. The central theme will be the pipeline, which will be going to transport gas from the Leviathan gas field to Europe[11].

The four Energy Ministers met on 4 April 2017 in Tel-Aviv and signed a Joint Declaration recognizing the project of East Med pipeline as "a strategic priority for exporting to Europe the part of existing Eastern Mediterranean sea gas reserves"[12]. The next goal

[8] Ibid p.136
[9] Ibid p.137
[10] [Retrieved from].
[11] Ibid
[12] [Retrieved from].

for the pipeline promotion is the Intergovernmental Agreement, as it was decided to set up a four-party working group to monitor and support the East-Med pipeline project[13]. The pipeline to Turkey or natural gas transfer by LNG through Egypt were studied as alternative approaches. They may be considered more economical, although they hide an increased political risk[14].

On the Italian side, Enel, a former state-owned electricity company privatized in 1990, is interested in the pipeline construction venture[15]. During the energy conference in Abu Dhabi in a meeting with the Israeli government, Enel informed about the company's interest in obtaining gas from Israel and distributing that on the Italian market[16]. Italy has expressed an interest in supplying gas from Israel as an alternative to the North Sea deposit, which is decreasing[17].

According to the Israeli financial website "Globes," officials from the four countries will discuss the project to build a gas pipeline from "Leviathan" to Italy via Cyprus and Greece[18]. The pipeline will be the largest of its kind in the world, having a length of 2200 km and will effectively connect the Israeli "Leviathan," Cypriot "Venus," and every other deposit discovered in Italy. From there, it will interconnect with the existing pipeline network to all other European countries[19].

Specifically, the pipeline route will be undersea from Basilica reservoirs in Cyprus, and it will continue its course to South Crete. After that, the pipeline route leads through Peloponnese and Western Greece to Italy[20].

European countries have expressed the view that this ambitious project should be undertaken by EDISON, a power company controlled by EDF, France's state-owned electricity company. EDISON has already been involved in drilling into the EEZs of

[13] Ibid
[14] Ibid
[15] [Retrieved from].
[16] Ibid
[17] Ibid
[18] Ibid
[19] Ibid
[20] [Retrieved from].

Israel and Egypt[21]. According to a survey conducted by EDISON in cooperation with the European Commission's Directorate for Energy, the pipeline to Greece will cost 5.7 billion dollars[22].

The EU supports the project and has included it in the Public Interest Projects as a potential alternative source of supply, to decrease its dependence from Russia, which covers 42% of its natural gas needs[23]. In this case scenario, Greece is upgrading its importance in the region. The implementation of TAP and IGB (interconnection with Bulgaria) pipelines and the construction project of a new LNG terminal in Alexandroupolis, highlight Greece as an energy hub[24].

In particular, the entire construction plan is planned to be funded and operated by private companies with the support of the EU and the European Investment Bank[25]. The project also includes the addition of another 240 km pipeline from Greece to Italy in the Brindisi region that will continue to Rome, carrying 12 billion cubic meters of gas per year[26].

However, there is a contradiction by some experts who are questioning the viability of the pipeline. They point out that the considerable pipeline cost will raise prices by 3-4 dollars per thermal unit when the current price in Europe is 5-6 dollars, while in Italy, the price comes to 6.5 dollars per thermal unit[27].

Recent developments

The EU and the US support three moves launched in the energy sector, which strengthen and upgrade the role of Greece and Cyprus in the energy map of the broader region of the southeast Mediterranean. On the other hand, however, the factors that affect these actions do not exclude provocative actions from Turkey, which seeks to create fait accompli, especially in the Cypriot EEZ.

[21] Ibid
[22] Ibid
[23] [Retrieved from].
[24] Ibid
[25] [Retrieved from].
[26] Ibid
[27] Ibid

In particular, in September-October 2018, contracts for the granting of exploration rights and exploitation of hydrocarbons in the two marine lands west and southwest of Crete are expected to reach the Greek Parliament. The joint venture of the oil giants Total and ExxonMobil with Hellenic Petroleum have won these regions. The signing of the intergovernmental agreement for the construction of the EastMed gas pipeline has been planned in September in Chania. As already mentioned, the pipeline promoted by DEPA and Edison, making a 1,872 km route, will bring the quantities of natural gas from Israel, Cyprus, and Crete deposits, if found in maritime concessions, to Europe crossing Western Greece and ending in Italy. The third movement concerns Cyprus, where the American oil group ExxonMobil in cooperation with Qatar Petroleum, brings a drilling specialist to make two promising drills at EEZ Site 10. Estimates want this piece to hide amounts of gas at levels similar to those of the Egyptian Zohr. For these moves, Washington and Brussels provide full political support to Athens and Nicosia as well as Tel Aviv (EastMed).

Research into the identification of natural gas deposits and the implementation of their pipeline in Europe serves the EU's options for alternative sources of gas supply to ensure energy supply and security supply for member states and also satisfies the diplomatic US policy towards Russia, which aims to limit Moscow's political influence through the supply of gas. The EU is dependent on Gazprom's fuel. The decision by Brussels and Washington to implement this energy policy is also evident from the activity of the large oil companies Total French and American ExxonMobil in the region. Regarding the issue of deposits in Crete, the Minister of Environment and Energy George Stathakis pointed out the companies of Total-ExxonMobil-HELPE as selected participants of the two marine areas west and southwest of Crete, are following a suggestion by the Hellenic Management Company of Hydrocarbons. HHRM SA (Hellenic Hydrocarbon Resources Management) is already negotiating with companies for the two draft contracts. It is estimated that this work will end at the end of 2018, and then it is down to the minister that the contracts are sent to the Court of the Auditors, to be signed and finally ratified by the Parliament. One stage before is the case of the Ionian Marine

Concession, with HHRM evaluating the offer from Repsol-Hellenic Petroleum. The presence of the world's largest oil companies (Total, ExxonMobil, and Repsol) in hydrocarbon exploration in the country is increasing the chances of having deposits.

Beyond that, HHRM made up of scientific staff, states in its annual financial report: There are geological similarities to the rocks of the Southeast Mediterranean that have given over the last five years many discoveries of large gas deposits. The marine area of Western Greece and south of Crete is characterized by limestone rocks and are similar to the Zohr of Egypt, Calypso, and Onisiforou deposits in Cyprus, but also in other cases with the deposits of Aphrodite in Cyprus or Leviathan in Israel. All of these gas deposits have been discovered over the last five years with a series of drillings." HHRM continues: "Geo strategically and commercially, it is also evident that there is geographical convergence between the hydrocarbon exploration areas and the two means of gas transport from the southeast Mediterranean to Europe, the TAP and the EastMed pipeline. It is understood that the combination of investments in exploration and transport of hydrocarbons offers strong financial incentives to investors."

Provided that the promising deposits are identified, natural gas deposits south of Crete are estimated in a range of 3 up to 30 trillion cubic feet. The Chairman of the Hellenic Hydrocarbon Management Company Yannis Basias has made this assessment during the Med Petroleum Summit organized by IN-VR Oil & Gas in Athens. Y. Basias said during his speech that "the geological features of Crete and the Ionian Sea are similar to those of the Zohr deposits that were recently discovered in Egypt and changed the whole situation in the global community of oil science and industry."

During the talks with the journalists, referring to the significant concessions for the South Western and Western concessions of Crete and the Ionian Islands, he announced that the total offers of Total-ExxonMobil-Hellenic Petroleum were 0,98% for the first two plots, and Repsol-HELPE for the third is under evaluation by HHRM and will end by 31 May 2018. Then the final suggestion will be made to the Minister of Environment and Energy. Then, according to Y. Basias, negotiations on lease agreements with

preferred investors will follow. The competent minister, speaking at the same event, announced the signing of these contracts in 2018.

Y. Basias, addressing representatives of foreign independent companies of hydrocarbon management and oil companies operating in research and exploitation, has attributed estimates of the size of these natural gas fields. Based on the similarities of the geological structures of Western Greece with those of Zohr, the corresponding similarities of the deposits of Crete with those of Onisiforos and Kalypso of Cyprus, and the discoveries that have been made in the wider Mediterranean region by four types of geological structures, then the following estimates are feasible:

- Calypso, Onesiforos, and Zohr: 37 trillion cubic feet natural gas
- Aphrodite, Tannin, and Carris: 6 trillion cubic feet
- Leviathan and Tamar: 33 trillion cubic feet
- Mari, Noa, and Gaza: 2,5 trillion cubic feet

The President of HHRM and the Minister of Environment and Energy, in their speeches, described the favorable conditions for the exploration and exploitation of hydrocarbons in Greece. As they mentioned, two major investment projects are developing that transform Greece into an energy hub. It is about the TAP pipeline, which is 80% integrated and the planned EastMed, which is going to link Israel, Cyprus, and Greece. Moreover, Y. Basias added that "the region of western Greece and south of Crete offer geopolitical security."

Y. Basias estimated that the first drillings in the concessions of Crete and the Ionian Sea would take place three years after signing the contracts. The depths that can be reached by the large drilling machines bases on the existing technology are up to 3,000 meters. According to Y. Basias, exploration and drilling should be certified at least 500 million barrels of oil equivalent and the depth of the water up to 3,000 meters.

A new round of concessions

The president of HHRM also announced that after three years, Greece would be able to proceed to a new round of concessions. According to the contractual obligations of the concessionaires

with the Greek state, after three years of research, 25% of the land should be returned. This process will provide Greece experience and know-how so that it can go to shorter international competitions. Y. Basias also said that HHRM is collaborating with the Norwegian PGS (Earthquake Investigation Company) to obtain new data and in other areas south of Crete where the lines are not dense. Y. Basias said PGS is seeking investors to pre-fund research so they can start. HHRM also estimates that in 2019, the first drillings will be made in the Gulf of Patras and Katakolo. HELPE and Edison have the first concession, and Energean Oil & Gas have the second one.

Findings and concluding remarks

The construction of recently planned pipelines has either been stopped, paused, or it lies at an early stage of implementation (International Energy Agency, 2016b). This situation is reflecting the conflicting interests (great powers, organizations, multinational companies, regional powers) that influence or overturn decisions (Meadows, 1972). Balkan countries themselves have proved to be powerless against the will of great powers, firstly the US and, secondly, Russia (International Energy Agency, 1974). Additionally, critical decisions on large-scale energy investments are taken by joint ventures or multinational companies according to their interests (Federal Energy Regulatory Commission, 2018). Their primary criterion for the implementation or not of a project is profitability.

In recent years a series of ambitious and costly projects were abandoned for several reasons. Instead, smaller-scale projects have achieved their implementation to interconnect the Balkan energy market (US Geological Survey, 2000). Energy policy can be a useful tool. However, governments must be able to understand every conjuncture that occurs and exploit it to their benefit. It is also crucial to have the ability to plan in short, medium, and long term, to create useful alliances either with neighboring states, or corporations (Giamouridis & Paleoyannis, 2011).

When Russia and Iran hold more than 50% for the world's gas reserves, inevitably, there will be energy dependency from these countries (European Commission, 2000). Things are getting

complicated after taking into account the political pressure of the US and NATO to Balkan countries. Since the energy supply of Balkan countries is based on coal (lignite), the rapid decline in its reserves causes them to seek gas as a substitute for the near future (International Energy Agency, 2001). The more dependent a country is from an energy supplier, the more expensive it will pay for energy supply. Currently, Russia has the advantage of being the closest energy source to Eastern Europe and the Balkan region, and it also has sufficient quantity to offer (International Energy Agency, 2000a). For those reasons, Europe's energy dependency from Russia is not going to be decreased (International Energy Agency, 2017). Balkans may deal with substituting a relatively small proportion of Russian gas with imports from countries such as Azerbaijan and Iran. Turkmenistan, which is also an energy provider, has given priority to supply China (International Energy Agency, 2015). Even though gas deposits have been found in Azerbaijan, there have been problems concerning the extraction of natural gas due to its low prices on the international market (International Energy Agency, 1998).

In the future, European energy dependence on Russia and Gazprom is expected to be in effect due to mainly increased European needs. Therefore this dependence limits the freedom of the European's Union strategic choices (International Energy Agency, 2000b). However, Europe will continue the effort of decreasing Russian energy dependence via alternative forms of energy, such as LNG. Given the circumstances, there is a chance for Greece to emerge as an energy supplier by exploiting gas deposits in the eastern Mediterranean. Greek diplomacy has reasonable arguments to persuade the European Union that the East Mediterranean Sea hydrocarbons should not be carried forward through Turkey. If these reasonable arguments are combined with appropriate partnerships with energy corporations, the Greek side may achieve remarkable gains due to this favorable combination of international developments.

Suggestions

Greek diplomacy must be valid and timely informed about energy developments in Balkans and the Middle East

(Sotiropoulos, 2014). Therefore, an organized institutional information network is required, and the relevant information must be cross-linked and as detailed as possible. The members of the Greek economic diplomacy are the most suitable for the extraction of such information.

Greek energy interests must be represented with appropriate executives on the international diplomatic scene within the European Union and NATO. Initiatives, coordinated by the relevant ministries (mainly Foreign and Energy), to support projects that primarily serve Greek interests and secondly the interests of the wider Balkan region. Projects that can be described as PCIs must ensure substantial Community funding.

The government must introduce special investment incentives, subject to specific conditions, by offering a multi-year tax exemption to investors, to create new jobs. It is better to tax formerly unemployed citizens than paying unemployment benefits. The government must promote energy diplomacy in terms of energy security, budgeting, environmental protection, and innovative applications.

Greece must support the country or plans that serve Greek interests the most. Given the constant threat that Turkey poses for Greece, it is in Greek interest to prevent any upgrading of Turkey and to assist anything that can degrade it. However, this strategic choice should not risk jeopardizing Greece from significant energy projects. A policy of denial with the sole aim of excluding Turkey and looking forward to unrealistic projects is not beneficial (Τσάλτας, Μπουρτζής, & Ροδοθέατος, 2009). Particular attention should be paid to avoiding energy competition against neighboring Bulgaria in a counter-productive and dangerous conflict aimed at eliminating the opposing party.

Initiatives should be taken to make collective actions and projects with neighboring countries that serve common interests. Joint negotiations with third parties are also desired. At the same time, lower-cost projects have proven easier to implement, and Greek attention should be directed towards less ambitious projects of mutual interest and energy interconnection of neighboring countries (Φαραντούρης, 2014). Top priority should be given for

cooperation with the Republic of Cyprus, mainly on the energy issues of the broader region of the Eastern Mediterranean Sea.

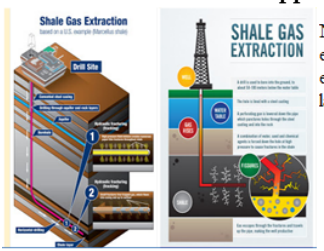
Appendix

Appendix 1: *Balkans Pipeline route map except TurkStream. Source: Gaventa (2015)*

Appendix 2: *TurkStream. Source: Albania Energy Association (2016)*

Appendix 3: *Turkish, Greek and Tesla Stream. Source: Albania Energy Association (2016)*

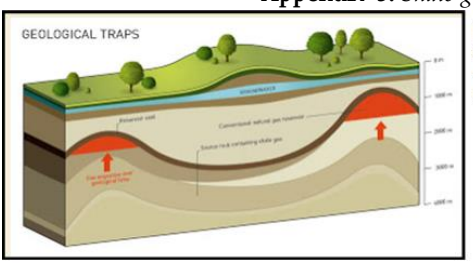
Appendix 4: *Shale gas (a)*



Natural gas could cover up to 30% of planet's demand on energy until 2025. Shale gas, a promising but controversial energy source, refers to gas deposits which are located in subsoil layers.

Advantages:
Shale gas pumping can increase gas stocks and decrease EU's dependence from other outer energy sources. The development of new gas sources will increase bussiness competition, decrease gas prices and increase the safety of EU's supply.

Appendix 5: *Shale gas (b)*



The use of such quantities by exercising great pressure creates pollution risks, when water aquifiers are used, which cause pollution. Also the technique of breaking up soil is well known that causes seismic activity.

The enviromental problems that gas pumping causes are known. The breaking up soil technique demands a great mass of water, up to 4000 cubic meters for the opening of only one source and up to 14000 cubic meters for shale fracturing and gas pumping

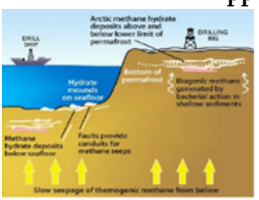
Appendix 6: *Methane Hydrates (a)*

Methane Hydrates

Hydrates are located in 98% in subsoil to the seabed subsoil. They form in depths of 200-300 meters where the pressure goes up to 30bar and the temperature is about -10 Celsius. Organic matter is sufficient for bacterial methane production.

In the case of methane hydrates, they consist of solid crystal. Solid crystal is composed of molecular methane which is surrounded by converging molecules, in a molecular ice cage.

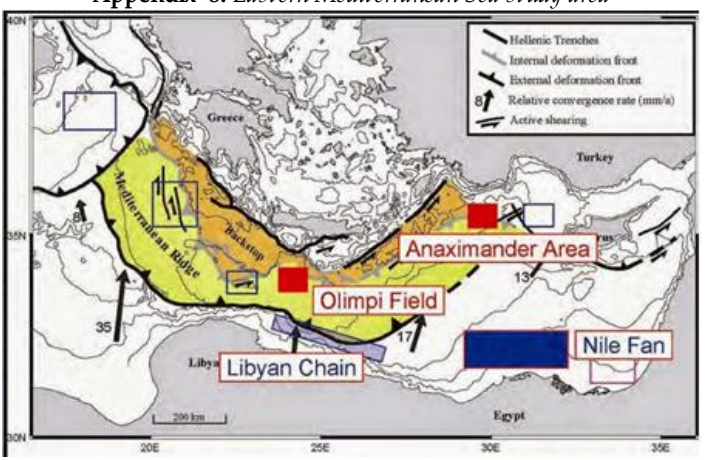
Appendix 7: *Methane Hydrates (b)*



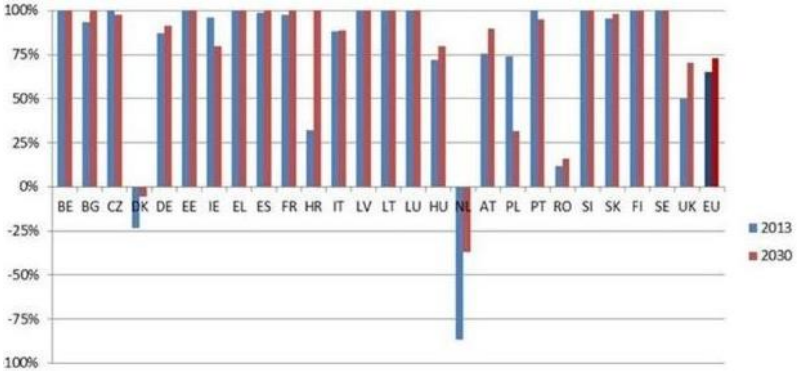
The hydrates have been found in the Caspian Sea, in the Barents Strait, in the Eastern Mediterranen Sea, Eastern of Rhodes, south of Antalya bay, in Anaximander area and in Kasterllorizo.

There have been investigations in Anaximander area in Southeast Mediterranen Sea, where hydrate samples where collected from depths of 40-80cm under the sea floor, 2000 meters under the sea surface. Also two mud volcanos where investigated which named "Athens" and "Thessaloniki".

Appendix 8: *Eastern Mediterranean Sea study area*



Appendix 9: *Gas import dependency in 2013 and 2030*. Source: Cohen (2007)*



*import dependency in 2013 based on EU statistical pocketbook and in 2030 based on the PRIMES 2013 reference scenario

Cyprus not included (no gas market in 2013 and expected to be a major exporter (>500%) in 2030).

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4 The multiple perception of innovation: The case of micro and small enterprises in the region of Eastern Macedonia and Thrace [4]

Charis **VLADOS**
Dimos **CHATZINIKOLAOU**

Introduction

The concept of innovation can only be multifaceted, complex, ambiguous, and evolving. In this way, a single definition of innovation (Baregheh, Sambrook, & Rowley, 2009; Kogabayev & Maziliauskas, 2017; Lazzarotti, Samir Dalfovo, & Emil Hoffmann, 2011; Matthews & Brueggemann, 2015; O'Sullivan & Dooley, 2008) can not include all the dimensions and changes within the evolving world of enterprises/organizations, both small and large ones (Brynjolfsson, McAfee, & Jaquet, 2015; Carayannis, 2013; Drucker, 1986; Fransman, 2018; Nelson, 1993).

In addition, what is often noted in the various studies of organizational innovation is that the research results are vague, usually in their methodology, and complicated in their interpretation (Gallego, Rubalcaba, & Hipp, 2013; Hage, 1999; Sapprasert & Clausen, 2012; Sung, Cho, & Choi, 2011; Wolfe, 1994). Therefore, it seems that the study of innovation gives rise to an inexhaustible variety of largely complementary definitions.

The way, of course, that analysts perceive and define the phenomenon of innovation always depends on their specific

historical background, their beliefs and ideology, and, ultimately, their particular "optics" they use to interpret the reality. This fact is also the theoretical root of those approaches –mainly of T. Kuhn (Kuhn, 1962)– suggesting that the scientific inquiry serves prevailing trends and established scientific patterns: the same seems to be true also for the scientific study of innovation.

Therefore, according also to the field research we have made and present in section 5 of this manuscript, there are significant divergences in the perception of innovation between the fundamental theoretical approaches on the one hand, and the interpretations by the people of everyday practice on the other (Blenker *et al*., 2012; Hamilton, 2011). Furthermore, this is the aim of this paper: to identify the differences in the perception and handling of the concept of innovation between the scientific literature and the people of everyday practice in small enterprises. For this, we study the case of a sample of small and micro enterprises operating in a less-developed regional ecosystem in terms of innovation, such as that of Eastern Macedonia and Thrace (Blažek & Csank, 2016; Pylak, 2015; Trippl, Asheim, & Miörner, 2016; Vlados, Deniozos, & Chatzinikolaou, 2018).

In particular, the region of Eastern Macedonia and Thrace is one of the thirteen Greek regions and is a less-developed border region that combines socioeconomic and cultural peculiarities and deficiencies (Boden, 2017; Boden, Marinelli, Haegeman, & Santos, 2015). As a border region is both peripheral, because of its reduced socioeconomics relations with other areas, and disadvantageous due to the existence of inherent weaknesses that impede the development process (Blakely & Leigh, 2013; Boudeville, 1974; Shevlin, McAdam, & Reid, 2014; Woods, 2013).

Methodology and structure of the chapter

In order to achieve the goal of identifying the differences in the perception of innovation, our research is structured as follows:

i. We provide a brief critical review of the basic definitions and types of innovation

ii. We explore the origin of innovation in a socioeconomic system: Does innovation originate from technology-push or demand-pull, or something else in terms of theoretical perception?

iii. We describe the structure and methodology of the field research we made in the region of Eastern Macedonia and Thrace: our aim is through this introductory research to understand the variety in the perception of innovation by small and micro enterprises in the region.

iv. We present the basic findings and limitations of the research.

Basic definitions and types of innovation

Innovative activity may come from a variety of alternative paths (Brattström & Hallberg, 2016; Grohs, Raies, Koll, & Mühlbacher, 2016, Rogers, 2003), which may involve either the introduction or implementation of an improved product mix, either a new production process, or a pioneering organizational method, or all together at the same time. Therefore, as a minimum prerequisite for the existence and diffusion of innovation, we understand the general increase in the performance of a socioeconomic organization.

Several of the innovative efforts (Jaw, Lo, & Lin, 2010; Malen, 2015) in an organization can be novel and pioneering in their nature, while others, which may also occur in the background of a socioeconomic process, are a prerequisite for the implementation of innovation. In this context, we can see that the overall innovation management framework (Song, Ming, Han, Xu, & Wu, 2015; Zizlavsky, 2016) requires a coherent, multilevel and structural approach of managing (Kessler, 2004; Mathieu & Chen, 2011; Peccei & Van De Voorde, 2019) the innovative dimensions: whether it is innovation in products or services, or a restructuring of the organization's standards, or a more general improvement of some or all the production processes.

With these first clarifications in mind, we can present now some of the fundamental and classical definitions of innovation:

I. According to the widely cited definition of J. Schumpeter (Schumpeter, 1934, p.117), innovation can be:

> "(1) The introduction of a new good — that is one with which consumers are not yet familiar — or of a new quality of a good. (2) The introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means

be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially. (3) The opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position".

II. According to J. Schmookler (Schmookler, 1952, p.215):

"Innovations either originate new consumer products or improve methods of producing old ones, the latter category including new capital goods. Qualitative changes in existing consumer goods would come under the former. New consumer goods would usually raise the numerator of the output-input ratio, since presumably they either yield greater satisfaction than the goods directly displaced, or release purchasing power for expenditure on other consumer goods, which amounts to the same thing".

III. According to M. Porter (Porter, 1998, p. 54):

"Innovation means offering things in different ways, creating new combinations. Innovation doesn't mean small, incremental improvements — these are just part of being a dynamic organization. Innovation is about finding new ways of combining things generally".

IV. According to M. Crossan and M. Apaydin (Crossan & Apaydin, 2010, p. 1155):

"Innovation is: production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome".

In general, the previous definitions are helpful to understand that, in the background, the innovative effort, irrespectively of its form, presupposes the systematic combination (Lederer, Schott, Huber, & Kurz, 2013; Mohapatra, 2014) of all processes within the socioeconomic organizations: therefore, there is no action that does not depend and, to a greater or lesser extent, not affected by the

dynamics of innovation. As a result, technology and innovation management (Cassiman & Di Guardo, 2012; Morua & Marin, 2016), in order to generate and bring the new, must include and integrate all the organizational functions.

The origin of innovation in a socioeconomic system: technology-push or demand-pull?

Due to the complex and interdisciplinary nature of the innovation phenomenon (Ahrweiler, 2010; Cooke, 2013; Hacklin & Wallin, 2013; Mainzer, 2011; Pacheco, Manhães, & Maldonado, 2017), there is probably no single theory that can fully interpret its origin (Godin, 2017; Laperche, Uzunidis, & Tunzelmann, 2008). Such an integrative approach, in any case, would require as a prerequisite the inclusion of all those dynamic socioeconomic factors that introduce any novelty into any socioeconomic system.

In the direction of recognizing the fundamental factors introducing an innovation into a socioeconomic system, economic and management science attempts to distinguish between the origin of innovation in two ways: as a result of technological-push or demand-pull (Comin, Lashkari, & Mestieri, 2016; Di Stefano, Gambardella, & Verona, 2012; Peters, Schneider, Griesshaber, & Hoffmann, 2012; Pikkarainen, Korkala, Biot, & Deleu, 2012).

I. In the first approach to the origin of innovation, where the supply-side prevails, the predominant theoretical stream of thought starts with the contribution of J. Schumpeter (Schumpeter, 1942). He suggested that it is the function of entrepreneurship to revolutionize production, something that can happen with the exploitation of innovation or with the introduction of an untested technological application. However, he described this process of introducing novelties as something which requires a "special" economic function because the environment resists in ways that vary according to the present social conditions. In addition, according to Schumpeter (Schumpeter, 1934, p. 223), innovations are not "*evenly distributed through time*" but "*appear, if at all, discontinuously in groups or swarms*" and, therefore, he suggests that economic development, which is the result of innovations, follows periods of cyclical fluctuations of prosperity and recession (see Figure 1).

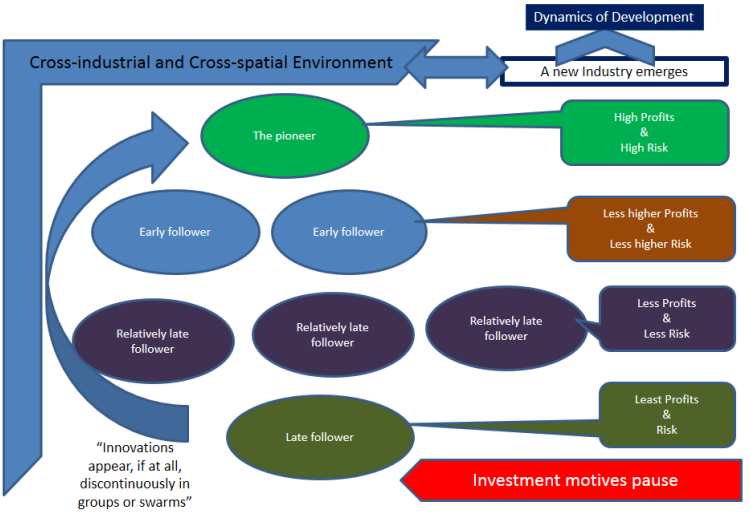

Figure 1. *The innovative entrepreneur and the followers*

II. In the second interpretative orientation, market demand is dominant in innovation. In this analytical direction, a fundamental contribution is that of J. Schmookler. In fact, of course, J. Schmookler (Schmookler, 1954) never suggested that the dynamics of demand is the only interpretive factor of the innovation activity. Instead, he was trying to explain that innovation always results from a combination of supply and demand by focusing on the demand-side.

Therefore, which perspective to the origin of innovation is closer to reality according to the empirical facts?

Several studies (Chandy & Prabhu, 2010; Damanpour & Aravind, 2012; Salter & Alexy, 2014) lead to ambiguous conclusions about the origin of innovation. It seems that we cannot overlook either innovation as the product of technological development and pushing, nor the necessary existence of market acceptance. How, after all, can the demand-side exist in the absence of a valid response on the supply-side, and vice versa?

What seems to be sounder and useful in interpretative and predictive terms is a mixed and combinational approach. In practice, we think that innovation is probably an evolutionary "mating" between supply and demand, which ultimately creates the overall dynamics of innovation (Bloch & Metcalfe, 2018;

Etzkowitz & Leydesdorff, 2000; Nelson, 2013; Nonaka & Takeuchi, 1995) (see Figure 2).

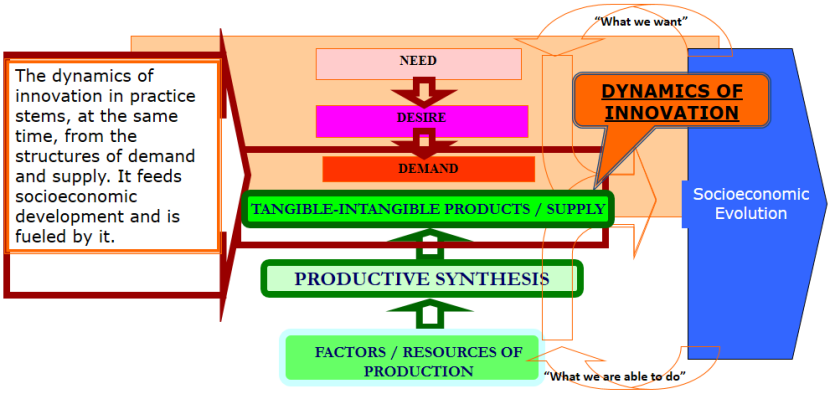

Figure 2. *Evolutionary "mating" between supply and demand and the dynamics of innovation*

Therefore, from a structural perspective, innovation always emerges as a synthesis (Langley & Sloan, 2011; Morabito, Sack, & Bhate, 2018; Norrie, 2009) between supply and demand within every socioeconomic system. Moreover, because the fundamental challenge of each economic system—defined in space and time—is to adapt its production to the hierarchical societal demands, we understand that the dynamics of innovation is both the fruit and the engine of overall socioeconomic development. In this context, the forces of supply and demand are two evolving and conflictually-defined concepts arising from the evolutionary action of socioeconomic actors, in all the historically specific socioeconomic systems (Vlados, Deniozos, Chatzinikolaou, & Demertzis, 2018).

Field research in the region of Eastern Macedonia and Thrace

In this context, in order to understand the multiplicity in the perception of innovation, we present field research we made in a sample of micro and small enterprises in the Greek region of Eastern Macedonia and Thrace.

The identity and methodology of this research

In particular, we interviewed and obtained data—randomly, in a non-weighted sample—from 48 micro and small private enterprises operating in the region of Eastern Macedonia and Thrace, from various sectors of activity. One of the selection criteria we set was for these enterprises to employ a workforce of up to 50 employees.

The aim of this field research was, in particular, to investigate how the owner or another member of a small business perceives the dimension of innovation. This field research is qualitative (Shields & Rangarajan, 2013), not arrived at using statistical procedures or other means of quantification (Strauss & Corbin, 1990, p.17). In particular, this "*qualitative research has an interpretive character, aimed at discovering the meaning events have for the individuals who experience them, and the interpretations of those meanings by the researcher*" (Hoepfl, 1997, p. 49). Therefore, we asked general questions in a sample of enterprises in order to study, through personal interviews that reflect the views and assessments of the respondents, the phenomenon of multiplicity in the perception of innovation.

The responsible interviewer initially asked the member of the enterprise to record the name, the subject, the number of employees, the address, and the contact details of the business. Then, the interviewer had to take and record an interview with the member of the enterprise, who had to answer the following questions about innovation[43]:

I. "How does your enterprise understand the concept of innovation?"

II. "In what way and how do you think can innovation help your enterprise?"

III. "In what specific ways has your enterprise innovated in recent years?"

IV. "What do you think are the main barriers to innovation in your enterprise?"

[43] The average response time of all four questions ranged in approximately 15 minutes per interviewee, and the raw recorded and transcribed material is available to any interested researcher upon request.

Analysis of findings

Based on the answers to the four questions regarding the respondent's estimates, we can extract the following conclusions:

I. Concerning the ways the enterprise understands the concept of innovation, the vast majority of responses indicate that innovation is vital for the enterprise, giving mainly definitions related to the availability of some technological application (Internet and social media, mostly), which can improve the enterprise's current returns (mainly increase in turnover).

It seems that the majority of these locally-established enterprises perceive the correlation of innovation to the creation of profits, although the perception of innovation is limited to something "new" almost exclusively at the product level, whose "discovery" arises spontaneously from practical experience and friction with business customers.

A minority, although, notes that innovation is something quite distant and elusive, the claim of which in the current "conjuncture" of the crisis can probably only intensify competition and cause loss of profits.

Interestingly, some exceptional but sporadic responses point out that innovation can be the "*opening to new management strategies*" or "*a change on all fronts: a move forward*."

II. Concerning the ways innovation can help the enterprise, the vast majority of respondents refer to the facilitation that specific technological applications (energy, internet, mechanical) can provide in order to limit the personal work of the owner.

It is worth pointing out that the majority of the answers to the second question are overlapping with the first question, showing significant similarities. It seems that the respondents were unable to distinguish the concept of innovation definition from the specific systematic ways that can lead to innovation.

A minority of the respondents, however, seems to realize that innovation is an improvement in the business organization, focusing mainly on the aspect of sales and end-user satisfaction, and showing a willingness to increase their clientele.

Interestingly, some extraordinary and highly outnumbered responses point out that "*innovation makes you stand out*" or

"*innovation helps every enterprise to be modern*" or "*the adoption of innovation can help at every stage of the enterprise*."

III. Concerning the specific ways the enterprise innovated during the last years, the vast majority of respondents appear divided into two major categories: those enterprises that refer to innovation as the introduction of new end-products and to those who tend to face the current crisis as a highly staggering process that invalidates any innovative effort.

A minority also notes that their enterprise has innovated in recent years by the introduction of technological applications or machinery and, more generally, by the upgrading and renovating of the customer's reception area (the retail store).

In this context, we got some interesting responses such as: "*innovation is a new product*" or "*we have created quality products recently to be more competitive in this global environment we live*" or "*… we sell coffee, we have not discovered anything important*" or "*there is stagnation, and I cannot talk about many innovative things. Whatever I did, this was certainly before 2010*".

IV. With respect to the main barriers to innovation in the enterprise, the overwhelming majority of respondents focused on the lack of financial resources and on the factors that impede financially the business (factors such as economic difficulties, over-taxation of entrepreneurship, the current economic crisis, the ineffective legal framework, the lack of banking loans).

A significant minority, however, notes that it is not so much the external factors that affect the operation of the enterprise and its innovation, as much as the entrepreneur's approach and attitude.

Interestingly, there were also some responses in this direction, which appeared to be more "progressive", such as:

> "the main obstacle is sticking to anything old" or "to the professional normally there should be no obstacles, you have to set small goals and slowly achieve them" or "obstacle is knowledge: if there is an obstacle to innovation, this is to find the person who can bring the knowledge."

Basic conclusions and limitations

The presented research has resulted in some central conclusions as starting points for further deepening in the future. To sum up, we can mention the following:

I. By the vast majority of the responses we got, we understand that most of the enterprises of the kind and magnitude we studied have a much narrower view of innovation compared with the classical theoretical approaches: the narrow concept of product innovation seems to dominate, in direct contradiction to the broader and more comprehensive definitions of innovation (Crossan & Apaydin, 2010; Porter, 1998; Schumpeter, 1934).

- A significant part of the responses suggests the dominance of the technological dimension to innovative action, leaving the strategic and managerial dimensions in a secondary position. This fact, of course, can only be incomplete for the overall developmental conditions of each organization: in order to generate the phenomenon of innovation, every socioeconomic organization must always synthesize its strategic, technological, and managerial capacity internally. We converge to the view, that the root of innovation and, therefore, the basis of competitive survival in the today's business world, is how any socioeconomic organization synthesizes its dynamic strategic, managerial, and technological potential effectively (Vlados, 2004, 2005, 2012; Vlados, Katimertzopoulos, & Blatsos, 2019).

II. The majority of responses shows that innovation does not result from a comprehensive organizational process (Crossan & Apaydin, 2010; Hage, 1999; Porter, 1998; Wolfe, 1994) but, on the contrary, most of the respondents, perceive innovation as something sporadic, exogenous, unexpected and almost always with very narrow functional focus.

III. The majority of responses seems to overcome the practical division of the origin of innovation, either in terms of technological-push or demand-pull (Schmookler, 1954; Schumpeter, 1934); the respondents of our sample of small enterprises understand innovation as something that is technically feasible and desired by the customer, at the same time.

Overall, the work we presented in this article helped us to verify, in a first reading, the long distance that separates the perception and handling of innovation between the scientific literature on the one hand, and the "real" perception in the business field on the other, and, in particular, in the field of micro and small enterprises operating in a less developed regional ecosystem, such

as that of Eastern Macedonia and Thrace. At the same time, it gives us the first empirical sample in terms of qualitative research, which can be helpful to specialize this field research questions in the future to deepen our understanding in this particular field.

Of course, these conclusions are subject to many constraints. Among these, the most important are (a) the small size of our sample, (b) the lack of representativeness of this sample, and (c) the narrow qualitative nature of the conducted research through open and unscaled questions.

By addressing these limitations in a later stage, we identify a set of critical questions that can be answered to fill specific research gaps in the future, such as (a) Why do the less developed socio-economic systems lag in terms of innovation and what can we do about that? (b) What factors inhibit local innovation and socioeconomic development? (c) How does the perception of innovation relate to the innovation performance of particular regions?

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5 Crisis and entrepreneurship in Greece: Present, past and evolving trends [5]

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Introduction: Crisis, global restructuring and entrepreneurship

Nowadays, it has become increasingly evident that in order to comprehend the current crisis and restructuring of globalization (Aglietta, 2010; Corm, 2013; Graz, 2013; Sapir, 2011; Servet, 2010), in a balanced and valid way, it is imperative to overcome a static or recursive perception of reality. Hence, every fragmentary approach of the international economic dimensions of globalization cannot be considered adequate. On the contrary, it seems that the study of the phenomenon of crisis in globalization needs to constitute a complex and interdisciplinary field of research (Augsburg, 2010; Jacobs & Frickel, 2009).

And this happens because globalization was and remains an inexhaustible dialectic socioeconomic phenomenon, a socioeconomic reality under constant evolutionary transformation, which inevitably reproduces within its core the limits and the perspectives of all the entities which shape and reshape it incessantly (Adda, 2006; Chavance, 2012; Dulong, 2012; Lahire, 2014; Moreau Defarges, 2003; Norrie, 2009).

The dynamics of crisis is still a scientific discipline that remains ambiguous and controversial (Amable, 2017; Vlados *et al.*, 2018). However, the current global crisis brings to the foreground the necessary structural transformation of the global socioeconomic reality while imposing an organic and irreversible procedure that drastically changes the global system (Robert & Yoguel, 2016; Scazzieri, 2018).

Under these circumstances, the meaning of entrepreneurship per se evolves into a new, transformed context (Endres & Woods, 2010; Mack & Mayer, 2016). The capitalist firm is a "living" socioeconomic organism, a dialectic socioeconomic entity, which forms and reforms systematically the environment in which it gets born and survives (Iansiti & Levien, 2004; Moore, 1997). And this evolutionary perception of the capitalist firm breaks down every relation to the conventional mechanistic neoclassical interpretation, namely, a consideration that assumes that the capitalist firm is a simple static transformational mechanism with quantitatively defined inputs and outputs (Cahuc, 1998; Favereau, 1989; Gabrié & Jacquier, 1994; Hodgson, 1998; Holmstrom, 1999; Holmstrom & Roberts, 1998).

On the contrary, this article perceives the firm as an active subject and co-creator of the socioeconomic systems that host its action at a global inter-sectorial level (Mann, 2011; Saviotti & Pyka, 2004). Thus, a realistic interpretation of firm dynamics and transformation is critical for the study of the level of development/underdevelopment of any socioeconomic system in any spatial level of analysis.

In this context, the concept of competitiveness and its claim seems to become an issue of particular importance (Bhawsar & Chattopadhyay, 2015; Peneder, 2016). It also becomes evident that the systematic interpretation of competitiveness incorporates and synthesizes both the firm dynamics and the socioeconomic fields that host it, along with the inter-sectorial structures formed in a global level (Crozet & Lafourcade, 2009; Gilli, Mazzanti, & Nicolli, 2013; Hidalgo & Hausmann, 2009).

Therefore, this study conducts a critical review of the respective literature by focusing on how the Greek socioeconomic system, and particularly the entrepreneurship in Greece, is confronted with

its systemic competitive deficiencies and its particular opportunities inside the dynamics of the emerging "new globalization." The main question is summarized as follows: How has entrepreneurship evolved in Greece during the last decades?

The answer given in the current work is expected to form the basis for future study on the development/underdevelopment path and the prospect of the Greek business environment. Towards reaching this conclusion, the methodology of this study goes through the following steps, conducting a critical review of the respective international literature:

(a) It investigates the entrepreneurship crisis, focusing on the case of Greece;

(b) It analyzes the evolution of the business environment in Greece;

(c) It presents the structural morphology of the Greek entrepreneurial ecosystem in Stra.Tech.Man terms; and

(d) Introduces the necessary conclusions and the specified directions of future research.

Entrepreneurship crisis in Greece

A vast number of modern studies have researched the crisis topic concerning entrepreneurship. Some of them seem to draw useful conclusions:

- The study of Peris-Ortiz *et al.* (2014, p.1), which relates entrepreneurs with their experience, specific business management skills and knowledge, their innovation practices, attitude, and perception of opportunities, postulates that entrepreneurs with these characteristics and practices, embodying entrepreneurship in the fullest sense, will maintain an entrepreneurial attitude in situations of economic crisis.
- Giotopoulos *et al.* (2017b, p.927) suggest that given the critical role that ambitious entrepreneurs are likely to perform in times of crisis, creating the right conditions for the emergence and support of innovative, high-growth and export-driven new ventures may be a selective and more compelling growth strategy. In this direction, the implementation of structural reforms in product and labor markets, the establishment of entrepreneurial universities, and the support of female entrepreneurship should be

policy priorities. These actions could also mitigate the effect of fear of failure on ambitious entrepreneurship as they may reduce the risk of starting a new business. Such mechanisms and policy tools may help in nurturing and leveraging those crucial quality entrepreneurial elements that will foster value creation of new ventures and increase their multiplying effect on economic growth in Europe.

- Korsgaard *et al.* (2016, p.178) emphasize the spatial aspect and argue that their analysis indicates that the opportunistic discovery view and, to some extent, the resourcefulness view are both inadequate as conceptual platforms for entrepreneurial responses to the economic, environmental and socio-spatial crisis. Instead, they develop the "entrepreneurship as re-sourcing" as an alternative perspective on entrepreneurship. This perspective emphasizes the importance of building regional-level resilience through the entrepreneurial activity that sources resources from new places and uses these resources to create multiple forms of value.

More specifically, for the entrepreneurship crisis in Greece in recent years, the following approaches are useful:

I. Giotopoulos *et al.* (2017a, p.540) highlight the role of the human capital of entrepreneurs for ambitious new ventures, even though different aspects of entrepreneurs' human capital appear to matter in crisis and non-crisis periods. While work experience seems to positively affect the probability of being an ambitious entrepreneur during the crisis years, the educational attainment of entrepreneurs appears to be an essential driver of growth-oriented entrepreneurship only in the pre-crisis period. This result, though somewhat strange, may be explained by the accelerated during the crisis period in Greece "brain-drain" phenomenon and the work options in established firms that may be available for well-educated and highly skilled people even in adverse times.

II. Vassiliadis & Vassiliadis (2014, p.246), who research on the aspect of family-business entrepreneurship, suggest that family firms make an essential contribution to the national economy and bring long-term stability. A critical advantage

of a family business is its ability to survive in times of economic crisis. Greece has one of the most significant numbers of SMEs within the EU, and most of them are family businesses. The most characteristic feature in Greece is that the members of the family own, manage, and influence the business. As far as corporate governance is concerned, Greek family-owned businesses are under-governed. The primary obstacles faced by the Greek family businesses are human resources issues, bureaucracy, unstable tax environment, as well as family conflicts, and lack of succession planning. Preparing for a business transfer to the next generation is a long and complicated process and can entail several obstacles. Professional support bodies in Greece would help the transfer of family businesses to the next generation considerably.

III. Herrmann & Kritikos (2013, p.20) explore how Greece can move towards an innovation-based economy, arguing that Greece's Euro-zone membership may have given a false impression that it is an innovation-driven economy. The Greek economy is not, however, since it faces not only institutional but also severe structural deficits with a small industrial basis, low export ratio, small businesses, and many closed professions. If decreasing labor costs and further institutional reforms were to be the only active policy, then Greece's future would be a low wage economy with an extended workbench of other innovative economies. Greece can only become prosperous if it also uses its comparative advantages beyond tourism, trade, and agriculture.

IV. Kaplanoglou *et al.* (2016, p.432) present the results of a survey of 550 small and micro enterprises in Greece, a country facing one of the most significant tax gaps in the developed world, regarding their tax compliance behavior, and suggesting that trust seems to play the most significant role in increasing intended compliance with tax obligations and in deterring strategic tax evasion. The effect of tax authorities on tax behavior depends on the level of trust in government. The power of tax authorities increases

voluntary compliance only in high-trust settings. It seems, therefore, that people are more willing to entrust their money to a government that uses it wisely if an effective tax administration supports the latter.

V. Giannacourou *et al.* (2015, p.548) use data from case studies of Greek SMEs and explore the impact of the crisis on managers' perceptions of uncertainty by comparing their pre-crisis and after crisis perceptions. In particular, before the outbreak of the crisis, most managers reported that levels of uncertainty were medium-to-low in all measured parameters, although the answers of the managers of smaller firms centered on the middle of the scale. After the outbreak of the crisis, most managers reported an increase in uncertainty in all categories comprising environmental uncertainty, although the increase reported by managers of medium-sized firms was slightly lower.

VI. Sainis *et al.* (2016, p.327) explore the willingness of ISO certified Greek SMEs to continue developing their total quality management under crisis conditions. By using as quality criteria for measuring the TQM implementation level the "organizational performance assessment," the "organizational culture," the quality processes and the quality tools and techniques, conclude that the Greek SMEs continue their quality journey emphasizing cultural dimensions. The low rates recognized for quality tools and processes implemented show that ISO certified SMEs reinforce TQM implementation but not at such a level as to contribute to a "continuous improvement" process.

VII. Williams & Vorley (2015, p.28), through the case study of Greece, demonstrate how the institutional environment has changed in light of the crisis and the resultant response of entrepreneurs to these changes. They draw in-depth interviews with entrepreneurs and find that changes to institutions have served to limit entrepreneurial activity rather than enhance it and that this has worsened amid the crisis. They argue that this phenomenon will detrimentally impact Greece's ability to navigate out of the crisis and regain competitiveness in the longer term.

VIII. Giotopoulos & Vettas (2018, p.877) explore the antecedents of export-oriented entrepreneurship, such as the demographic characteristics, perceptions, and dynamism of entrepreneurs, in Greece at times of crisis, using a micro-level data analysis. They suggest that in the light of the recent economic crisis and the next recessionary economic cycle that affected the Greek economy, the need for restructuring the productive entrepreneurial system towards a dynamic and export-oriented critical mass is more eminent than ever in order to create value, generate jobs, and facilitate economic recovery.

IX. Kapitsinis (2019) employs a comparative analysis of the pre- and post-crisis movements of Greek small and medium-sized enterprises (SMEs) to Bulgaria in order to examine the impact of the crisis and the applied public policy on firm-internal relocation factors, such as size, sector and relocation incentive, and the effects of relocation on business performance. Greek SME movements to Bulgaria have recently increased considerably due to the adverse effects of the crisis on the Greek economy. Results demonstrate that in the pre-crisis period, many Greek businesspeople viewed relocation to Bulgaria as an entrepreneurial opportunity for expansion; however, since 2007, relocation is a necessity for the vast majority of Greek entrepreneurs in order to stay in business.

The entrepreneurship environment in Greece

At the same time, in order to comprehend the unique environment of entrepreneurship in Greece nowadays, it is useful to consider the approach of Global Entrepreneurship Monitor (GEM), which is being published since 1999 and provides the respective publication for Greece since 2003. More specifically, the most crucial index and the innovation of this approach is the "early-stage entrepreneurship," which calculates the percentage of the 18-64 population who are either a nascent entrepreneur or owner-manager of a new business (Bosma & Kelley, 2018, p.138).

More specifically, the latest report (Bosma & Kelley, 2018, p. 80), which profiles 49 economies with respect to demographics,

their potential impact, the diversity of forms they take, and their longer-term sustainability, reaches the conclusion for Greece that the improvement in early-stage entrepreneurship during 2018 is closely related to the rebound of the Greek economy after a period of profound and prolonged economic crisis. The growth rate in 2018 is forecasted to reach 2% (1.4% in 2017). The most important milestone of 2018 was the fact that in August, an eight-year cycle of three successive programs of economic support and adjustment programs completed. The economy achieved a significant amount of adjustment and rebalancing, increased its exports and investments, although domestic financing conditions remain very weak. The report states that the economy requires policies aimed at encouraging people with high educational levels to promote entrepreneurship. These policies should focus not just on a mere quantitative increase of new ventures, but on the quality of these ventures, i.e., their innovation and growth potential.

The GEM report classifies the countries in four regional groups (East and South Asia, Europe and North America, Latin America and Caribbean, Middle East and Africa), and further differentiates them in terms of their income level (low-income, middle-income, high-income); Greece falls into the high-income category. In the following table taken from the last GEM report, among about 50 economies, Greece is classified in the lowest positions (see Table 1).

Table 1. *Entrepreneurial behavior and attitudes in Greece, according to the Global Entrepreneurship Monitor (Bosma & Kelley, 2018, p.80)*

Self-Perceptions About Entrepreneurship		
	Value	Rank
Perceived opportunities	19.2	48/49
Perceived capabilities	46.4	31/49
Fear of failure	57.8	3/49
Entrepreneurial intentions	7.5	41/48
Activity		
	Value	Rank
Total early-stage Entrepreneurial Activity (TEA)		
TEA 2018	6.4	38T/48
TEA 2017	4.8	49/54
TEA 2016	5.7	57T/65
Established business ownership rate	10.8	14/48

Entrepreneurial Employee Activity – EEA	1.8	36/49
Motivational Index		
	Value	Rank/48
Improvement-Driven Opportunity/Necessity Motive	3.0	16
Gender Equality		
	Value	Rank/48
Female/Male TEA Ratio	0.45	44
Female/Male Opportunity Ratio	0.78	44T
Entrepreneurship Impact		
	Value	Rank/48
Job expectations (6+)	9.7	38
Innovation	28.4	18
Industry (% in Business Services Sector)	12.0	27
Societal Value About Entrepreneurship		
	Value	Rank/47
High status to entrepreneurs	67.8	33
Entrepreneurship a good career choice	64.9	20

Concerning the rest indices of Table 1, the GEM calculates them by extracting empirical data. Based on the latest report (Bosma & Kelley, 2018, pp.138–139), these indices take into account the following dimensions in order to produce the final indicative scores:

- Perceived opportunities: Percentage of the 18-64 population who see opportunities to start a firm in the area where they live.
- Perceived capabilities: Percentage of the 18-64 population who believe they have the required skills and knowledge to start a business.
- Fear of failure: Percentage of the 18-64 population with perceived opportunities, who also indicate that fear of failure would prevent them from setting up a business
- Entrepreneurial intentions: Percentage of the 18-64 population (individuals involved in any stage of entrepreneurial activity excluded) who intend to start a business within three years.

- Established business ownership rate: indicates the percentage of the 18-64 population who are currently owner-manager of an established business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than 42 months.
- Entrepreneurial Employee Activity – EEA: percentage of the 18-64 population who, as employees, have been involved in entrepreneurial activities such as developing or launching new goods or services, or setting up a new business unit, a new establishment, or a subsidiary.
- Improvement-Driven Opportunity/Necessity Motive: percentage of those involved in TEA who (i) state they are driven by opportunity as opposed to having no better options for work; and (ii) who indicate the main driver for being involved in this opportunity is being independent or increasing their income, rather than just maintaining their income.
- High status to entrepreneurs: Percentage of the 18-64 population who agree with the statement that in their country, successful entrepreneurs receive high status.
- Entrepreneurship a right career choice: Percentage of the 18-64 population who agree with the statement that in their country, most people consider starting a business as a desirable career choice.

Furthermore, some older GEM studies, which comment on the general business environment in Greece, present some useful conclusions.

- According to the 2010 report (Kelley, Bosma, & Amorós, 2010), the established business rate in Greece is significantly high. They explain that by stating that, to some extent, agriculture dominates the economy in Greece.
- According to the 2011 report (Bosma, Wennekers, & Amorós, 2011), there is an absence of reforms in Greece, whose economy lacks dynamism. Except for physical and commercial infrastructure, as well as support for entrepreneurship, all other elements constituting the entrepreneurship framework conditions are unfavorable,

since no significant restructuring or reform has taken place over the past few years. Also, the report notices that Greece has a very high level of established business owners and to have so many people involved as business owners in comparison to not just other innovation-driven economies but also to Greece's own early-stage entrepreneurial activity points at a limited degree of dynamism.

- As per the 2013 report (Amorós & Bosma, 2013, p. 53), business opportunities in Greece are dramatically low because of the crisis, whereas the business skills are very high. The report states that the entrepreneurial profile of Greece differs quite a lot from the average profile of an innovation-driven economy. Even though Greece's TEA rate is slightly higher than (but still comparable to) other economies, other indicators show that due to the crisis in Greece, perceived opportunities to start a business are dramatically low, even though perceived capabilities are quite high. Also, the nature of entrepreneurial activities tends to be one of low ambition and relatively driven by necessity. Entrepreneurial employee activity, as measured by the GEM 2011 assessment, is quite low in Greece (see Figure 1).

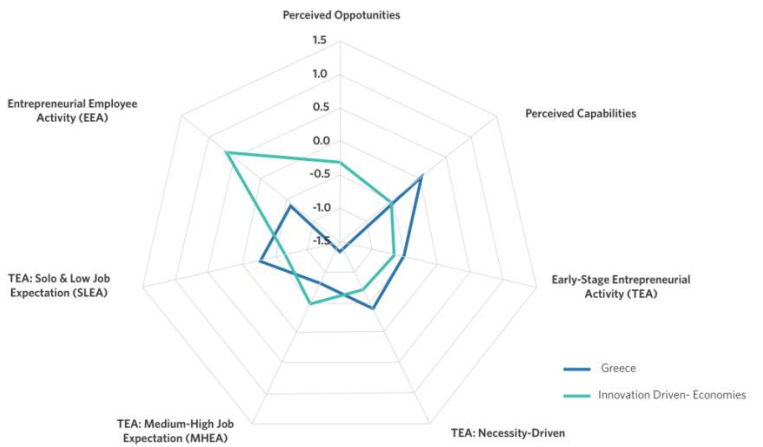

Figure 1. *The entrepreneurial profile of Greece (Amorós & Bosma, 2013, p. 54)*

Also, the following diagram for the early-stage entrepreneurship in Greece from 2003 to 2017 illustrates substantial fluctuations, which culminated before the outbreak of the world crisis in 2008, whereas today, this specific index has reached the lowest value ever (see Figure 2).

Figure 2. *Total early-stage Entrepreneurial Activity in Greece (Global Entrepreneurship Monitor, 2019)*

According to Tsakanikas *et al.* (2018, p.5-7), the authors of the 2017 GEM research focused on the case of Greece, the characteristics of early-stage entrepreneurship in 2017 are the following. In 2017, the percentage of the population aged 18-64 at the early stages of entrepreneurial activity (including self-employment) dropped to 4.8% (approximately 320 thousand people) from 5.7% (approximately 380 thousand) in 2016. Some 56% of early-stage entrepreneurs are new entrepreneurs, while the remaining are nascent entrepreneurs. About 17% of the population aged 18-64 (1.13 million people) has some relation with entrepreneurship, either in early or in subsequent stages. The rate of the population that shut down an entrepreneurial venture in 2017 reached 4.2% (approximately 310 thousand people), higher than the corresponding rate in 2016 (3.8%), and much higher than the average of innovation-driven economies (2.2%). 29% of early-stage entrepreneurs (about 90 thousand people) are necessity-driven entrepreneurs, while 37% (about 120.000 thousand people) are opportunity-driven entrepreneurs. In terms of age, in 2017, the higher participation in the early stages of entrepreneurship was

from the age group 35-44 years old (7.6% versus 11.3% in innovation-driven economies). The percentage of female early-stage entrepreneurship dropped at 3.9% (about 131 thousand women) from 4.8% in 2016, while the percentage for men dropped to 5.7% (about 185 thousand men) from 6.6% in 2016. In 2017, 41.7% of early-stage entrepreneurs had at least a degree of tertiary education, presenting a higher share compared to 2016, while another 11.5% had a postgraduate degree. Finally, 3.2% of people aged 18-64 (approximately 214 thousand people) declared that they were informal investors in another person's business venture, a rate slightly lower compared to 2016, but also lower than the average of innovation-driven economies (5.4%).

The structural morphology of the entrepreneurial ecosystem in Greece

The enterprises that operate in Greece, like living/adaptive organisms, are not all of the same kind. All enterprises in Greece as living organisms, as "animals" of different species, do not share the same evolutionary "physiology" (Vlados, 2004, 2005, 2012). The 'fauna' of these enterprises, as well as their socioeconomic ecosystem, is not at all the same; and as it seems, nor will it easily catch up in the future with that of the developed capitalist countries.

The specific dimensions of the business environment in Greece keep changing in an incessant evolutionary way. All the socioeconomic "islets" on the planet, namely, the partial socioeconomic systems, are coming even closer because of the dynamics of globalization. The socioeconomic systems come closer, without having their structural socioeconomic "idiomorphism" absorbed or wiped out. On the contrary, their structural singularity keeps reproducing evolutionarily in the restructuring of globalization (Ladhari, Souiden, & Choi, 2015; Roudometof, 2014; Scherer, Palazzo, & Seidl, 2013).

A part of contemporary literature and research, however, falls into an "interpretive trap." A field of modern economic science, either neoclassical or neo-Marxist, does not seem to understand what exactly globalization is per se. Thus, it cannot gain a thorough insight into the structural and "physiological" evolution

of firms in this context. On the contrary, the interpretation that conceives firms as living organisms, in a biological-type theoretical perspective, can be more thorough analytically (Geus, 2002; Meyer & Davis, 2003; Zeleny, 2010).

How do different types of firms in Greece think and operate?

Based on the findings of previous studies (Βλάδος, 2006, 2016), which continue to get validated on the field, the enterprises that operate in Greece in different sectors of economic activity, form a dynamic three-pole: namely, the entrepreneurial ecosystem in Greece gets evolutionarily polarized among three central and distinct "Stra.Tech.Man physiologies."

In particular, according to Vlados (2004, 2005), a socioeconomic organization is perceived as an evolutionary entity that synthesizes internally three co-evolving spheres: its strategy (Stra), technology (Tech), and management (Man). A threefold set of profound questions—always and necessarily—defines and advances the organization's specific "Stra.Tech.Man" dynamic potential of innovation:

i. Strategy corresponds to the set of questions, "where am I, where am I going, how do I go there, and why?"

ii. Technology corresponds to the set of questions "how do I draw, create, synthesize, spread, and reproduce the means of my work and know-how and why?"

iii. Management corresponds to the set of questions "how do I use my available resources and why?"

Each entrepreneurial type (Siakas *et al.*, 2014) perceives business reality (business philosophy) and operates (business procedures) in a different way, both in terms of management, technology, and strategy. These differences always emerge in every link of their operational chain.

According to Βλάδος (2006), there are central types of strategy, technology, and management in today's Greek enterprises, distinguished in "monadocentric," massive, and flexible. These business types are useful to understand some critical dimensions:

- First of all, they unravel the fact that the differentiation of the three different firm types is neither superficial and

coincidental nor easily reversible. On the contrary, their differentiation is structural and substantially physiological.

- They also reveal the deeper structural cohesion of these three poles. These three types of enterprises continue to operate as structural poles of the entrepreneurial ecosystem in Greece. Even though the three types do not express a static classification, they do manage to clarify the reproduction of the business ecosystem in Greece cohesively.
- The mixed physiological Stra.Tech.Man types (hybrids) are both existent and possible; however, they always come under an affinity limitation in the combination of different Stra.Tech.Man logic that they synthesize (Vlados & Chatzinikolaou, Forthcoming; Vlados & Chatzinikolaou, 2019).

All the "living" firms in Greece cannot incorporate big "selective openings," and they cannot cope with significant internal physiological distances in the individual Stra.Tech.Man terms. It is also not possible for these enterprises to make big physiological leaps, from one day to the next. The sustainable evolution of a firm is always carried out under the condition of the co-evolution of these three Stra.Tech.Man spheres that characterizes the physiological root. Moreover, in this way, the automatic shifts and transformational "miracles" of any organization do not seem possible (Marshall, 1890).

How do the firms survive in Greece?

Under the current circumstances, the "monadocentric," family-type, firms seem to keep comprising the backbone of the productive system in Greece. In particular, they tend to give answers to the links of the chain of their thought and action in a "reflective way." These answers are least systematic and consistent with a cohesive entrepreneurial perspective. And not only that, but their "business logic" is difficult to reconcile with any stereotypical image of the rational capitalistic efficiency.

As it happens with all the firms, the "monadocentric" type ones survive in the globalized competitiveness, according to the composite-triple Stra.Tech.Man dynamics of competitiveness.

Namely, they combine their physiology (what exactly they are) with the properties of the "idiomorphous" external socioeconomic environment that hosts them, always operating and "fitting" in specific globalized sectors.

Why do they continue to constitute the majority in Greece, even in the current crisis conditions? Simply because the current socioeconomic conditions in Greece keeps favoring them:

- With the factors of the production market not particularly fertile and knowledge-oriented. In particular, the labor market does not have relatively high skills, and, on many occasions, it is contradictory and inflexible. At the same time, the labor market becomes gradually "dual" (Christopoulou & Monastiriotis, 2016), not only between the urban and rural population but primarily between the private and the public sector.
- With a product/services market that is neither particularly fertile nor especially demanding in terms of quality. A market where the "about" in terms of quality and price survives domestically, however, it finds great difficulty to be exported and rewarded in foreign markets (Bournakis, 2014; Chrysomallidis & Tsakanikas, 2017; Giotopoulos & Vettas, 2018; Klonaris & Agiangkatzoglou, 2017; Pitelis, 2012).
- With a knowledge and innovation environment generally poor, weak, and enclosed, continually reproducing its various "pathogenies." At the same time, the work mentality is generally "reassured," while entrepreneurship has significant deficiencies in entrepreneurial knowledge and skills (Cohen, Naoum, & Vlismas, 2014; Panagiotakopoulos, 2015).
- With a rich cultural background, that, however, is "ankylosed" by a problematic mentality of political irresponsibility, which reproduces entrenched interests and infertile introversion.
- With a natural/environmental background (Koutalakis, 2011; Lekakis & Kousis, 2013) poorly managed and increasingly threatened. Also, with a demographic perspective that gets gradually worsened (Ifanti *et al.*, 2014; Labrianidis & Vogiatzis, 2013).

- Finally, with a state-intervention that is most of the time intentionally labyrinthical, "dyspraxic" and ineffective, despite the passage through the painful adjustment period of the memorandums.

How do the firms in Greece seem to adapt?

So the fact that the "monadocentric" enterprises dominate in numbers in Greece should not come as any surprise. They constitute the majority of enterprises because they manage to "fit" with the conditions of the national socioeconomic system, even in the conditions of its structural crisis. However, the critical issue is to what extent and how will they carry on achieving to "fit" (Carmeli, Gelbard, & Gefen, 2010; Prajogo, 2016) in the rapidly globalized future.

For a long time now, the modern game of competitiveness in the globalization is not a simple case. It is not enough to "fit." The enterprise also has to "stretch" in resources and competitive skills. At this point, the major problem for the reproduction of "monadocentric" enterprises—and not exclusively them—arises in today"s Greece. To a large extent, the "monadocentric" enterprises in Greece today, show significant weakness in "stretching" creatively in different sectors. This stake of "stretching" brings to the foreground the dynamics of globalization of the sectors of economic activity. For this reason, the problem of evolution of the productive backbone of the Greek economy must be taking into account a globalized perspective (Andreoni & Scazzieri, 2014; Lundvall, 2011).

In practice, nowadays, a big part of the "monadocentric" enterprises in Greece —along with a large part of the "massive" enterprises—do not manage to "stretch" upwards; it retreats trying to defend itself.

However, what does this mean? It seems that a large part of firms in Greece, sometimes subconsciously, keep retreating within the globalized hierarchy of their sectors of activity, moving towards more accessible, weaker, less demanding but less profitable subsectors of the global market (Dauth & Suedekum, 2016; Mahmood, Ghani, & ud Din, 2015). Since all sectors of economic activity do not cease to get transformed qualitatively in a

global scale, a big part of firms in Greece seem to move to less productive and promising domains of the global "construction site"; towards less fertile, in terms of added value and strategic interest, links of production within the globalized division of labour (Gill, 2016; Poli, 2010). The most vital part is not the sector of activity per se as a field of reference. The critical issue is that the national productive backbone seems to keep shifting to less productive and profitable global sectors, without being able to protect its domestic markets effectively.

In brief, the entire national productive system seems to keep being oriented for decades—or instead pushed passively—to the less demanding part, in terms of quality and profitability, of the globalized sectors of production. The problem is that the Greek enterprises are led to produce what they can produce as well and those who are significantly "cheaper" than them; and to this point, the critical issue of lack of competitiveness of the productive system seems obvious (Altomonte & Békés, 2016; Annoni *et al.*, 2017).

How do the firms evolve in Greece?

Ultimately, the issue of quality of the Greek enterprises in broad, cohesive and evolutionary terms, seems to continue being the touchstone over the competitiveness of the national socioeconomic system (Committee of the Regions, 2011; Fransman, 2018). More specifically, the claim of better quality is mostly a matter of the Greek firms' entire organization and function—a matter of their particular evolutionary Stra.Tech.Man "physiology." Furthermore, it is also a matter of how the surrounding socioeconomic system evolves by targeting the globalized sectorial agglomerations intelligently (Fujita & Thisse, 2013; Nathan & Overman, 2013).

However, there are still some optimistic points. As the heterogeneity of firms increase—in a generally negative cross-sectorial trajectory for the Greek economy—many enterprises manage to improve contrary to expectations. In most cases, these are dynamic organizations—hybrids in Stra.Tech.Man terms. They are mainly new generation business types and models (Bharadwaj *et al.*, 2013; Dahan *et al.*, 2010).

The old types/forms of the three "entrepreneurial species" prove to be the most vulnerable in the race of globalized competitiveness; therefore, they are gradually moving away from the competition. The newer, physiologically evolved representatives of the three species prove to be the most resilient and promising. Also, they tend to accept the resort to multinational involvement (Dau, 2013; Monaghan & Tippmann, 2018; Radlo, 2012), alliances, and coalitions, which increase the margins of "sectorial refocusing" drastically and sometimes the opportunities of fast physiological evolution.

More specifically, it seems that the enterprises that prove to be more resilient, achieving better performance even in the current economic crisis era, continue to be the following ones:

- The "new monadocentric" enterprise, which is faster and smarter in its choices, with selective assimilation of "massive tools"; it is more extroverted and sometimes relocated to countries that can offer advantages it knows how to use (cheap labor, complicated bureaucracy, such as the Balkans).
- The "new massive" enterprise and the "advanced massive" enterprise—the latter with systematic openings to the flexible model—which manage to exploit progressively, advantages of the Greek national socioeconomic system that have been unexploited so far (common European market, monetary stability, preservation of a relatively developed domestic consumption pattern, specialized scientific workforce which is not expensive any more).
- The authentic and typical "flexible" enterprise, that is, the offspring of the first form of flexible enterprise, which manages to become more aggressive in the claim of high-standard parts of the global market.

For all these hybrid-type "new generation" organizations (Battilana & Dorado, 2010; McMullen, 2018)—and mainly for the "monadocentric" type, which continues to bear the most significant pressures—the goal of the efficient "stretch" in physiological, spatial, and sectoral terms becomes of great importance.

Initial conclusions and directions for future research

In order to have a thorough understanding of the crisis of entrepreneurship in Greece, the approach of evolution of the external business environment is not enough. It seems that it is particularly useful an approach in terms of internal environment and analysis of the evolutionary "physiology" of firms.

In terms of the internal and external environment, a double deficiency characterizes the productive backbone in Greece in the last few years:

- On the one hand, the Greek productive system reproduces many structural deficiencies in the external environment, and
- On the other hand, a significant number of Greek firms, particularly the "monadocentric"/family businesses, are unable to find ways of efficient and fast evolution.

This article suggests that this combined and co-evolutionary perspective can pave the way for a new generation of research concerning the evolution of the business ecosystem in Greece, which may offer helpful directions for the configuration of respective structural economic policies.

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Dr. Charis Vlados holds a Ph.D. (Mention très honorable) for his thesis on the types/forms of evolutionary integration of the Greek enterprises into globalization that took place in the Research and Studies Center on Multinational Enterprises (C.E.R.E.M) of the Paris X, Nanterre. He has established and developed the “Stra.Tech.Man approach” in the field of business dynamics. He has worked with various research institutes and as a business consultant in Greece and abroad for approximately twenty years. He is now lecturer (academic tenure) with the Department of Economics of the Democritus University of Thrace and also teaches at the MBA of the University of Nicosia and the University of the Aegean. He has authored 12 books and has more than 100 scientific contributions in academic research and consulting.

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