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THE STRUCTURE OF ROMANIA'S INTERNATIONAL SPECIALIZATION IN SERVICES TRADE

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Abstract:

The main purpose of the paper is to examine the structure of Romania's international specialization in services trade on the EU-25 services market. To this end, the paper addresses the need for competitiveness indicators that cover the service sector and attempts to suggest a framework for assessing the international competitiveness of Romania's services trade. Against this background, the structure of the paper is as follows. The first part starts by introducing the concept of international competitiveness and by presenting, evaluating and systematizing key issues of the complex analysis on international competitiveness. The second part includes an overview of the services sector, focusing specifically on its importance to the economy. The third part of the paper sets out in detail the framework for calculating the proposed measures of competitiveness. It also illustrates Romania's competitive position on the European services market, based on an integrated measure of international trade competitiveness. The paper concludes by revealing Romania's specialization potential in international trade in services and by identifying research issues that require further study.

Keywords: specialization, international competitiveness, services trade, Romania, EU-25, matrix

1. Introduction

International trade in services has risen markedly over the past two decades, with the value of trade in services now equivalent to over one-quarter of global trade and with the EU-25 being the world biggest exporter, as well as importer of services (26% of the total world trade in services).

Romania's services exports represent approximately 16.5% of total exports with the EU-25, while 58% of Romania's services trade is conducted with EU-25 countries.

The main purpose of this paper is to analyze the international competitiveness of the Romanian services trade, based on its structure of specialization on the EU-25 services market. In other words, this research attempts to identify Romania's ability to overcome difficulties and challenges that might arise from the hard competition within the enlarged EU, in the field of foreign trade in services.

To this end, the paper starts by introducing the concept of international competitiveness. The second part includes an overview of both services sector and international services trade. The third part of the paper sets out in detail the framework for calculating international competitiveness measures. It also illustrates Romania's competitive position on the European services market, based on a three-dimensional framework for measuring international trade competitiveness. The paper concludes by revealing Romania's specialization potential in international trade in services and by identifying research issues that require further study.

2. Perspectives on international competitiveness – the relationship between export performance and international competitiveness

Although widely proclaimed, the theoretical bases of international competitiveness as it relates to national economies and their international trade have been less analyzed in academic literature. Thus, the nature, benefits and constraints on a nation of being internationally competitive remain ambiguous [Coldwell, (2000)].

International competitiveness, within the context of trade in goods and services, refers to a nation securing and maintaining a trade advantage vis-à-vis the rest of the world.

International competitiveness is advanced whenever the economic welfare of a nation is enhanced through an increase in the flow of trade or through an alteration in the conditions of trade starting from a presumed initial equilibrium [Coldwell, (2000)].

Trade theory asserts that economic welfare is dependent on the production of goods and services that a country has comparative advantage in. This, in effect, means that international competitiveness is secured when production is in line with a country's comparative advantage situation. If countries

perform well internationally and compete successfully for export markets, this could be a sign of their sound international competitiveness.

Thus, at the international level, competitiveness can be defined as the ability of an economy to attract the demand for its exports and the investment to supply that demand, all within social norms that result in an improved standard of living for its citizens. This, in turn, depends on the macro- and micro-economic policies, regulations and institutions that affect the productivity of the economy's factors of production and the costs of doing business.

A review of available literature and empirical evidences supports the notion that international competitiveness can be explained, to some extent, by a country's ability to export [Fagerberg, (1986); Dollar and Wolff, (1993)].

There is, in fact, a self-recurring relationship between export performance and international competitiveness. Exports are the first level of international competitiveness affirmation. The improvement in export performance leads to an increase in countries' competitiveness. This effect is a result of enterprises' skills, knowledge, propensity to innovate and use new technology, ability to exploit technological opportunities in a successfully commercial way, etc.

On the other hand, in striving to achieve successful exports in highly competitive global markets, a country is forced to improve its competitiveness. The more competitive a country is, the more economically powerful it is. Consequently, it is more capable to compete on the global market, to attract people with higher level of knowledge, skills, to buy new technologies, etc., and to improve its export performance as well as to achieve better export results. This can, in turn, favor additional innovations and trigger an improvement in its competitiveness.

Consequently, export performance and competitiveness should not be considered in isolation, since they are mutually interdependent.

However, competitiveness should not be equated only with a country's ability to export. The evolution of export market shares is also an important element of trade competitiveness, while the latter is just a component of a nation's competitiveness, defined by the European Declaration of Lisbon as the capacity to improve and raise the standard of living of its habitants by providing more and higher quality employment, and a greater social cohesion. The gains or losses of world market shares by individual countries are often considered as an index of their trade competitiveness. However, market share growth depends also on structural factors. Due to changes in demand, a country's geographical and sectoral specialization at the beginning of the period is an important factor shaping the market share growth. Similarly, the country's ability to adapt its exports to such changes will also affect the final outcome.

Furthermore, the concept of international competitiveness in services encompasses, first of all, qualitative factors, that are difficult to quantify; the quality of services, the capacity for technological innovation, the quality of human resources are factors that may influence a country's services trade performance favorably. Likewise, high rates of productivity growth are often sought as a way of strengthening competitiveness. But it is not necessarily the case that favorable structural factors of this sort will give rise to increased sales on foreign markets. They may, instead, show up as improving terms of trade brought about through exchange-rate appreciation, while leaving export performance broadly unchanged. It is for this reason, as well as because these factors are hard to measure in quantitative terms, that consideration here is confined to a more specific and integrated method for determining Romania's relative competitive position in international services trade.

3. Romania's services sector and international services trade – an overview

While still lagging behind the developed economies, the trend towards a service-oriented society is also observable for Romania. This is reflected by the increasing proportion of GDP attributable to services and by the growing share of employment in services sectors, as well as by both these indicators rapid rate of growth in comparison to OECD countries.

In Romania, the contribution of the services sector to GDP increased slowly from around 45% to 48% in the period 2002-2004, reaching a level of 51% in the first semester of 2006, while services activities accounted for around 40% of employment in the same period, with 44% in 2006 [National Institute of Statistics, (2007)].

The contribution of services activities to gross-value added is increasing in Romania, reaching 64% in 2006, including construction activities. Services had the highest contribution to the increase in Romania's GDP in 2006 (3.6%, out of 7.4% overall increase), as well as the highest contribution to gross value added formation (59%, without construction services), as compared to close to 77% in the EU.

With respect to the distribution of value-added by services activities, the tendency in Romania is for value-added to be generated by low-skilled activities, like "constructions", "hotels and restaurants", "transportation", while in the EU-25 the highest contribution comes from "financial intermediation and business activities" (the highest contributor for Romania is the "transportation, storage and communication" sub-sector).

There is also an important difference in the contribution of "other services" (e.g. public administration and defense, compulsory social security, education, health and social work, other community, social and personal service activities, private households) to gross-value added formation (10.7% in Romania, as opposed to 22.86% in EU-25).

As it is the case with the share of GDP attributed to the services sector, trade in services in Romania has become increasingly important, even though it still represents a very small portion of world trade in services.

Romania's share of EU-25 trade in services is only 0.7% (4.5 mld. euro in 2004), as opposed to 1.62% for the share of EU-25 merchandise trade with Romania (32.188 mld. Euro in 2004).

Service trade flows Romania - EU-25 and within the internal market are still relatively smaller in comparison with manufacturing trade; 58% of Romania's services trade is conducted with EU-25 countries, while in the case of merchandise trade, the percentage is 72%, suggesting a lower degree of integration than that attained for merchandise trade, due to the multitude of regulatory barriers that constitute a significant impediment to services trade.

In 2003, Romania registered trade surplus in services. The situation changed since 2004, when Romania completed the list of countries with deficits from trade in services (70 mil. USD positive services trade balance in 2003, as opposed to 265 mil. USD deficit in 2004).

The share of services in Romania's foreign exchange receipts decreased from 16% in 1996 to 13% in 2004, with a relative increase, though, in "transport services" and, more importantly, in "other services" (from 29.5% in 1996 to 45.4% in 2004 as percentage of all services contribution).

While services represented only 13% of Romania's exports in 2004, the structure of Romania's exports towards EU-25 countries was slightly different, suggesting a higher propensity to export services towards this group of countries (Romania's services exports represented approximately 16.5% of the total exports with the EU-25), reflecting the more advanced liberalization measures that are being implemented as a result of EU accession.

With respect to the current sectoral intensity of exports, Romania's situation is as follows: 15% services, 81% manufacturing and 4% agriculture.

Given that services trade often requires proximity between services providers and consumers, FDI is an important mode for the international supply of services. The intensity of FDI in services is of 45% in Romania. In general, the EU-15 generates about 80% of inward FDI (Vienna Institute for International Economic Studies, 2004).

The pattern that emerges is similar to that suggested by the services trade data - there is a distinct difference between the EU-15 states and Romania, in that the former have attracted larger flows of services FDI. Given that FDI in services can be expected to be associated with new technologies, higher service standards, and more effective delivery, these inflows help to explain both the higher labor productivity performance in services and the aggregate growth performance of the EU-15 countries.

4. Methods for assessing the international competitiveness of trade in services

a. The research method

For the specific assessment of the international competitiveness of trade in services, the underlying methodological approach undertaken in this study is based on the idea that the economy that improves its degree of competitiveness in services is the one that is able to enhance the size of its services exports to a certain market. The one that declines its degree of competitiveness is the one that increases the size of its services imports coming from other countries. The greater or smaller degree of

competitiveness of a sector or country shows the nature and degree of participation it has - through its exports- in the imports carried out by the analyzed markets, *i.e.*, a country improves its competitiveness in the way that the other country increases its imports coming from the former one [Mandeng, (1991)].

In addition, the process of insertion of a country in the international economy is a phenomenon not only related to the exporting progresses carried out by the analyzed economy, but also to the behavior and actions of other competitors. The model is adapted from De la Guardia, Molero, and Valadez (2004) that introduced the aspect of the dynamic nature of the markets and implemented through their work an *ex—post* assessment of services competitiveness, by providing a descriptive reference on the changes produced in the competitiveness forms and specialization of the international trade.

The *commercial advantage* is *revealed* through the evolution of services exports - which reflects improvements in competitiveness, and through the evolution of services imports, that reflects a worsening of the commercial advantage.

Based on the aforesaid, the changes in the international services trade competitiveness are measured through the analysis of different variables:

- the first variable is the *market share* or participation in the market, and measures the portion of the market that is supplied by a certain country or sector of this country;
- the second variable used is the *export structure* of the analyzed country. This variable reflects the relative weight of each exporting sector in the total exports of that country;
- finally, by means of the *import structure* of the market, we can determine the degree of dynamism that a certain sector has in the analyzed import market.

Through the combination of the aforementioned variables, three "competitiveness matrices*"* are constructed, that allow for the description of Romania's international services trade development profile.

The Market Share Competitiveness Matrix illustrates the fact that services exports can be classified according to their international competitiveness through the behavior of the market share of a country and the evolution of the world imports over time.

In effect, the world market share held by each country in services exports can increase or diminish throughout time; such modifications take place in the same time with the increase or decline that services imports register in international trade.

This allows for the classification of services exports as *performing*, *missed opportunities*, *declining* and *retreating.*

Services activities are performing when a country enhances its market share in a certain service activity, in circumstances in which that activity has an increasing importance in world-wide trade.

Services activities are missed opportunities when a country is losing market share, while international trade in that sub-sector is enhancing.

D*eclining* are those services in which the exporting country increases its market share, while the international market is contracting.

Finally, we define the situation of services as *retreating* when that economic activity, besides losing market share, registers a decline of dynamism in international trade.

The *competitiveness matrix of the export structure* is obtained relating the behavior of the export structure of a country with the import dynamism of the international market.

This matrix shows how the adjustments of the export structure can take place in the same direction or the opposite direction with respect to the changes in world imports structure.

The different segments of services exports can be classified, from the point of view of their international competitiveness, through the changes that take place in the export structure of the country and the world imports structure throughout the time.

Combining these two variables, services, as an exporting sector can be classified as *performing, missed opportunity*, *declining* and *retreating*, with the equivalent meaning mentioned before.

Finally, services exports can also be classified from the point of view of their international competitiveness throughout time, when the degree of trade specialization of each country and the evolution of the world imports are simultaneously analyzed.

The specialization index is defined as the relative participation that the exporting sector of a country has in world trade[1].

Similarly, services, as an exporting sector can be classified as *performing*, *missed opportunity*, *declining* and *retreating*, with an identical interpretation to the ones previously indicated.

Table 1: The competitiveness matrix

Market share Export structure Specialization index	**DECLINING** **RETREATING**	**PERFORMING** **MISSED OPPORTUNITY**
Import market structure		

Source: adapted from de la Guardia *et al.*, (2004).

Our aim is to adapt and apply the model developed by De la Guardia, Molero, and Valadez in order to assess the international competitiveness of trade in services, using information related to the current situation of the EU-25 countries and to that of Romania, based on the statistical information available.

Balance of payments transactions for services are less easy to link to actual services provision than is the case for goods. For some services activities, it may be difficult to disentangle them from goods or capital transactions. Countries have developed unique national methods for assembling the data. Some have tended to rely more on statistical surveys and others have relied more on central banks' administrative systems. Even so, there has been and still remains considerable variation in the data collection methods. To compound the picture, methods of collection have changed considerably over time. Despite these troubles, we believe that the forthcoming descriptive analysis could bring some highlights on competitiveness and the factors determining the commercial position in international services trade.

The sample data is drawn from UNCTAD-IMF-BOP Statistics on Trade in Services by sector and country, a data-set which covers exports (credits) and imports (debits) of 3 principal services categories: transportation, tourism and travel and other commercial services, according to the concepts and definitions of the IMF Balance of Payments Manual (1993, BPM5). The data-set comprises the 25 EU countries, Romania and the world (178 countries) and covers a yearly time period comprising 2003, 2004 and 2005.

b. The research results

Following the methodology for the international services trade competitiveness analysis presented above, we are highlighting the results corresponding to Romania's situation from the standpoint of the performance of the country's international trade, measured as the relative weight of the world and European services exports, the relative weight in services imports, or with the help of specialization indices in the international (as well as European) trade in services.

The comparative analysis of the sectoral and geographic distribution of *Romania's market shares in services trade* yields the following conclusions:

- for all services sectors, Romania shows a significantly higher propensity for exporting towards EU-25 (values that are more than double for all three sectors); the highest gap emerges for tourism services (0.08% of world trade, relative to 0.23% of European trade);
- as concerns the evolution of market share, this is different in the relation with the EU-25, in the sense that, whereas Romania has a declining share in world trade with „other services", this share is on a steep ascending path in the trade with EU-25; Romania has recorded important increases of the market share for transport services and, on the other hand, an unfavorable evolution of tourism services;

[1] The specialization index is defined as the ratio of a services category exports to total services exports of a country with respect to the same ratio to the world economy. The index measures the country's revealed comparative advantage in exports according to the Balassa formula. The index compares the share of a given sector in national exports with the share of this sector in world exports. Values above 1 indicate that the country is specialized in the sector under review.

▪ the largest market share in Romania's exports belongs to transport services, both in world trade, as well as in European trade.

From the analysis of *the structure of Romania's services exports,* the following conclusions can be drawn:

▪ the sectoral distribution is largely identical at both world and European level;

▪ there are differences as concerns the pace of changes in the structure of exports – while the weight of activities included in „other services" is growing in the trade with EU-25, it is shrinking in international trade; also, the decline of the weight of tourism services in exports destined to EU-25 is less pronounced.

From the analysis of the *structure of Romania's services imports*, we can note the following:

▪ their sectoral distribution is similar at both levels: world and European;

▪ whereas, at world level, the weight of transport services is rising, this same weight is declining in the relation with EU-25;

▪ tourism imports from EU-25 are declining at a slower pace than world-originating imports, which indicates a preference for European tourist destinations.

The different ways of combining and aggregating the above-mentioned variables leads to the construction of "*competitiveness matrices*", which allow to describe the pattern of evolution of the international and European services trade of Romania and offer some clues as to the reasons why the analyzed services sectors may behave differently on the world and European markets, respectively.

The market share competitiveness matrix (see Table 2) indicates the following:

▪ **for transport services**, Romania's performance is superior to that of the EU-25, whose export market share shrinks against the background of a rising importance of transport services in international trade. On the other hand, Romania's market share in the international trade with transport services is rising, both at world level and in the relation with the EU-25, where the propensity to export is even more prominent;

▪ **for tourism services**, both Romania and the EU-25 have a dwindling share in world trade, against the background of a slight growth of this category of services; the shrinkage of the market share is more prominent in the relation between Romania and the EU-25;

▪ **for „other services"**, the EU-25, as well as Romania in its relation with the EU-25 display a rising export market share, against the background of an increase of these activities; moreover, the export of these services is concentrating towards EU-25, while in the relation Romania—world it is actually declining. Also, the growth rate of Romania's export of such services towards EU-25 is far higher than the growth of EU-25 exports.

Table 2: The market share competitiveness matrix

Market share competitiveness matrix TRANSPORT SERVICES	**DECLINING STARS:** **RETREATS:**	**RISING STARS:** **Romania – world** **Romania – EU-25** **MISSED OPPORTUNITIES:** **EU-25**
Market share competitiveness matrix TOURISM & TRAVEL SERVICES	**DECLINING STARS:** **RETREATS:**	**RISING STARS:** **MISSED OPPORTUNITIES:** **Romania – world** **Romania – EU-25** **EU-25**
Market share competitiveness matrix OTHER SERVICES	**DECLINING STARS** **RETREATS:**	**RISING STARS:** **Romania – EU-25** **EU-25** **MISSED OPPORTUNITIES:** **Romania – world**

Source: *own computations*

The export structure competitiveness matrix (see Table 3) indicates that:

- **transport services** are losing pace on the world market; while the EU-25 follows this overall trend and records reductions of export earnings for these services, in Romania the importance of transport services as source of hard currency earnings is on the rise, both in the relation with the EU-25, as well as in that with the world;
- **for tourism services**, Romania and the EU-25 display similar situations, in the sense that, while the world market for such services is expanding, their share in foreign exchange earnings is declining; the reduction of this share is more significant in the relation between Romania and EU-25;
- **for the category "other services"**, the situation is rather contradictory – whereas the share of these activities is declining at word level, triggering results of the types "declining stars" or "retreats", their shares in the relations Romania – world and Romania – EU-25 are rising, leading to Romania's overall positioning as "rising star";

Table 3: The Export structure competitiveness matrix

Export structure competitiveness matrix TRANSPORT SERVICES	**DECLINING STARS:** **Romania – world** **Romania – EU-25** **RETREATS:** **EU-25**	**RISING STARS:** **MISSED OPPORTUNITIES:**
Export structure competitiveness matrix TOURISM & TRAVEL SERVICES	**DECLINING STARS:** **RETREATS:**	**RISING STARS:** **MISSED OPPORTUNITIES:** **EU-25** **Romania – world** **Romania – EU-25**
Export structure competitiveness matrix OTHER SERVICES	**DECLINING STARS:** **EU-25** **RETREATS:** **Romania – world**	**RISING STARS:** **Romania – EU-25** **MISSED OPPORTUNITIES:**

Source: *own computations*

The specialization index competitiveness matrix (*see Table 4*) indicates that:

- **for transport services**, Romania has a revealed comparative advantage, both with the world and in relation with EU-25; the revealed comparative index is higher for the relation with the rest of the world, which demonstrates a lower degree of specialization in Romania's trade with the EU-25; it is noteworthy that the relative importance of transport activities at world level is declining, and so is EU-25's specialization in such services;
- **for tourism services**, the degree of specialization is dropping, against an increase of the world market size for such services; also, Romania's specialization index is higher in the relation with the EU-25 than in that with the world at large;
- **for „other services"**, whereas the international context looks unfavorable, there appears to be an increase of the degree of specialization in the export of such services for EU-25 and for Romania and a diversion of the trade with such services from the other countries of the world towards the EU-25 countries; also, the importance of these activities in EU-25's international trade, as well as Romania's degree of specialization in the relation with the EU-25 countries, are both rising.

Table 4: The Specialization index competitiveness matrix

Specialization index competitiveness	**DECLINING STARS:** **Romania – world** **Romania – EU-25**	**RISING STARS:**

matrix TRANSPORT SERVICES	**RETREATS: EU-25**	**MISSED OPPORTUNITIES:**
Specialization index competitiveness matrix TOURISM AND TRAVEL SERVICES	**DECLINING STARS:** **RETREATS:**	**RISING STARS::** **MISSED OPPORTUNITIES:** **Romania – world** **Romania – EU-25** **EU-25**
Specialization index competitiveness matrix OTHER SERVICES	**DECLINING STARS: EU-25** **RETREATS: Romania – world**	**RISING STARS: Romania – EU-25** **MISSED OPPORTUNITIES:**

Source: *own computations*

5. Conclusions

1. In conclusion, Romania has a specialization potential for transport services ("declining star"), with a growing revealed comparative advantage against the background of an unfavorable evolution of this activity, both at world level, as well at the level of the EU-25; more importantly, Romania is gaining ground on the market for "other services" („rising star"), where it shows in 2004 a revealed comparative advantage in the relation with the EU-25, against the background of a favorable evolution in the EU. Hence, the best position obtained by Romania in 2004, in its services trade with EU-25, is for „other services".

2. In spite of the efforts undertaken by the international institutions in order to progress in the knowledge of the services sector, it is necessary to have more extended series and precise statistics than the ones normally provided. The lack of information is especially severe with respect to travel services. That deficiency makes difficult any research, since this sub-sector has a very important weight in the behavior of the services sector. For that reason, in this paper it has been avoided to enter into more details with respect to services categories.

3. In macroeconomic terms, the forward linkages and backward linkages derived from the export of services are different depending on their structure and quality. In others words, the implications for the economy are very different depending on the structure of services exports. The method applied in this paper for the study of the international competitiveness of services trade avoids one approach to competitiveness that, at least from a statistical standpoint, seems to be not specific enough or not operative enough, i.e. *quality and structure of services*. This factor is extremely important when analyzing competitiveness, but the statistical approach is quite complex. For this reason, a statistical calculation of competitiveness in terms of quality has not been performed here and can constitute the subject of further research.

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INNOVATION AND RELATIONSHIPS IN AN ORGANIZED INDUSTRIAL DISTRICT: ANKARA SINCAN INDUSTRIAL DISTRICT[2]

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Abstract:
Organized Industrial Districts are important regional development tools that have been extensively utilized by the Turkish authorities as part of Turkish industrialization program, with varying degrees of success. The empirical part of the study is carried out in Ankara, Sincan Industrial district. The study investigates the intra- and inter-firm relationships, and its possible implications for firm level innovation activity. In the first stage of this study, the purpose is to explore vertical I/O (input-output) interfirm links and social relations. For this end, a survey is employed to 86 firms engaging in machinery and equipment sector. 79 firms reported innovation activity. In the second stage, the target is to reveal the determinants of innovative activities. Two general findings are noteworthy. First, the existing interfirm relations and other social relations are not well-established for achieving successful innovations rather they hinder the possibilities for success. Second, the determinants of product and process innovations are different as envisaged at the beginning of the study.

Key words: *Organized Industrial Districts, innovation activity, interfirm relations*

1. Introduction

In recent years, a growing body of literature on industrial clusters is one of the realities a researcher observes. However, existing literature suffers from at least two difficulties, one is methodological and the other is empirical. The methodological problem is that some of the studies concentrate on existing clusters by employing standard technical tools without rigorous attempt to analyze social aspects of the inter-firm relations. The empirical problem is related with the geography of applications. Most of the studies used data from the developed countries yet the studies on developing countries is actually limited in number. The present study contributes to this inadequate literature on developing countries with an example of a Turkish industrial district.

The ultimate aim of this study is to present evidence on inter-firm relations in a Turkish industrial district towards a second step of detailed clustering analysis. In other words, this study is the first step to explore possible opportunities to analyze Turkish clusters with their own peculiarities. Interorganizational relationships involve long-term interactions and exchanges between actors, which are maintained for economic purposes and change in time. Repeated interactions can eventually give rise to significant learning and innovation. [1] In this context, relationships are considered as coordinating devices for resource creation and knowledge diffusion that makes them as enabling factors for innovation. Throughout this process, new combinations of sources of knowledge and skill are developed; an environment for the exploitation of complementarities is created; potential innovations are explored and realized.

The study is organized as follows: the second section focuses on the available evidence for developing both a theoretical and methodological structure; the third section presents the methodology and the data; the fourth section analyses the results; next concluding remarks follow.

2. Firm Innovation and Relationships

It is possible to observe two different prototypes of managing inter-firm relations; namely trust and power. Although these two patterns seem to be distinct, they are interconnected. First of all, they are generally produced at the inter-personal level, and then transmitted to organizational level. Secondly, power is also contributing to build up trust between firms. In either way, these mechanisms may be transmitted to cooperative and collaborative activity. Such activities positively contribute the

[2] We acknowledge the comments provided by Prof.Dr.Metin Durgut for preparing the questionnairre and draft of the paper and also financial support from METU-BAP (Scientific Reserch Projects Fund).

competitiveness of firms. The research on inter-organizational relationships dates back to Coase's study of the nature of firm in 1937. However, the most significant contribution is made by the progress of transaction cost economics. [2,3] The stability and longevity of interdependent relationships between organizations result in a focus on network structures that exist between markets and hierarchies. [4,5,6,7] The study of cooperative relations needs a complicated analysis of involvement of parties, communication patterns, organizational learning, organizational norms, and cooperation as a coordination mechanism. [7] In this context the relationships are part of a social capital.

As put forward by Anderson et al. (1994) relations are linked to other relations resulting in a system of interdependent relations. [8] Therefore, by time, relationship portfolios are created. It comprises of exchange relations as well as other types of relations with actual and potential suppliers, other firms and organizations such as governmental instrumentalities, competitors, and complementors. [9] Ritter and Gemünden (2003) hypothesized that a firm's degree of network competence has a positive impact on its degree of technological interweavement; a firm's degree of network competence has a positive impact on its innovation success; a firm's degree of technological interweavement has a positive impact on its product and process innovation success; and a company's degree of network competence is positively influenced by the degree of access to resources, the extent of network orientation taken by a company's human resource management, the integration of a company's communication structure, and the openness of its corporate culture. [10] The antecedents and impacts of network competence are presented by Figure 1.

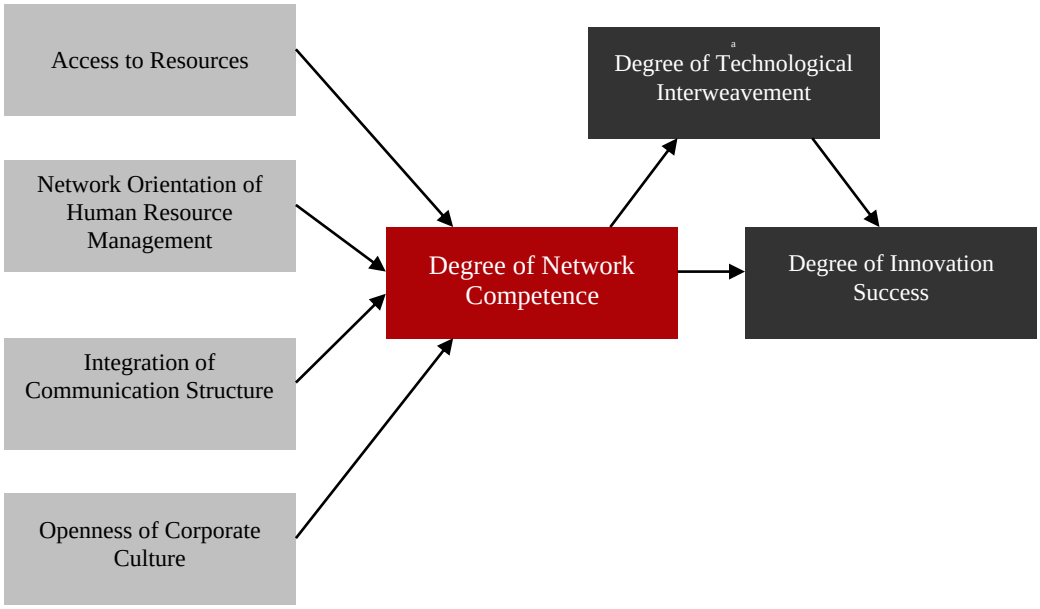

Figure 1. Antecedents and Impacts of Network Competence

Source: *Ritter and Gemünden, 2003.*

Johnson and Sohi (2003) examined the impacts of inter-firm relationships on learning. [11] By using the claim of Day (1994), Johnson and Sohi (2003) advocates that the high quality and productive inter-firm relationships arise when the firms engage in building knowledge bases that pertain to inter-firm relationships partnering. [12] Through organizational learning, the firm is able to gain competence for effective and successful partnering. [11]. In this framework, they model out the learning activities in buyer-seller relationships as presented by Figure 2. In this figure what is labeled as platform variables represent antecedents and relationship outcomes as consequences. Learning intent is the firm's desire to learn. Strong learning intent is an indicator showing that the firm prefers to distribute processing resources. Transparency concerns with the opportunity to learn. It shows the openness of firm to learn. Higher levels of transparency in the form of dissemination of information can enhance the learning. Receptivity demonstrates the firm's capacity to learn. Johnson and Sohi (2003) further hypothesized that the joint effects of these three variables produce dissemination of information and shared interpretation of information related to inter-firm relationships, their making

and their management. [11] The higher levels of dissemination of information and shared interpretation of information, in turn, results with more effective and efficient relationships and higher commitment to inter-firm relationships. As a result, the stability and permanency of inter-firm relationships are ensured.

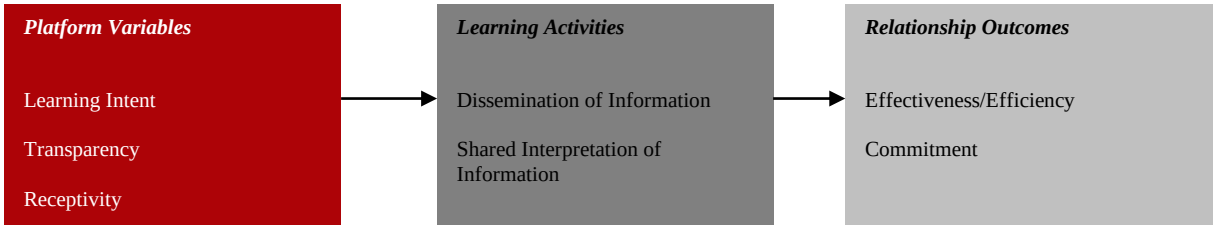

Figure 2. Learning Activities in Buyer-Seller Relationships

Source: *Johnson and Sohi, 2003.*

In a local production system, exchange and creation of knowledge takes place at both vertical dimension [13,14] and horizontal dimension. [15].[3] Vertical dimension is the main carrier of inter-firm relationships. The presence of specialized suppliers, critical customers, and firm specialization with distinct capabilities generates a differentiated knowledge base, task portioning and deepens the division of labor. On the other hand, as the firms establish horizontal links, they are able to monitor, compare, select and imitate competitors' activities; engage in learning and continuous improvement by observing, discussing and comparing dissimilar solutions; share opportunities and threats; effectively share a communal social structure. [17,18] The vertical and horizontal relations may sometimes overlap and agglomerated in a network of relationships.

In sum, the literature on theory of inter-firm relationships is considerably large and multi-dimensional. What we have done in this section is to underline the main theoretical underpinnings in conformity with the scope of the study. In sum, trust and power are the main driving forces of developing inter-firm relations in the context of cooperative and collaborative activities. These types of activities through learning and creating a knowledge base have significant repercussions on innovativeness and consequent competitive power.

The dynamics of technological change in industry is generally ignored for developing countries. However, in recent years, the developments in the course of global capitalism necessitate a framework to identify the dynamics of technological change in periphery. In this context, researchers discover the vital importance of differences in inter-firm relations in those countries. It can be hypothesized that the inter-firm relations, especially the informal ones, play a more important role for the development of local industry and, in turn, enhancement of innovative activities for the developing countries as compared to developed countries. The density and types of inter-firm relations accelerates the pace of technological change other than formal support to local industry. In other words, the policies for the support of local industry towards innovativeness and competitiveness should be incorporated with a rigorous attempt of identifying inter-firm relations.

Humphrey and Schmitz (1998) analyzed the trust and inter-firm relations in developing and transition economies. [19] By assuming that an extended type of trust is necessary for sustaining the interdependence cooperation between firms seeking to compete in the world markets, they examined India, Brazil, Pakistan, and former Soviet Union. The case of an Indian supply chain demonstrated the difficulty in constructing extended trust relationships where price-based competition is prevalent and relationship between customer and supplier is asymmetric. The cases of Brazil and Pakistan emphasize the significance of customary social networks for trust yet also exhibit that extended relies on economic and technical performance irrespective of social identity. In the former Soviet Union, it seems to be impossible to observe even minimal trust since reputation is slow to bite because of transition to market economy.

[3] For a more recent detailed review of those concepts, see [16].

Meyer-Stamer (1998) analyzes industrial clusters in Santa Catarina state of Brazil where an enormously non-cooperative culture exists. [20] However, firms try to alter their behavior toward cooperation and collective efficiency to the new conditions. These conditions comprise an existential crisis, the presence of change agents, and the existence of organizations they ca use, and the presence of a role model that shows a possible alternative path for the adjustment process. The attempts to motivate cooperation between firms are observed.

In an attempt to study global competition and local cooperation, Schmitz (1999) inspects export-oriented firms in the south of Brazil. [21] He finds out an intensified vertical cooperation in the footwear industry towards increasing product quality and speed of response. However, a significant improvement in export performance is not observed since some leading firms put their alliance with a major global buyer above cooperation with local firms and local policy problems. In a further study of local cooperation in industrial clusters of South Asia and Latin America, he ends up with three significant conclusions. First, cooperating firms seem to perform better. Second, the vertical cooperation is prevailing as a result of competitive pressures. [22] Third, vertical cooperation arouses when major enhancements in quality and speed are entailed yet weakens subsequently. Visser (1999) investigates clusters of local garment industry in Peru. [23] He finds that clustering brings advantages especially for small firms during the trade liberalization phase. The cost reductions and information spillovers through inter-firm linkages are the key advantages. However, this study claims that these advantages are not sufficient for competitiveness in the markets. [23] The study calls for the urgent action for the inter-firm cooperation above local borders.

The study on Colombian fashion sector by Pietrobelli and Barrera (2002) verifies that the cluster is based on a low degree of firm specialization and poorly developed enterprise networks. [24] This situation put barriers on attaining collective efficiency. They further analyze the backward and forward linkages. The analysis confirms that backward linkages are inadequately constructed whereas forward linkages are more robust. The retail chains are decisive in two analyzed clusters and through these chains networks are established in international markets. This study substantiates the previous analyses on Latin American clusters. Altenburg and Meyer-Stamer (1999) examined Latin American clusters in the context of ideal typologies of clusters, namely survival clusters of micro and small-scale firms, clusters of differentiated mass producers, and clusters of transnational corporations. [25] According to this survey, many Latin American clusters consist almost exclusively of micro and small firms in activities with low barriers to entry, such as production of garments, shoes, furniture, and auto repair. [25] However, they conclude that Latin American clusters are more complex and interactive clusters. Although resource-based clusters are very important, there is a highly heterogeneous structure. Rabelotti (1999) studies the effects on trade liberalization on the cooperative behavior of shoe firms in a local cluster of Mexico. [26] He finds evidence on positive relation between cooperation and firms' performance. Moreover, the heterogeneous structure of Latin American clusters once again verified by this study. In a comparative study of internal heterogeneity of industrial districts in Italy, Brazil and Mexico, Rabelotti and Schmitz (1999) conclude that differentiation in size and performance in these industrial districts may limit the success of the district. [27] They further support the view that deepening of division of labor between firms and heterogeneity of firms by process and product may be quite a contributing factor for the success yet the situation is different in the examined cases.

Sandee and Weijland (1989) study on changes in rural cottage industry clusters in Central Java, Indonesia. [28] They examine the relations and dynamics of transition from household-based production to production by more specialized and productive units. The study concludes that the transition occurs in areas with access to wider markets and improved technology. Tewari (1999) analyzes Indian woolen knitwear cluster to grasp the facts for the adjustment in a labor-intensive export industry to external crises. [29] The study outlines four significant factors for recovery. In the context of our study, He observes that as direct ties with final buyers are important, feedback-intensive small-scale contracts directed through either small buyers or intermediaries may assist small or medium-size newcomers in the export sector to learn more effectively about new markets. [29] They, in turn, absorb that learning more fully than the expansion of direct links between small producers and large foreign retail chains. The study provides further evidence that whereas the horizontal ties between firms are weak, the vertical cooperation among firms in the cluster is strong. Another factor

for rapid recovery is the embedded character of production networks. The firms are successful to establish a dynamic middle-tier of locally-rooted exporters. These firms are able to lead the transformation of cluster. Knorringa (1999) also studies on Indian footwear cluster in Agra in order to explore how producers in a traditional cluster respond to changes in the global markets. [30] Most of the firms in the cluster increased cooperation through vertical inter-firm relationships. However, relationships with other local producers seem to be unaffected. Surprisingly, he found a negative relationship between increased cooperation with other local producers and increased cooperation with buyers. [30] In his study on Pakistan's surgical instrument cluster, Nadvi (1999) claims that to meet global quality standards necessitates greater local cooperation between producers and suppliers. [31] The empirical evidence demonstrates that the pressure for these standards caused an upgrading in the sector involving more intensified joint action through vertical and horizontal ties. However, there are some fields of collective failure because of the inability of cluster to deal with some collective problems such as inadequate infrastructure, low safety and health standards, use of child labor.

Although limited in number, we can see cluster studies in Africa. McCromick (1999) works on six case studies in Africa. [32] The findings are not in line with the collective efficiency approach. The six case studies produce significant differences and illustrates that each group plays its own part in the industrialization process. He classifies these six cases under three headings, namely groundwork, industrializing, and complex industrial clusters. [32] Among them, industrializing clusters provide more obvious evidence for collective efficiency. The higher specialization and segregation cause bilateral production linkages and higher efficiency and technology spillovers. Only in one cluster, as an example of complex industrial clusters, it is found that institutions facilitate collective action. Oyeyinka (2004) studies clusters in Nigeria in the context of networking, technical change and industrialization. [33] Economic relations among group of firms have components of social embeddedness. The study provides support that investment decision of firms and cluster formation in rural clusters is based on ethnic, family, and geographic factors. On the other hand, social and professional networks based on educational attainment of owners replace ethnic and family ties in metropolitan clusters. It is interesting to note that the linkage with foreign firms is more critical for the rural cluster while the inter-firm links are more decisive in the metropolitan cluster. In the rural cluster, collaboration is with the input suppliers and trades within and outside the country yet it is in the form of maintenance, purchase of spares and sharing information on technical and market matters.

UNCTAD (1998) proposes a typology for clusters in a study of clusters in developing countries. [34] It differentiates five types of clusters, namely informal clusters, organized clusters, innovative clusters, technology parks and incubators, export-processing zones. Five cases on Ghana, Pakistan, India, China, and Mexico are examined with reference to specific features. Among these specific features trust, cooperation, competition, and learning are noteworthy for our study. It is found that trust is high especially in organized and innovative clusters. Moreover, there is a one-to-one relationship between trust and cooperation. Moreover, learning is also high in these clusters. However, such a relationship does not exist for the competition. Almost in all types of clusters competition is high. Informal clusters composed of micro and small firms are main forms of clustering in developing countries. As noted by this study, networking among firms in informal clusters tends to be low. [34] Low level of trust and low level of information associated with a wild competition are main features in these clusters. As an attempt to offer policy recommendations, UNCTAD (1998) further notes that clustering and networking help SMEs to overcome the problems of isolation and powerlessness, thus, in turn, enhance their competitive capability through the emergence of linkages between firms providing economies of scale and scope. [34] [4]

One of the most comprehensive studies on Turkish clusters is carried out by Öz (2004). [35] In this study, four different clusters of furniture, textile, carpet, and leather clothing are examined. The most striking finding in this study is that existence of strong cooperative mechanisms does not distinguish the relatively more competitive cases from the less competitive ones. Thus, she claims that spatial clustering is not a sole factor that ensures competitiveness. [35] The common characteristics of competitive cases can be listed as along history in the general field of activity, a good resource base in

[4] For a detailed discussion all available studies on knowledge flows and industrial clusters for developing countries, see [16].

the initial stages of development, an entrepreneurial outlook, the presence of related and supporting industries, competitive pressure, and accumulated know-how. [35] Armatlı-Köroğlu (2004) and Eraydın and Armatlı-Köroğlu (2005) examine three clusters having different innovative capacities in Turkey. [36,37] These studies find out differences in regional and external networks caused by the differences in production organization and historical differences. The extent of network relations changes from regional to international with an increase in innovative capacity. The customer and supplier networks are the prevailing type of network. In regional networks, trust seems to be an important variable. The studies further show the positive relation between the density of regional networks and innovation capacity. Finally, they present evidence that firms in the global networks have higher number of innovations than firms with higher intensity of locally embedded linkages. [37] Oba and Semerciöz (2005) deal with the antecedents of trust in a Turkish industrial district. [38] Three levels are determined in this study, namely institutional environment, institutional arrangements, and inter-firm exchanges. Almost all sample firms respond that in their relations with suppliers and customers transactions are not based on formal contracts. This is evaluated as a sign of trust-based inter-firm relations. The antecedents of trust in inter-firm relations are good reputation and repeated transactions. Firms in their transactions prefer more informal institutional arrangements. Finally, firms having trust-based relationships identify formal institutional arrangements as a barrier. They conclude that informal institutional arrangements are more significant than formal ones and reputation and expertise of other firms is more influential than family-friendship relations as antecedents of trust. [38]

In sum, the rising number of studies on developing countries presents a somewhat differentiated structure as compared to the developed ones. The historical and geographical differences create different types of inter-firm relations. At one extreme, some studies claim that collectivity is not as important as some researchers thought. However, the available evidence still demonstrates that inter-firm relations and collaboration among firms is one of the major determinants of innovative capacity though not the only one.

3. The Data and Research Methodology

Ankara 1 Industrial District which started for establishing at 1978 has been on operation since 1990. Ankara 1 Industrial district is one of the most important SME industry complexes in Turkey with an employment capacity of 25,000 and 189 places of manufacturing from several sectors. Machinery and equipment industry, iron industry, vehicle instrument industry, textile industry, petrochemical industry, electric-electronics industry, construction industry, mining industry, plastic industry, aluminum industry are the main manufacturing sectors where 207 firms operate.

The study is a combination of theoretical and empirical work. The research methodology used for the study is questionnaire survey. The research sample is 86 SMEs in Ankara 1 Industrial District in Sincan operating in the machinery and equipment sector. The empirical study is carried out in July-August 2006. The questionnaire is composed of five main parts, namely general establishment information, awareness about technological developments, innovativeness, relations with other establishments and institutions, and proximities. Most of the firms in the sample (79 firms) reported that they engage with innovative activities either in the form of product and process innovations and improvements. 71 firms out of 86 make product innovations and/or improvements in the last five years. On the other hand, 70 firms state process innovations and/or improvements.

In order to identify the factors determining innovativeness of the firms, various variables are created form the questionnaire. The qualitative dependent variable is the number of innovative activities in the form of product and process innovations and improvements (INN). This variable takes the value between 0 and 4. The independent variables are composite indices calculated from the responses of different questions. Four variables are defined to account for the impact of geographical proximities, GPID for industrial district, GPR for regional proximities, GPN for national proximities, and GPF for international proximities. AWARE measures the impact awareness of the firms about technological developments. LEARN stands for the influence of learning channels on innovative activities. TTRANS1 and TTRANS2 assess whether incoming and outgoing technology transfers have any effect on innovativeness. The organizational proximities are measured by OP through membership to professional organizations, supply chains, cooperative networks, support providers and other social organizations including associations and foundations. CRE questions the use of credits for financing innovative activities. COOP stands for the intensity of cooperative relations with other firms while

EXALL for all external relations with other institutions including other firms (suppliers, customers, competitors), universities, research centers, NGOs, etc. for main production activities. RDCOMP considers the effect R&D competitiveness of the establishment that measures the R&D intensity of the firm. Two different variables are generated for the absorptive capacity of the firms ABCAP and ABCAP25. The difference between these two variables is that ABCAP uses a broader definition of the absorptive capacity. ORGCAP denotes the organizational capacity of the firms. The problems experienced in hiring skilled labor is one of the main difficulties of firms in Turkish industrial district, thus LABORP measures this problem. The existence of business strategy is also an indispensable element for innovative activities. The elements of business strategy are measured by STRA. The lifetime of the firm is calculated by YEAR. Finally, the use of knowledge intensive business services is an important channel not only for consultation but for learning; KIBS represents this behavior of the firms. VALUE measures all types of social relations of the firm with the external environment including trust, culture, and other social relations. For all the variables described above, we expect positive and significant relations with the dependent variable. Furthermore, we also expect increasing magnitude of the coefficients as dependent variable takes values from 0 to 4, in other words, as innovative activities of the firm rise; the magnitude of the coefficients goes up.

The regression equation is estimated by multinomial logit using 82 valid observations. For the dependent variable (INN), the value 0 (no innovation) is treated as base. After various attempts, the independent variables in the equation are selected by using the correlations with the dependent variable and a stepwise estimation methodology is developed. We suppose that the determinants of the innovative activity for the product and process innovation may differ. Therefore, three different equations are estimated; one for all innovative activities and others for product and process innovations. This cause us to generate two more dependent variables PRTINN and PROINN taking values between 0 and 2.

4. The Results

The results for all innovative activities are presented at the first panel of Table 1. The methodology used has strikingly successful in which all the coefficients are statistically significant. Moreover, the estimated models have passed all the diagnostic tests. One of the most striking results is the unexpected negative and significant coefficient for GPID. The close geographical proximity in the industrial district has negative impact on innovativeness. The possible reason is the severe competition in the district. However, the geographical proximity in the region positively contributes to the innovative activities. Another unexpected outcome is observed for the organizational proximity. The membership to professional organizations, supply chains, cooperative networks, support providers and other social organizations do not bring about positive contribution for innovative capacity. Unfortunately, the intensity of such relations has negative impact. This means that necessary learning for innovation does not take place through these channels. Moreover, R&D intensity of the firms in our sample is far from providing a positive input for innovativeness of the firm. This situation, in fact verifies previous findings that Turkish firms do not attain a possible threshold level of R&D intensity for being innovative. [39] Finally, external relations with other institutions such as other firms universities, research centers, NGOs, etc. for main production activities unexpectedly do not constitute a base for innovative activities inside the firm. In sum, it can be claimed that the firms in Sincan industrial district are unable to establish productive interfirm relations that positively contributes to their innovative activities. Furthermore, they are unable to do so with the external environment. However, the existing relations seem to impede their success for the innovative activities. The second panel of Table 1 shows the determinants of product innovations in Sincan industrial district. Although we do not obtain as many as significant coefficients in Panel (I), we do still have some significant coefficients. However, if the level of significance is raised to 10%, the number of significant coefficients will exactly increase which seems to be reasonable for such a study. The close geographical proximity in the industrial district has again a negative impact on innovative activities denoted by the negative coefficient of GPID. The positive significant coefficient for GPR persists while RDCOMP changes its sign. In other words, R&D competitiveness has positive impact for product innovations.

Table 1: Determinants of Innovative Activities in Sincan Industrial District

(I)

	(1)	(2)	(3)	(4)
GPID	-12.937	-12.947	-12.856	-13.155
	(17.11)**	(18.27)**	(20.30)**	(15.84)**
GPR	12.031	12.040	12.029	12.197
	(20.61)**	(21.81)**	(21.42)**	(20.77)**
GPN	-4.852	-4.802	-4.689	-4.831
	(23.00)**	(24.23)**	(22.85)**	(24.75)**
GPF	3.661	3.745	3.724	3.800
	(18.87)**	(19.07)**	(18.89)**	(20.20)**
AWARE	8.679	8.533	8.472	8.722
	(14.90)**	(16.07)**	(13.34)**	(19.17)**
LEARN	6.962	6.896	6.984	7.014
	(18.15)**	(17.39)**	(16.98)**	(18.60)**
TTRANS2	150.972	151.588	149.868	154.095
	(17.47)**	(19.09)**	(18.85)**	(18.17)**
OP	-6.868	-7.376	-7.135	-7.786
	(10.24)**	(12.01)**	(11.04)**	(11.04)**
CRE	77.455	77.194	77.830	78.434
	(16.57)**	(17.59)**	(17.30)**	(16.36)**
COOP	147.980	148.646	148.398	148.767
	(26.87)**	(27.04)**	(27.01)**	(27.62)**
RDCOMP	-4.536	-4.532	-4.472	-4.241
	(8.74)**	(9.97)**	(9.12)**	(8.65)**
ABCAP	2.304	2.345	2.615	2.209
	(3.98)**	(4.24)**	(5.24)**	(3.97)**
ORGCAP	-3.360	-3.261	-3.625	-3.393
	(5.13)**	(4.92)**	(5.19)**	(4.67)**
EXALL	-8.004	-7.932	-7.980	-7.947
	(18.71)**	(19.16)**	(21.40)**	(19.13)**
Constant	100.466	96.892	87.919	92.296
	(.)	(25.20)**	(20.61)**	(19.78)**
Observations	82	82	82	82

(II)

	(1)	(2)
GPID	-0.089	-0.227
	(1.11)	(3.24)**
GPGR	0.097	0.186
	(1.35)	(2.26)*
GPN	0.040	0.029
	(0.58)	(0.39)
GPF	0.125	0.118
	(2.11)*	(1.84)
LEARN	0.035	0.083
	(0.69)	(1.22)
EXALL	0.011	0.004
	(0.35)	(0.12)
RDCOMP	0.068	0.170
	(1.01)	(2.01)*
ABCAP	-0.041	-0.080
	(0.50)	(0.81)
AWARE	-0.087	-0.014
	(0.89)	(0.12)
ORGCAP	0.090	-0.003
	(0.99)	(0.03)
Constant	-3.456	-2.971
	(1.78)	(1.72)
Observations	86	86

(III)

	(1)	(2)
GPID	4.622	4.632
	(.)	(67.29)**
GPR	4.065	4.097
	(.)	(.)
GPN	-3.538	-3.538
	(33.80)**	(.)
GPF	4.086	4.062
	(13.95)**	(12.79)**
AWARE	-0.354	-0.296
	(.)	(1.72)
LEARN	6.170	6.240
	(.)	(.)
KIBS	5.710	5.719
	(30.87)**	(18.77)**
TTRANS1	83.590	83.712
	(16.84)**	(14.93)**
TTRANS2	-25.291	-23.206
	(.)	(21.13)**
STRA	4.684	4.756
	(.)	(59.43)**
ABCAP25	1.722	1.583
	(21.68)**	(.)
YEAR	1.289	1.311
	(6.27)**	(.)
LABORP	141.772	141.015
	(.)	(.)
COOP	55.032	55.835
	(.)	(.)
EXALL	-7.478	-7.471
	(.)	(.)
RDCOMP	-4.407	-4.304
	(.)	(81.27)**
VALUE	-1.289	-1.127
	(.)	(16.05)**
Constant	-271.679	-273.782
	(107.17)**	(.)
Observations	80	80

*Robusty statistics in parentheses; * significant at 5%; ** significant at 1%*

As exhibited by the third panel of Table 1, the determinants of process innovations are quite different from the product innovations. Interestingly enough the closest geographical proximity (GPID) has a positive impact as with the most distant one (GPF). This means that the firms learn process innovations either from their neighbors in the industrial district or from relations with the foreign firms. The availability of knowledge intensive business services also provides a positive contribution which is logical considering the nature of process innovations since try and fail situation is more costly for process innovations as compared to product innovations. Thus, process innovations necessitate consultation with knowledge providers. Technology transfer from other firms has also positive impact which is natural because an incoming technology generally means restructuring in the context of process innovations. The existence of business strategy is also positive and significant. The positive and significant coefficient for the absorptive capacity variable notes that firms should have higher level of absorptive capacity for process innovations. However, the social relations with the external environment negatively add up for the innovativeness of the firms in our sample. This might be from the fact that those relations are not mature enough for successful innovative activities rather they hinder possibilities for fruitful cooperation. In conclusion, our presupposition about the different factors determining the product and process innovations has been verified by the results obtained from Panel (II) and Panel (III) of Table 1.

5. Concluding Remarks and Prospects for Future

The existing study is an attempt to contribute to a growing literature on the relationships-innovation link in developing countries. The study provides evidence for this link for a group of firms in a Turkish industrial district. Two general conclusions are more important than the others: First, the existing interfirm relations and relations with the external environment have blocked the success of the firms for the innovative activities. Second, the determinants of product and process innovations are different. However, the present study is still continuing one especially in the context of the second conclusion. The ultimate aim is to generalize a repeatable methodology and model on the determinants of innovation in terms of the interfirm relations. We still engage in research for Turkish industry with larger datasets for different sectors.

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PAYEMENT BASÉ SUR ACTIONS IFRS2 – SOLUTION DE LA PRÉVENTION DE LA MANIPULATION DU RÉSULTAT DE L'ENTITÉ ÉCONOMIQUE

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Resume:

Les utilisateurs des informations financières, en particulier les investisseurs, ont l'opinion que certaines compagnies omettent certains frais dans le but de la manipulation des résultats financiers.

L'apparition IFRS2, a crée parmi les managers de grandes compagnies une série de controverses vu qu'ils avaient des opinions différentes en ce qui concerne l'influence de l'application de ces normes sur les situations financières. Cet article essaie de mettre en évidence les corrélations positives qui existent entre l'utilisation des options par actions par les compagnies et l'accroissement du profit de celles-ci. A travers la présentation de certaines études de cas on exemplifie des cas concrets d'application du standard IFRS2.

Mots cle : la position financière, le payement basé sur les actions**,** la valeur juste, la valeur intrinsèque, la performance.

1. Introduction

En conformité avec le référentiel comptable international, les situations financières doivent permettre l'appréciation de la position financière, des performances de l'entité économique et l'évolution de la position financière pour que les investisseurs, en tant que principaux utilisateurs, puissent prendre la décision d'investir ou de ne pas investir. La principale situation financière, utilisée au moment de l'appréciation des performances d'une entité, est le compte de profit et de perte dans lequel on détermine les résultats en tant que différence entre revenus et frais. Dans les dernières années, même en Roumanie, l'analyse de la performance financière est complétée par la mesure des profits ou des pertes à travers une analyse beaucoup plus ample appelée l'analyse de la performance économique ou globale, en tenant compte autant de la variation des capitaux propres, que des variations des fluxes de trésorerie.

L'information concernant la performance est demandée par les utilisateurs des situations financières dans le dessein de l'appréciation des mutations potentielles dans les ressources économiques que, l'entité contrôlera, probablement, dans le futur, pour la prévision de la capacité de l'entreprise de générer des fluxes de trésorerie, en partant des ressources de base, mais aussi pour la formation des jugements en ce qui concerne l'efficacité avec laquelle l'entité pourrait utiliser des ressources additionnelles. D'ailleurs il y a une diversité d'acceptions du terme de performance, vu différemment selon les intérêts des utilisateurs : les managers sont intéressés aux performances globales de leur compagnie, les investisseurs actuels et potentiels la perçoivent à travers la rentabilité de leurs investissements, les salariés à travers la stabilité et la rentabilité de la compagnie où ils travaillent, les créditeurs à travers la solvabilité de celle-ci et les clients à travers la stabilité de la compagnie.

Presque dans toutes les entités économiques, indifféremment de leur mesure, la maximisation du profit se trouve sur la première position parmi ses objectifs d'atteindre les performances dans le domaine respectif, bien que cette politique n'offre pas la garantie sur la survivance à moyen ou long terme. Le développement des marchés financiers et les exigences de communication financière concernant la mesure des performances futures des compagnies imposées par les investisseurs, nécessitent la mesure des performances d'une manière dynamique et complexe. Pour réaliser ce désir il y a une dispute entre deux mouvements : celui qui mesure la performance des activités (current operating concept) et celui qui mesure l'enrichissement (all inclusive concept).

En partant de la prémisse qu'il est préférable de prévenir une maladie que de la traiter, les organismes de normalisation comptable ont été préoccupés par l'élaboration et la publication de normes comptables qui préviennent la manipulation des performances des compagnies par les managers. De cette manière l'ISAB (International Financial Reporting standards) a décidé d'élaborer le Standard IFRS2, publié le 19 février 2004 – Payement en actions, que les pays de l'Union Européenne ont appliqué en commençant par 1 janvier 2005, qui couvre l'ensemble des problèmes liés aux payements en actions et assimilés à des effets sur les performances de l'entreprise. L'implémentation de celui-ci en Roumanie a été réalisée depuis janvier 2006, ou pour d'autres compagnies depuis janvier 2007. L'apparition de ce standard a généré des controverses parmi les managers en ce qui concerne l'influence de celui-ci sur le résultat de leurs compagnies.

L'introduction d'un nouveau coût pour l'entité appelée **le payement basé sur les actions** semble dans l'opinion des spécialistes la solution de la prévention de la manipulation du résultat. En fait, ce coût représente une transaction au cadre de laquelle une entité reçoit ou acquiert des biens ou des services en tant qu'une contrepartie pour les outils de capital, ou à travers la contraction de débits pour des sommes basées sur le prix des actions propres ou de certains outils de capital de la compagnie.

L'objectif IFRS2, est de spécifier le rapport financier d'une entité lorsqu'elle conclut une transaction à payement en actions, y compris des transactions avec les salariés ou d'autres parts qui seront payées en numéraire, autres actifs ou outils de capital propre de l'entité. Le standard demande aux entités qui appliquent le référentiel international de reconnaître les transactions à payement en actions, dans les situations financières, y compris les transactions avec les engagés, ou avec les tierces qui seront décomptées en numéraire à travers d'autres actifs ou à travers des outils de capital.

Le standard précise quelques éléments essentiels pour le payement en action et son application, à savoir:

La reconnaissance et la comptabilisation se fait de la manière:

- une entité doit reconnaître les biens et les services acquis dans le contexte d'une transaction couverte par le standard, au moment où elle les obtient;
- les biens ou les services acquis sont enregistrés auprès des frais, des stocks ou des immobilisations selon leur nature;
- l'entité comptabilise soit une augmentation des capitaux propres, s'il s'agit d'une transaction où le payement se fait en actions, soit un débit, s'il s'agit d'une transaction pour laquelle le payement en numéraire est basé sur le prix du marché;
- si la transaction présuppose un décompte soit en numéraire, soit en actions, du point de vue comptable l'entité décompose la transaction entre sa partie de débit et sa partie de capitaux propres.

L'évaluation des parts effectuées en actions. L'entité doit enregistrer la transaction à la valeur juste des biens reçus ou des services prestés. Si cette valeur ne peut pas être déterminée d'une manière faisable ou si la transaction est conclue avec un seul salarié, celle-ci doit être évaluée à la valeur juste des actions accordées. La valeur juste est déterminée dans les transactions avec les salariés à la date de l'octroi des actions, et pour les transactions avec les tierces à la date à laquelle les biens ou les services sont reçus.

Méthodes d'évaluation des instruments (actions ou options). La valeur juste est déterminée en partant des prix de marché, ou faute d'eux, conformément à une technique d'évaluation choisie par l'entité. Faute d'une évaluation faisable, on retient la valeur intrinsèque (le prix d'exercice – le prix de l'action), revu à chaque clôture, jusqu'à la livraison des biens ou la prestation des services ou à l'expiration des actions.

L'évaluation des payements en numéraire basée sur le prix de l'action. L'entité doit enregistrer la transaction à la valeur juste du débit, qui, à son tour, doit être revu à chaque clôture, jusqu'à la date du payement et les variations de la valeur juste pourront être comptabilisées dans le compte de profit et de perte.

Le standard distingue *trois catégories de transactions* avec le payement en outils de capitaux propres et assimilés :

- des transactions à payement sur base d'actions, payées par des outils de capital, où l'entreprise reçoit des biens et des services en tant qu'une contreprestation pour les outils de capital de celle-ci ;

- des transactions à payement sur base d'actions, payées en numéraire où l'entreprise achète des biens et des services en contractant des débits envers le fournisseur en question pour les chiffres qui ont à la base le prix (la valeur) des actions de l'entité.
- des transactions à travers lesquelles l'entreprise reçoit ou achète des biens et des services, et les termes de l'accord offre à celle-ci ou au fournisseur des biens et des services, la possibilité que l'entité en cause paye la transaction en numéraire ou par l'émission d'outils de capital.

L'IFRS2 prévoit que la valeur juste des biens et des services obtenus par l'entreprise et rémunérés dans le cadre des transactions à payement sur la base des actions et assimilées, payées par des outils de capitaux propres, est comptabilisée en frais, au moment où les biens obtenus sont consommés, étant en fait considéré un principe général de comptabilisation de ces types de transaction.

La comptabilisation de la réception des biens ou des services a en tant que contrepartie:

- soit les capitaux propres, dans le cas des transactions à payement en actions payées par l'émission des outils des capitaux propres;
- soit les débits, dans le cas des transactions à payement en actions payées, obligatoirement, en numéraire.

Le principe général de comptabilisation des biens et des services obtenus rémunérés en actions et assimilés consiste dans le fait que la valeur juste de ceux-ci, payée avec des outils des capitaux propres est comptabilisée en frais, au moment ou les biens donnent les services obtenus ou consommés. *Ce principe général s'applique autant aux transactions payées avec des outils des capitaux propres, qu'aux transactions payées en numéraire* et à celles pour lesquelles le choix de la modalité de payement appartient soit au bénéficiaire, soit à l'entreprise.

2. Etudes de cas

Pour la mise en évidence de ce principe on va présenter **une étude de cas** avec plusieurs modalités de payement de la transaction et du mode de comptabilisation:

a. des transactions à payement en actions payées en outils de capital:

le 1 août de l'an N, la société Alfa distribue à ses salariés 1500 actions, qui ont été acquises sur le marché le 1 juillet l'an N pour un prix unitaire de 300 u.m. Le cours de la bourse le 1 août est de 305 u.m. /action.

La société Alfa comptabilisera l'acquisition et l'octroi des actions de la suite :

- le 1 juillet, l'acquisition des actions propres (1500 x 300):

Actions propres (109) = Comptes courants chez les banques (512) 450.000

- le 1 août, l'octroi des actions envers les salariés. (1.500 x 305):

Frais pour la rémunération	=	%	457.500
des salariés en actions (621.x)		Actions propres (109)	400.000
		Réserves (106)	57.500

Pour déterminer la valeur juste des outils à la date de leur émission on tient compte seulement des conditions de marché, c'est-à-dire des conditions de performance basées sur une évolution du cours des actions.

Si les outils des capitaux propres, pour lesquels on acquiert les droits, sont annulés à la fin ou si les options ne sont pas exercées, après la période d'acquisition des droits, on ne pourra pas effectuer aucun ajustement du frai comptabilisé, à l'exception de ceux évalués à la valeur intrinsèque. Pour exemplifier on présuppose la suivante **étude de cas**:

Au début de l'exercice N, la société Alfa attribue 20 options d'actions à chacun de ses 500 salariés, celles-ci étant acquises définitivement à la fin d'une période de présence de 3 ans. A la date de signature du contrat la valeur juste d'une option est de 30 u.m. La société Alfa estime qu'à la fin de l'exercice c'est-à-dire N + 2, seulement 90% des salariés seront les salariés de celle-ci. On distingue deux situations, à savoir:

Le premier cas, dans lequel les hypothèses relatives aux conditions de permanence des salariés dans la société sont vérifiées. Dans ce cas l'entreprise doit comptabiliser les suivantes:

- le 31 12 l'an N, un frai de (500x 90%x 20x30)x1/3 = 90.000 u.m.,

Frais pour la rémunération	=	Capitaux propres/	90.000 u.m.

des salariés en actions Options par actions

- le 31 12 l'exercice N+1, un frai de (500 x 90% x 20 x 30)x2/3 – 90.000 = 90.000 u.m.

Frais pour la rémunération des salariés en actions = Capitaux propres/ Options par actions 90.000 u.m.

- le 31 12 l'exercice N+2, un frai de (500 x 90% x 20 x 30)-180.000 = 90.000 u.m.

Frais pour la rémunération des salariés en actions = Capitaux propres/ Options par actions 90.000 u.m.

Ces enregistrements conduisent à la comptabilisation cumulée par 3 ans d'un frai pour la rémunération des salariés en outils des capitaux propres de 270.000 u.m. L'effet cumulé de ces enregistrements sur les capitaux propres à la fin des 3 ans, est nul, vu qu'à la contrepartie frais correspond une augmentation des capitaux propres.

Le deuxième cas, où l'exercice N, 20 salariés ont abandonné l'entreprise. A la fin de l'exercice N, l'entreprise estime qu'à la fin de l'exercice N+2, 85% des salariés seront encore les salariés de celle-ci. Dans l'exercice N+1, autres 3 salariés ont abandonné l'entreprise. A la fin de l'exercice N+1, l'entreprise estime qu'à la fin de l'exercice N+2, 80 des salariés seront encore les salariés de celle-ci. A la conclusion de l'exercice N+2, il y a encore dans l'entreprise 420 salariés. Dans ce cas l'entreprise doit comptabiliser les suivants:

- le 31 12 N, un frai de (500 x 85% x 20 x 30)x1/3 = 85.000 u.m.

Frais pour la rémunération des salariés en actions = Capitaux propres/ Options par actions 85.000

- le 31 12 N+1, un frai de (500 x 80% x 20 x 30) x 2/3 – 85.000 = 75.000 u.m.

Frais pour la rémunération des salariés en actions = Capitaux propres/ Options par actions 75.000

- le 31 12 N+2, un frai de (420 x 20 x 30) -160.000 = 92.000 u.m.

Ces enregistrements conduisent à la comptabilisation cumulée par 3 ans d'un frai pour la rémunération des salariés en outils des capitaux propres de 252.000 u.m. et l'effet cumulé de ces enregistrements sur les capitaux propres à la fin des 3 ans, est nul.

b. transactions à payement en actions, payées en numéraire. Celles-ci sont évaluées à la valeur juste du débit, qui doit être réévaluée à la conclusion de chaque exercice financier, jusqu'au moment du décompte et les variations de la valeur juste sont comptabilisées dans le résultat. A la différence des transactions payées en outils de capitaux propres, l'évaluation des biens et des services ne reste pas réalisée sur la base de la valeur juste, à la date de la signature du contrat, mais le frai total pour la rémunération des salariés, constaté dans le résultat, représentera la somme qui sera à la charge du bénéficiaire.

Étude de cas: le 01 janvier l'an N, la société Beta a signé un contrat où l'on accorde à chacun de ses 50 membres de l'équipe managériale 10 « droits d'augmentation de la valeur ». Le contrat donne le droit aux salariés à recevoir, à la date où les droits sont exercés, des liquidités pour une somme égale avec l'augmentation du prix de l'action, au moment de l'octroi des droits. Tous les droits seront acquis le 31 12 N+1 et pourront être exercés dans les exercices N+2 et N+3. La société estime que, à la date de l'octroi, la valeur juste de chaque droit est de 32 u.m. et que la rate de rotation du personnel sera de 12% dans les suivants deux ans :

La valeur juste et la valeur intrinsèque des droits à la conclusion de chaque exercice, se présente de la suite:

Date	Valeur juste d'un droit	Valeur intrinsèque d'un droit

31 12.N.	35	31
31 12.N+1	25	22
31 12. N+2	38	30
31 12. N+3	35	35

Le 31 12.N+2,5 les salariés exercent leurs droits. Le reste des droits sont exercés dans N+3.

La première étape: L'obtenir des informations nécessaires pour estimer un frai pour la rémunération des salariés, à la date de l'octroi des droits :

La date de l'octroi des droits: 01 01 N ;
Le numéro des droits par bénéficiaire: 10 ;
La valeur juste d'un droit, à la date de l'octroi: 32 u.m. ;
Le numéro des bénéficiaires: 50 ;
La rate de rotation du personnel (pour les 2 ans) : 12% ;
Le numéro des salariés le 31 12 N: 37 ;
Le numéro des salariés le 31 12 N+1: 35.

La deuxième étape: La détermination des frais pour la rémunération des salariés pour chaque exercice et les enregistrements comptables:

Exercice conclu le	Frai pour la rémunération des salariés	Débits	Commentaires
31 12 N.	6475	6475	37 salariés x 10 droits x 35 (valeur juste) x 50% (période d'acquisition des droits)
31 12 N.+1	2275 (8750-6475)	8750	35 salariés x 10 droits x 25 (valeur juste) x 100% (fin de la période d'acquisition des droits). Le frai de N+1 correspond à la différence entre la valeur juste du débit le 31 12 N et le 31 12 N+1
31 12 N.+2	4050 (15.200-8.750-2.400)	15.200	40 salariés x 10 droits x 38 (valeur juste). Le frai de N+2 inclut la somme des liquidités remises aux salariés qui ont exercé leurs droits en N+2 (8 x 10 x 30)
31 12 N.+3	(4.700)		Le débit est nul, parce que tous les salariés ont exercé leurs droits. La valeur totale payée en liquidités est de 30 x 10 x 35 = 10.500. Le revenu constaté en N+3 correspond à la différence entre la valeur juste du débit le 31 12 N+2 (15.200) et la somme payée en liquidités (10.500)
Total	**8.100**		

Les enregistrements comptables réalisés par la société Beta sont:

- le 31 12 N, les frais pour la rémunération des salariés en actions sont :

Des frais pour la rémunération des salariés en actions = Des débits envers les salariés 6475

- le 31 12 N+1, les frais pour la rémunération des salariés en actions sont:

Des frais pour la rémunération des salariés en actions = Des débits envers les salariés 2275

- le 31 12 N+2, les frais pour la rémunération des salariés en actions sont :

Des frais pour la rémunération des salariés en actions = Des débits envers les salariés 4050

- le 31 12 N+2, les payements en faveur des salariés qui ont exercé leurs droits :

Des débits envers les salariés = Des comptes courants chez les banques 2.400

- le 31 12 N+3, les payements en faveur des salariés qui ont exercé leurs droits:

Des débits envers les salariés	=	%	15.200
		Comptes courants chez les banques	10.500
		Frais pour la rémunération des salariés en actions	4.700

La comptabilisation des payements basés sur actions dépend donc de la modalité de cotation de la transaction, à savoir :

a. par l'émission des outils de capital propre;

b. en numéraire;

c. par le choix d'une des deux variantes.

En partant de ces considérants on va présenter quelques **études de cas** *qui concernent l'évaluation à la valeur juste*, en tenant compte de la modalité de cotation des transactions énumérées en haut, pour pouvoir mettre en évidence le mode d'application du Standard et les effets de son application.

1. Des transactions à payement sur la base d'actions décomptées par les capitaux propres.

Dans cette situation l'entité doit *évaluer* les biens ou les services reçus et de manière correspondante doit augmenter les capitaux propres à la valeur juste des biens/services reçus. Au moment de la fixation de cette valeur on doit prendre en considération toutes les réductions commerciales (discounts), vu que la somme comptabilisée doit être la somme nette. Présupposons qu'une compagnie acquiert 100 équipements électroniques en échange de 400 actions ordinaires, cotées à 200 euros chacune. En général le fournisseur vend ces produits avec 300 euros / pièce. La compagnie vend un grand numéro d'action par jour, ainsi que les 400 actions seront facilement convertibles en numéraire. La différence entre 400 x 200 et 400 x 300, peut être considérée un rabat duquel on doit tenir compte dans l'évaluation, et la somme de 120.000 euros peut être considérée plus proche pour l'évaluation des équipements électroniques.

Il y a aussi des cas où les actions, les options par actions, ou autres outils de capital propre sont accordés aux salariés en tant que rémunération, en plus par rapport au salaire et d'autres bénéfices des salariés. Cette modalité représente un stimulent pour les salariés de rester dans la société ou de leur offrir des prix pour leurs efforts d'amélioration des performances de l'entité.

Supposons par exemple qu'une société accorde 200 options par actions pour 10 membres de l'équipe de direction exécutive, où chacun reçoit 20 options, le 1 janvier l'an 1 pour une période de 3 ans. Les options ont une valeur juste, établie par la compagnie à la date de l'octroi, égale à 12 u.m.; celle-ci estime qu'elle bénéficiera des services des salariés durant les 3 ans et les reflètera dans la comptabilité à la fin de chaque période de 6 mois de la période du rapport :

Le frai avec les options accordées = capitaux propres 400 u.m.

Résultat : (200 x 12)x 1/6 = 400

Si l'un des salariés bénéficiaires décide d'abandonner la société dans la seconde période du deuxième an a lieu une perte pour la valeur entière des 10 options qui lui revenaient. Le reflet dans la comptabilité le 31 décembre du deuxième an sera :

Le frai avec les options accordées = capitaux propres 240 u.m.

Résultat : (180 x 12)x 4/6 – (400 + 400 + 400) = 240

2. Transactions à payement en actions décompté en numéraire. Dans cette situation l'entité doit évaluer les biens ou les services acquis, de même que le débit contracté à la valeur juste. Jusqu'au moment du décompte du débit, l'entité doit réévaluer la valeur juste du débit à chaque date de rapport et à la date du décompte, les mutations de la valeur juste étant reconnues dans le compte de profit et perte de la période.

Si, par exemple, une compagnie peut accorder aux salariés le droit de recevoir numéraire, en les accordant le droit aux actions, qui peuvent être rachetées, obligatoirement ou selon l'option du salarié ou des droits d'appréciation des actions, en tant que partie de la rémunération, ces derniers donnent le

droit aux salariés de recevoir numéraire basé sur l'accroissement du prix de l'action outre une certaine limite, pendant une période déterminée de temps. La compagnie reconnaîtra les services reçus autant que les salariés prestent le service.

Par exemple certains droits d'appréciation des actions expirent bientôt et on ne demande pas aux salariés de rester dans le service pour une période déterminé pour avoir le droit au payement en numéraire. La compagnie présupposera que les services prestés par les salariés ont été reçu et devra reconnaître immédiatement les services reçus mais aussi un débit de payement de ceux-ci. Le débit sera évalué initialement et à chaque date de rapport jusqu'au moment du décompte, à la valeur juste des droits d'appréciation des actions, par l'application d'un modèle d'évaluation des options.

Par exemple, une compagnie émet des droits d'appréciation des actions envers certains salariés, qui apportent des bénéfices après trois ans, à condition que les salariés ne l'abandonne pas. Chaque droit d'appréciation assure une rémunération égale avec le prix d'une action ordinaire de la compagnie (celle-ci doit être plus grande de 10 euros.) Ces droits ne seront pas décomptés si le prix sera plus petit ou égal avec 10 euros.

La valeur juste prévisionnelle des droits d'appréciation des actions sera de :
150 euros à la fin de l'année 1;
210 euros à la fin de l'année 2;
280 euros à la fin de l'année 3.

I Frais = Débits 50 (150 x 1/3)
II Frais = Débits 90 (210 x 2/3-50)
III Frais = Débits 140 (280-140)

3. Transactions à payement en actions où les termes du contrat offrent la possibilité de décompter en numéraire ou par l'émission des outils de capital propre. Dans cette situation l'entité doit déterminer si elle a une obligation présente de *déconnecter en numéraire et de comptabiliser la transaction*. De cette manière, si l'entité a une obligation actuelle de déconnecter en numéraire, elle doit comptabiliser la transaction en conformité avec les exigences qui s'appliquent aux transactions à payement en actions, et, s'il n'existe pas une telle obligation, la comptabilisation va se faire en conformité avec les exigences qui s'appliquent aux transactions à payement en actions décomptées par capital propre.

3. Conclusion

En conclusion l'application IFRS2, apportera beaucoup de mutations en ce qui concerne le rapport des profits de grandes compagnies par le fait que pour réaliser des bénéfices à long terme il s'impose une motivation des salariés-clé, de l'équipe managériale et exécutive. Sur le marché international du travail, et surtout dans les départements de technologie de l'information, on utilisait avec succès des schémas d'options par actions, pour attirer, motiver et conserver les salariés jeunes, performants et qui ont du talent. Après l'apparition du standard, par exemple Microsoft a annoncé une réduction des plans pour les options, tandis que IBM ne modifie pas ses plans de festivité des prix.

Le calcul du coût de l'implémentation du standard représente une difficulté majeure, et l'estimation de la valeur juste des opérations peut être un procès difficile, vu qu'elle implique des modèles complexes d'évaluation. Si les actions accordées ne sont pas cotées, les difficultés qu'on va rencontrer seront encore plus grandes.

L'organisme pour la technologie de l'information, des télécommunications et de l'électronique de la Grande Bretagne met sous le signe de l'incertitude la contribution IFRS2 pour atteindre les objectifs politiques européens, en argumentant que l'introduction d'un standard à travers lequel le compte de profit et de perte est affecté, sans disposer d'une méthode d'évaluation comptable crédible, déterminera les compagnies à réduire les schémas d'octroi des options envers les salariés et ceux qui auront la priorité seront sûrement les salariés du niveau exécutif et managérial.

Le rémunérations basées sur des outils de capital ont quand même une importance majeure pour les compagnies, visible spécialement dans le domaine du cash-flow, mais aussi à travers l'action efficiente qu'ils ont grâce à la réduction des taxes afférentes à une rémunération habituelle.

D'autre côté les salariés ont une raison de plus à travailler de manière efficiente, vu que le profit possible qu'ils pourraient obtenir de la vente des actions en conditions d'efficience de la firme les stimulera, mais on ne doit pas minimiser ni l'intérêt des actionnaires, qui sont avantagés tout au long de l'existence d'un alignement des propres intérêts à ceux des salariés.

En commençant par l'exercice financier de l'an 2006, les grandes compagnies de la Roumanie pourront appliquer les prévoyances des standards IFRS, ce qui fera que IFRS2 deviennent aussi praticables dans la juste dimension du profit concomitamment à la stimulation des salariés. Il est sûr que l'implémentation de ce standard est étroitement liée à l'existence d'un marché de capital bien défini, ayant un grand volume d'activité, pour offrir aux possesseurs des actions une offerte très variée de transactions. Ni le plan actuel de comptes n'est pas complété avec des éléments qui font l'objet de ces types de transactions, respectivement: des frais avec la rémunération en actions, options par actions des salariés etc. Le Ministère de Finances devra prévoir des règles concrètes d'évaluation et de transaction des actions et des options par actions, qui puissent offrir transparence et crédibilité aux situations financières, surtout au compte de profit et de pertes.

C'est pour cela qu'on considère que l'application du standard IFRS2 en Roumanie apportera une crédibilité de plus aux situations financières, à ses performances, aspect très poursuivi par les possibles investisseurs, mais elle va créer aussi une nouvelle modalité de stimulation des salariés, va générer un esprit de compétitivité dans leur cadre à des effets positifs autant pour la compagnie que pour le salarié. De même on considère que cette méthode de rémunération des salariés va générer à l'avenir beaucoup plus d' intérêt qui doit être accordé par les sociétés roumaines pour coter ses actions à la Bourse de Valeurs. Il ne faut pas ignorer les coûts générés par cette implémentation du standard, mais en analysant à long terme, l'effet dépassera l'effort et les résultats en seront ressentis dans le volume des investissements étrangères, le développement économique de la Roumanie.

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INNOVATION PERFORMANCE IN EUROPEAN UNION

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Abstract:
The enlargement of the European Union calls for specific action to be taken. People in the candidate countries have often had to display a capacity for entrepreneurship in adapting to the transformation of their economies. Innovation helps companies conquer new markets or stave off competition. It comes in many different forms, ranging from an invention arising from R&D to efforts to adapt production procedures, tap new markets, use new organisational approaches or create new marketing concepts.

Keywords: *innovation indicators, innovation performance, innovation policy*

1. Introduction

Innovation consists of the successful production, assimilation and exploitation of novelty in the economic and social spheres. The most common definition is one made by OECD (Frascati Textbook, 1981): "innovation represents the global process of technological and commercial creativity, the assignement of new idea or new concepts till the final stage of a new product, process or activity accepted by the market".

Innovation helps companies conquer new markets or stave off competition. It comes in many different forms, ranging from an invention arising from R&D to efforts to adapt production procedures, tap new markets, use new organisational approaches or create new marketing concepts.

The race to innovate can be just as important as price competition. Companies do therefore need to play an active role in this field, particularly in embracing the results of research and helping to raise competitiveness in the European Union.

At a policy level, the diversity of innovation causes difficulties in understanding the process as a whole. Initially, a research-based linear approach was adopted, although a systematic approach which includes all the factors involved in innovation is more appropriate. The systemic model needs to be developed in order to gain an understanding not just of technological innovation, but of other forms of innovation as well. The European Union must therefore deepen its knowledge of this process in order to develop an effective policy.

Innovation can take different forms in the ecolution of a company. Frăsineanu and Băloiu (2004) discover four types of it: product innovation, process innovation, the entry on a new market and the company reorganization in order to be more competitive.

The product innovation is the most frequent form and involves four types of manifestation: principal innovation, discovery of commercial niches, current innovation and revolutionary innovation.

The process innovation refers to the internal aspects of company and leads to the improvement of its performance. By creating a new market is identified a real neeed which is not observed by the consummer. There is no perfect relation between what a company tries to offer and what consumer is expecting. This is the reason why firms must look for new ideas and needs which are not yet satisfied and must put forward its products on other markets. The company reorganization is made to cope with demand changes or with competing firms.

2. Innovation performance in European Union

Innovation is about change and the ability to manage change over time. Innovation can be about the successful exploitation of new ideas in the form of a new or improved product or service but it can also be about the way in which a product or a service is delivered. Boosting innovation is at the core of the Lisbon Strategy since it is a key determinant of the ability of an enterprise, sector or country to remain competitive.

At European level, coordination activity has been carried out mainly in the area of research framework programmes in order to improve the links between research and innovation. It will also be

necessary to build up the "innovation" aspect in other areas. The five priorities identified by the Commission in its Communication on innovation in a knowledge-driven economy are still valid, but more effort should be put into promoting them. A framework will be set up for coordinated action. The Member States must develop and strengthen their national innovation strategies and coordinate action by the ministries concerned.

At European level, the systemic approach should be strengthened by setting up a Competitiveness Council embracing activities relating to the internal market, research and industry. Within the Commission itself, the Commissioners have stepped up their cooperation to promote innovation. In addition, whilst still leaving room for Member State action, the European Union should look to derive the maximum possible benefit from the European dimension to innovation. The European Union identifies five innovation indicators to better capture the various aspects of the innovation process. The importance of these indicators reflect in many respects the political focus on boosting the intensity of innovation enterprises and the increasing emphasis given to the availability of trained people and developing and maintaining skills of employees with respect to new technologies and organisational methods.

A single indicator, no matter how important, is insufficient for building a policy framework:

- Innovation drivers measure the structural conditions required for innovation potential;
- Knowledge creation measures the investments in R&D activities;
- Innovation&entrepreneurship measures the efforts towards innovation at the firm level;
- Application measures the performance expressed in terms of labour and business activities and their value added in innovative sectors;
- Intellectual property measures the achieved results in terms of successful know-how.

Knowledge creation is a main challenge for a majority of countries. There is a generalized commitment to raise public R&D investment levels. On the enterprise side, there is also a new or renewed interest in fiscal incentives visible in 10 out of 19 countries facing the challenge of raising R&D intensity.

Table 1: Knowledge creation trend leaders

	EU25	EU15	European leaders			US	JP
Public R&D expenditures	2.2	2.0	LU(24.0)	CY(16.2)	HU(14.0)	11.9	2.3
Business R&D expenditures	1.3	1.4	CY(26.5)	EE(22.5)	AT(12.1)	-2.1	10.8
University R&D expenditures financed by business sector	0.6	0.9	HU(41,5)	PT(23.5)	CY(23.3)	-12.9	6.8

Source: European Commission, *European Innovation Progress Report 2006*, Luxembourg: Office for Official Publications of the European Communities, 2006.

There is a lot of effort in the field of innovation and entrepreneurship to boost access to seed capital for innovative enterprises, but there is also a less visible focus to tackle weaknesses on non-technological innovation.

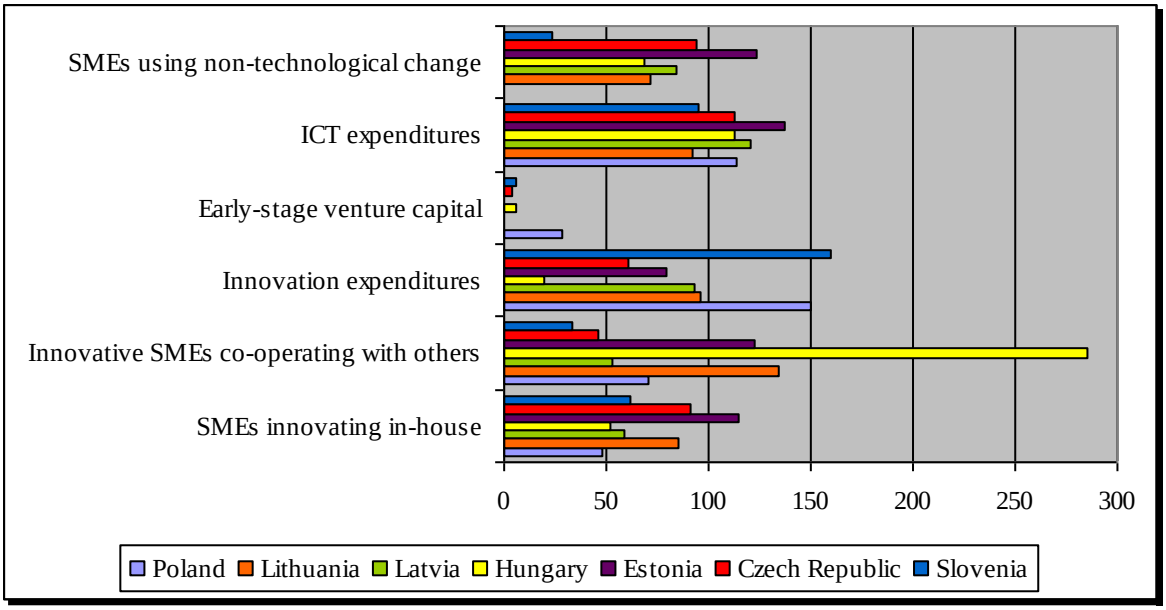

Figure 1. Innovation and entrepreneurship performance
Source: www.europa.eu.int

The application of knowledge leads to a common thread running across a number of the countries and refers to to boost of innovation in service as well as manufacturing industry. The countries which have identified specific challenges relating to this group tend to do so with respect to insufficient levels of employment in high-tech sectors or relatively low shares of high-tech exports.

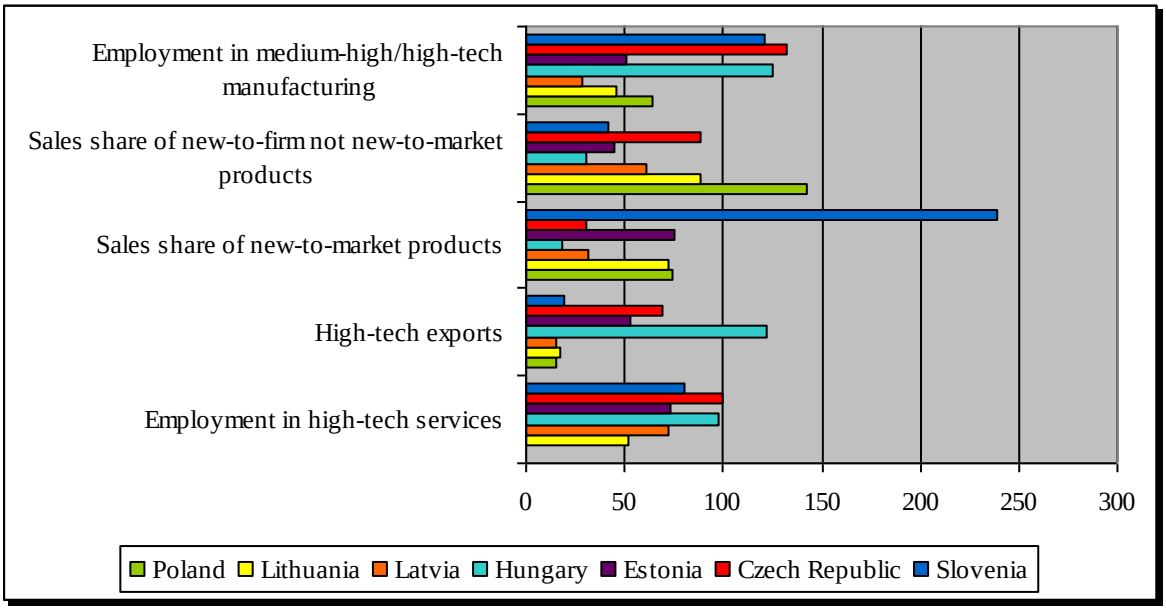

Figure 2. Application of knowledge performance
Source: www.europa.eu.int

Innovation is a non-linear process. Incorporating innovation into the EU's different policies would help strengthen companies, which are at the core of the innovation process. Staff trained in entrepreneurship would be better equipped to grasp the opportunities offered by the market. Successful cooperation with other companies and the public authorities calls for the creation of “clusters”, which

are geographic concentrations of complementary, interdependent yet competing enterprises. Market conditions and consumer demand also play an important role. Some parameters, such as competition, capital injection, a light regulatory environment, and the existence of a skilled and mobile labour force are also necessary for the development of innovative processes. These multiple dimensions make the implementation of innovation policy a delicate matter. The Community, national and regional authorities therefore need to approach the matter with the utmost flexibility.

The European Union will have to catch up on its main competitors, help the new Member States remedy their shortcomings, develop the necessary skills and profit from its economic and social setting.

Despite some promising results revealed by the 2001 and 2002 innovation scoreboards, the European Union still lags far behind the USA and Japan. Nonetheless, some Member States have made better progress than others, which enables other Member States to proceed at a faster rate thanks to the open coordination method. An estimate can be made for those countries either catching up or losing momentum on how many years it would take to either catch up or decline to the EU25 average level of performance. None of the catching up countries is expected to be at the EU25 average by 2010. At best, Hungary, Slovenia and Italy will reach the EU25 average under the current conditions by 2015, and for Malta, Slovakia and Poland the process will take more than 50 years. France or United Kingdom show an average value of the summary index above the EU average, but might regress within the next 5 to 10 years (see figure 3). These facts should raise the questions on which dimensions of the innovation policy have to be better addressed in these countries. It would take more than 50 years for the EU25 to reach the US levels of innovation performance. The innovation gap between the EU25 and US is explained mostly by ICT expenditures and population with tertiary education and the gap between EU25 and Japan is explained by triad patents and again by population with tertiary education.

The enlargement of the European Union calls for specific action to be taken. People in the candidate countries have often had to display a capacity for entrepreneurship in adapting to the transformation of their economies. Although the problems encountered in these countries and in the EU Member States are often identical, particular attention will nonetheless need to be paid to building up, adapting and installing appropriate financial procedures. Efforts should be made at national and Community level to upgrade knowledge on innovation, mainly through improving the statistical tools.

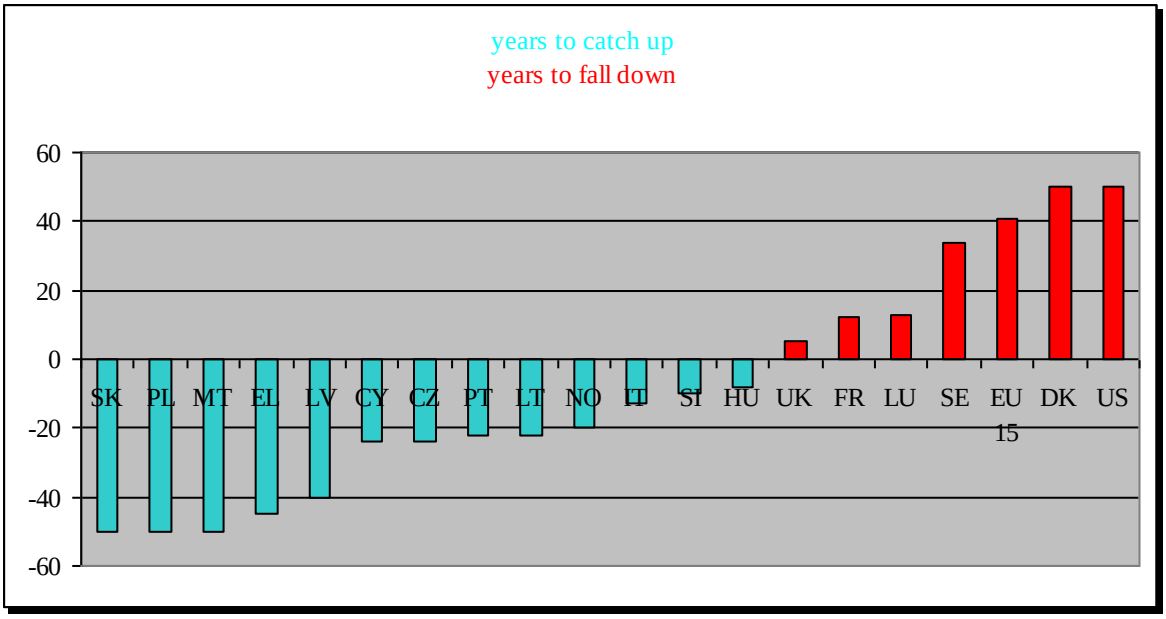

Figure 3. Innovation performance in Europe

Source: *www.europa.eu.int*

3. Conclusion

New ideas on strengthening the innovation process should be investigated. The first aim is to improve the business environment by stepping up interaction with other policies such as those in the fields of competition, the internal market, regional policy, taxation measures, education and vocational training, the environment, standardisation or the Community patent. Innovation will only progress if the market is receptive to it. In this case, it is possible to study the reaction of consumers in lead markets who, by their very nature, may be particularly receptive in the EU. This procedure will also help European companies establish themselves in the world market. The public sector in the EU is both a source and user of innovation even if obstacles do still remain. Efforts should therefore continue in this area, particularly through the use of e-government methods.

Innovative processes are often designed at regional level, and efforts should be made to avoid isolated approaches whilst stepping up the creation of clusters and centres of learning. The Commission will support the efforts of the regional authorities and European networks. Whilst the effects of Europe's innovation gap vis-à-vis the US has not yet been felt, it is important for the EU to develop an innovation policy. The Member States and the Commission shall therefore develop a framework for action which contains priorities and objectives. The Member States should strengthen their national innovation strategies, send the Commission information on innovation and participate more actively in the mutual learning process. It will establish a platform for the exchange of information in the candidate countries and extend the innovation scoreboard to include them. It will draw up a report on innovation policy at national and Community level and contribute to promoting innovation in the public sector. The Commission and the Member States will set up a coordination procedure, and will intensify mutual learning and cooperation to develop innovation in the EU.

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FINANCING OF RAILWAY INFRASTRUCTURE IN SLOVENIA

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Abstract:
In the paper we present a BOT (Build, Operate, Transfer) model of financing railway infrastructure development in the Republic of Slovenia. It is characteristic of this form of project financing that the host country or a local community grants a private project company or consortium a concession to build and manage the public infrastructure. By signing the concession contract, the concessionaire binds himself/herself to transfer all the property rights from the project back to the grantor at the end of the concession period without additional transaction costs at the end of the concession period.

Keywords: public-private partnerships, project finance, infrastructure, railway, Slovenia.

1. Introduction

Development of public-private partnerships, including different forms of co-operation between the state or local communities and legal entities and natural persons of private sector, has not emerged until an economic and socio-political environment enabled private companies to actively participate in the implementation of public services and ensured access to public infrastructure had been set up. This refers primarily to the period marked by deregulation and by processes of enterprise ownership transformation, which renders possible the creation of an institutional framework that allows the implementation of public services to the private sector.

In professional literature we find different forms of public-private partnerships that can be divided in two groups according to the level of private sector participation in the implementation of public services and the provision of public infrastructure: (i) various forms of private sector co-operation with the right of ownership to a civil or construction engineering object remaining in hands of public sector and only the implementation of activity being privatised and (ii) forms of privately managed operations where the right of ownership to the object is temporarily or permanently passed over to the private sector. Service performance contracts, public infrastructure management contracts, lease contracts and classical concession contracts can be placed into the first group, while different forms of partial or total divestiture and different approaches to project financing belong to the second group.

2. Project financing

Project financing represents an off-balance sheet form of providing medium and long-term capital for capital intensive projects. This requires a formation of a capital structure, where project assets and cash flow will cover all obligations resulting from liabilities. Because of the limited rights of ownership to a civil or construction engineering object (that is the outcome of concession relationship), cash flow represents the most important guarantee for repayment of obligations resulting from liabilities. That's why the creditors, when establishing the concessionary's debt capacity, favour infrastructural projects that provide a higher level of certainty in the anticipation of future cash flows, while at the same time they are not interested in the debt capacity of the sponsors (except if they would guarantee for concessionary's obligations with all their property).

There is a considerable difference between project and enterprise financing. While with project financing the servicing of obligations resulting from liabilities is ensured by project assets and cash

flow, in case of enterprise and on-balance sheet financing these obligations are covered by the assets and cash flow of the enterprise and not only by a single investment project. However, this is not true, if for the purpose of an investment project implementation a new enterprise would be set up. In such a case the value of recognized assets and liabilities would be equivalent for the enterprise as well as for the contractually segregated infrastructural project. When evaluating the economic acceptability of the infrastructural project feasibility, the key decision making factor for potential investors will be the calculation of the project long-term positive net cash flow. If a positive cash flow would not be ensured, the profitability of implementation or the project implementation should be guaranteed by the state or local community.

This financing technique can be used only when it is possible to structure single infrastructural projects in separate units and transfer them to a private concessionary by granting him a concession for operation and maintaining. We distinguish three basic forms of project financing: (i) non-recourse project financing; (ii) limited-recourse project financing and (iii) full-recourse project financing. With full-recourse form of project financing there is no off-balance sheet effect to the recognition of assets and obligations to liabilities.

Non-recourse project financing is a financing technique, where creditors and other investors have no direct or indirect access to project sponsors property ex voto, as they do not guarantee for the repayment of obligations with all their property, but only to the amount of paid-in capital or to the amount defined by contract. Therefore a future cash flow with a higher risk level requires a higher amount of guarantee or a bigger volume of equity capital, which represents the basic guarantee for repayment of obligations resulting from liabilities and a base for attaining a positive financial leverage. Financial construction of an investment project should be let known to potential investors in advance or they will not be able to come to a decision whether they find a project economically acceptable and whether the return on investment is proportional to the risk taken, while at the same time in unstable circumstances they would be exposed to a too big risk of bankruptcy. Things are utterly different in case of limited-recourse project financing where risks are allocated among individual contractors in such a way that a limited guarantee of project sponsors exists for the repayment of obligations resulting from liabilities, usually in form of guarantees or by setting aside a fixed amount of sponsor assets to a tutorship account. With this guarantee project sponsors or third parties acting upon their instructions bind themselves to pay a fixed amount to another party should their co-contractor fail to meet his obligations in due time. When the instrument of tutorship account is used as a form of guarantee, a sufficient amount of money must be remitted to the account for an eventual repayment of unsettled obligations resulting from the investment project.

We can distinguish another two forms of project financing: **1.** project financing with the segregation of investment project into an ad hoc founded project enterprise (Single Purpose Stock Company or Special Purpose Vehicle) and **2.** project financing with a contractual segregation of the investment project, which organisationally remains part of the sponsor as an legal entity, while in contracts (above all in credit contracts) limitations regarding the investor's access to sponsor assets are defined and all other legal relations are regulated. In project financing an entity of private law enters a concession relation with an entity of public law (state or local community). To protect public interest state or local government can limit the legal capacity of a concessionary to make new concession contracts and in this manner prevents the encumbrance of net cash flow with obligations resulting from other concession relations. Nevertheless, both project financing forms have their advantages and weaknesses. Limitation of project enterprise activity can usually lower the risk of contractual opportunism, but can not exclude it completely.

3. Bot form of project financing

A modern BOT form of project financing was developed in Turkey in the 1980s. It is most frequently employed in financing of capital-intensive cross-border projects. The main feature of this form of financing is a concession for the construction and maintenance of public infrastructure or other public service facilities granted by the host state, with the concessionary taking on the responsibility to provide all the missing financial resources and to transfer all rights of ownership resulting from the project back to the grantor after the expiration of the concession period without any additional transaction costs. This way the state or local community is able to transfer a part of responsibility for

financing, construction and maintenance of public infrastructure from public to private sector, with private co-contractors being given the possibility to maximize the rate of return on invested capital by increasing the operation efficiency [1]. The return on invested capital is unlimited upwards (unlimited up-side potential) and represents the most important motive for the participation of private investors in public infrastructure development. The objective of participants in project financing is to maximize their function of satisfaction. In order to attain this goal, a contractual balance, representing a Pareto optimum of contractual relations, must be re-established. To achieve this, a development project agreement is required, regulating contractual relations regarding: **1.** obligations and rights of project financing participants; **2.** provision of financial resources for the construction and maintenance of public infrastructure; **3.** allocation of financial, technical and technological, operational and other risks; **4.** measuring of the concessionary's operational efficiency and of the quality of public infrastructure maintenance in the operational phase period (problem of criteria determination); **5.** mode of reimbursement or fining the delays in project implementation; **6.** various aid forms given by co-contractors in case the opposite party fails to meet its obligations; **7.** the possibility to amend or modify the articles of agreement; **8.** circumstances and ways for expansion or dispossession of concession right; and (ix) the way of solving possible disputes among the participants of the concession relation.

The BOT form of project financing involves a temporary privatization of public infrastructure, therefore, before signing the concession agreement, the state or local community (principal) must carry out four analyses: **1.** analysis of public infrastructure and of the level of population provision with public services and goods; **2.** analysis of existing mechanisms of regulation; **3.** analysis of the relation of interest groups to the admission of private sector to public economic service operations; **4.** analysis of financial and other possibilities for the introduction of public-private partnership. In the opposite case, the missing consent of interest groups to the temporary privatization of public infrastructure could put the financial close or the investment project implementation at risk [2].

BOT financing technique is employed primarily in those economic activities, where prices of products or services are regulated by the state and for this reason the future cash flow can be anticipated with relative certainty. When this is not possible, the stability of sales revenues will have to be guaranteed by the state or local community. The latter is opposed by many who believe that through aid in different forms of guarantees, transfers and subsidies, an aid seeking line of economy (rent seeking industry) starts to grow and finances the X-inefficiency of the concessionary. This also answers the question why the incorporation of private sector into public provision services still does not guarantee greater efficiency in the provision of population with public goods.

4. The financial model

In the last years Slovenia is encountering growing road traffic (mostly transit) and ever sharper requests regarding the protection of space and environment that represent new requirements and opportunities by forming the Resolution on the National program of public railway infrastructure development (ReNPPRID). According to the proposal of the resolution, we divided the investment program, of which the realization was planned for the period between 2005 and 2020, to two parts, as follows: **1.** the development part, which includes investment into upgrading and enlarging of public railway infrastructure, and **2.** regular part, referring to implementation of public service and maintenance of existing infrastructure.[5] Since the regular part is going to be financed from the state budget, we will be focusing only on the financing of those infrastructure projects, that belong in the so called development part and promise considerable quality improvement of railway network and transport services.

The estimated value of investment from the developmental part of the proposal of the resolution amounts to 6.22 billion euros, taking into account fixed prices from 2005, with single projects sorted into four basic groups, as follows: **1.** upgrading of the existing railway infrastructure, **2.** new

[5] Taking into account the fixed prices from 2005, the new sum total investment value would be 9.19 billion €.

construction, **3.** construction of high velocity railway lines and (iv) project management and preparation of project and investment documentation (see Table 1)[6].

Table 1. The Investment Structure

	mill €	%
Upgrading of the existing railway infrastructure	1463	23,5
New construction	1879	30,2
High velocity railway lines construction	2300	36,9
Project management and preparation of project and investment documentation	584	9,4
Total	**6226**	**100,0**

4.1. Organizational viewpoint of the model

The financial model was planned by taking into consideration the present situation and long-term strategic starting-points for public railway infrastructure development as a BOT form of project financing. From the organisational point of view, the investment project is in most cases segregated as an ad hoc founded project enterprise, to which later a concession for the implementation and managing of a single project or complete investment program is granted by the state or local community.

The foundation of a project enterprise is logical, especially when hereby debt capacity and possibility for project implementation is increased. This was one of the reasons, why along with the development of this model, we anticipated a foundation of a segregated investment enterprise (special investment vehicle), whose founders should enter an international competition for concession activity. The selected concessionary, be it a private consortium or a private enterprise, would be offered a concession contract by the state as a grantor and market regulator. By signing it, the concessionary would contract the obligation to implement a single project or a complete investment program and to provide the missing financial resources. In this part of the concession relation, the role of a segregated investment enterprise is very important as it enables the transfer of private capital into the financial structure of the BOT project implementation. In order to diminish project risks, it is desired for the project enterprise to be organized as an equity joint venture, having the right to make an outsourcing contract.

Beside the foundation of a segregated investment enterprise, within the framework of this paper also a foundation of a segregated financial fund (special financial purpose vehicle) is suggested. This fund would manage the in-flowing means and the payment of annual availability compensations (availability payments) to the concessionary. The setting up of a segregated financial fund is logical, primarily to diminish the risk of contractual opportunism that could endanger the financial construction and implementation of the project [3]. The advantage of a segregated financial fund is displayed in the fact, that the state as the founder has access to all important information regarding fund managing and allocation control of financial resources, thus lowering the risk of information asymmetry and inadequate use of project resources [4]. The fund would also be responsible for checking the concessionary's right to the receipt of annual compensation and a correct use of project resources, what is of key importance for a successful implementation of planned investments. With regard to the within the framework of the paper anticipated different sources for the pay-out of concession payments, such as: revenues originating from usage fees**,** sources of cross-financing, budgetary funds, etc (see Table 2), the foundation of a segregated financial fund would also be important from the harmonizing the obligations of potential investors point of view, while the concessionary could focus primarily to the operative implementation of infrastructural projects.

[6] Taking into consideration the financial burden allocation of particular investment groups, the financially most demanding period from the point of view of the complete investment program implementation would be between 2011 and 2017, with the two most intensive investment phases in the field of new construction and construction of high velocity railway lines.

Table 2. Financial Fund Resource Structure Projection for the Pay-off of Concession Payments

	mill €	%
National budget funds	1910	28.7
Sources of cross-financing*	1590	23.9
Ecological taxes	660	9.9
Usage fees	2180	32.8
Revenues resulting from the marketing of other infrastructure	143	2.2
Other sources**	165	2.5
Total	**6649**	**100.0**

Notes: *(*) e.g. excise taxes, parking fees etc. (**) Lease of telecommunication capacities.*

4.2. Financial viewpoint of the model

The financial model cash flow simulation is based on the starting points of the preliminary study on the possible public railway infrastructure financing models in the Republic of Slovenia and program documentation of the Ministry of Transport. Taking into account the assumptions and limitations of railway infrastructure financing, the estimated value of the investment and the activation period, the cash flow simulation anticipates a concession period of 36 years, coinciding with the concession payment period between 2008 and 2040, during which concession payments will be effected from a segregated financial fund on a yearly basis. The pay-off of concession payments is frequently linked to the transfer of a long-term concession right to the use of railway infrastructure back to the grantor. However, this is not the case with the BOT project financing form as here the transfer of ownership rights is effected only after the expiration of the concession period with the exception of cases where the principal has the right to buy-back the infrastructure before the expiration of the concession period (early buy-back) or when they mutually agree to terminate the contract (early termination by negotiation). In project financing the timing of ownership rights transfer is very important, as in that moment the concessionary loses the right to control cash flow creating resources.

Taking into consideration the annual estimated values of investments from the program documentation, the projection of cash flow etc., between 2008 and 2040 the segregated financial fund should pay-off 6.65 billion euros of concession payments to a segregated investment enterprise. However, when employing this project financing technique, the potential investors must pay a great deal of attention to ensuring the efficiency of the received concession payments use or they will run the risk of the project enterprise over-indebtedness. That is why an important task of the segregated financial fund would be to control the use of financial resources. In addition to ensuring and managing the financial resources, the fund should also take care of the transparency and efficiency of use of the in-flowing resources. Another task of the segregated financial fund is to ensure the stability of project financing, which displays the fund's capability to substitute the loss of whichever of the resources, not allowing it to affect the fulfilment of contractual obligations to the concessionary. In the opposite case the loss of one of the resources could endanger the financial stability of the investment implementation, anticipated in the cash flow projection and according to which between 2005 and 2020 the segregated investment enterprise should ensure an additional sum of 2.13 billion euros (see Table 3) in order to bridge the difference between obligations and liabilities. Together with the state the enterprise should also apply for exploitation of EU funds in the amount of 1.54 billion euros.

Table 3. Investment Enterprise Cash Flow Projection from the Viewpoint of Concession Payments, EU Funds and Investment Value

	Investment value	Concession payments	EU funds	Difference
	(1)	(2)	(3)	(2)+(3)-(1)
Total, 2005-2020, mill €	6223	2554	1538	-2131
Total, 2005-2040, mill €	6223	6694	1538	2009

Taking into account the cash flow projection, financially the most demanding period for the segregated investment enterprise would be between 2014 and 2020. During this period it should cover

the total difference between the investment value and revenue resulting from concession payments as the exploitation of EU funds is anticipated only for the period of the next EU financial perspective 2007-2013. Since a successful implementation of project financing requires resources to refinance the obligations resulting from liabilities and to realize the return on capital invested by private investors, the model simulation anticipates a segregated investment enterprise that would be receiving concession payments until the expiration of concession period (i.e. to the year 2040), when it would, together with the segregated financial fund, cease to operate.

5. Conclusion

The financial model presented in this paper, is based on an organisational structure which enables a more optimal allocation of financial, technical and technological, operational and other risks that could jeopardize the financial close and implementation of the investment program. The main feature of this structure is the incorporation of three key participants: (i) state as the grantor of concession; (ii) a segregated investment enterprise whose private founders enter an international competition for the implementation and managing of the complete investment program and (iii) a segregated financial fund which in the time of concession period takes care of managing the in-flowing financial resources (budgetary resources, funds from cross-financing sources, ecological taxes, usage fees and funds from other sources) and for the annual availability payments to the concessionary, who will use them for the refinancing of obligations resulting from liabilities, including the payment of the requested profit rate on equity capital**,** invested by private investors.

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THE TOTAL FACTOR PRODUCTIVITY (TFP) OF THE TRADE SECTOR IN IRAN

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Abstract:

This article explores the important and effective components of the total factor productivity (Tfp) of the trade sector of Iran and estimates their effect in the recognized model by the annual data of the period of 1960-2004.

First, we have estimated the function of the producing sector of the commerce to calculate the total factor productivity (TFP). Then we have calculated the index of the total factor productivity (Tfp) on the basis of the part of the factors of the production in the section of the devebpment. And at last, we have explored the key and determining factors of the of the total factor productivity of the section in the model of the related model.

The results of this research show that the development of the capital stock per capita, the medium development the years of the education and the real exchange rate have the positive and meaningful effect on the total factor productivity, whereas the inflation rate has the negative and meaningful effect. It is important to say that the medium growth of the years of the education has the most positive effect on the total factor productivity (TFP) and the inflation rate has the most negative effect on the total factor productivity (TFp) of the section.

Key words: the total factor productivity human capital, the inflation rate, the real exchange rate, the section of commerce, Iran.

1. Introduction

The aim of this article is to explore the effective factors on the total factor productivity (TFP) of the commerce if Iran. In his study, the model of the total factor productivity in the commerce sector of Iran is explored on the basis of the theoretical fundamentals and the experimental evidences in the international and national level and also the examination and the analysis of the stylized facts of the commerce sector of Iran. About this subject, we emphasizes not only on the exploration of the effective factors on the total factor productivity abut also on the subject of the science and its role in the growth of the total factor productivity.

Today the section of the trading(1) as a producing and accelerating portion for the trend of the economical growth in every country, has the important role in the international economy by allocating the significant volume of the economical activities to it. By glancing at the different parts of the economy in the added value of the country in the last years, we see that the service section has allocated roughly half of the total added value of the country and the trade sector also has the significant part of the total added value of the country.

This section mainly acts as the facilitator of the running of the transportation of the goods and the services from the producer to the user. So if the effective factors on the total factor productivity are explored and if it is policy make on the basis of these discoveries, the perspective of the section helps property the dynamism of the total economy, therefore the increasing the productivity of the trade part leads to the increasing the total productivity of the economy.

2. Main text

The development of the economy is made by two ways: the individual growth of the producing part and the development of the mixed effect of the factors of the total factor productivity (TFP). In the last years, the fulfillment of the continuing economical growth for the total factor productivity has been taken consideration.

In this direction, the exploration of the key factors of the growth productivity in the economy or the sub sections of the economy including the trade section has the economy including the trade section has the tremendous importance.

The continual increase of the productivity while making the economical growth brings the other aims like the increasing the employment and decreasing the inflation. Searching and the studying on the data of the last years show that the situation of the productivity in the section of trade hasn't have

the suitable trend in regard to the other parts, so knowing the effective factors in the total factor productivity seem necessary for policy – making to promote the productivity of the trade part.

It is important to say that in the trade of the country of Malaysia, the share of total factor productivity in ensuring the production growth has been roughly 13 percent between the period of 1971 and has been 25/5 percent in the 1990's and researchers has anticipated that this will be raised to 42/5 percent in the period of 2001 – 2015(2). Whereas the total factor productivity has been faced with the negative growth in the recent decades in the trade of Iran and including the trade part (3). In the length of this period, the medium annual growth of the total factor productivity has been – 16 percent.

The structure of the continuation of this article is as following. The second part allocates to the theoretical fundamentals and the experimental evidences of this subject and the third part allocates to the methodology of the research. The forth part explains the emphasis of this model and its estimation and at last; the fifth part presents the adding up and the suggestions.

3. The theoretical fundamentals and the experimental evidences:

In the field of the development and the productivity, the tremendous studies concerning the productivity and the effective factors unit with the emphasis on the total factor productivity have been done that in this article, some of the most important studies are explored and analyzed yet we must soupy that although the analysis and the modeling to explore the factors of the total factor productivity in the literature of economy are the subjects that has the long precedence, most of the done studies in the relation with the total factor productivity have been related to the total area of the economy and the limited studies concerning the total factor productivity of the part of commerce have been done.

The total factor productivity calculates the tandem and effective usage of the factor of the production and also the degree of the participation of the growth of the technology in the development of the economy the total factor productivity in fact shows the usage of the effectiveness and the management of the resources materials and the production agencies in the production of the products (goods) and the services. The total factor productivity helps to making the product more from the area of strengthening the effectiveness resulting from the training the personnel , their skill, learning the management of the innovation, techniques and the modern technologies and the improvement of the organizational management.

Concerning to this matter that TFP (total factor productivity) is interpreted the remaining function of the production in the models of the developvnent, the resources of the total factor productivity are also affected by the structure of the function of the production and its theoretical fundamentals are also related to the theoretical fundamentals of the development and so in this section, first we examine shortly the theoretical fundamental of TF in relation with the production and the models of the development and in the continuation of this section, we consider the experimental studies in relation with this subject.

3.1. The theoretical fundamentals

In the primary models of the development of Harod (1948) and Domar (1947), the rate of the population growth among the determining parameters, and other factor weren't important and these models were completed by Solou (1965) and Swan (1956) on the basis of the physical capital.

As indicated before, the neoclassical models that were indicated firstly, totally attributed the economical growth to the accumulating of the physical capital and exogenous technological development and claimed that the slower the development of the population is and the higher level of technology and also higher the accumulations the human capital are, the higher the rate of the growth in the short term will be bout all of these patters admit that to attain to the growth of the constant and long term growth, we must add the technology development that develops with the exogenous rate, to this pattern, that then weak point of the exogenous models of the growth appears.

Because although that the technology in the theory of the neoclassical growth is one of the central fractions of the models, for this phenomenon hasn't been modeled, and the technological development in the model enters as exogenously and with the constant rate.

In one or two past decades, the theories of the macro economy have been concentrated on changing in the theories of the endogenous development that along it, the total factor productivity is

determined as endogenously and by the policies of the governments including the economical policies supervising the macro variables including the inflation, tax, etc.

Solou (1956) emphasizes in his model of the growth to the importance of the technology as one general goods in the improvement of the total factor productivity.

Denison (1961) examined the accounting of the growth for America and noticed that the production factors of the simple labor and the physical capital cant explain the economical growth of this country alone and another factor or the missed loops must be that can Justify the economical growth and at last that missed loop was named as the human capital.

Uzawa (1965) reformed the model of the neoclassical growth by adding the human capital. Although there is a different interpretation about the human capital in the aforesaid model, the human capital was crystallized in the labor and the only way to increasing the stock of the human capital was that the workers must be for from the production circle and allocated the free time to increasing their skills.

Arrow (1962) took the human capital as the storage of the knowledge that was hidden in the layout (like the technical or the scientific knowledge is available to the books).

In this model, the storage of the knowledge increases by increasing the asset of the physical capital of the agencies Becker (1964) and Lucas (1988) emphasize on the role of the human capital in the growth of the technology and divide the labor into two indices (labor on the basis of the labor hour or the simple labor and the human capital) and merit the role and the effect of the human capital on the development and the extension of the technology and at last the productivity. So the role of the government appears in making and improving the human capital more than before.

Lucas (1993) examined this theory for the countries of the eastern – south of Asia and took that as a big miracle. As the model of Lucas, the function of the production has been considered as following:

$$y = F(K, \mu Nh) \tag{1}$$

That in it is a part of the time of the labor that allocates to the production. The function of the production of the human capital is as following linear form:

$$\dot{h} = \sigma(1-\mu)h \tag{2}$$

The linearity of this function means that the constant value of the worked time to study, insures the constant rate of the accumulation of the human capital If the yield of the future studies is diminishing (i.e. the coefficient of his smaller than 1), so in this form, the capitalizing will be stopped in the human capital, because the yield of the spent extra time in the study isn't enough to compensate the lost product. If C is the usage in the per capita, NC will be the total usage. Also if the function of the utility is defined as following:

$$U = \int_0^{\infty} \frac{N}{1-\sigma}[C^{1-\sigma} - 1]e^{-\rho t}dt \tag{3}$$

The value of Hall – Hamiltonians (with one constant population) is measurable as following:

$$H = \frac{N}{1-\sigma}[C^{1-\sigma} - 1] + \theta_1[F(k, \mu Nh)] + \theta_2 \sigma h(1-\mu) \tag{4}$$

The condition of the first order is extracted as the relationships of 5 – 8:

$$C^{-\sigma} = \theta_1 \tag{5}$$

(6) $\dot{\theta}_1 = \rho\theta_1 - \theta_1 F_k$

(7) $\dot{\theta}_2 = \rho\theta_2 - \theta_1 F_2 \mu N - \theta_2 \sigma(1-\mu)$

(8) $\theta_1 F_2 Nh = \theta_2 \sigma h$

(9) $K = F(k, \mu Nh) - Nc$

(10) $\dot{h} = \sigma h(1-\mu)$

On the basis of the relationship (8), $\frac{\dot{\theta}_1}{\theta_1} = -\sigma\frac{\dot{C}}{C}$, but by substitution of the equation (7) in(6), the relationship of $\frac{\dot{\theta}_2}{\theta_2} = \rho - \sigma$ yields. So there isn't θ_2 = 0, i.e. there isnot the constant value for k, y, c or h. If there is one constant relationship, it is in the place of $\frac{\dot{\theta}_1}{\theta_1} = \frac{\dot{\theta}_2}{\theta_2}$, so $\frac{\dot{C}}{C} = \frac{\sigma-\rho}{\sigma}$. As long as σ > p, the usage of the per capita will develop in the constant rate in the long-term equilibrium. In fact, the production and the asset of the physical capital will develop in the rate of $\frac{\sigma-\rho}{\sigma}$. On the basis of the relationship (6), $F_k = \rho - \frac{\dot{\theta}_1}{\theta_1} = \sigma\rangle\rho$. So the rate of the capital yield is always more than the factor of the discount, and the person always incline to capitalize in the physical capital one way to interpret this result is that in this model, $\frac{\dot{K}}{K} = \frac{\dot{h}}{h}$ and the value of are always constant, and the proportion of the physical capital to the effective labor given in the production $\frac{K}{\mu Nh}$ is also constant. Therefore, because the effective labor in each period increases in relation with the linearity of the function of the production of the human capital, so the development of the asset of the physical asset lasts and the long-term of the development of per capita yields.

Because the rate of the growth is dependent on 6 (the determining parameter of the productivity of labor), the more effective the policy of the government in the field of the education is , more the rate of the development per capita increases in the long term.

Another key question is about the relationship between the real exchange rate and the productivity. The relationship between these two variables of the productivity as its primary form, taken as a exogenously in the productivity of the tradable sector by keeping the productivity of the non – tradable sector constantly causes to increase the real exchange rate . In this model, nothing said about the origin of the changes of the productivity.

Gradually, the relationship between the exchange rate and the productivity was expanded in the framework of the theories related to the total factor productivity in the form of the endogenous models of the growth. These theories in the models of AK, models of R & D or the models of the growth on the basis of the innovation, the theories of shoumpeter, and the changes of the technology with the high scale in the framework of the models of the development were analyzed.

The exchange rate affects on the growth and the productivity by the different channels. One of the equipments relates to the effects for demand. Decreasing the exchange rate by increasing the exports and by decreasing the imports results to increasing the production and the growth of the

economy, and its effect on the productivity by increasing the usage of the economical capacities with the constant agencies causes to increase the production and the trade

The physical capital in the neoclassical model has a much determining role in justifying the economical growth and is very important in justifying the resources of the development of TFP, because without the existence of the physical capital in this model, embodiment of the knowledge in the factor of the capital and the technological development will not have meaning. So that the human capital is taken as important resources of the growth of TFP thanks to expanding the function of the production by the skill of labor, the physical capital can be effective on TFP as one of the connecting bridges of the impact of the technological developments on the total factor productivity.

3.2. The experimental evidences

In this section, firstly the studies done in the international level and then the studies done in Iran are considered and evaluated.

Daniel Landau (1983) in his study in the title of the government and the economical growth in the developing countries, introduces the most important resources of the total factor productivity as the technology and the efficiency in the optimized productivity, by the usage of the function of the production that in that level of the real production, one function of the asset of the labor is the asset of the human capital and the physical capital and the total factor productivity.

The results of this study show that the expenditure of the government has the positive and the meaningful effect on the growth of GDP. So, because of the in – efficiency of this variable in the developing countries, the expenditure of the government can't have effect on the capitalizing in the education on the growth of the productivity and at last on the production.

Bean (1990) in one study in the title of the endogenous development and the periodic character of the productivity, attributes one part of the development, that isn't explained by the value of the physical factors of the production (remaining) to the factors like the growth of the technology and the human capital. The results of this study show that the human capital as one endogenous resource of the growth has a positive and meaningful effect on the development of the productivity and in effect on the economical growth of Britain in the period of 1855 – 1987. Also the temporary shock impulses bring the constant effects on the factors of the stimulus of the technology and lastly on the production.

Barow (1991) studies the important factors on the growth on the basis of the information and data of the 98 countries of the world in the period of 1960 – 85. Among the important variables, we can mention to the human capital and the conditions of the market place. In this framework and in the models of the growth, the important, key role of the human capital from the channel of the total factor productivity has effect on the economical growth. The important hypothesis of this study is that the countries with the higher asset of the human capital have the higher rate of the total factor productivity and in effect the faster growth. In these conditions, having more assets of the human capital is very effective in the change of the technology and the aforementioned countries could have leaded the technology in the world by this way.

Zoliu and khan (1996) in the study by the title of why is the economical growth of china such an accelerating?

Study the resources of the economical growth in china. That study shows that totally the participation of the factors of the physical capital and the human capital and the total factor productivity have had the determining role in the development of china. The human capital is among the effective factors on the total factor productivity, that plays role as the variables of the education, the extension of the hygiene and increasing the hope to the life.

Gora (1997) considers the effect of the different variables (including the asset of the human capital) on the growth. The results show that the extension of the human capital plays one important and sensitive role in the production. In this study, the effective factors on the private capitalizing and their effect on the growth are studied and analyzed by the aforementioned variable. Among the important variables considered, we can mention to the role of the real exchange rate and the percent of the change in the relationship of the exchange. The results of this study show that the improvement in the power of the competition (i.e., the variable of the real exchange rate) has one positive and meaningful effect on the growth.

Also, the effect of the change in the relationship of the exchange is positive and meaningful on the growth of the economy of Cameron.

Hajy and Goura (1996) in one study by the title of "the study of the growth in the desert of African", study the role of the variables including the technical development, accumulation of the human capital, constancy of the macro economy, the rate of the inflation and the exchange rate by usage of the modified problem of the model of solow – swan, that directly or indirectly affect on the growth of the African countries.

The results of this study show that the variables of the constancy of the macro economy have the positive and meaningful effect on the growth by affecting on the capitalizing and the productivity, and the economical growth has one high correlation with the decreasing the rate of the inflation, decreasing the value of the national money, the extension of the human capital and the decreasing of the rate of the population growth.

Also in the countries of the desert of Africa that the structural reform in them (like the improvement of the tax system) leads TFP increase the governmental incomes, has enabled the government to spend the high expense in the education and the hygiene that cause to expand the human capital, and in these courtiers , the effect of the variable of the human extension is positive and meaningful on the growth Strands (1999) used the method of the modeling VAR in studding the relationship between the real exchange rate and the productivity, and unlike the model of Bella Balassa – Samuelson, recognized the relation of the causality from the side of the real exchange rate toward the productivity.

Barrow (1991) takes the equality of the power of the buying (ppp) as one of the effective indexes on the productivity.

Coe, Helpman and Hoffmaister (1994) introduce the ways of the economical growth and the total factor productivity of the factors of the production in one study in the title of "the extension of the research and the extension corm the industrial countries to the developing countries." In this study, they emphasize on the role of three important effect of the asset of the capital of the research and the external extension (as the storage of the embodied knowledge in the trade composition) the degree of the opening of the economy and the human capital among the most important variables on the total factor productivity of the factors of the production in the seventy seven countries of the world. In these three factors, the variables including the changes of the exchange rate and the relationship of the exchange, the technological development, education have been hidden and these variables are among the important and effective factors affecting on the growth of the total economical yielding (total factor productivity).

The results of this study show that the returns and the benefits are very high from the developing countries in the fields of the research and the extension and it is apparent that the relationship of the exchange and the technological development is very important.

Moen and Raw (1999) introduce the technology, the relationship of the exchange and the change in the preferences as the most important resources in their study as the title of the resources of the growth of the productivity.

Miller and padyay (2000) have studied the effect of being opening, the orientation of the trade and the human capital on the total factor productivity, and the results show that the human capital has one positive effect on the productivity. Bitrous, panas (2001) has studied the effect of the total factor productivity on the industry of the factories of Greece.

And the results show that there is one negative relationship between the inflation and the total productivity.

Komeijani and shah Abadi (2002) show in their study in the title of "study of the effect of the internal and external activities of R&D (by the external trade on the total factor productivity that the recent theories of the economical growth customarily take the orientations of the innovations in the reaction to the economical motives as one major motor in the technological development and the growth of the productivity.

Safavi (2006) concludes by the study between the growth and the productivity and the trade orientation that the external business variables (including the index of the export extension) have the meaning full effect on the total factor productivity of the factors of the production in the industrial sector. In this study, the used model of the side of the supply and demand of the sector of the industry

and at the end that Khalesi (2005) take the asset of the capital per capita, the degree of the being open the economy, the rate of the inflation, index of the research and the extension and the structural changes in the country as the effective factors on the total factor productivity in the period of 1960 – 2004. the asset of the capital per capita, the degree of being open of the economy and the index of the research and the extension have the positive effect on the productivity and the rate of the inflation and the structural changes have the negative effect on the growth of the productivity.

The review of the theoretical fundamentals and the experimental evidences show that the key and effective variables on the growth of the productivity are the human capital, the physical capital, the rate of the inflation, the real exchange rate this conclusion will be basis of the modeling and the estimation.

4. Methodology

In the regard to this matter that the aim of the article is to explore and determine the value of the emphasis of the effective factors on the total factor productivity in the trade sector, In the first phase, we study the calculation of the growth of the TFP by the usage of the function of the production of cab – Doglass and in the second phase, our model that is consistent with the structure of the section, will be studied and analyzed.

One of the centers of the gravity of the new theories is the economical growth on the basis of the importance of the role of the knowledge and the learning in the development and the productivity. In this direction, co, Helpman, Hephmayster (1994) explain the general form of the function of the production of cab – Doglas by the assumption of the scale of the dynamic economy, the incomplete competition and the existence of the vertical and horizontal differentiation. This model is on the basis of the research and the extension that from the channel of the innovation, takes the growth of the productivity in addition to the physical agencies as the function of the storage of the knowledge and the variables dependent to the trade. The general form of this function is as following:

$$Y = AK^{\beta} L_Y^{\gamma} D^{1-\beta-\gamma}$$

(11)

And in the log form:

$$LogY = LogA + \beta LogK + \gamma LogL_Y + (1-\beta-\gamma)LogD$$

(12)

y is the production, A is the total productivity, LY is the labor that has been used directly to produce the end goods y , D is the index of CES from the middle agencies , K the factor of the capital, α, β, γ are the constant parameters that take the quantity between zero and one In the equilibrium:

$$D = n^{\left(\frac{1}{\epsilon-1}\right)} L_D$$

(13)

N is the numbers of the medium agencies availble, LD is the spent labor in production of the medium agencies, and $\in > 1$ is the elasticity of the substitution.

By substituting the equation (13) in the function of the production:

$$y = Ak^{\beta} L^{1-\beta} n^{\left[\frac{1-\beta-\gamma}{(\epsilon-1)}\right]}$$

(14)

In the log form:

$$LogY = LogA + \beta LogK + (1-\beta)LogL + \left(\frac{1-\beta-\gamma}{\in -1}\right)Logn$$

(15)

In the conditions that:

$L = L_y = L_D$

In this form:

$$LogTFP = LogA + \left[\frac{(1-\beta-\gamma)}{(\in -1)}\right] Logn \quad (16)$$

$$Y = AK^{\beta}L^{1-\beta} \quad (17)$$

That by linear zing it:

$$Log\,Y = LogA + \beta \log K + (1-\beta)\log L \quad (18)$$

So will have:

$$dLogY = dLogA + \beta dLogK + (1-\beta)dLogL \quad (19)$$

The total factor productivity (TFP) equals to that same of the residual factor of the Solow that is consistent with the index of Kendrick's TFP and so

$$TFP = \frac{Y_t}{Q_t} \quad (20)$$

Now, if we take the log of the equal sides and if we differentiate in proportion to the time:

$$\frac{d\ln TFP}{dt} = \frac{d\ln Y_t}{dt} - \frac{d\ln Q_t}{dt} \quad (21)$$

SO:

$$\frac{d\ln Q_t}{dt} = \alpha\frac{d\ln L_t}{dt} + (1-\alpha)\frac{d\ln K_t}{dt} \quad (22)$$

By substitution the relationship (22) in (21), the following equation yields:

$$\frac{d\ln TFP}{dt} = \frac{d\ln Y_t}{dt} - \alpha\frac{d\ln L_t}{dt} - (1-\alpha)\frac{d\ln K_t}{dt} \quad (23)$$

To calculate the TFP, It is necessary to estimate the coefficients; this requires estimating the function of the production. For it, the function of the production is defined as the labor per capita as in the following form

$$\frac{Y}{L} = A(\frac{K}{L})^{\beta} \quad (24)$$

5. The exploration and the estimation of the model

In the regard to the subject of this article the factors affecting on the total factor productivity in the commerce sector of the country include the human capital, the physical capital, the rate of the inflation, and the real exchange rate. In the regard to this matter that the economy of the country has been confronted with the different economical, political, military and social impulses, so the effects of these impulses have been analyzed in this model as the dummy (false) variables.

The medium of the years of the education has been chosen as one index of the human capital in the trade sector that has been taken as one index to calculate the value of accumulation of the human capital. To calculate the human capital, the formula of Brow and Li (1997) has been used and the incumbent workers have been taken as annually in the society in this calculation. In the regard to this matter that there aren't the statistics of the rate of the registration in the school or the separating educational costs for the trade sector, only the medium years of the education of the workers have been calculated in the trade sector and used in this model.

The calculation of the necessary statistics for the human capital has been done in two phases: In the first phase, the statistics of the census and house in the years of 1967, 1977, 1987, 1997 has been

used by the usage of the medium of the geometrical growth and the statistics of the years among the has been internalized on the basis of the different grades of the education. In the second phase, the medium years of the education of the workers have been calculated in the trade sector. On this basis, the medium of the years of the education of the workers on the sector provides the improvement and the increasing of the productivity of the factors of the production and at last, the factor has one positive effect on the total factor productivity.

The growth of the asset of the physical capital of per capita of the labor in the trade sector has been defined as the index of the physical capital of the sector. This variable affects on the total factor productivity in the trade sector by affecting on the scale of the production in the commerce activities by increasing the asset of the capital.

Increasing the rate of the inflation in the trade sector decreases the yield of the production by diverting in the allocation of the resources, and has the negative affect on the growth of the productivity of the sector. By dividing the added value of the trade sector to the current price to the added value of the trade sector to the constant price, the index of the implicit price and in effect the rate of the inflation of the sector have been calculated.

Because in the period of the past decades , the rate of the inflation has been bi – digits and accompanied with the high fluctuations, the evaluation of its effect on the total factor productivity (from this perspective) is very important(5), and at last in the regard to the near and close relationship of the activities of the trade sector with the fluctuations of the rate of the inflation, especially external trade , this variable has been evaluated as one other effective variable on the total factor productivity in the framework of the theoretical fundamentals as the experimental form. So, the model of the total factor productivity is explained as the following relationship:

$$TFP_g = f(k_g, P_g, H_g, RER) \quad (25)$$

TFPg is the total factor productivity, kg is the growth of the proportion (K/L) in the trade sector, Pg is the growth of the index of the implicit of the trade sector, Hg is the growth of the medium of the years of the education in the trade sector and RER is the real exchange rate.

The statistical data have been extracted from the formal references of the countries.

The source of the data of the added value of the trade sector , the index of the implicit price and the rate of the exchange have been extracted from the statistics of the central bank of the Islamic republic of Iran. The medium of the years of the education in the sector has been internalized on the basis of the statistics of the census and the house, and the statistics of the time series of the asset of the capital, and the employment in the sector have been taken from the statistics of the organization of the management and the programming (office of the macro economy).

In the regard to this matter that for the experimental test of the model, we use the date of the time series, so first the variables of the model must be tested from the perspective of the reliability. To this aim, the test of the united root for the all of the variables in the level by the test of prown (1989) has been done. The results of the test of the united root of the variables show that the all of the variables except the real exchange rate have one united root and so these variables in the level are unreliable, but the first difference of the reliable (Table 1).

Table 1. The results of the test of the united root of prown (1989)

The name of the variable	The result of the test	The name of the variable	The result of the test
Y	I(1)	Yg	I(0)
K	I(1)	Kg	I(0)
P	I(1)	Pg	I(0)
H	I(1)	Hg	I(0)
RER	I(0)		

In the first phase, in the regard to existence of the differentiation on the condition of the incomplete competence, and also that the differentiation in the activities of the trade sector is of

vertical king, the function of the production per capita has been estimated in the model of the function of the production of cab – Doglas and by the method of the estimation of Philips and Hensen as followings:

$$y = 1.84 + 0.36\ k \qquad (26)$$

(۴/۵۱) (۳/۴۹)

Y, k are the added value per capita and the asset of the capital per capita of the trade sector in the constant prices of the year 1998 respectively and the numbers inside the parentheses are sub – coefficient estimated of the values of t. So, on the basis of the results of the estimations, the share of the labor and the asset of the capital in the production of the trade sector are 0/64 and 0/36 respectively. Nevertheless, on the basis of these results, index of the total factor productivity is measurable. In the second phase, the model of the growth of the productivity in the trade sector that has been explored before is estimated. In the regard to this that all of the variables of the model of the total factor productivity are reliable, the method of estimation OLS has been used:

$n = 44$ $\quad \overline{R}^2 = 0.575$ $\quad s = 0.0522$

$\chi^2_{SC}(1) = 1.19\,[0.27]$ $\quad \chi^2_{FF}(1) = 1.45\,[0.23]$

$\chi^2_{N}(2) = 5.97\,[0.051]$ $\quad \chi^2_{ARCH}(1) = 0.68\,[0.41]$

(۲)

$$TFP_g = -0.76 + 0.24k_g - 0.26P_g + 0.43H_g + 0.09RER + 0.06D_{48-62} -$$

(-۲/۴۴) (۲/۱۱) (-۲/۲۵) (۲/۱۸) (۲/۳۳) (۲/۱۲)

$$0.18TB_{52} + 0.26TB_{62}$$

(-۲/۳۳) (۴/۲۰)

The results of the estimation of the model K are as following

Is the number of the observations usable in the model, R-2 is the modified coefficient of the determination. S is the standard error of the regression, x2sc is the statistic for self correlation of the remaining J sentence, X^2_{FF} is the statistic RESET for the test of the error of the recognition of the form of the function, x^2_N is the statistic of the test to being normal and x^2_{ARCH} is the statistic of the K test of the variance of the incompatibility of the false variable. D48-62 is the false variable that takes the quantity of 1 for the domain of the years indicated in the index, it takes the quantity of zero (0) for the other years. TB52 and TB62 have been defined for the outlier observations that take the quantity of one for the indicated years in the index and take the quantity of zero for the other years. These two variables have been added to the model to destroy the effect of the observations of the outlier on the basis of the remaining results of the estimated model. The numbers inside the parentheses are the values of t.

The results of the model show that all of the estimated coefficients are meaningful in the standard level of 5 from the perspective of the statistics, and also, their sign is consistent with the theoretical fundamentals.

It is important to say that the results of the model prove that the model of the problem of the self – correlation is not continuous and from the perspective of the subordinate frame of the model, the normality and the variance of the non – compatibility haven't any problem.

The results of the estimations prove that the growth of the asset of the capital, the growth of the human capital and the real exchange rate, total factor productivity have the meaningful effect. The role of the human capital is more important. Than two other variables. In this condition, the growth of the index of the implicit price of the trade sector (as the index of the inflation of the sector) has the negative effect on the total factor productivity.

6. Conclusion

The results and K the suggestions:

The findings of this research show that although the growth of the asset of the capital, the growth of the human capital and the real exchange rate have the positive and meaningful effect on the total factor productivity in the trade sector, the rate of the inflation has the negative and meaningful effect on the growth of the trade sector On the basis of the results of this study, the variables of the human capital and the rate of the inflation have and the most effect on the TFP in the trade sector.

In the regard to this matter that increasing the growth of the TFP of the trade sector leads to making the potential of the effective competition and to increase the effectiveness in the productivity of the factors of the production and the possibilities of the trade sector, so by referring to the findings of this research, the components effective on improving the quality of the human resource must be strengthened. This aim will be reinforced by continuing the policies of improving the potential of the education and the extension of the capitalizing in the education of the labor of the trade sector. Therefore, it is necessary to design the meaningful educational programs that are consistent with the practical, professional and educational needs and it must be performed. To increase the total factor productivity, the attraction of the human capital and the educated persons (especially the educated persons of the university) must be considered. Simultaneously. It is necessary to explore the researching needs of the trade sector in the radical, extensive and practical dimensions and must be performed by allocation of the distinct and clear budget and in the model of the short – term, medium – term and the long – term projects and in the frame works of the study programs. And by this method, the context of using the research findings will be provided by the human capital of workers and the effectiveness of the trade sector will be improved.

To help to the growth of the TFP in the trade sector, it is necessary to explore the channels of the production of the inflation in the sector and the growth of the general level of the prices in the national lever and then in the sector must be prevented. The inflation of the numbers of the agents between the production and the usage (including the wholesalers and the retailers) are among the factor that in the recent years has worked in the way of the growth of the general level of the prices in the trade sector of the country and it hasn't grown in consistent with the value of the economical need of the country in the national level and also in the regional level. The increase of the exchange rate and performing the expansive monetary policies that mainly result from performing the expansive financial policy, among the other factors that affect on the rate of the inflation. There fore government must pay attention to decrease the rate of the inflation for increasing the total factor productivity and must compile the effective package of the policy – making to attain the constant and low rate of the inflation and must withhold to adopt the contradictory policies that bring the inflation and consider the real exchange rate in the policy of the exchange rate by the aim of increasing the total factor productivity.

7. Footnotes:

1. The trade sector on the basis of the third edition of the classification ISIC includes the economical activities of the wholesaling, retailing, and the repair of the vehicles, and the private goods, goods of the homes, hotel, and restaurants.

2. ILO (2002)

3. For more in formation, refer to the economical report and supervision on the third program of the extension (2004).

4. If the agencies be in the horizontal form, i.e. the accumulating activities R&D cause the new agency, in this mode, D is the function with the constant substitution attraction (CES), symmetrical and with the substitution attraction higher than the unit $D = \left[\int_0^n x(j)\,dj\right]^{\frac{1}{a}}$, $0 < a < 1$, So if the agencies are differential and vertical form, the activities of R & D cause to improve the quality of the agency, i.e. the agencies are different from each other because of the quality. In this mode, D is considered as the form function of cab – Doglas and for the simplification, n = 1 is chosen.

5. It is important to say that the rate of the inflation was one – digit in the years before the first, oil impulse in the years of 1975, but its annual medium value in the period of 1961 – 1975 equals to 4/5 percent. This value is high in comparison to the rate of the inflation needed to the economical growth and increasing the productivity. The number is considered as experimental in the developed country in the domain of 1/5 – 2 percent.

6. The variable has been defined in the level on the basis of the logarithm.

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HOW REGULAR BUSINESS HAS BECOMES MOBILE BUSINESS? A MOBILE AGENT APPROACH

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Abstract

The age of static business and slow information flow, when most decision was based on day-or week-old data, has come to an end. Now new technology helps organisations provide a more agile, flexible approach to business that was not technologically available five years ago. As a result, organisations are paying more attentions to supporting business process with the ability to adapt to the dynamic environment.

This paper describes how the action of mobile agent enabled decision support in conjunction with the organisational trends, enables new practice in the field of e-Business. This is done to understand the magnitude of the e-business context problem and to suggest possible ways around the problem when building mobile agents. Therefore, a mobile agent approach is proposed in this paper to offer solution for mobile business and to manage complex business activities.

Key words: *mobile agent, mobile technologies, mobility, business*

1. Introduction

With the availability of improved wireless devices, better software, and broadening global-wireless infrastructure, companies world-wide are urgently pursuing mobile capabilities. Real-time adaptive processes are becoming the norm, and deploying mobile-business infrastructure is now essential for cost cutting and increasing employee productivity.

In short, the business world has become mobile. Mobile agents are currently a hot topic in the domain of e-business. Mobile agent technology can help to design innovative solutions in this domain by complementing other approaches, and improved network and data-management possibilities. In this paper we describe briefly a system that uses mobile agents to support mobile business for mobile computers.

An agent is a program that is autonomous enough to act independently even when the user or application that launched it is not available to provide guidance and handle errors. According to the specialists' opinion, the intelligent agents represent a new type of logicians, specialized. Taking into consideration their multiple abilities in progress, we can assert that the intelligent agents will constitute one of the most attractive business opportunities [Wang, (2004), pp. 11].

A mobile agent is an intelligent agent that can move through a heterogeneous network under its own control, migrating from host to host and interacting with other agents and resources on each, typically returning to its home site when its task is done [Steffen, (2002), pp. 10]. From a conceptual standpoint such mobile agents can also be regarded as itinerant, dynamic, wandering, roaming, or migrant. The rationale for mobility is the improved performance that can sometimes be achieved by moving the agent closer to the service available on the new host. From example, if an agent wants to obtain information from several sources on different platforms, it could sent information requests to each of the platforms using the equivalent of a remote procedure call. However, if the volume of information exchanged with the remote site is large, issues of traffic and bandwidth must be considered. Also, the agent might be able to process the remote data more effectively than those services offered at the remote site. In either or both of these cases, relocating the agent to each of the various platforms could be a more efficient way of processing.

We argue that mobile agent are a good paradigm for the context of mobile business and an excellent paradigm when mobile computers are involved.

2. How Regular Business has Becomes Mobile Business

In the business world, the e-business notion together with the notion of business intelligence and mobile business, are familiar terms, and already known by everybody. All these new technologies

represent a new way to manage through electronic interconnection in an efficient and innovative way. Two key technologies, the Internet/Web and mobile communications, are transforming the way we contact business. Over the past few years, there is a tremendous effort in developing appropriate business models and technologies that will utilize these new technologies for business. Most of the current approaches work well with only one of the two.

The ability to manage employee time and expense data quickly in this fast-paced age of increasing mobility is critical. In this context, mobile workers are constantly on the move-and moving faster than ever-to provide more services, make more contacts, and generate more revenue. To do any less would give the competition an unfair advantage. A natural result of this increased mobility is a greater difficulty to keep track of employee working times and expenses.

This is particularly the case at the companies with limited infrastructure in place to record information from the field, integrate it with main IT systems and send data back to mobile workers. Too often, excess time is spent on administrate tasks, the quality of data is poor, and customer service suffers.

Healthy business depends on the regular receipt of critical data from the field and its input into back-end financial and human resources systems. It is vital that these processes run smoothly and efficiently, all the time.

The Mobile technologies offer opportunities and benefits to business through some devices (cell phones, PDA-personal digital assistant, pocket PC, laptops, digital projectors, IRV/voice portals, smart phones) which support a variety of interfaces and specific accessories. The increased use of the mobile technology led to the growth of mobile solutions demand and to their integration into the business processes. In this way, we can show a series of elements which competed into the transformation of the usual business into a mobile one:

- synchronized access, in real time to data, rates and information in the company;
- an efficient management of meetings, calendar, business contracts, folders;
- the reduction of the operational costs;
- selling efficiency due to mobile access at any time and place;
- applications can be easily and rapidly accessed no matter the space or time using a corresponding mobile device;
- the mobile applications offer the possibility to accomplish offline transactions and to synchronize them later.

Businesses must accelerate the flow of information, analysis and decision making in order to be more responsive to fast-moving events. This business requirement will drive the augmentation of schedule-based technologies with event-based technologies – i.e., event-based business intelligence [Lawton, (2006), pp. 5]. Business intelligence solutions typically offer the ability to analyze quantitative data and produce information that monitors business performance. The analyses may be summaries or drill downs that present details on subsets of data.

More broadly, business intelligence can include any information, such as articles and reports, that offers insights into an industry or company. Usually, quantitative data and text information are considered separately, but now quantitative analysis is being paired with information in text form to achieve a deeper understanding than either can provide alone.

3. Related Research

Research within agent-technologies usually explore different lab related studies regarding how to cope with the vast information overflow, using mobile agents mainly based on different rules-based mechanism.

Mobile agents are an effective choice for many applications, for several reason, Lange and Oshima, including improvements in latency and bandwidth of client-server applications and reducing vulnerability to network disconnection. Although not all applications will need mobile agents, many other applications will find mobile agents the most effective implementation technique for all part of their tasks. [Lange, (1999), pp. 4].

Kotz D. and Gray R. notes that “we believe that current trends in Internet technology and usage lead to the use of mobile agents, several technical and non-technical hurdles must be addressed along

the way. These hurdles represent significant but not insurmountable challenges ….". [Kotz, (1999), pp. 3].

Many researchers extend the mobile-code concept to the mobile objects, in which an object (code and data) are moved from one host to another. The mobile-agent abstraction extend this notion further, by moving code, data, and a thread from one host to another. [Alagar, (2004), pp.1; Odell, (2005), pp.8]

Others have specifically suggested using mobile agents in mobile-computing environments. Samaras, Evripidou and Pitoura propose a framework for agents to interact with heterogeneous mobile database, but they focus on database consistency issues more than communication and transport issues. Mobile agents provide an efficient platform for distributed dynamic processing which works equally well with both the fixed and wireless networks [Samaras, (2000), pp. 9].

Recently there are many mobile agent systems based on several slightly different semantics for mobility, security and communication. Researchers now needs to begin to distil the best of these ideas from all of the proposed approaches and identify the situations where those approaches best apply.

4. Mobile Agent Action. Case Study

Along the years many toolkits with mobile agent have been developed, even if this thing was implied a great research volume done by the software developers due to an increased lack of co-ordination among similar projects. The same area specialty literature faces different interpretations of the basic concept for the mobile agents. For instance:

- What a mobile agent should do from the program developer's point of view: to implement a certain type object which should define several basic functions for the mobile agents such as: the communication and the migration, or to use any series-type object?
- What level of communication is necessary: a simple one among the agents that belong to the same agency or a complex one that allows long distance communication?
- What security level is necessary: one which protects the hosts against some malicious agents, or one which should protect the agents also against the malicious agencies?
- What kind of mobility is necessary?

Sometimes even the most general research idea cannot be applied for another toolkit by the mobile agents because of the differences between the basics concepts. Another obstacle is the number of different protocols of migration which exist nowadays. With the exception of two toolkits (Aglets and Grasshopper) that support the emigration protocol MASIF suggested as standard, it is practically impossible to make two toolkits interoperational.

4.1. Background

In operation with the implementing of the great number of prototypes, few of these have been developed as mobile toolkits which could be used as applications on an industrial level. There are developed as monolithically systems, with a great number of functions and they are difficult to make configuration and usage. It is almost impossible to modify and extend such systems to use them successfully in any type of scenario of software application.

To solve this situation, one of the most important challenges was that through Tracy project to develop a new model of architecture as basic for other mobile toolkits. In the same way Tracy can be adapted for domains of diverse applications.

One can make Tracy configuration on software specifications and hardware also. If a certain plug-in is not necessary, one can skip this. In this way the quantity of necessary resources to rule an agency is diminished. The Tracy architecture offers support to place a mobile agent on other devices, because the services that are not necessary can be taken out while working. The code reusing is also supported. Tracy offers the following plug-ins in the basic configuration:

- Agency Shell – to communicate towards an agency through a textual interface;
- Agent Launcher - to start the agents automatically during the Tracy working process;
- Domain Manager - to create a logical network of agencies, in which the agents can communicate with the similar agencies;
- Message - for inter-agencies communication;
- Migration / for the agents mobility, using the Kalong component;
- Place – for the agents to know their working environment;

- Survival – to start the agents at a certain time span.

4.2. Case description

In this section we shell present examples of Tracy agents to show which interface should be implemented and which methods should an agent provide in order to be executed as a Tracy agency. Our study case consider an independent travelling salesperson carries a laptop when visiting customers and uses software that helps to select vendors and products and to place orders. Agents represent orders and travel to the corporation's computers where they interact with billing, inventory, and shipping agents to arrange for the purchase. Agents are also used to explore vendor catalogues and search for products that meet the customer's needs.

Using mobile agent application, mobile employees can enter data about work performed, business trips, and related expenses into a laptop and upload it later to main system. This mobile solution provides efficiency and data accuracy and it accelerates complex processes in areas such billing and financial accounting.

For the proposed study case the following two plug-ins are used: Survival – used by an agent to program its execution and Agency Shell – used by an agent to send messages to the user it upholds.

Next we consider that both plug-ins have been correctly installed (their JAR folders are stocked in the plug-ins directory and the Agency Shell plug in has been configured upon the previous instructions.

The Tracy agents need to implement the java.lang.Runnable interface which is basic interface for JDK and which defines only a run method, without parameters and returned value. This is the only interface that any stationary agent soft can implement. In Tracy we cannot distinguish differences among types or classes of agents as in other toolkits by the mobile agents. Tracy does not define commune classes for the software agents which provide access methods to services. If we want to programmer mobile agents, the Agent class should implement the interface java.io.Serializable which ensures that the agent object can be transferred in a stream.

Now let's enter into further details to start an agent. After the agent's class has been initiated, the agent's execution will be done through the run method. As the software agents are active and work autonomously, each agent is attributed a control thread from the thread group. An agent is not at the same level with the thread, does not passes the same thread for its life duration, but it is executed as thread as long as it is active. After the run method has been finished, the agent could close or pass in the waiting condition.

The two conditions, running and waiting, but also the way in which they change are important things to be known about the agent's life cycle. After the run method of the agent which finished the execution, the agency should determine if the agent is set in waiting condition or not, after that it can be deleted from the agency. The rule is very simple: if the agent is registered by a service, then the agent is set in the waiting condition, otherwise it is deleted immediately. When the agent is in the waiting condition it is just a passive object which waits to be active again. Because it does not need an active tread of control in this condition, the thread is given back to the thread group and can be reused to execute other agents. The reason for which thread groups are used in the performance because the developing of a new thread is difficult to accomplish in JavaRM.

The run method is the only obligatory method which the agents class need to implement. It defines the agent's behavior, this means the complex control of the flux inside the agent's thread. So this method is the only starting point for the agent. In Tracy the agents are usually started several times along their existence. This thing makes it special from other toolkits of mobile agents where the main method of the agent is called just once. In Tracy an agent exchanges frequently the running and waiting conditions.

5. Concluding Remarks

The success or the failure of an organization depends on its ability to incorporate the new concepts, to assimilate the advanced technologies from e-business, business intelligence, mobile business, and to obtain advantages from the evolution of the whole: processes- the information technology.

There is a stronger case for the use of the mobile agents in many mobile business applications. Moreover, there is a clear evolutionary path that will take us from current technology to widespread use of mobile code and agents within the next years. Once several technical challenges have been met, and more and more sites install mobile agent technology, use of mobile agents in a business context will expand rapidly.

Mobile agents offers solutions to help companies for extend their existing applications beyond traditional way to make business, so they can reach any user, anytime, anywhere. Applications of mobile agent can provide the answer for companies that use mobile technologies and seek to support mobile business.

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BRINGING E-BUSINESS TO RURAL REGIONS THROUGH TELECENTRE NETWORKS

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Abstract*:*

In the present paper, I am trying to emphasize that telecentres – despite the difficulties they are facing due to last years' technological changes – could still be helpful in promoting the principles of the Lisbon Agenda. They could provide access to ICT in rural regions with underdeveloped and remote infrastructure, thus integrating relatively isolated communities into national and international information networks. They could be means of regional and / or rural economic development by transferring expertise in a number of areas, such as agriculture or rural tourism to and from the community. They could also improve the degree of local employment by offering teleworking opportunities.

Last, but not least they could support the training of local people by using eLearning techniques, pointing out new regional trajectories to the knowledge economy. Telecentres could play an important role in establishing knowledge society and in reducing the „digital divide" that still exists between different EU-regions. My paper starts by presenting some basic ideas, such as telecentres and their role in rural development, it goes on with a brief overview of the role which telecenter networks could play in the new European informational landscape and it ends with a presentation of the case of Romania.

Keywords: Telecentre, Community Informatics, Regional Economics, Rural Development, Knowledge Society

1. Introduction

The advancements in technology and the symbiosis of information and telecommunications technologies have facilitated the emergence of radical changes in society, which lead to the appearance of the so-called "Information Age". Many specialists agree that this is the beginning of a new era, in which information has supplanted capital as the key resource.

The phenomenon is spreading rapidly and globalizing society – that means that historical barriers previously imposed by location time and social difference have been eliminated, allowing the access and transmission of information worldwide on a real time basis.

The benefits generated by this "New Industrial Revolution" may not be advantageous for the whole society; some areas of the world's population are unable yet to share its benefits. Developing countries and isolated and rural regions of more developed nations as well may find it difficult to join the information age.

The problem is that of the "Digital Divide", a term that has evolved to describe the gap in access to information available to those described as the "information poor" and the "information rich". Some individuals or organizations in small, remote and/or rural communities may not be able to afford the costs involved by purchasing equipment or by maintaining access to the Internet. In such places could play telecentres a capital role, by providing free or, at least, cheap Internet access, by transferring information in specific areas (agriculture, rural tourism), and by providing training and working opportunities through e-learning and e-working facilities.

2. Telecentres

A *telecentre* is a public place where people can access computers, the Internet, and other digital technologies that enable them to gather information, create, learn, and communicate with others while they develop essential 21st-century digital skills. While each telecentre is different, their common focus is on the use of digital technologies to support community, economic, educational, and social development – reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities, and reaching out to youth. [Wikipedia, (2008)].

We have to make the difference between universal service (e.g. one Internet-connection to one household) and universal access (e.g. one Internet-connection at a reasonable distance). The second one, which implies the idea of sharing a connection, is a main characteristic of a telecentre.

Telecentres have to be strategically located, providing public access to ICT-based services and applications, being typically equipped with some combination of: telecommunication services, office equipment, multimedia hardware and software, meeting spaces for local business or community use, training, and so on.

To classify telecentres, we can proceed by using some variables, such as: flexibility of services, relevance of information materials, starting-up of centers, degree of networking, financing possibilities, evaluation methods. By using these parameters, we can establish some dichotomic categorization of telecenters [3]: narrow focus – multipurpose, community based – establishment based, thematic – universal, independent – networked, profit oriented / commercial / fee-based – service oriented / free, publicly funded – privately funded, urban – rural.

Telecentres exists in many places around the World, serving different communities, implementing diverse organizational models. These models are not exclusive, since some telecentres are in fact hybrid versions of two or even more different types. A quasi-classical typology distinguishes between [4]:

- Basic Telecentre – generally located in rural or marginalized areas, where the population has limited access to communication and other services;
- Telecentre Franchise – a series of inter-connected telecentres, which are centrally coordinated but independently owned and operated, with the local private sector or the government funding the first stage of implementation and providing some technical support;
- Civic Telecentre – located in civic institutions which has started to offer public access to their computers and Internet connections, limited services by the priority given to the primary activities of the host organizations;
- Cybercafe – which can be a commercial Internet café, usually located in tourist areas and affluent neighborhoods in many cities, or so-called democratic cybercafes including those that offer preferential rates or services to community or local organizations;
- Multipurpose Community Telecentre (MCT) – offers more than basic ICT services, focusing on specialized applications such as tele-medicine and tele-education, postal and banking services, tele-trading, rental of virtual offices, vocational training courses and support to SMEs often having, in addition, specialized equipment for applications such as videoconferencing or telemedicine.
- Phone shop – generally limits its services to public telephone access.

In spite of their very differences, one can find some common characteristics of telecentres and trace some key trends in this regard [5]:

- services provided by telecentres vary according to the degree of development of the country;
- limited content on the Internet relevant to the needs of rural users in developing countries;
- examples of e-commerce applications in telecentres, especially in rural regions, are limited to date, but the development of Internet-based transactional services is coming more into focus;
- telecentres are mostly set up by: international, national and educational organizations;
- experience on sustainability of telecentres in developing countries is very limited, as most of the projects are recent;
- ownership: while telecentres vary in many aspects, one common characteristic is that they are virtually all initiated by development agencies and run by local NGOs.

3. E-Business

Electronic Business may be defined broadly as any business process that relies on an automated information system, done nowadays mostly with Web-based technologies. The term “e-business” was coined by Lou Gerstner, CEO of IBM [1].

E-business methods enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers. E-business means much more than just e-commerce: while e-business refers to more strategic focus with an emphasis on the functions that occur using electronic capabilities, e-commerce is a subset of an overall e-business strategy.

E-commerce seeks to add revenue streams using the Internet, especially the World Wide Web, to build and enhance relationships with clients and partners, often involving the application of knowledge management systems. E-business involves business processes spanning the entire value

chain: electronic purchasing and supply chain management, processing orders electronically, handling customer service, and cooperating with business partners.

Special technical standards for e-business facilitate the exchange of data between companies and specific software solutions allow the integration of intra and inter firm business processes. Consequently, the technical background has to be based on some network techniques, such as: the World Wide Web, the Internet, intranets, extranets, or some combination of these.

E-Business applications are usually divided into three main categories, each containing several branches:

1. **Internal Business Systems:**

- Customer Relationship Management: concepts used by companies to manage their relationships with customers, including the capture, storage and analysis of customer information;
- Enterprise Resource Planning: systems which integrate all data and processes of an organization into a unified system, often by using a unified database to store data for the various system modules;
- Document Management Systems: a computer system (or set of computer programs) used to track and store electronic documents and/or images of paper documents;
- Human Resources Management: a strategic and coherent approach to the management of the people working in the organization, who individually and collectively contribute to the achievement of the objectives of the business.

2. **Enterprise communication and collaboration:**

- VoIP (Voice over Internet Protocol): routing of voice conversations over the Internet or through any other IP-based network;
- Content Management System: a software system including computer files, image media, audio files, electronic documents, web content and making them available inter-office, as well as over the web, including also archival facilities;
- e-Mail: a store and forward method of composing, sending, storing, and receiving messages over electronic communication systems;
- Voice Mail: a centralized system of managing telephone messages for a large group of people;
- Web Conferencing: live meetings or presentations over the Internet.

3. **Electronic Commerce – business-to-business (B2B) or business-to-consumer (B2C):**

- Internet Shopping: the process consumers go through to purchase products or services over the Internet;
- Supply Chain Management: the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible;
- Online Marketing: the practice of using all facets of Internet advertising to generate a response from your audience by tying together both the creative and technical aspects of the Internet, including design, development, advertising and marketing.

An e-business model is defined as the organization of product, service and information flows, and the source of revenues and benefits for suppliers and customers by using the online presence. The most frequently adopted e-business models are:

- E-shops,
- E-procurement,
- E-malls
- E-auctions,
- Virtual Communities,
- Collaboration Platforms,
- Third-party Marketplaces,
- Value-chain Integrators,
- Value-chain Service Providers,

- Information Brokerage.

From the point of view of the parties involved in the e-business relation, one can classify them into the following categories:

- business-to-business (B2B),
- business-to-consumer (B2C),
- business-to-employee (B2E),
- business-to-government (B2G),
- government-to-business (G2B),
- government-to-government (G2G),
- government-to-citizen (G2C),
- consumer-to-consumer (C2C),
- consumer-to-business (C2B).

4. Community Informatics

The Okinawa Charter on Global Information Society [6] stipulates that: "The essence of the IT-driven economic and social transformation is its power to help individuals and societies to use knowledge and ideas… [It] better enables people to fulfil their potential and realise their aspirations… [It] serves the mutually supportive goals of creating sustainable economic growth, enhancing the public welfare, and fostering social cohesion... everyone, everywhere should be enabled to participate in and no one should be excluded from the benefits of the global information society."

One way to achieve these goals is by using the benefits of *community informatics*, which refers to an emerging set of principles and practices concerned with the use of information and communication technology (ICT), in conjunction with community development and other social academic and practice areas, for the personal, social, cultural or economic development of and within communities [1].

Telecentres are being introduced as tools to support development efforts that may help to bridge knowledge, social and economic gaps, frequently characterized as a widening chasm between the 'information rich' and 'information poor'. In order to delineate the role of telecentres in sustaining local / rural communities, one can distinguish numerous ways to address their economic and social development purpose [7]:

- develop rural and remote infrastructure and provide access to infrastructure, technology support and advice for the development of businesses;
- promote diffusion of usage and knowledge of ICT, provide and expand access to ICT-based services, with special regards to ICT-related business services;
- provide rural regions with better public services and improved local administration, provide information of general interest to the local community, including government information;
- transfer expertise in a number of areas, such as agriculture, to and from the community by providing information of special interest to specific groups such as farmers, local businesses and non-governmental organizations (NGOs);
- generate employment and foster socio-economic development by training local people, by offering teleworking opportunities and by giving local producers access to market information, thus reducing the need for middlemen and increasing rural incomes;
- extend the reach of public services such as education, health and social services;
- create regional cohesion by integrating relatively isolated communities into the national and international information network and thus accelerate exchange of private goods and services.

To date, there is a growing body of knowledge on how to plan and implement telecentres, as well as documented case studies, but we are only now beginning to consider the difficulty of evaluating their impact.

There is a quasi-unanimous consensus, that ICTs have a positive effect on sustainable development, but in reality it is pretty hard to evaluate their real impact on it.

The United Nations Commission on Science and Technology for Development (UNCSTD) which spent years to investigate the benefits and risks of ICTs found that "… there are many instances where the use of ICTs is bringing widespread social and economic benefits. However, there are as

many instances where ICTs are making no difference to the lives of people in developing countries or are even having harmful effects." [8]

It is also difficult to quantify efficiency, or even success of a telecentre. The four main issues constantly arising are: policy, partners, participation and planning – the so called 4P that can be translated into sustainability for the development circles. Some parameters to measure the success of telecentres in a given region could include:

- financial sustainability;
- telecentre performance monitoring;
- user satisfaction monitoring;
- benchmarking based on best models.

5. Information Society and the European Union

"The transition to a digital knowledge-based economy is set to be a powerful factor for growth, competitiveness and job creation. It will also help improve people's quality of life and protect the environment. In order to create this 'information society for all', in 1999 the Commission launched the eEurope initiative, an ambitious programme aimed at making information technologies as widespread as possible."

This stays written in the preamble of the paper called: *eEurope - An information society for all* [9], document which precedes a whole series of related ones: *eEurope 2002 Action Plan* [10], *eEurope 2003+ A Co-operative effort by the Candidate Countries to implement the Information Society in Europe* [11], *eEurope 2005 Action Plan* [12], *i2010: Information Society and the media working towards growth and jobs* [13].

These documents constitute the fundamentals of the so-called Lisbon Strategy, that points out the directions to be followed by the member states in establishing the 21st century knowledge society. Let us see some of them, as they are stipulated in the European Commission's new strategic framework: *i2010*:

- to establish a Single European Information Space by offering affordable and secure high-bandwidth communications, rich and diverse content and digital services;
- to boost innovation and investment in ICT research, by encouraging world-class performance in research and innovation in ICT and close the gap with Europe's leading competitors;
- to boost social, economic and territorial cohesion by establishing an inclusive European information society, to promote growth and jobs in a manner that is consistent with sustainable development and that prioritises better public services and quality of life, establish an inclusive information society, offering high-quality public services and improving quality of life;
- to develop proposals and update the regulatory frameworks for electronic communications, and information society and media services, to use the Community's financial instruments to stimulate investment in strategic research and to overcome bottlenecks obstructing widespread ICT innovation, to support policies to address inclusion and quality of life.

Through the National Reform Programmes, member states, have committed themselves to adopting information society priorities in line with the Integrated Guidelines for growth and jobs by mid October 2005. They aim to:

- ensure rapid and thorough transposition of the new regulatory frameworks affecting digital convergence with an emphasis on open and competitive markets;
- increase the share of ICT research in national spending to develop modern, interoperable ICT-enabled public services;
- use investment to encourage innovation in the ICT sector;
- adopt ambitious targets for developing the information society at national level.

The Commission will ask other stakeholders to take part in dialogue in support of developing the information society. To ensure that all stakeholders are involved, the Commission proposes using the open method of coordination, which includes an exchange of good practices and annual implementation reports in respect of the Lisbon objectives.

6. Telecentres in Romania

According to our typology, the Romanian implementation of the telecentre concept is situated between the Civic and the Multipurpose Community Telecentre types, being characterized by [14]:

- having public utility, offering its services to all members of the community, without any discrimination of any kind;
- being multifunctional, offering services of quality, permanently adapted to the needs of the community;
- being a forum and a catalyst of the community, acting in a responsible way;
- promotes and operates modern ICTs and learning skills.

In the year 2000, the Hygeia Foundation and the CREST Resource Center, both from Satu Mare, initiated the program called: "The Telecenter – Heart of Community", in partnership with the Sequoia Association – France and the Rural Assistance Center, in order to assist the economic, social and cultural development of the beneficiary communities through founding and operating of telecentres. CREST is coordinating / assisting the activity of most telecentres in the North-Western region of Romania.

A similar role is played in the South-Western part of the country by the Center for Rural Assistance in Timişoara. An intense network building is done in the South-Eastern part of Transilvania through the efforts of the Harghita Network, co-ordinated by the Youth Council of the Ciuc Region.

There also are some few telecentres in the Southern part of Moldova, thanks to the US Agency for International Development which funded the Romania Information Technology Initiative: dot-GOV [15]. These are aimed to serve 12000 people [16].

7. The Knowledge Economy Project

Installing telecenters, as part of its strategy of implementing universal servise, was a priority of the Romanian Government since 2004 [17], which considered that these represent efficient means of preventing the social exclusion phenomenon.

Thus the Ministry of Communications and Information Technology (MCIT) has applied for a loan from the World Bank for financing the ***Knowledge Economy Project*** (KEP) [18], which will support the establishment of over 200 Local Communities e-Networks (LCeNs), offering them services and technologies, including computers, Internet-access, communication services and specific content provision for different target groups (business, youth) in rural and small urban communities, in remote and disadvantaged areas.

LCeNs are built according to each community's needs and assures broadband access to schools, mayoralties, public libraries, companies that develops their activity in the local communities, non-governmental organizations, as well as to the general public.

The main LCeN component is the *Point of Public Access to Information* (PPAI), which combines two essential functions for the community: unlimited access to knowledge for all citizens and increased economic competition of the local business environment. This will lead to several advantages for the local communities:

- modern communication services (including e-mail, internet, telephone, fax, etc);
- support for business and community development;
- improvement of education (in schools) for children and youths;
- guaranteed access to information for all citizens and business in local communities;
- getting acquainted with computer and new technologies using;
- low costs access to electronic services of the local administration.

The project has the following components and subcomponents, most of them having a more or less direct impact on the development of e-business:

Component 1. Access to ICT in Knowledge Disadvantaged Communities and Improved Digital Literacy

Subcomponent 1.1. Improving Access by Establishing Local Community e-Networks –LCeNs

Subcomponent 1.2. Development of local community human resources

Subcomponent 1.3. Implementation of ICT in schools

Component 2. Development and promotion of government e-services

Subcomponent 2.1. Gateway for on-line registration and authorizations of local businesses
Subcomponent 2.2. Integrated network for civil status information and documents
Component 3. Promotion of e-commerce and innovation support for SMEs
Subcomponent 3.1. Portal for promotion of e-commerce and business networking
Subcomponent 3.2. Grant Facility Program

8. Conclusion

After 1989 Romania has made serious attempts to reduce the digital gap from between it and the Western countries. It was the combined effort of government, economic actors and NGOs.

One of the means used in achieving this ambitious goal is the establishing of a nationwide network of telecentres. Beneath other (social, educational, etc.) effects they could significantly contribute to the enhancement of the rural business atmosphere and the regional sustainable development.

Despite the difficulties they are facing due to last years' technological changes, especially the rise and rapid spread of mobile / wireless technologies, telecentres could still be helpful in promoting the principles of the Lisbon Agenda, by contributing to the building of a Single European Information Space through a knowledge-based society.

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THE PROCESS OF GLOBALIZATION IN THE WORLD ECONOMY

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Abstract:

The globalization of the world economy is characterized by a huge amplification of the interconnections collaborations and interdependencies between the national states generated from the tendency of the economical objectives and interests to exceed the national borders. Using this obvious truth as a starting base, economical researchers tried to define the globalization in various ways.

In this study we will analyze some different opinions from economic literature, regarding the globalization phenomenon and the mechanisms appeared in this process. We will also analyze the evolution of globalization process during the XX-th century period. At the end of this study we will analyze commercial policies and practices of the EU as one of the main three integration blocs.

Key words: globalization, „waves" of globalization, „First Era of Globalization", General Agreement on Tariffs and Trade (GATT), Common Market.

1. Introduction

In the economical literature we encounter so many points of view about the globalization process and so many ways to approach it that any attempt to define this concept in an exhaustive manner would be useless: the complexity of the globalization phenomenon is simply to large to by covered by one definition. Not to mention that we talk about a process being in progress and it is almost impossible to predict its further evolution.

The globalization of the world economy is characterized by a huge amplification of the interconnections collaborations and interdependencies between the national states generated from the tendency of the economical objectives and interests to exceed the national borders. Using this obvious truth as a starting base, economical researchers tried to define the globalization in various ways such as:

- globalization defined trough interdependencies between the national economies as a result of the fact that in the XX century each national economy became dependent in a higher degree from the world economy;
- globalization defined as the process of customs taxes reduction and restrictions abolition regarding the circulation of the goods, services, technologies and capital between the states;
- globalization view as a factor which determines the reduction of the national governments involvement in global economy as a consequence of the international investments capital growth and of the expansionist policies applied by he transnational companies;
- globalization defined as the process in which the transnational and multinational entities administrate the world.

However if we look closer at these opinions, we observe that despite the fact that all reflect the economical reality, its rather describe the effects of the globalization that define the globalization itself. A similar affirmation can be made about the point of view about globalization presented in a report of the International Monetary Fund from 1997 year: which described the ideal environment for the globalization but does not actually defined the process.

The only way that allowed us to understand completely is to study its entire progress and to highlight the turning points of its evolution.

In a report entitled " Globalization, growth and poverty" made by The World Bank, the timeline of the globalization's evolution is divided in three main steps, suggestively called "waves". We will analyze each of those periods in order to establish the characteristics of the globalization and the metamorphoses of this concept during the XIX - XX centuries.

The first stage of the globalization it is placed in 1870 - 1914 period and is characterized by the expansion of the international trade. Encouraged by the rapid development of the transportation ways, the national companies decided to expand their activities and began to sell their products on the external market. The liberalization in the 19th century was the perfect environment for that so in a

short period of time the international trade and investment known an expansion without precedent. The actors involved in this process were the European imperial powers, the colonies and the United States of America. As the effects of this period the amount of exports was doubled in the countries mentioned above and the amount of foreign capital was tripled. Also about 60 millions of peoples emigrated in North America;

Even if that period is generally called the „First Era of Globalization", it is vital to mention that would be inappropriate to talk about the globalization as a whole because in that time this process was more like the sum of all individual, independent and different expansion strategies developed by the national and international companies in order to enlarge their profits and less like one organized self sustaining concept.

The tendencies of expansion of the national economies totally collapsed starting with the beginning of World War I, during the economical crises between the wars and in the World War II period. Most of the states were facing with incoherent economical policies, high unemployment rates, nationalism and were forced to develop protectionist measures that slowed the economical grown.

The second stage of the globalization took place in 1950-1980 period and is characterized by the liberalization of the international trade under the General Agreement on Tariffs and Trade (GATT) influence. GATT was initially founded as a part of the plan for economic recover after World War II in order to create an optimal environment for the expansion of the international trade trough reduction of the tariffs. At 1 January 1948 twenty three countries signed the agreement: Australia, Belgium, Brazil, Burma, Canada, Ceylon, Chile, the Republic of China, Cuba, the Czechoslovak Republic, France, India, Lebanon, Luxembourg, Netherlands, New Zealand, Norway, Pakistan, Southern Rhodesia, Syria, South Africa, the United Kingdom, and the United States.

The reduction of the tariffs was accomplished during eight rounds:

Name	Town	Date
I	Geneva	1947
II	Annecy	1949
III	Torquay	1950-1951
IV	Geneva	55-56
V "Dillon" Round	Geneva	60-61
VI "Kennedy" Round	Geneva	64-67
VII "Tokio" Round	Tokio	73-79
VIII "Uruguay" Round	Geneva	86-94

In this second step of globalization, the states with powerful economies achieved a degree of development without precedent. The amount of their exports became lager and larger and their transnational companies known a huge expansion (some of them created branches in more then twenty countries). At the opposite pole the countries with economy in development were focused on the exports of the basic products and did not have the opportunity to benefit from the capital flows. Because of this situation large differences between the development degrees of the countries appeared.

The huge expansion of the global economical system was not originally anticipated when the bases of GATT were put at Bretton Woods Conference. Started as a measure designed to help the world to recover after World War the global financial system turned to be so profitable that became impossible to talk about economical development without mention it. If in 1870 - 1914 the global economy was an option, in 1950 - 1980 period became the only option.

The third stage of the globalization process began in 1980 and continued until the present days. It is characterized by an accentuated development of the telecommunications and huge progresses in the exploration of the cosmic space. This period is often called " economy without borders" because the modern technology increase the speed of the long distance financial trades. In January 1995 was created the World Trade Organization (WTO) which is the successor of GATT. WTO is the only international organization that establish the legal bases in the trades between the countries. The main goal of this system is to achieve maximal liberty for the commercial flows without undesirable secondary effects.

2. Commercial policies and practices of the European Union

The unification of Europe was a long and complex process. After the World War II, the political environment was favorable to the unification of Europe.

In 1949, the Council of Europe was founded to promote political and social unity in Europe. Later in 1952, the European Coal and Steel Community was founded in order modernize the production of coal and steel, to ensure the distribution of its in identical conditions on the territories of Germany, France and all countries that will become members, and to improve the work and life conditions in this industry. Economic integration and unity was brought to a head in March of 1957 when the European Economic Community and the European Atomic Energy Community were formed. These two treaties were used to help stabilize and form the ECU. All three of these organizations/treaties were essential to forming what is today called the European Union. The European Union/European Monetary System failed for three basic reasons in the early 1990's.

The current European Union has been a result of recent treaties. The first treaty that was signed in February 1992 helped the unification of Europe be that much closer. It set the groundwork for one currency throughout Europe. In order to update the current treaties the Amsterdam Treaty was signed as a result of the Intergovernmental Conference.

This treaty resulted in a plan to listen to the citizens, get closer to a more secure Europe, to make Europe more vocal throughout the world, and to make the European Union more efficient. As of January of 1997 there were 15 countries belonging to the regional and economic European Union. The countries currently involved are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. In the future the European Union hopes to grow and add more countries to this list. The banking system that the European Union uses is a Central Banking System. With the evolvement of the Euro the economics of Europe will be easier to maintain.

As of January 1, 1999 the national central banks and the European Central Bank were formed to help institute the monetary policy using the euro.

There are many advantages to having a united Europe to the people of Europe. One benefit is trade. There is now a free movement of goods, services, people and, money within the countries belonging to the European Union. Having a united Europe, which will result in the euro, will benefit information technology, administrative changes, and the information and training of employees.

The commercial policy of the Eurpean Union is focus on the idea of a Common Market that will ensure the free circulation of the products, services, persons and capitals between the members of UE. The bases of the Common Market were puts in 1957 when the Treaty of Rome was signed and represented the most ambitious project promoted by the European Union. The main objectives of the Common Market are:

- economical cohesion – each national economical policy should be adjusted at the others economical policies;
- harmonization of the social policies - the citizens of all the countries members of UE should benefit from the same rights and life conditions;
- coordination research and technological development efforts;
- monetary cooperation;

The optimal environment for the Common Market must ensure the following conditions:

- free circulation of the products, services, persons and capitals;
- harmonization of the VAT rates;
- a qualified majority into Ministry Council;
- the control of the Community about the concurential policies;
- a common commercial policy;
- reciprocal recognition of qualification standards and proceedings;
- right to residence for the persons which does not have a job;
- a unitary point of view regarding the public aquisitions;
- an increased amount of structural founds.

The Unique Market became the biggest free-trade zone of the world: over 370 millions of people lives here.

3. Conclusion

Even if the evolution of globalization process during the XX-th century period encountered various forms of manifestation and the mechanisms appeared in this process were different from area to area and the stages of the globalization required long periods, there is no doubt that the globalization of the world economy will be accomplished in the near future. The amplification of the interconnections, collaborations and interdependencies between the national states generated from the tendency of the economical objectives and interests to exceed the national borders, and the economical success of the European Union allowed us to affirm that the question is not longer "if" the globalization of the world economy will be completed but "when" the globalization of the world economy will be completed.

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Dear colleagues,

It is our pleasure to announce **The 2nd International Conference on "Business and Information Technologies. New Approaches"** organized by European Research Centre of Managerial Studies in Business Administration and Faculty of Financial Management Accounting to be held in Craiova (ROMANIA) in 24-25 October, 2008.

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