

**Business Administration and Business Economics;  
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**Aspects of the Current Fiscal - Budgetary Situation  
in Some Euro Area Countries. Implications for Romania**

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**Abstract.** The financial and economic global crisis has exacerbated some of the imbalances existent in all EU Member States, in particular the fiscal-budgetary imbalances. For some countries whose currency is euro, the fiscal and budgetary challenges seem to threaten even the stability of the euro area. Thus, in the context of financial and economic global crisis, this article aims at identifying a number of negative aspects of the fiscal-budgetary situation of some euro area countries, more seriously affected (Greece, Italy, Portugal, Ireland, Spain) and at revealing a series of possible implications of this phenomenon for Romania, thus giving originality of the conducted analysis. A fulcrum in this approach is the economic literature and the authors' research work in the field of European integration. Through a comparative approach, the authors have identified some weaknesses of the Romanian economy generated by the current situation of some euro area countries. Given the place of the theme within the frame of present interest researches, the article's results will be of interest for both academics and practitioners.

**Keywords:** economic global crisis; convergence criteria; European integration; economic stability

**JEL Classification:** E62, E63, G01

## 1. Introduction

In the present context of the financial and economic global crisis, a “thorny” angle of the macroeconomic imbalances is represented, more and more lately, by the fiscal-budgetary problem of the EU countries, and especially, of the euro area countries. The crisis, the anti-cyclical budget and fiscal measures adopted and the national banking systems rescue packages exposed, even more, the euro area countries to the risk of exceeding the budgetary limits from the Stability and Growth Pact (SGP). In this respect, it is particularly important for euro area countries which have registered excessive deficits to correct them in line with the deadlines set by the EU Council, and, after correcting excessive deficits, their strengthening is needed in order to become sustainable on the medium and long-term. Countries like Greece, Italy, Portugal, Ireland and Spain (GIPIS)<sup>1</sup> seem not so well anchored in the economic and financial architecture of the euro area, generating a series of problems for the overall stability of this monetary area. Therefore, this article aims at debating the GIPIS countries fiscal-budgetary issue, and the possible negative implications for our country.

## 2. Fiscal-Budgetary Problems – a Comparative Analysis among Some Euro Area Countries

Greece has constantly consistently exceeded the benchmark set in the Maastricht Treaty (before and after euro adoption) in both budget deficit and public debt criteria, the latest recording its higher growth after 2007 (see Figure 1). Thus, in 2009 Greece had a 270 billion Euros debt, respectively a 112.6% of GDP debt (around 100% of GDP over the period 2002-2008<sup>2</sup>). This has become a serious problem under current global financial crisis, when investors began to treat differently the debts<sup>3</sup> of euro area countries. However, we can see that Greek’s problem refers mainly to the state debt, this country having a reasonable private debt level, which cannot be said, for instance, about Spain. Fears for Greek’s ability to finance and to meet its creditors’ obligations hit severely the financial markets in January 2009, when the Athens government announced that the budget

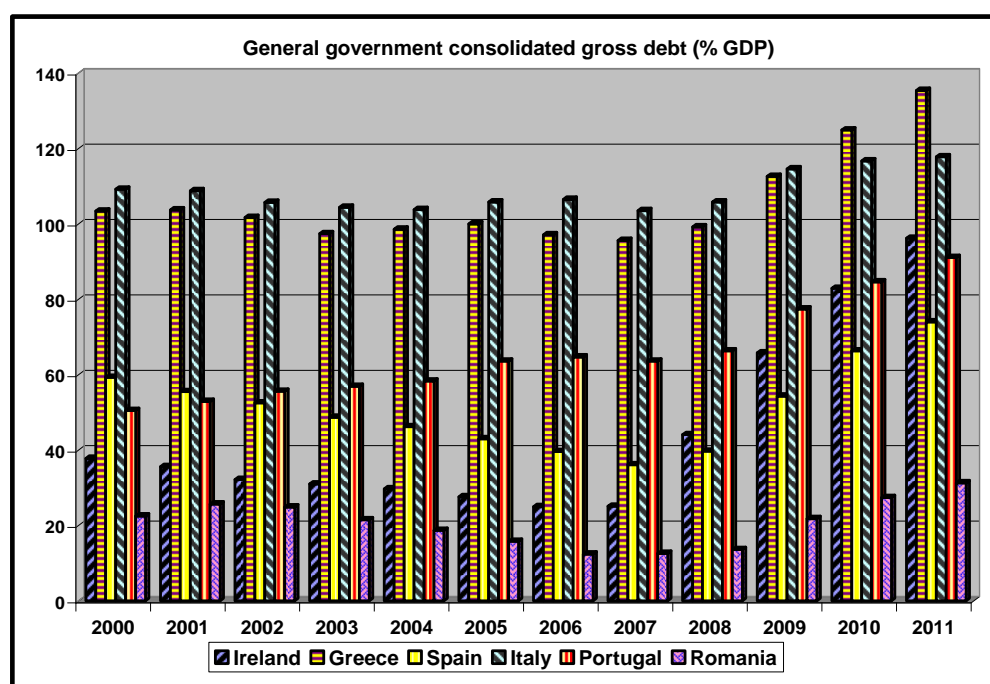
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<sup>1</sup> Countries are ranked in descending biggest public debts order. The article is being concerned more about public debt slippages.

<sup>2</sup> AMECO Database

<sup>3</sup> Currently, Greece’s CDS on sovereign debt is traded around 250, compared with 52 - for Germany, 62 - for USA, 120 - for the UK, and 178 – for Italy.

deficit increased to 12.7% in 2009<sup>1</sup>, more than three times higher than official estimates. In these circumstances, Greece is forced to offer yields for its government securities approaching 6.5% in order to attract investors, with almost four percentage points higher than German government securities.



**Figure 1. General government consolidated gross debt as a percentage of GDP**

*Source: Eurostat and European Commission, European Economic Forecast - autumn 2009, European Economy 10/2009*

The public debt cost of Greece reached the highest level since the euro introduction because of the difficult situation, and also due to the uncertainties that surround the public finances of the Greek state. In 2001, immediately after Greece was admitted into the European Monetary Union, Goldman Sachs helped the Athens government, quietly, to borrow billions. The understanding, hidden from the public eyes, helped Athens to meet European standards in terms of deficit, continuing to

<sup>1</sup> AMECO Database

spend beyond its means. The agreements concluded in the last 10 years by Wall Street banks raise many questions about the role played by Wall Street in the last major financial drama in the world. These less correct agreements, similar to those which generated the sub-prime mortgage crisis, have led to the widening of Greece financial crisis and resulted in undermining the European currency, allowing the European governments to hide their growing debts from the "eyes" of budget supervisors from Brussels. Derivatives have played an important role in increasing Greece debt, just as it happened in the sub-prime crisis in America and in the implosion of American International Group (AIG), based on loans in exchange for future government payments. Greece, for instance, gave in exchange for this money the rights over the fees charged by airports and over the lottery profits<sup>1</sup>, classifying these transactions as sales rather than loans. This type of business has stirred controversy in government circles for many years. Since 2000, EU finance ministers debated whether derivative transactions using "creative accounting" should be made public. Despite the negative response, in 2002, EU bodies required the disclosure of business which did not appear in the balance sheets, forcing governments to treat them as loans rather than sales. Greece did not see fit to do so, because its transactions were made before the amendment of this rule (in 2002).

Critics argue that, if they are not recorded as loans, such arrangements lead to a wrong track both the investors and the regulators regarding the problem of a country's debt. Swap agreements, even if they were legal, contributed to the increase of instability, creating the impression of a false economic equilibrium.

Even when the crisis was near its peak, at the end of 2009, the banks were seeking ways to help Greece to conceal its debts by using financing instruments that would have pushed the debt of this country's health system in the distant future, in a similar way to the completing of the second mortgage, in the case of troubled owners from the mortgage market.

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<sup>1</sup> These agreements had mythological names:

Aeolos SA (2001) - a securitization worth 355 million euros, guaranteed by Greece with the airport taxes due to Greece by the airlines companies. The business was managed by Morgan Stanley, Alpha Bank and EFG Eurobank, according to an article in EuroWeek, 2001.

Ariadne SA (2000) - a business of 650 million euros, guaranteed by state lottery profits. This business was dealt by Morgan Stanley Dean Witter, Schroder Salomon Smith Barney, UBS Alpha Bank and Commercial Bank, according to an article in EuroWeek, in 2000.

Atlas Securitization SA (2001) - a business of 2 billion euros guaranteed by European Commission payments in a Greece developing plan. This was managed by BNP Paribas, Deutsche Bank, EFG Eurobank and NBG International, according to an article in EuroWeek, 2001.

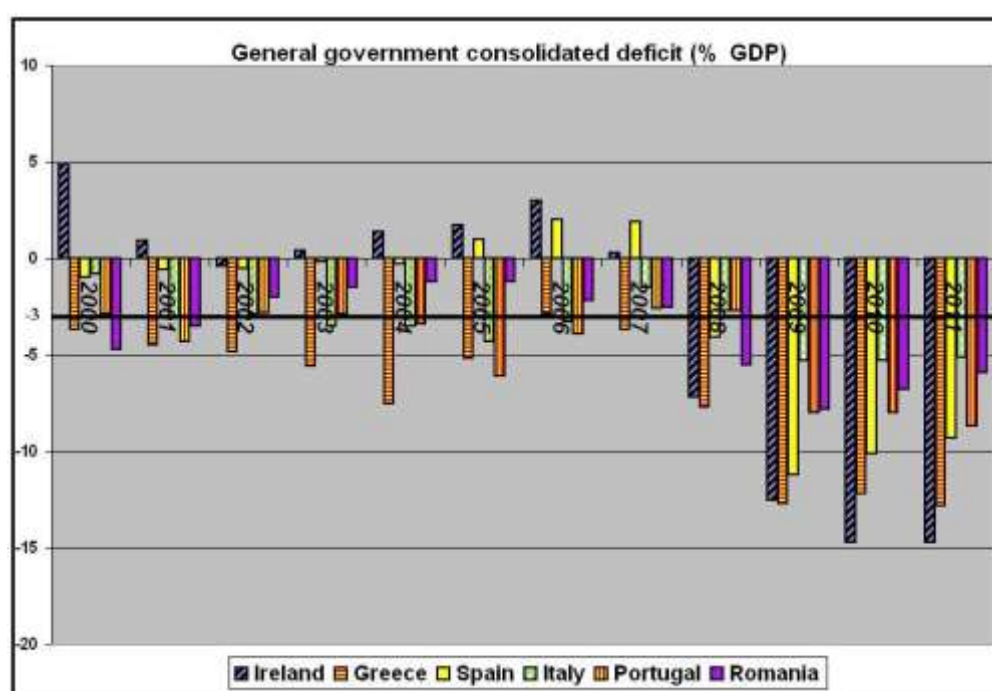
High rank European officials, led by the European Commission, decided to work closely with the Greek authorities in order to implement concrete measures to reduce the budget deficit and the Athens authorities have undertaken specific commitments and must report regularly on the progress made, the first time on March 16, 2010, the second time in mid May and then, every three months. Greece has also agreed to provide additional economic measures, if it will be necessary, in order to reduce the budget deficit by four percentage points in 2010 and to end the crisis, because the risks, related to macroeconomic developments and market evolution, are real.

In an attempt to force a decision from the euro area partners, Greece announced that it considers an appeal to the International Monetary Fund (IMF), if the EU will not provide her the needed financial assistance, solution quickly disapproved by European Central Bank (ECB) President. While Germany recommends that Greece should have a combination of aids from the IMF and EU, as an emergency measure, if it will be extremely necessary, France sees the IMF aid, lender with headquarters in Washington, as a political humiliation for the euro area.

On the other hand, Standard & Poor's and Moody's threatens to revise downwards the country rating for Greece with one or two steps in a few months due to its high budget deficit and to the pressures from the banking sector, if it deviates from its austerity plan. The risks over Greece's economic development will make necessary, perhaps, a wider fiscal consolidation, raising questions on the feasibility of the budget deficit reduction program. For Greece it is important to have a good country rating, because only in these circumstances the ECB will provide collaterals for its bonds, guarantees that Greek banks can use in order to obtain loans. As the European Central Bank will tighten its rules at the end of the year, Greece needs at least an A rating to be eligible. Greek banks have used more government securities as collateral, through the European Central Bank, than any other country in the euro area, and rely on this form of financing.

For Greece, there is not a theoretical possibility of country bankruptcy, as the European authorities cannot afford to attend helpless to such a global shock wave, the country being too important to enter into economic collapse without serious consequences for the financial and monetary stability of the euro area. Thus, investors' fears concerning Greece's ability to refinance its debts have affected lately the euro exchange rate, contributing to its depreciation against the U.S. dollar. Also, an additional pressure on the euro exchange rate was represented and it is still represented by the hedge funds behavior, funds which have made

significant profits from transactions with securities issued by Greece and which have offered insurance against the risk of the Greek state default, further complicating Greece's financial situation. Athens committed to bring the budget deficit from 12.7% of GDP in 2009 to below the threshold of 3% of GDP by 2012, although official forecasts<sup>1</sup> show the maintaining of the deficit at almost the same level (see Figure 2).



**Figure 2. Net borrowing/lending of consolidated general government sector as a percentage of GDP**

*Source: Eurostat and European Commission, European Economic Forecast - autumn 2009, European Economy 10/2009*

The fiscal-budgetary imbalance's problem of the GIPIS states can be translated not only into a mismanagement of budget deficits and external debt, but especially into a manifestation of asymmetric shocks, that has always been known to be a

<sup>1</sup> AMECO Database and European Commission, *European Economic Forecast - autumn 2009*, European Economy 10/2009.

problem, which deepened in the current crisis context. This can be said also about Spain.

The origin of the difficulties that Spain is facing today can be found in real estate speculations having taken place for years, which caused huge growth in houses prices, attracted large capital inflows and allowed countries like Germany to record huge surpluses, while Spain and other "peripheral economies" had deficits. Therefore, large capital inflows have increased Spanish demand for goods and services, leading to substantially higher inflation than Germany and other countries with surpluses, and when "housing bubble" exploded, Spain had an extremely low domestic demand, no so competitive compared with the whole euro area as a result of the increases in prices and costs of the labor market. As Spain could not appreciate the "currency" at the moment of the real estate boom, nor could she depreciate it after that time, the country faces now and will face, also, in the future the consequences of losing exchange rate flexibility: namely deflation and high unemployment, large budget deficits and massive public debt. In order to solve these problems, euro area countries should consider all available methods for increasing the integration of the taxation/fiscality and labor market.

For Spain the risk was, along with the loss of monetary policy independence (the cost that was felt in time by all countries of the euro area periphery), the development of the real estate market at an unsustainable pace. This development was stimulated by several factors: low interest rates of ECB compared with higher yields in Spain, high rates of growth of disposable income, easier access of households credit, population dynamics, with increased flows of immigrants, taxes preferential treatment for owners and foreign demand for holiday houses in this country. Spain's experience stresses the existence of a risk of asset markets overheating during the convergence process within a currency area.

Doubts concerning the budgetary situation of Spain and its ability to finance the huge deficit recorded (over 11.2% of GDP in 2009, compared with only 4.1% of GDP recorded in 2008) creates, as in Greece's case, tensions on the euro exchange rate. The deterioration of the Spanish fiscal outlook is driven by persistent revenue deficit, by the strong increase in social spending and by the projected impact of cyclical developments. To these aspects, it can be added the discretionary measures adopted in 2007-2008, namely: tax reform (2007), a package of incentives (early 2008), additional incentives (late 2008 and early 2009).

In early 2010 Spain announced the implementation of an austerity program, trying to show the markets that it will not have the same financial problems as Greece. Despite this measure, the Spanish executive had to revise upwards the deficit forecasts for 2010-2012. Thus, the forecast for 2010<sup>1</sup> shows a deficit of 10.1% of GDP, in 2011 - 9.3% of GDP and in 2012 - 5.3% of GDP<sup>2</sup>. Under this program, all government spending and policies will be reduced, except for state aid, such as unemployment benefits and investments in research and development, expenditure on education, foreign aid and the fight against terrorism. There are still doubts about how the government will succeed to reduce costs, given that the unemployment rate reached 18% in 2009<sup>3</sup>, one of the largest in the euro area, as it is the level of household indebtedness.

Analysts expect the Spanish public debt as a percentage of GDP to be close to double in 2011 (74%) compared with 2008 (39.7%)<sup>4</sup>, increasing fears that the country could face financial problems similar to those of Greece and Portugal.

Italy's economy has not been experiencing spectacular growth after 1999, annual average rate of real GDP being about 1.5%. Moreover, in 2009 it suffered the largest decline after the Second World War, while the budget deficit increased from 2.7% of GDP in 2008 to 5.3% of GDP in 2009. Inefficiencies from microeconomic level, applying a fiscal policy directed towards spending and the rapid growth of domestic wages (pressing toward the increase of unit labor costs) have affected the competitiveness and hence have generated inflationary pressure. In addition to these features, there is, also, a certain rigidity of the internal products market shown by the existence of price controls, administrative charges and the barriers imposed over ownership. Labor market is, also, one of the most rigid in the euro area. Italy's unsustainable fiscal policy and also the public debt are risk factors for the market perception of the Italian economy. There is a penalty risk from the market by increasing the risk premium regarding Italy's debt, which is one of the highest<sup>5</sup> in the euro area, and growing<sup>6</sup>. Although public expenditure reached in

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<sup>1</sup> AMECO Database.

<sup>2</sup> In the previous estimate, the Spanish authorities forecasted a deficit of 8.1% of GDP in 2010, 5.2% of GDP in 2011 and only 3% of GDP in 2012.

<sup>3</sup> AMECO Database.

<sup>4</sup> According to the AMECO, in absolute terms, Spain's public debt was 570 billion in 2009, in 2011 forecasts showing an increase to 792 billion.

<sup>5</sup> 1757 billion euros in 2009.

<sup>6</sup> According to the European Commission (*European Economic Forecast - Autumn 2009, European Economy 10/2009*), public debt increased to 105.8% of GDP in 2008, to 114.6% of GDP in 2009 and will increase in 2011 to 117.8% of GDP.



2009 52.5% of GDP and the revenues have contracted, in crisis context both on direct and indirect taxes, in the next period it is expected the return of indirect tax revenues as the consumption will improve in 2010 and 2011.

Data on economic development and those related to budget deficit are consistent with the analysts' expectations, many of them considering that Italy has limited better than other GIPIS countries the recession impact on public finances.

Euro adoption has boosted the consumption and the investment in Portugal's economy by reducing (real) interest rates and liquidity constraints. Booming credit activity from the expansion period was based mainly on non-tradable sector and on the rigidity of labor and products markets, rigidity that hampered the process of real economic convergence. Poor performance of the economy in the aftermath of euro adoption can be explained by the fact that during the expansion it was not encouraged a strategy to increase productivity and competitiveness, and the conduct of fiscal policy has not helped to mitigate cyclical fluctuations. Primary budget expenditures increased significantly, mainly reflecting increased personnel costs. Fiscal policy has emphasized the fundamental imbalances, first by enhancing the expansion phenomenon (boom), led by domestic demand, and later, by limiting the possible reactions to the phenomenon of recession or economic downturn. If the booming growth in the late 1990s has allowed an improvement in government budget to facilitate euro adoption, after this moment, slowing economic activity revealed the vulnerability of Portugal's fiscal position.

A sharp increase in the share of budget deficit to GDP occurred in 2009 compared to 2008 (to 8% from 2.8%<sup>1</sup>). The share of public debt to GDP was 77.4% in 2009<sup>2</sup>. Fiscal slippages from 2009 reflect the severity of the strong economic downturn. For 2010 it is forecasted that the budget deficit will remain at the same level, with an increase in 2011.

Portugal intends to adopt austerity measures designed to reduce the budget deficit from 8.3% in 2010 to 2.8% in 2013. The program is considered essential in order to convince the markets that Portugal will solve the budget deficit and debt issue and will not have problems like those in Greece.

These measures include a comprehensive privatization plan for transport, energy, insurance or mail, which should limit the government's debt deepening. Under the government plan, public debt would reach 86% of GDP in 2010, and will increase

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<sup>1</sup> AMECO Database.

<sup>2</sup> AMECO Database.

by 2012 up to 90.7% of GDP, after that it will begin a slight decline in 2013, to 89.8% of GDP.

Before entering the euro area, Ireland had the highest economic growth rate in Europe, increase determined by the favorable perceptions of investors about the business environment in Ireland: lower cost of labor, communication easiness because of the English-speaking population, lower prices in the housing market and lower taxation. These factors, and also the prospects for European monetary integration have boosted economic growth and appreciated the national currency. After joining the EMU, until 2007, Ireland's economy continued to grow at accelerated rates, but it was affected by the loss of monetary independence, whereas the ECB has adjusted interest rates downwards to stimulate large economies facing a recession (Germany, France), having an adverse effect on countries that already had low interest rates (Ireland, Portugal, Spain, Greece). As a result, strong demand in Ireland has created upward pressure on prices and wages, eroding competitiveness. The particular evolution of the Irish economy is explained by the readjustment of the economy to shocks. Besides the interest rate initial shock (in 1998-2000) related to the euro zone entry, which was combined with a pro-cyclical fiscal loosening, the Irish economy was influenced by specific shocks of the euro area, caused by the differences between trading partners, the structure of economic branches or the sectorial specialization.

After the triggering of the global financial crisis, Ireland - the country that before this moment was considered a successful example of euro adoption - is in a great difficulty, showing the vulnerable elements of its development: the accumulation of debt, but also the inflow of foreign direct investment towards fragile sectors, particularly construction, in a period of real estate market expansion. The crisis, manifested aggressively in Ireland<sup>1</sup>, is not only economical, but also political. Given the harsh reactions that occur inside the country concerning the policy pursued by major European countries, exists the danger that Ireland to withdraw from the EMU, if it is not helped. Normally, the adoption of the euro means taking responsibility at both levels: by national political institutions and by those who make euro area policy. No policy change will indebt even more Ireland, whose

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<sup>1</sup> The crisis in the real estate market has affected this country more severely than other European countries that have recorded expansion in this area.

public debt has reached in 2009 66% of GDP<sup>1</sup>. Since 2008, Ireland recorded a budget deficit whose share in GDP almost doubled in 2009 (12.5% vs. 7.2%)<sup>2</sup>.

### **3. Some Implications for Romania**

In 2007, Romania has fulfilled the criterion on the budget deficit, but since 2008 the budget deficit target, set at 2.3% of GDP, has been exceeded. According to the IMF, the government deficit in 2008 reflects: extremely optimistic forecasts on budget revenues, significant slippages of current spending (in particular with public sector wages and benefits) and, to a lesser extent, a sudden drop of revenues collected in the fourth quarter of 2008, due to economic slowdown, phenomenon which recorded an even more decreasing trend in 2009. The budget deficit from 2009 was caused not so much by the crisis, but by the poor fiscal and budget execution. In other words, the increasing of budget deficit in 2009 is more the result of the crisis that we created and which is extending also in 2010. In the globalization, European integration and global financial and economic crisis context, the economic relations between Romania and EU countries, including those in the euro area, have widened, leading to multiple interdependencies, which have become the transmission channels for the problems of the partner countries.

For Greece, the contagion effect on Romania can occur primarily through the financial channel, given the insignificant bilateral trade and that Greek banks (Bancpost Romanian Bank, Piraeus Bank Romania, Emporiki Bank, Alpha Bank, Romania ATEbank and Marfin Popular Bank) hold 20% of the Romanian banking market. A possible withdrawal of funds from subsidiaries in Central and Eastern Europe, therefore including Romania, would be justified by the need of increasing Greek deposits in a much faster manner than if the parent banks in Greece would resort to loans. Moreover, these banking institutions can get in a position to delay the credit process (already very hit by the crisis!) on the Romanian banking market and even in a position to stop granting new loans. However, the Romanian authorities consider that Greek banks are solid capitalized and the foreign reserves of the National Bank of Romania are an effective buffer against possible market volatility.

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<sup>1</sup> AMECO Database.

<sup>2</sup> AMECO Database.

As for Italy, with which Romania has extensive trade relations, the crisis may cause a reduction of our country's exports to this destination, and therefore can lead to Romania's economic downturn.

The economic problems of Spain, Italy and Portugal may spread over Romania particularly through the labor channel (by reducing inflows of current transfers and income from work).

In the context of the financial and economic global crisis and of the currently problems of the euro area, we believe that there are necessary prudent fiscal-budgetary policies, under a balanced mix of macroeconomic policies. These, together with long-term reform programs, should correct the current imbalances and keep budget deficits under control.

#### **4. Conclusions**

With all its advantages, the euro area entails some risks. For example, Italy and Greece have entered into the monetary union with deficits higher than allowed by the Maastricht Treaty, and the governments of these countries have preferred to reduce deficits artificially, using financial instruments such as derivatives, rather than to increase taxes or cut spending.

The problem of fiscal-budgetary imbalances of the GIPIS states can be translated not only into a bad management of external debt, but especially into a problem of asymmetric shocks manifestation, thing that has always been known as being a problem and which deepened in the current crisis context.

The results registered over the years by the euro area countries show that a politically forced membership, of those countries that are not yet economically prepared to face, on long term, the rigorous and super-regulated euro area climate, determines major disturbance in the functioning of their economies, and also in the euro area.

Therefore, the GIPIS countries' deficit and debt issue is a significant challenge for the economic unity and for the European currency stability within the euro area and the EU, as a whole.

The above analysis shows that even under the euro "umbrella" a country's economy is not safe as long as its structure is not appropriate for a long-term

sustainable development, if that economy is perceived by the investors as being risky.

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## **Supervisor's Role as an Antecedent of Training Transfer and Motivation to Learn in Training Programs**

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**Abstract:** Training and development program literature highlights two major characteristics of supervisor's role: support and communication. The ability of supervisors to provide adequate support and practice good communication style in relation to training programs may lead to increased training transfer and motivation to learn. Though the nature of this relationship is significant, little is known about the predictive properties of supervisor's roles in training program literatures. Therefore, this study was conducted to measure the effect of supervisor's role on training transfer and motivation to learn using 110 usable questionnaires gathered from employees who have attended training programs in a state public work agency in East Malaysia, Malaysia. The results of exploratory factor analysis confirmed that the measurement scales used in this study satisfactorily met the acceptable standards of validity and reliability analyses. Further, the outcomes of stepwise regression analysis showed four important findings: first, support insignificantly correlated with motivation to learn. Second, communication significantly correlated with motivation to learn. Third, support significantly correlated with transfer of training. Finally, communication significantly correlated with transfer of learning. Statistically, this result confirms that support is an important antecedent of motivation to learn and communication is an important antecedent of motivation to learn. Conversely, support and communication are important antecedents of training transfer in the studied organization. In addition, discussion, implications and conclusion are elaborated.

**Keywords:** supervisor's role; transfer of training; motivation to learn; public work agency

**JEL Classification:** M53; M52

## **1. Introduction**

Supervisors act as a vital link between top management and shop floor employees where they are given important duties and responsibilities to lead and monitor the development of work groups (Elangovan & Karakowsky, 1999) (Goldstein & Ford, 2002) (Noe 2008), and often work together with their employers to design, implement and monitor the execution of organizational policies, procedures and plans, including training programs (Comstock, 1994) (Robbins & DeCenzo, 2004) (Ellinger et al., 2005). In many organizations, the role of a supervisor is much affected by managerial perspectives. From the traditional management perspective, supervisors are given the important responsibility by the employer to identify the daily, routine and short-term employee deficiencies, as well as report such deficiencies to the top management who will then identify the training requirements or training needs to overcome such employee deficiencies (Pfeffer, 1998) (Rodríguez & Gregory, 2005).

In an era of global competition, organizations have now shifted their paradigms from traditional job-based training to organizational business strategies and cultures (MacNeil, 2004) (Ellinger et al., 2005) (Ismail et al., 2007). Under this approach, a training program is viewed as a strategic function of human capital management, where supervisors are empowered to effectively design and administer training programs for the employees to develop useful competencies not only to overcome daily problems, but also support the development and future growth of the organization (DeSimone, Warner & Harris, 2002) (MacNeil, 2004).

In the designing stage of training programs, supervisors often work together with the management and senior employees in conducting training needs analyses (TNA), establishing training objectives, developing effective lesson plans, selecting suitable trainers, determining program methods and techniques, preparing course materials, and scheduling the program (Golemen, 2000) (Goldstein & Ford, 2002) (Nijman, 2004). In the course of running the training programs, supervisors would consult the management and experienced employees to ensure that the training activities achieve the set objectives (Elangovan & Karakowsky, 1999) (Yamhill & McLean, 2001) (DeSimone et al., 2002). The role of supervisors in administering training programs does not stop at providing support in financial and physical facility, they also have the capabilities to establish realistic and achievable learning expectations, provide positive reinforcements, create positive impetus for the training program, make employees feel comfortable to undergo training to

improve and develop their competencies (Brinkerhoff & Montesino, 1995) (Golemen, 2000).

In organizational context, the supervisors has a critical role in that they have the capacity and propensity to influence their subordinates whether or not to participate in training programs (Noe, 1986, 2008; Blanchard & Thackers, 2007). Scholars have identified that support and communication are two salient features of a supervisor's role that can affect the overall effectiveness of training programs (Facteau et al., 1995) (Chiaburu & Tekleab, 2005) (Ismail et al., 2007) (Eisenberger et al., 2002) (Robbins & DeCenzo, 2004) (Tai, 2006) (Dawley, Andrews & Bucklew, 2008) view support as a supervisor who provides encouragement and opportunities to improve employee performance in organizations. In the workplace training, it is often defined as supervisors encouraging the employees to attend training programs, helping them before, during and after, in terms of time, budgetary support and resources, involving employees in decision-making, and guiding them in applying competencies that they have learned in the workplace (Chiaburu & Tekleab, 2005) (Ismail et al., 2007).

On the issue of communication, it is the activity or process of expressing ideas or feelings for the purpose of exchanging ideas and information between persons or groups of people through the use of symbols, actions, be it written or spoken words in order to impart information and ideas effectively (Harris, Simon & Bone, 2000) (Hornby, 2000) (Lumsden & Lumsden, 1993) (Harris et al., 2000). In the workplace training, it is defined as supervisors deliver information about the objectives of training program, suitable knowledge to be gained (procedures, content and tasks), appropriate skills to be acquired, the importance of attending training programs and performance feedback (Harris et. al., 2000) (Sisson, 2001).

Recent studies in this area highlight the ability of supervisors to provide sufficient support and use comfortable communication style in training programs having significant impact on employee outcomes, especially motivation to learn (Chiaburu & Tekleab, 2005) (Ismail et al., 2009), and training transfer (Ismail et al., 2007) (Lim & Johnson, 2002). According to Knowles (1989), Klien, Noe, and Wang (2006), Noe (2008) and Blanchard and Thacker (2007) there are two distinct components to motivation to learn: motivation and learning. Motivation is defined as direction, persistence and amount of effort expended by an individual to achieve his/her particular objective. Learning is usually viewed from the human, cognitive and behavior perspectives. Cognitive theorists define learning as a relatively



permanent change in cognition occurring as a result of experience. Meanwhile, behavior theorists define learning as relatively permanent change in behavior in response to a particular stimulus or set of stimuli (Noe, 1986). Based on the cognitive and behavioral perspectives, motivation to learn may be defined as an intense, persistence and direction of learning the necessary knowledge, up to date skills, new abilities and positive attitudes by an individual who has clear goals, high desire to learn course contents, puts a high value on outcomes, has high self-efficacy and satisfied with supervisors' treatments (Klien, Noe & Wang, 2006) (Locke & Latham, 1990) (Maurer & Tarulli, 1994) (Quifiones, 1997) (Wood & Bandura, 1989). A person with high level of motivation to learn would boost his/her will to overcome discouraging learning factors. Consequently, the individual will follow, involve and commit him/herself to learning activities in order to improve his/her attitude and behavior in the workplace (Axtell et al., 1997) (Guerrero & Sire, 2001) (Nijman, 2004).

According to management scholars, transfer of training is a combination of two words: transfer and training (Blanchard & Thackers, 2007) (Goldstein & Ford, 2002). Transfer is defined as the act of moving something from one form to another (e.g., an individual uses the skills and knowledge learned in training on the job) while training refers to a person getting many exercises in order to improve at something (e.g., the ability of individuals to acquire knowledge, skills, abilities and attitudes by attending training settings and utilize them when returning to the workplace) (Baldwin & Ford, 1988) (Ismail & Bongogoh, 2007) (Lim, 2000). Laker (1990) and Goldstein & Ford (2002) classify transfer of training in two major forms: near transfer and far transfer. While near transfer, also called direct transfer, refers to trainees learning and applying knowledge, skills, and abilities gained from training programs to similar situations (i.e., at training place), far transfer, also known as indirect transfer, refers to trainees doing the same to dissimilar situations (i.e., at the workplace). Both training transfers lead to increased professional development in organizations. In the context of this study, training transfer is defined as individuals changing their cognitive, affective and psychomotor skills to meet organizational requirements. This definition is in agreement with Baldwin & Ford (1988) and Laker's (1990) that trainees gain necessary knowledge, up to date skills, new abilities and positive attitudes by undergoing training programs and they can apply the same to accomplish daily job.

In a training model, many scholars are of the view that support, communication, training transfer and motivation to learn are distinct constructs but highly

interrelated. For example, the ability of supervisors to provide adequate support and practice comfortable communication style in training programs may strongly lead to an enhanced training transfer and motivation to learn. Although this relationship is significant, little is known about the predictive properties of supervisor's role in training management literature (Ismail et al., 2007) (Lim & Morris, 2006). There are arguments that supervisor's role has been less emphasized in previous training program studies because of the over emphasized on internal properties of constructs (i.e., definition, purpose, and significance of supervisor's role in training programs) and through the use of segmented approach in analyzing supervisor's role, training programs, training transfer and motivation to learn. As a result, they may not be able to highlight the importance of supervisor's role in developing training program models (Chiaburu & Tekleab, 2005; Ismail et al., 2007; Ismail et al., 2009; Lim & Johnson, 2002). Hence, the motivation for the researchers to further explores the nature of this relationship.

## **2. Objective of the Study**

This study has four major objectives: 1) to measure the relationship between supervisor support and motivation to learn, 2) to measure the relationship between supervisor communication and motivation to learn, 3) to measure the relationship between supervisor support and training transfer, and 4) to measure the relationship between supervisor communication and training transfer. The location of this study is a state public work agency in East Malaysia, Malaysia. For confidential reason, the name of the studied organization is kept anonymous.

### **2.1. Literature Review**

#### **The Relationship between Supervisor's Role and Motivation to Learn**

Direct effects model were employed in recent studies to investigate supervisor's role in training programs. Such studies include 119 employees who underwent training programs in a large organization in the United States (Chiaburu & Tekleab, 2005) and 100 technical employees who are serving in a city-based local authority in Malaysia (Ismail et al., 2009). Findings from these studies posit the ability of supervisors to provide adequate support (e.g., supervisory encouragement to attend training, encouragement to apply training onto the job and feedbacks) and use comfortable communication style (i.e., openly delivered information on

training, conducted discussion of what to be learned in training, explained training benefits, and provided feedbacks) are both major determinants of motivation to learn in the organizations (Chiaburu & Tekleab, 2005) (Ismail et al., 2009).

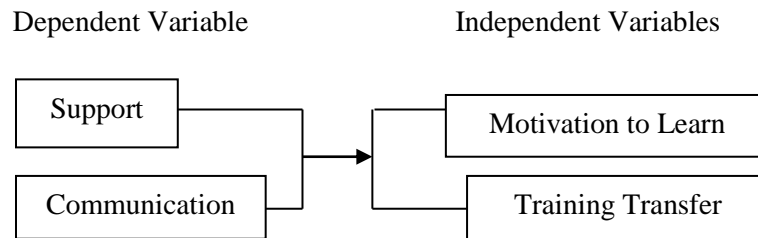
The findings of these studies are consistent with the notion of motivation to learn theories. The combination and application of Shannon's (1940) mathematical theory of communication that communication channel consists of a sender (a source of information), a transmission medium (with noise and distortion), and a receiver (whose goal is to reconstruct the sender's messages), Vrooms' (1964, 1973) expectancy theory that an individual will perform certain actions if he/she perceives such actions may bring valued outcomes, Locke and Latham's (1990) goal setting theory that goals direct individuals to perform a task, indicate that the ability of supervisors to openly communicate the advantages and importance of undergoing training programs, as well as clearly explain the procedures of attaining training goals may strongly motivate employees to acquire new knowledge, up to date skills and positive attitudes and apply these in the workplace (Ismail et al., 2009) (Lim & Johnson, 2002).

### **Relationship between Supervisor's Role and Training Transfer**

Recent studies using direct effects model in investigating supervisor's role in training programs include 10 Korean human resource practitioners in Korea (Lim, 2000) and 81 employees from 15 sister companies of a Korean conglomerate (Lim & Morris, 2006). Findings from these studies show that the ability of supervisors to provide adequate support (e.g., supervisory encouragement to attend training and apply the knowledge, skills and attitude acquired onto the job and use comfortable communication style (e.g., supervisor provide clear feedbacks) had been a major determinant of transfer of training in the organizations (Lim, 2000) (Lim & Morris, 2006).

The studies support the notion of Skinner's (1938, 1963) reinforcement theory, which posits that an animal or human behavior is influenced by a combination of positive reinforcer (rewards) and negative reinforcer (punishment). Application of this theory in a training and development program model shows that the ability of supervisors to provide adequate support and use of comfortable communication style may positively reinforce employees' motivation to acquire new knowledge, up to date skills and positive attitudes (Festner & Gruber, 2008) (Lim, 2000) (Lim & Morris, 2006) (Velada et al., 2007).

These literatures have been used as foundation to establish a conceptual framework for this study as shown in Figure 1.



**Figure 1. Conceptual framework**

From this framework, it can be hypothesized that:

H1: There is a positive relationship between supervisor support and motivation to learn.

H2: There is a positive relationship between supervisor communication and motivation to learn.

H3: There is a positive relationship between supervisor support and training transfer.

H4: There is a positive relationship between supervisor communication and training transfer.

### **3. Methodology**

#### **3.1. Research Design**

Cross-sectional research design was employed in this study that allows the researchers to integrate training management literature, in-depth interview, pilot study and the actual survey to gather data. The use of this method would lead to accurate and less biased data (Cresswell, 1998) (Sekaran, 2003). This study was conducted in a public work agency, Sarawak, Malaysia. This organization has a vision to be the consultant of choice and a leading agency for infrastructure development in the state. The study begins with an in-depth interview involving two supervisors, the head of training unit and two supporting workers from the

technical department who have been working for more than ten years in the organization. The interviewees were selected using a purposive sampling where they have good knowledge and experience about the design and administration of training programs. The information gathered aided the researchers to understand the nature of supervisor's role, motivation to learn characteristics, training transfer features, as well as the relationship between these variables in the studied organization. After transcribing, categorizing and comparing the information with relevant theoretical and empirical evidence, the triangulated outcomes were used as a guideline to develop the content of the survey questionnaire for the pilot study. The next step in the study was a discussion with the above interviewees on the items in the survey questionnaire in order to verify the content and format of the questionnaire for the actual study. The back translation technique was used to translate the survey questionnaires in Malay and English to increase the validity and reliability of the instrument (Van Maanen, 1983) (Wright, 1996).

### **3.2. Measures**

The survey questionnaire consists of four sections. First, supervisor support was measured using six items that were modified from the training research literature (Chiaburu & Takleab, 2005) (DeSimone et al., 2002) (Tsai & Tai, 2003). The sample items include: "My supervisor views employee development as an important aspect of his/her job" and "My supervisor provides me with the time I need to practice the skills learned in training". Second, supervisor communication was measured using six items that were modified from the transfer of training literature (Xiao, 1996) (Yamnill & McLean, 2001). The items include: "My supervisors communicate the value of training program". Third, motivation to learn was measured using seven items that were modified from the training programs literature (Tsai & Tai, 2003) (Rodríguez & Gregory, 2005). The sample items include: "I am trying to learn as much as I can from this course" and "I believe I tend to learn more from training programs than most people." Fourth, transfer of training was measured using six items taken from Xiao (1996). The items include: "I can accomplish the job tasks better by using new knowledge acquired from the training course" and "Since I complete this training program, I have motivated subordinates employee's considerably better than before the program". All the items used in the questionnaire were measured using 7-item scale ranging from 'strongly disagree' (1) to 'strongly agree' (7). Demographic variables were used as the controlling variable because the study also focuses on employees' attitude.

### 3.3. Unit of Analysis and Sampling

Official approval was first obtained to conduct the study from the head of the target organization who also gave advice on the procedures of conducting the survey at his organization. The targeted population for this study was 297 employees who have attended in-house training programs. After considering organizational rules, a convenience sampling technique was used and the questionnaires were distributed to participants through the training coordinator. Of the number, 110 usable questionnaires were returned yielding a response rate of 37 percent. Respondents answered these questionnaires of their own accord and on voluntarily basis. Statistically, the number of this sample met the requirements of inferential statistics. The number of respondents in this sample exceeds the minimum number of 30 as required by probability sampling technique enabling it to be analyzed using inferential statistics (Sekaran, 2003) (Leedy & Ormrod, 2005).

### 3.4. Data Analysis

The Statistical Package for Social Science (SPSS) version 16.0 was used to analyse the data from the questionnaire. Exploratory Factor Analysis (EFA) was used to assess the validity and reliability of measurement scales (Nunally & Bernstein, 1994) (Hair et al, 1998). Based on the guidelines set up by these statisticians, factor analysis with direct oblimin rotation was performed on the research variables, followed by Kaiser-Mayer-Olkin Test (KMO), Bartlett's Test of Sphericity (BTS), Eigenvalue, Variance Explained and Cronbach Alpha ( $\alpha$ ). The factor analysis yielded the value of 0.4 and more for all items representing each research variable, indicating that the items met the acceptable standard of validity analysis. All research variables have exceeded the acceptable standard of Kaiser-Meyer-Olkin's value of 0.6 and were significant in Bartlett's test of sphericity, showing that the measure of sampling adequacy for each variable was acceptable. All research variables had Eigenvalues larger than 1, signifying that the variables met the acceptable standard of validity analysis (Hair et al, 2006). All research variables exceeded the acceptable standard of reliability analysis of 0.70, indicating the variables met the acceptable standard of reliability analysis (Nunally & Bernstein, 1994). Variables that meet the acceptable standard of validity and reliability analyses were used in testing the hypotheses.

Next analysis of variance, Pearson Correlation analysis and descriptive statistics were conducted to analyze the constructs and the usefulness of the data set

(Tabachnick et al., 2001) (Yaacob, 2008). Finally, Stepwise Regression analysis was undertaken to assess the magnitude of each independent variable, the relationship between many independent variables and one dependent variable, and the contribution and influence of each independent variable on dependent variable (Baron & Kenny, 1986) (Foster et al., 1998). In this regression analysis, standardized coefficients (Standardized Beta) were used for all analyses (Jaccard et al., 1990).

## 4. Findings

### 4.1. Participant Characteristics

Table 1 shows the demography of the participants who were mostly males (53.6%), ages 46 and above years old (40.9%), non-management workers (56.4%), degree holders (39.1%), and workers who worked more than 21 (37.3%).

**Table 1. Participant characteristic (N=110)**

Gender (%) Male = 53.6 Female = 46.4	Education (%) Degree = 39.1 Diploma = 12.7 STPM = 5.5 SPM = 32.7 Competency Certificates = 10.0
Age (%) 18-25 = 5.5 26-35 = 29.1 36-46 = 24.5 > 46 = 40.9	Length of Service (%) < 1 years = 1.8 1-5 years = 12.7 6-10 years = 17.3 11-15 years = 20.0 16-20 years = 10.9 > 21 years = 37.3
Position (%) Management = 43.6 Non-management = 56.4	

Note: SPM-Sijil Pelajaran Malaysia

STPM-Sijil Tinggi Pelajaran Malaysia

### Validity and Reliability Analyses for the Measurement Scales

Table 2 shows the results of the validity and reliability analyses for measurement scales. The survey questionnaires consisted of 39 items covering five variables: supervisor support (7 items), supervisor communication (11 items), supervisor delivery modes selection (6 items), motivation to learn (8 items), and transfer of training (7 items). Based on Hair et al. (2006) guidelines, these statistical analyses showed that: (1) all research variables exceeded the acceptable standard of Kaiser-Meyer-Olkin's value of 0.6, (2) all research variables were significant in Bartlett's Test of Sphericity, (3) all research variables had Eigenvalues larger than 1, and (4) the items for each research variable exceeded factor loadings of 0.50 (Hair et al., 2006). All research variables also exceeded the acceptable standard of Reliability Analysis of 0.70 (Nunally & Bernstein, 1994). These statistical analyses confirm that the measurement scales met the acceptable standard of validity and reliability analyses as shown in Table 2.

**Table 2. Validity & Reliability of Data**

Measure	Items	Factor Loadings	KMO	Bartlett Test of Sphericity	Eigen Value	Variance Explained	Cronbach Alpha
SUP	7	0.51-0.81	0.90	604.87, p=0.000	4.978	71.12	0.93
COM	11	0.50-0.85	0.94	1141.65, p=0.000	7.735	70.32	0.96
M.T.L	8	0.52-0.84	0.89	614.36, p=0.000	5.310	66.37	0.93
T.O.T	7	0.77-0.92	0.92	784.70, p=0.000	5.488	78.39	0.95

### 4.2. Analysis of the Constructs

The variance analysis, Pearson Correlation analysis and descriptive statistics were used to analyze the research variables used in this study. The analysis of variance techniques were used to compare the mean scores between two or more groups in the studied organization. In this case, independent samples t-tests were used to compare two different (independent) groups of people (i.e., gender) and



ANOVA is used to compare three and more different (independent) groups of people (i.e., age) (Hair et al., 2006) (Yaacob, 2008). Outcomes of one-way ANOVA showed that demographic variables were found not to have a significant difference with support (SUP), communication (COM), motivation to learn (M.T.L) and training transfer (T.O.T), showing that support, communication, delivery mode, motivation to learn and training transfer were found not to be differently perceived by different demographic variables.

Table 3 shows the results of Pearson Correlation analysis and descriptive statistics. The mean values for the variables are from 5.39 to 6.01, signifying that the levels of SUP, COM, M.T.L. and T.O.T ranging from high (4) to highest level (7). The correlation coefficients for the relationship between the independent variable (support, communication and delivery mode) and the mediating variable (M.T.L) and the dependent variable (T.O.T) were less than 0.90, indicating that the data were not affected by serious collinearity problem (Hair, et al., 2006).

**Table 3. Pearson correlation and descriptive analysis**

Variables	Mean	SD	Pearson Correlation Analysis			
			1	2	3	4
Support (SUP)	5.59	.89	1			
Communication (COM)	5.39	.99	.84**	1		
Motivation to Learn (M.T.L)	6.01	.60	.45**	.48* *	1	
Transfer of Training (T.O.T)	5.76	.81	.54**	.53* *	.59* *	1

Note: Significant at \* $p < 0.05$ ; \*\*\* $p < 0.01$

#### 4.3. Outcomes of Testing Hypothesis 1 & Hypothesis 2

Table 4 shows demographic variables were entered in Step 1 and followed by entering independent variable (i.e., SUP and COM) in Step 2, and mediating variable (i.e., M.T.L) in Step 3. Motivation to learn was used as the dependent

variable. An examination of multicollinearity in the coefficients table shows that the tolerance value for the relationship between the independent variable (i.e., SUP, and COM) and the dependent variable (i.e., M.T.L) were 0.96 and 0.95, respectively. These tolerance values were more than the established tolerance value of .20 (as a rule of thumb), indicating the variables were not affected by multicollinearity problems (Fox, 1991) (Tabachnick et al., 2001).

**Table 4. Results of the stepwise regression analysis**

Variable	Dependent Variable (Motivation to Learn)	
	Step 1	Step 2
Control Variables		
Gender	-.11	-.11
Position	-.05	.03
Age	-.39*	-.36*
Education Level	.18	.09
Length of Service	.40*	.46**
Independent Variables		
Support		.16
Communication		.37*
R <sup>2</sup>	.08	.33
Adjusted R <sup>2</sup>	.04	.29
R <sup>2</sup> Change	.08	.25
F	1.90	7.21***
F Change R <sup>2</sup>	1.90	18.85***

Note: Significant at \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.000$

Table 4 shows the results of stepwise regression analysis in the two steps. Step 1 displayed that age and length of service were found to be significant predictors of motivation to learn ( $\beta = .39$ ,  $p < 0.05$ ;  $\beta = .40$ ,  $p < 0.05$ , respectively), accounting for 8 percent of the variance in the dependent variable. Step 2 revealed that support was not found to be a significant predictor of motivation to learn ( $\beta = .16$ ,  $p > 0.05$ ), therefore H1 was not supported. Conversely, communication was found to be a significant predictor of motivation to learn ( $\beta = .37$ ,  $p < 0.05$ ), therefore H2 was supported. In terms of exploratory power, the inclusion of supervisor's role in Step 2 had explained 33 percent of the variance in the dependent variable. Further, this

result confirms that support does not act as an important antecedent of motivation to learn and communication does act as an important antecedent of motivation to learn in the studied organization.

**4.4. Outcomes of Testing Hypothesis 3 & Hypothesis 4**

Table 6 shows that demographic variables were entered in Step 1 and then followed by entering independent variable (i.e., support and communication) in Step 2, and mediating variable (i.e., motivation to learn) in Step 3. Training transfer was used as the dependent variable. An examination of multicollinearity in the coefficients table shows that the tolerance value for the relationship between the independent variable (i.e., support, and communication) and the dependent variable (i.e., training transfer) were 0.96 and 0.95, respectively. These tolerance values were more than the established tolerance value of 0.20 (as a rule of thumb), indicating the variables were not affected by multicollinearity problems (Fox, 1991) (Tabachnick et al., 2001).

**Table 5. Results of the stepwise regression analysis**

Variable	Dependent Variable (Motivation to Learn)	
	Step 1	Step 2
Control Variables		
Gender	.08	.07
Position	-.04	.04
Age	-.15	-.11
Education Level	.21	.12
Length of Service	.25	.32*
Independent Variables		
Support		.29*
Communication		.33*
R <sup>2</sup>	.09	.42
Adjusted R <sup>2</sup>	.04	.38
R <sup>2</sup> Change	.09	.33
F	2.0	10.48***
F Change R <sup>2</sup>	2.0	28.98***

Note: Significant at \*p<0.05, \*\*<0.01, \*\*\*p<0.000

Table 6 shows the results of stepwise regression analysis in the three steps. Step 1 revealed that length of service was found to be a significant predictor of training transfer ( $\beta=0.32$ ,  $p<0.05$ ), accounting for 9 percent of the variance in the dependent variable. Step 2 displayed that the support and communication were found to be significant predictors of training transfer ( $\beta=0.29$ ,  $p<0.05$ ;  $\beta=.33$ ,  $p<0.05$ , respectively), therefore H1 and H2 were supported. In terms of exploratory power, the inclusion of supervisor's role in the Step 2 has explained 42 percent of the variance in the dependent variable, signaling that support and communication are important antecedents of training transfer in the studied organization.

## 5. Discussion and Implications

The findings of this study demonstrate that supervisor's role act as a partial antecedent of motivation to learn and supervisor's role act as a full antecedent of training transfer in the training program model of the studied organization. In the context of this study, supervisors have provided adequate support (e.g. encourage employees to attend training programs and apply newly acquired knowledge and skills that they gain from training programs in their jobs), and have practiced comfortable communication style (e.g. provide feedback, encourage discussion and openly deliver information on training) when implementing training programs. The majority of employees perceive that the inability of supervisors to provide adequate support in training programs may lead to lower motivation to learn, but the ability of supervisors to use comfortable communication practice in training programs may lead to higher motivation to learn. Conversely, the ability of supervisors to provide adequate support and use comfortable communication style may lead to an enhanced training transfer.

This study provides significant impact on three major aspects: theoretical contribution, robustness of research methodology, and contribution to the human resource development practitioners. In terms of theoretical contribution, this study produces three important outcomes. First, the ability of supervisors to use comfortable communication in training programs has been an important determinant of motivation to learn. This finding is consistent with the studies by Chiaburu and Tekleab (2005), and Ismail et al., (2009). Second, the ability of supervisors to provide adequate support and use of comfortable communication in training programs has been an important determinant of motivation to learn. This finding is consistent with that of Lim (2000), and Lim and Morris (2006).

With respect to the robustness of the research methodology, the survey questionnaire data used in this study have satisfactorily met the standards required for validity and reliability. This would lead to the production of accurate and reliable findings.

In the matter of practical contributions, the findings of this study can be used as a guideline by managers to improve the management of training programs in their organizations. Hence the following suggestions: 1) customize training contents and methods according to organizational expectations and needs. For example, the content of training programs for management employees should impart advanced human skills that may help them to understand individuals' cognitive, emotion, psychomotor and superior moral values. In order to realize the training contents, professional trainers should be hired to teach management employees on how to properly implement interpersonal communication skills, managing change, conflict and problem solving techniques in the workplace. 2) allow supervisors to be involved in higher level training committees so that they may be able to channel or voice the needs and expectations of employees at the grass root level. In this manner, appropriate training modules that would support human resource management's strategies to meet organizational goal can be properly designed and established. 3) change the human resource policies from hiring employees merely based on conformance to organizational policies and procedures to hiring employees based on creativity and innovations. This hiring system would hire knowledgeable and experienced employees who can train operational employees to improve attitude and working styles, as well as to handle employees' demands with better treatments like showing more respect, be honest and accountable. 4) review monetary and non monetary rewards for supervisors based on current organizational strategy and goals. For example, internal organizational changes may increase supervisors' list of duties and responsibilities, which may affect their health, safety and productivity at the workplace. These problems could be alleviate lessened if the type, level and/or amount of rewards (e.g., the structure and level of pay) are reviewed so that the quantum commensurate with the supervisors' workloads and performance. Should organizations willing to seriously consider and implement these suggestions, employees motivation could be heightened this may positively motivate employees to sustain and support organizational and human resource department's strategies and goals.

## 6. Conclusion

This study proposed a conceptual framework based on training research literatures. The measurement used in this study met the acceptable standards of validity and reliability. The outcomes of stepwise regression analysis also confirmed that supervisor communication in training programs is an important determinant of motivation to learn, and supervisor's support and communication are an important determinant of training transfer in the studied organization. This result supports and broadened training research literature mostly published in Western organizational settings. Therefore, current research and practice within training management models need to consider supervisor's support and communication as a key element of the workplace training system where increasing the capability of supervisors to provide adequate support and use comfortable communication style in training programs may motivate employees to sustain and increase organizational competitiveness in a global economy.

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## **Profitability and Risk – Components of the Financial Management**

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**Abstract:** In the context of market economy, with priority the economic category of profitableness has to be addressed with the category of risk. The investors are expecting a gain that depends on the degree of risk they are assuming. This paper is trying to put in correlation the role of the duality profitableness – risk in the financial management of a company. The purpose of this paper is to provide managers and ownership information about the main categories of risks that can occur in a company.

**Keywords:** profitableness; risk; market value; leverage operation

**JEL Classification:** D5; D53; G32

### **1. Introduction**

A definition of the risk notion is based on changes made to profit level compared to the average profit levels achieved in previous years (this can be implemented also to the change in future profitability, revenues to obtain, results to be recorded). From one point of view the risk is illustrated as the possibility that can occur with unintended consequences. It is noted that the risk is regarded as the probability of manifestation of an event (possible to predict or not) with negative implications on economic activity of a company. Whatever the approach of risk concept, it is observed that it translates potential losses corresponding probabilities of their show, known or determined. Instead, uncertainty implies inability to estimate those probabilities.

An important issue is reflected in the need for risk management at any company level, which involves: tracking identifying factors with negative impact on work performed, quantified estimates of the consequences of event risk, substantiation of

a complex of measures to prevent risk, mitigate damage caused when realizing it, in the use of specialized units in risk management, if it is not possible by the entity.

Each manager must determine a minimum and maximum risk on the scale that is willing to accept that the results of the company are interdependent (assuming a higher risk, it but may lead to better results and corresponding losses and vice versa).

Risk is part of any activity, it can be found in the daily agenda of managers of any types of companies. One should be aware any moment of the nature of the risk and how big it is and especially whether this risk is higher or not the gain.

Currently most decisions are taken in conditions of risk and uncertainty generated by incomplete knowledge of one or more variables that are a constant in the economic activity and a reason which explains to a certain extent, the differences between the profitability of business projects. Identifying the risk which may occur in the business carried out by the company constitutes a requirement due to the sensitivity degree of the economic outcome to the operating risks turning the company into a more or less risky investment. Thus, risk assessment appears as a requirement of management to monitor risk factors and initiate preventive measures, limitations or controversy of their effects.

## **2. The Risk Diagnosis in the Firm Activity**

Although in the specialized literature, risk has several acceptations for businesses carried out by economic agents (economic risk, exploitation risk, financial risk, commercial risk, investment risk etc.) the economic significance of risk is considered to be an important one, because it points out the inability of a company to adapt on time and at the lowest costs to environmental changes; in other words the economic risk expresses the volatility of the economic outcome under exploitation.

### **2.1. The Risk of Exploitation**

The risk of exploitation acts due to the sensitivity of result to changes of operating conditions. The probability that the size of the enterprise's activity can not cover the total expenses generated by its support because of their structure, it involves the emergence of risk of exploitation. For any economic agent the risk level of the operation is more important, as the share of the fixed nature of costs is higher.

In order to estimate the risk of operating, the business practice is using a tool of analysis known as the threshold of profitability, for establishing the conditions needed for the microeconomic balance, with or without profits (neutral point).

Threshold yield represents the quantity of products to be made and subject to sale by the enterprise so that the receipts from the sale would cover their variable costs, involving the process of production and fixed costs as well.

On the threshold of profitability level, the business profit is ineffective. As the company's fixed costs are higher, the threshold level of profitability is higher, implying that the company increases the volume of products or goods to be sold in order to become profitable. The formula used to determine the threshold of profitability is:

$$CAPR = Ch F/1-v$$

CAPR represents the turnover which must to be made for the enterprise to obtain zero profit;

Ch F - size of fixed costs involved in the production of the enterprise;

v - share in variables expenses (CV) in turnover (CV / CA).

Where the desired output calculation is needed to be done in order to allow the enterprise to obtain a zero profit (QPR), the formula becomes:

$$QPR = Ch F/pu - cvu$$

where:

pu is the average price in unit sales of company products;

cvu variable unit cost related to production and selling of products.

In assessing the operational risk it may compute together the threshold of profitability of the enterprise, also the coefficient of elasticity (Ke), coefficient known as *coefficient of leverage operation*. It measures the relative increase in operating results arising from a change in relative production or turnover. Relationship of calculation is as follows:

$$Ke = (\Delta Re/Re)/(\Delta CA/CA)$$

Ke represents the exploiting leverage coefficient (operation leverage);

$\Delta Re$  - surplus of exploiting result;

Re - exploiting result in current period;

$\Delta CA$  - surplus of turnover;

CA - turnover of current period.

## 2.2. The Financial Risk

The financial risk of economic agents is associated with the method of financing of the company business, given the sensitivity of the outcome to changes in funding conditions. Thus, the more fixed payment amounts are used in a higher proportion in the total financial sources, the more important is the financial risk dimension.

The financial risk's evaluation is made similar to the exploiting risk, with the helping of the following indicators:

- the safety margin;
- the safety index;
- the elasticity coefficient.

If it modifies the return of equity, the analysis of this modification due the financial policy could be pursued with the aid of a model entitled "financial leverage effect "

The financial leverage measures the impact of credit's quantization (in order to finance an investment) over its financial profitability.

The financial leverage effect, namely the variation of equity return depends on the correlations which exist between the return of assets and the debt cost or interest rate, on a side and the debt level on the other side.

If the economical agent analysis is profit taxation exempt, then the exercise result (Rex) could be determined as difference between the exploiting result (RE) and the interest (Dob) paid for the borrowed capital (Dat):

$$Rex = RE - Dob$$

The exploiting result is obtained from the calculation relation of assets return (re):

$$re = RE/Ae$$

If all these dates are replaced in the calculation relation of financial return, we will obtain the following formula:

$$rf = Rex/Cpr = (RE - Dob)/Cpr = (Ae*re - Dat*rd)/Cpr$$

We may observe that the economic active is entirely financed from the equity and the lent/borrowed capital ( $Ae = Cpr + Dat$ ). In this case the foregoing relation will become:

$$rf = [(Cpr - Dat)*re - Dat*rd]/Cpr = re + (re - rd)*Dat/Cpr$$

It is considered the following relationship on which, it will be build the following relation:

$$V_f + V_{ex} - Imp = 0$$

$$C_f = D_{ob}$$

Consisting of:

$V_f, V_{ex}$  – financial incomes, respectively extraordinary incomes;

$C_f, C_{ex}$  – financial expenses, respectively exceptional expenses;

$Imp$  – profit tax.

If in the mentioned relationship there are introduced the profit tax rate ( $t$ ), then the financial profitability rate becomes:

$$r_f = [re + (re - rd) * \text{Dat}/\text{Cpr}] * (1-t)$$

The indebted rate, as it is known under the title of leverage rate illustrates the influence which indebtedness retains over the equity rate of enterprise.

An economic agent could be in one of these three situations:

$re > rd$  – thereby the credits using will conduct to assets return ratio improvement;

$re = rd$  – credits using has no influence from leverage effect point of view;

$re < rd$  – credits using will conduct to performances reduction.

The influence factors on the financial profitability ratio are the assets return ratio and the leverage effect.

### 2.3. The Risk of Bankruptcy

The risk of bankruptcy appears due to the economic agent's failure to honor its payment obligations on time. Therefore, the risk of bankruptcy is manifested in the situation in which the company is unable to cope with payments to its creditors, suppliers, state, financial and credit institutions etc. The purpose of strategies to prevent the risk of bankruptcy (to restructure companies in difficulty) is to eliminate the causes and dysfunctions that have generated a decline of the economic performance recorded by the company. The causes that can lead to bankruptcy are many, focusing on: reduction of activity; reducing of margins and rates of return; the emergence and amplification of Treasury issues, management issues; the bankruptcy of customers, reduced market outlets, etc.

Analyzing the causes of bankruptcy it can be said that it is not a savage phenomenon, but a result of progressive degradation of the financial situation of the company. In these circumstances the risk of insolvency may be predictable a few years before termination of payments. Between the methods of risk analysis of bankruptcy is calling scoring method and the indicators of profitability, along with indicators of asset structure, indicators of liquidity or an indicator of efficiency. Provided condition for the selection of indicators showing the performance of an enterprise has an interdependence relationship.

#### **2.4. The Investment Risk**

The risk in the economic agent's investment business appears as a result of the fact that the achievement of all investments involves immediate expenses, while revenues and profits will come during a future period of time.

#### **2.5. Foreign Currency Risk**

Currency risk is manifested as a consequence of the occurrence of a loss of business and financial foreign operations, as a result of variation of exchange rates between the occurrence date of the claim or debt in foreign currency and the time of cash collection or the actual payment thereof. The strategies adopted for managing currency risk are carried out through sale/purchase operations of foreign currency from banks, through operations of reception/granting of loans in foreign currency, contracts sale/purchase operations in foreign currency firm term, through sale/purchase operations of operational contracts of currency.

All these being operations for covering the open position (the open position appears in case of lack of balance of claims with debts; in case of equality the closed position is recorded), but also through operations of provision set-up for currency risk.

The importance of currency risk coverage arises from the fact that it is also present in investment businesses.

### **3. Conclusions**

Any strategy involves a process of substantiation, elaboration and implementation. The strategy is based on both risk assessment process resulted in the identification and risk analysis also the risk management which implies the probability of event involving risk factors and developing a package of appropriate safety measures.



Since the strategy allows the identification of ways and means by which the company can progress towards the key objectives, the adopted management must take into account the possibilities offered by environment and market, such as the level of risk, restrictions and competition of the various possible options. In all these cases, management operates through decisions that can be grouped into operational, administrative and strategic decisions.

The objectives pursued through each category of decisions are: the operational decisions seek to obtain current operation with a maximum profit; the administrative decisions regard the management structure of the company and the purchase of necessary resources; development and orientation represent the objectives pursued.

Currently, due to the complexity of businesses carried out by economic agents and the risks which can influence them, economic agents solve differently the strategic formulation task. Although the strategies that can be adopted are multiple and in constant growth, the choice of a particular strategy is part of the strategic option of a company, that is to preserve its competitive advantage and to ensure its viability in internal and international competitiveness.

Regardless the financial restructuring the adopted strategy, the risk cannot be eliminated entirely, there is always left a certain irreducible level of uncertainty. Thus, the main objective is to ensure the premise of recovery characterized by obtaining sustainable economic performance.

In order to allow enterprises to impose obligations, it is necessary to establish a diagnosis of financial situations where there are illustrated the strongest points and the fable points of financial administration.

The objective is to detect eventually financial lack and to adopt new administration decision for the enterprise.

The importance of identification and quantification of risk at the economic agent's level stems from the fact that the company stability is important for managers, employees, customers, suppliers and creditors, as for the community in which it operates.

In order to improve the financial performances, the enterprise must accelerate the assets turnover, to increase the commercial profitableness and to substantiate the financial policy which could afford to make available the favorable conjunctures.

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## **Language Roles in Internal and External Communication in the Thai Tourism Industry Competitiveness**

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**Abstract:** Language plays important roles in both internal and external communications in the competitiveness of the tourism industry. Communication involves giving, getting, and highlighting information. Communication also enhances understanding and establishing harmonious relationships among people. Effective communication involves nine elements and it is influenced by a multitude of factors, including the use of language by employees, employee involvement and commitment and technological change. Language can be a means in helping maintain competitiveness. The usage of clear and appropriate language and vocabulary-building helps generating effective communication leading to organizational change. Observation and interview are ways of determining the degree of effectiveness of internal and external communications.

**Keywords:** language roles; communication; tourism industry; competitiveness; assessment communication

**JEL Classification:** D83; L83; M12

### **1. Introduction**

In the uncertain economic time and political crisis, effective internal and external communication is very important for smooth running of business in tourism industry. The success, the growth of individual executives and professionals and the ability in competitiveness are the aims in internal and external communication (Katz, 2005) (Zamora, n. d.). Internal and external communication build network

(Butler, 2008), establish a reputation for an organization (King, 2008), highlight the positiveness of the tourism industry (Carassalini & Anderson, n. d.), create competence, expand opportunities (Reimers, 2009), and maintain (Parrington, 2009) competitiveness. The internal and external communication can be in different forms and objectives (Tang *et al.*, 2009) such as in forms of talking to someone over the phone, chatting online, and sending message through e-mail, or writing letters to someone. Effective internal and external communication is a matter of discipline and day-to-day conversations (Vass, 2007). The lack of effective internal and external communication skills causes problems and distortion that lead to miscommunication and it creates negative results.

This article, the authors set out to review the definitions of communication, to analyse the differences of internal and external communication, the elements of the communication process, the factors of internal and external communication and the relevance of language to internal and external communication. Finally, the authors state how to assess the internal and external communication through the language which will enhance ability in competitiveness in Thai tourism industry.

## **2. What is Communication?**

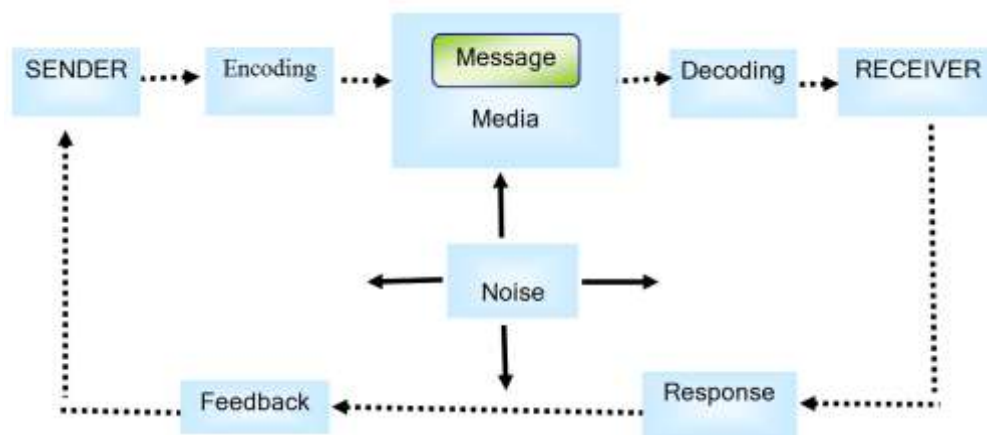
The term communication involves giving, getting, and highlighting information (Grunig *et al.*, 1992). It also includes exchanging of ideas, information, and opinions between two or more people (Gudykunst, 2004). Communication is a process of talking to someone, letting someone know how we feel, having comments on what people say or write (Welch *et al.*, 2001; Taylor, 2006). Oncken III (1998) defined communication as the chain of understanding that integrates an organization from top to bottom, from bottom to top and from side to side. However, he emphasized that the chains of understanding are not easy to design or maintain. Whatever it is, language plays an important role in modern communication organization (Melewar *et al.*, 2006). Effective communication enhances understanding (MacPherson, 1997). Particularly, most significant functions of communication are to transmit information and to interpret it. (Grôf, 2001)

Communication can be identified into types such as the mass communication, the wireless communications, the written communication, the spoken communication and the nonverbal communication. The mass communication means the ways of passing information to a large number of people. The wireless communication is

the communication which does not involve passing signals through electrical or telephone wires, for example mobile phones (Summers, 2000). The written communication certainly involves writing. The spoken communication involves speakers and senders (Richards, 1995). Nonverbal communication is related to communication through gestures, eye and body language (Usunier, 1996). Under these types are the modes of communication. These include thinking, action, observation, speaking, listening, writing and reading. However, it is emphasized that communication for tourism industry *vis-à-vis* other industries or organizations, involves internal and external communication.

### 3. Elements in the Communication Process

People who work in tourism industry should understand the fundamental elements of effective communications. Kotler and Keller (2009, pp. 514-516) pointed out elements of the communication process in Figure 1.



**Figure 1. Elements in the Communication Process**

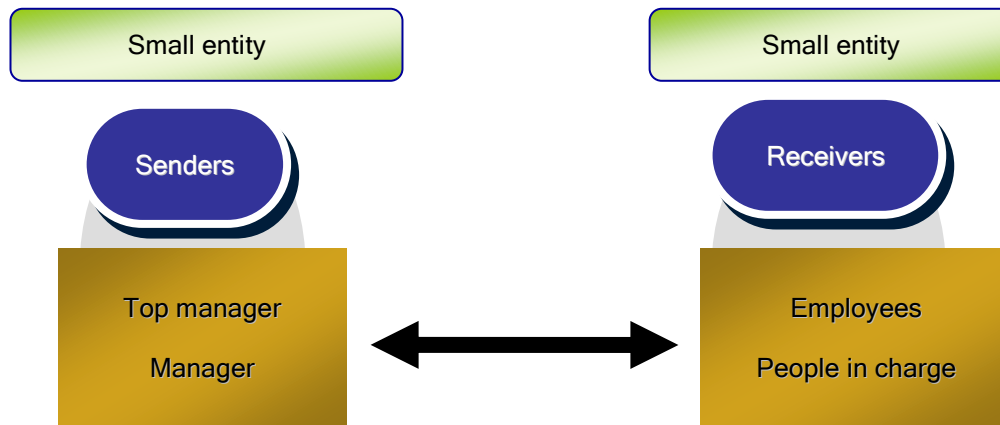
Source: Kotler, P. & Keller, K. L. (2009). *Marketing Management*. 13<sup>th</sup> Edition. London: Pearson Prentice-Hall, p. 514.

There are nine elements. Two are the major parties in a communication – *sender* and *receiver*, the next two represent the major representation tools – *message* and *media*, four represent major communication functions – *encoding*, *decoding*, *response*, and *feedback*. The last element in the system is *noise* (random and completing that may interfere with the intended communication). The model emphasizes the key factors in effective communication. Sender must know what audiences they want to reach and what responses they want to get. They must encode their messages so the target audience can decode them. They must transmit the message through *media* that reach the target audience and develop *feedback* channels to monitor the responses. The more the sender's field of experience overlaps that of the receiver, the more effective the message is likely to be. Note that selective attention, distortion, and retention processes may be operating during communication.

#### **4. Differences of Internal and External Communication**

Internal communication is the first step in a successful (Vass, 2007) competitiveness. It is the first frontier in the battle for the tourists or customers (Chong, 2007). Internal and external communication is the key to get all people together and then inspiring them to deliver the best (King, 2008), and to encourage employees to be active (Buck and Likely, 2009). It has enabled mankind to progress and become advanced organization (Zamora, n. d.). Internal communication is when tourism people need to talk to each other to make others know what they want or what they need. They sometimes want to show their thoughts and to listen to others (Chong, 2007).

Internal communication includes building up the ideas of tourism organization and setting up certain guidelines to follow. It can be a way in building a good relationship between employees inside the tourism organization (Chong, 2007). Actually, internal communication involves all activities of communication that exists within tourism organization. It can be oral, written, face-to-face, virtual, or in groups. Internal communication helps to establish formal roles and responsibilities for employees and it leads to the success of an organization. Figure 2 explains the internal communication.

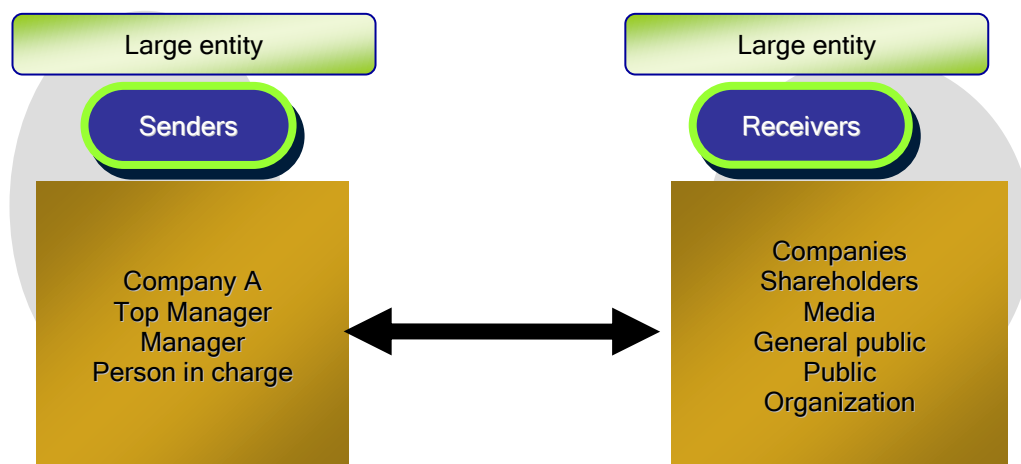


**Figure 2. Internal Communication**

*Source: Adapted from Kameda, N. (2005). 'A Research Paradigm for International Business Communication', from Corporate Communications International Journal, 10 (2), p. 170.*

Language can be a means to help tourism people in discussing and to create understanding between communicators. Today's internal communication is focused on challenging and stimulating employees, managing change, and gaining employees engagement and commitment, (Tourish & Hargie, 1998) (Smith & Mounter, 2005) (Chalmers, 2008), and it required more to develop skills and ability. Understanding people in organizations and know how to influence them in terms of knowledge, attitudes and behaviours is important for internal communication. Language plays an important role. Importantly, if nobody communicates within an organization, there might be a problem. The lack of communication will cause working process problems.

External communication is when the people involve speaking face-to-face with the tourists or customers (Samovar & Porter, 2004), marketing tourism products and services, advertising, and working on things like public relations (King, 2008), including businesses dealings with other organizations. It aims at obtaining and transferring information from the environment (Grôf, 2001). Figure 3 explains external communication.



**Figure 3. External Communication**

Source: Adapted from Kameda, N. (2005). 'A Research Paradigm for International Business Communication', from *Corporate Communications International Journal*, 10 (2), p. 170.

External communication can also be the written message like some quotes from the important person or legendary person, or advertising billboard that can tell some information about the tourism organization or tourism products. The customers will perceive about the company (Stewart et al., 2005). This shows how the importance of the language roles in external communication can gain profits for tourism organizations. Organizations will get more tourists or customers from the messages and actions that express what the organization truly is. It helps in telling many things to tourists or customers and community. From this point of view, just as internal communication carries information up, down, and across the organizations, the external one carries it into and out of the organization (Thill & Bovee, 2005), language plays important role as a means in communication. Andersen and Rasmussen (2002) referred to two-key-concept definitions: Corporate Communication (Fox, 2006) (Melnik, 2006) and Functional Communication.

*Corporate Communication* is the communicational which takes place inside the organization. Employees are important (Holtzhausen & Fourie, 2008). In other words, this kind of communication happens inside divisions, between divisions, between headquarter and subsidiary. Corporate communication also covers an instrument of management by means of which all consciously used forms of internal and external communication. Corporate communication is made up of



three types (Melewar *et al.*, 2006): management, marketing and organizational. Management communication refers to how employers convey information to their employees. Marketing communication is related to spending budget, supporting sales of particular goods or services. Organizational communication is related to sending and receiving messages that create and a system of consciously coordinated activities or forces of two or more people (Tompkins, 1984) (Allen *et al.*, 1996) (Salwen & Stacks, 1996).

*Functional Communication* is the ability to receive or to convey a message, regardless of the mode, to communicate effectively and independently in a given environment (Miller, 2006). Indeed, effective internal and external communication is important for tourism industry in competitiveness as it affects the ability of strategic managers to engage employees and achieve objectives (Welch & Jackson, 2007). In fact, the roles of language in internal communication and external communication will support each other. If the internal communication works well, the external communication will work effectively too (Grunig 1992). For tourism industry competitiveness, language plays significant role for both internal and external communication.

## **5. Factors of Internal and External Communication**

Effective internal and external communications are influenced by multitude of factors including the use of language (Andersen & Rasmussen, 2002) of employees, the employees' involvement and commitment and technological change (Chalmers, 2008).

The use of language can create both success and failure to tourism organization (Janssens *at al.*, 2004). The employees who are skilful in the language can communicate to achieve the aim of the organization. Language is an important factor in the categorization process (Usunier, 1996) (Lauring, 2007). However, Lauring (2007) claimed that language is ignored by many corporations. In contrast, lacking of skills in language may create negative results which will lead to the failure in communication.

The second factor is the employees' involvement and commitment. This means that the success of internal and external communication depends on the employees' involvement and commitment (Therkelsen & Fiebich, 2003). So, it is important

that tourism organization needs to improve employees' involvement and commitment in order to drive force the business and gain better competitiveness.

Another factor is related to technological change (Zaidman, 2008) (Whelan, 2009). Internal communication where the intranet is available as an example, it increases speed and it facilitates communication. Nevertheless, effective communication is impossible without improving employees' skills and knowledge with the technology (Chalmers, 2008).

Therefore, to fulfil effective internal and external communication, people who work in tourism industry need to understand and have some knowledge of these factors. Employers need to be self-motivated, creative and able to handle all complexity and ambiguity tasks effectively, particularly, by using language as a tool.

## **6. Relevance of Language for Internal and External Communication**

Steinberg (2007) points out that the effectiveness of communication is possible with using clear language, appropriate language and vocabulary building.

*Clear language* – Using clear language results in clear understanding between people. We need to use more specific and precise words. Using precise words helps to create a meaning in the minds of the others that is exactly the meaning we intend and helps to make meaning clearer. Take the word 'said' as an example. Notice the changes in meaning when we substitute another word such as 'stated', 'indicated', 'recommended', 'answered', 'requested', 'shouted'. Each word invokes a slightly different, but more precise meaning, in the mind of the listener or reader.

*Appropriate language* – Appropriateness of the language for communication is suitable for the people we want to communicate. Internal and external communication with appropriate words, Steinberg (2007) suggested that consideration of the demographic factors is necessary. This is related to the age, educational level, background, gender and interests.

*Vocabulary building* – The clarity and the appropriateness of language used for both internal and external communication can be improved by enhancing vocabulary. It is true that the more vocabulary we have at our command, the more precisely we will be able to express ourselves.

Every time we communicate with others, it is possible that misunderstanding can occur. Still, interact with others always helps us improve communication skills.

Language, especially English is a tool for facilitating communication (Dhir, 2005) (Durkin, 2009), transferring knowledge (Freely & Haring, 2003) and skills in various situations for both internal and external communication. Proficiency in the language is required for people who work in tourism industry as a global business environment. Deficiency in the language will create some barriers for both internal and external communication. This will also result in barrier for organizational development and ability in competitiveness. Consequently, the understanding of the role of language in communication is of great importance, and it should be focused (Dhir & Goke-Pariola, 2002) (Marschan-Piekkari et al., 1999) (Lauring, 2007), as Chomsky (1992) viewed language as internalized set for communication.

## **7. Assessment Internal and External Communication**

In order to determine people's skills in internal and external communication, Buck and Likely (2009) suggested dividing up the people into segments, whereas Gibson (n. d.) recommended talking with tourists or customers. Observations and interview also help to get information for determining the internal and external communication (Lauring, 2007).

## **8. Conclusion**

Internal and external communications are crucial in the Thai tourism industry competitiveness. Language plays an important role as a means and a source of power (Lauring, 2007) in communication, so employers, employees and tourists or customers in today's Thai tourism industry must learn to strategically adapt the communication styles so as to achieve and sustain competitive advantage. Regarding the role of language in communication, in this article, the authors set out to review the definitions of communication, to analyse the differences of internal and external communication, the elements of the communication process, the factors of internal and external communication and the relevance of language to internal and external communication. Finally, the authors state how to assess the internal and external communication through the language which will enhance ability in competitiveness in Thai tourism industry.

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**The Integrated Educational System.  
The Impact of Information Technology on  
the Educational Process**

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**Abstract:** SEI (computerized educational system) governmental program, initiated in 2001, is a national approach whose objective is to computerize the education system by giving schools the necessary equipment, by designing a large number of software for the interaction student-contents of subjects taught, by offering psycho-pedagogical training to teachers in order to ensure the placing of the student at the centre of the teaching-learning process and by setting the premises of a computerized network as support of a modern management (Ilia F., 2003, p. 34). As a generic term, the “impact” envisaged in this paper is noticed in the analysis of the beneficiaries’ opinions – managers, teachers, and students – about the usefulness and need of using the information technology in the education process. Probably the most significant answer obtained in this respect is the general opinion of students concerning the legitimacy of using the new technology in order to avoid socio-professional cast out. Most students consider that those who do not have access to a computer will be in a disadvantaged position later (90,4%), while only 8,7% think this issue is not important. The impact plans of the new technology on the educational process and system are countless, and determining them is a difficult and complex process. Anyway, a few incidence points have been found during the evaluation and they concern aspects of institutional development of schools, some implications for the professional training of teachers, as well as perceptions of beneficiaries regarding the effects of TIC (Information and Communication Technology) on students’ proficiency and the development of digital skills.

**Keywords:** Information and Communication Technology; integrated educational system; differentiated education; technical support; advanced eLearning.

**JEL Classification:** I20; D83

## **1. Introduction**

SEI (computerized educational system) governmental program initiated in 2001, is a national approach whose objective is to computerize the education system by giving schools the necessary equipment, by designing a large number of software for the interaction student-contents of subjects taught, by offering psycho-pedagogical training to teachers in order to ensure the placing of the student at the centre of the teaching-learning process and by setting the premises of a computerized network as support of a modern management. (Ministry of Education and Research., 2006, p. 4).

SEI is not an alternative solution to the traditional way of teaching (centered on the teacher) but a complementary one where teachers are the ones making decisions concerning the educational process – strategy, method, resources- so that a large number of students can reach the objectives of the curriculum. (Jugureanu, 2004, p. 24).

AeL (Advanced eLearning – learning system that requires the use of a computer) is an integrated system of teaching/learning and content management which makes the teachers' activity easier.

## **2. The Access to New Technology**

When we consider the teachers' and students' access to TIC, we can notice some situations that deserve to be taken into consideration in the context of the educational use of the new technology and the importance of data gathered from this research in order to measure the degree of TIC introduction into the system. Thus, the access to new technology can be regarded as a factor that fulfils some conditions such as the degree of availability of the specialized training program, the digital skills, the degree of teachers' and students' access to computers and Internet at school as well as at home, time allowed for students' and teachers' access to SEI labs – conditions we will further describe.

Schools which have been given computer networks during the last years would need an evaluation of the socio-economic conditions as chances to use the computer and the Internet offered to the beneficiaries of the educational systems. The educational environment, and in this context, the local existing conditions will be the object of the analysis regarding the use of TIC resources.



*Beneficiaries* of this program are not only students – who, by the skills acquired are those making the program efficient, but also teachers who increase their chances of improving and training permanently as well as the possibilities to update their teaching and evaluating methods.

### 3. Teachers' Access to Courses for Using TIC

When it comes to using a computer, a quarter of teachers declare that their level is very good (3, on a level from 0 to 3), and almost half of them think they can use the computer in at least a satisfactory way. Differences between urban and rural areas in this respect are insignificant; an important difference could be that between high school teachers (29% say they use the computer very well) and middle school teachers (21%).

The level of teachers participating in using TIC technology courses is equally distributed on school years and on living areas. A third of the teachers have not attended any course connected to new technology, which is surprising considering the precocious character of initiatives, projects and programs for introducing TIC in the Romanian educational system.

We can notice a significant difference between the number of teachers declaring they can't use a computer and the number of those who have not attended a training course in using TIC. That's why it would be a good thing to increase the tendency to acknowledge the skills acquired from non-formal learning processes in this field. Such an acknowledgement would be necessary since it would support a clear distinction between "using the new technology" and "using the new technology in education".

**Table 1. Distribution of teachers according to their attending TIC using courses**

	<b>Total</b>	<b>Rural</b>	<b>Urban</b>
<b>Yes</b>	62,2%	59,6%	63,9%
<b>No</b>	35,8%	38,3%	34,3%
<b>NonR</b>	2,0%	2,1%	1,8%
<b>Total</b>	100,0%	100,0%	100,0%

*Source: Report of evaluating research – SEI 2008*

Three quarters of the teachers who have attended at least a training course in using TIC (77,89%) declare that they have graduated the course recently, during the last 3 years.

Permanent training in this field has increased since 2001. It is also interesting to notice that during the last year, differences between urban and rural teachers have faded, an equal percentage of teachers attending TIC training courses in 2007.

The explanation for the rural teachers' growing access to TIC courses in 2005 and 2006 is given by a training component of the SEI Program – we can notice the figures that show this significant difference is originated by the number of teachers attending AeL courses: 30% in the rural area compared to 23% in the urban area (Table 2.8), when over half of the teachers who say they have attended training courses have actually attended AeL courses.

**Table 2. Participation in TIC training courses; differentiation according to living areas**

	The year of graduating the last TIC course	Total number of teachers	R	U
<b>1.-5.</b>	Before 2001	3,13%	2,85%	3,28%
<b>6.</b>	2001	2,78%	1,58%	3,47%
<b>7.</b>	2002	3,36%	1,27%	4,56%
<b>8.</b>	2003	3,94%	2,53%	4,74%
<b>9.</b>	2004	8,91%	3,80%	11,86%
<b>10.</b>	2005	20,95%	23,73%	19,34%
<b>11.</b>	2006	32,52%	39,56%	28,47%
<b>12.</b>	2007	24,42%	24,68%	24,27%

*Source: Report of evaluating research – SEI 2008*

**Table 3. The last TIC training course; differentiation according to living areas**

	<b>TIC training course</b>	<b>Total</b>	<b>R</b>	<b>U</b>
1.	Initiating/using the PC/ TIC courses	15,0%	12,1%	16,8%
2.	AeL (course)	26,3%	30,8%	23,4%
3.	ECDL/ICDL.	1,0%	0,7%	1,2%
4.	Course/programming languages (Forte, C++, Pascal, Oracle, database, php, MySQL etc.)	0,6%	0,3%	0,7%
5.	Network administration/Administrating and using SEI labs	0,4%	0,7%	0,3%
6.	Module 3 (during training)/Training course	1,6%	2,3%	1,2%
7.	Postgraduate course	2,6%	1,8%	3,1%
8.	Other	3,4%	2,1%	4,2%
	NonR	49,1%	49,3%	49,0%
	Total	100,0%	100,0%	100,0%

*Source: Report of evaluating research – SEI 2008*

Hence, AeL course represents the first step in using computers in the teaching process for an important part of the Romanian teachers.

The analysis of the answers given by teachers reveals less encouraging aspects which are unacceptable in such an advanced stage of the computerization of the educational system. We find few (or not even one) training programs that aim at the pedagogical aspect of using TIC in the teaching process – these courses of “teaching with the help of the computer”. At the beginning of 2008 we could say we are still in an early stage of efficiently using the new teaching, learning, and evaluating technology.

Compared to CCD, whose offers have attracted more urban teachers (44,8% compared to 27% of rural teachers), the educational software companies have created a process of training especially meant for the rural areas (35,57% compared to 18,46% form urban areas) (Table 4). This aspect emphasizes the previous argument regarding the usefulness of SEI program for rural teachers.

**Table 4. The institution organizing the last TIC training course – percentage of the total teachers who have attended training courses**

	<b>Institution that organizes courses</b>	<b>Total</b>	<b>R</b>	<b>U</b>
<b>1.</b>	CCD	38,22%	27,07%	44,82%
<b>2.</b>	SIVECO	24,85%	35,67%	18,46%
<b>3.</b>	ECDL(Romania)/ICDL	0,95%	0,64%	1,13%
<b>4.</b>	A firm/company	3,79%	5,10%	3,01%
<b>5.</b>	An association/foundation (NGO)	0,59%	0,64%	0,56%
<b>6.</b>	A university	12,19%	11,15%	12,81%
<b>7.</b>	My school/a school	13,49%	12,10%	14,31%
<b>8.</b>	Another institution	5,92%	7,64%	4,90%

*Source: Report of evaluating research – SEI 2008*

The opinion of most teachers (58,3%) concerning the usefulness of the contents of existing training programs related to the needs of the classroom activity is that they are adequate for the beginning, but in order to carry out some efficient teaching activities using the new technology requires direct experience and practice. 7,4% of the teachers consider that initial and permanent training programs should be improved.

**Table 5. Opinions regarding the usefulness of training programs for using computers in the classroom**

<b>Do you think the initial and/or permanent training programs you have participated in are adequate for the practical needs of using the computer for teaching/learning activities in the classroom? To what extent?</b>	
They are adequate for the first stage, but I still need practice/exercise	58,3%
They are adequate and suitable for the requirements of the practice; I don't need any other courses in order to carry out efficient teaching activities using TIC	17,2%
They are not adequate; the courses I have attended are not enough to plan and support teaching activities using TIC	7,4%
I don't know/ I have no opinion.	11,4%
NonR	5,7%
Total	100,0%

*Source: Report of evaluating research – SEI 2008*

Introducing more simulations and practical exercises would be an aspect of teachers' training in using the new technology for education which could be improved (situation mentioned by 10,8% of the practitioners). Moreover, organizing some regular training activities from simple to complex (16,4%), differentiated on subjects or levels of difficulty (6,5%), with suitable teaching material (7,7%) is considered to be an approach which would be a more effective training process with great advantages in improving pedagogical practice with a TIC component.

**Table 6. Proposals to plan the training process in order to make it more efficient**

<b>How do you think one should plan the training process in order to use efficiently the new technology in education?</b>	
On training modules, from simple to complex/In more stages/Regularly /at regular intervals (once a year, once every two years)	16,4%
More practice/ They should be focused on practice (not on theoretical aspects)	10,8%
In computer labs (and Internet access)/ They should have course support/ They should have (useful) software	7,7%
Differentiated on subjects/ On groups of teaching levels (middle school teachers separated from high school teachers)	6,5%
They should be taught by skilled instructors (who can communicate with students)/ seriously.	2,8%
In small groups (less than 20-25 teachers)	2,3%
They should be free	1,1%
They should offer enough time for thorough learning. Longer courses	0,8%
They should be mandatory	0,7%
<i>Other answers</i>	9,0%
NonR	10,8%
Total	100%

*Source: Report of evaluating research – SEI 2008*

If we continue the analysis of the training courses, we can notice a significant difference between teachers who have attended a specialized training program and those who haven't. The teachers who have attended a specialized training program have said that using the new technology in their teaching activity has had a positive impact on their students – on good students (83,3% compared to 64,5%), as well as on weak students (65,3% compared to 48,2%).

**Table 7. Teachers' opinions on TIC impact on school performance, differentiated on student categories**

Target group	The teacher has attended a TIC course	Impact			I don't know	NonR
		positive	negative	none		
On good students	YES	83,3%	0,4%	3,4%	10,2%	2,6%
	NO	64,5%	1,2%	5,3%	21,5%	7,5%
On weak students	YES	65,3%	3,9%	14,4%	12,8%	3,6%
	NO	48,2%	5,2%	13,7%	23,3%	9,7%

*Source: Report of evaluating research – SEI 2008*

It is also important that the non-answer percentage and the percentage of those who don't have the ability to estimate this impact is a lot lower for teachers who have attended TIC using courses.

Therefore, "teachers" consider technical training to be essential for "access". Although the number of teachers who can use the computer has significantly grown over the last years (about 50%, with differences accounted for between high school and middle school), it is still worrying that there is a high number of teachers who can't use the computer. The same observation concerns the number of those who haven't attended the TIC training courses, although data show an increased curve of teachers' participation at such courses.

Students' TIC access is stimulated by the increased interest these beneficiaries have for it, most of them (95%) declaring they would like to participate in more lessons using TIC. Their statement is supported by the significant percentage of students who use the computer at home (83%) or/and in other locations outside schools (21,5%), with differences between urban and rural areas as main location.

The educational software for school subjects is obtained mainly from SEI Program (free) and it is completed by software unloaded from the Internet or bought with school funds. These are completed by software made by teachers and students,

stimulating action supported by contests organized at national level. In this process the urban teachers have an advantage over the rural ones because of the large number of computer owners (85,1% in urban area compared to 69,4% in rural area) and the difference is the same concerning the Internet connection.

Emphasizing the positive impact TIC has on school performance, over 50% of the teachers declare that TIC has a significant contribution in achieving a differentiated education, also mentioning that producing the right tools requires a great effort. At the same time, it needs to be said that a tenth of the students have difficulties in using educational software, mainly due to the low level of their training. We also take into account the opinion (expressed by a large numbers of students) according to which working/interacting with the software doesn't help the weak students, and it also creates difficulties for them.

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## **Governance or Governing – the Missing Link?**

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**Abstract:** Governance and governing are two distinct concepts, but they intertwine. “Good governing” exercises good influence on development. “Good governance” supposes first a relationship of power focused on a series of reforms structured at three levels: the political – administrative level, the economic level, and the level of civil society. As this dimension is difficult to measure, the qualitative evaluation of the governing act raised the interest of the World Bank researchers, who elaborated and monitored the dynamics of a set of indicators, which includes six major dimensions of the governing. A retrospective concerning the image of governing in Romania during the period from 1996 to 2005 suggests a modest increase of the score: from -0.138 (1996) to 0.008 (2002); that was partially achieved based on the voice and responsibility index and on the political stability index, not on those that measure more directly the administrative performance or the integrity of the governing act. For a comparative study, we chose seven countries for the purposes of analysis (two new European Union member states: Romania and Bulgaria; two older member countries of the European Union: Slovenia and Latvia; three non-member states: Moldova, Ukraine, and Georgia), which reveal the quality of the governing from a comparative perspective. Corruption control completes the image created by the analyzed indicators. The mere formal accomplishment of commitments made in the pre-accession activity, doubled by recent internal evolutions, bring doubts about the credibility of the anticorruption reforms, as Romania continues to be considered the country with the highest CPI in the European Union. The pessimism of public opinion and the fact that only 34% of the Romanian people consider that the level of corruption will decrease in the following three years constitutes an alarm signal addressed to the governance, in view of the real reformation of the administration system, of giving a sense of responsibility to the public and private sectors, of imposing, observing and materializing a real commitment for preventing and fighting corruption, the risk of which may be a threat to national security. Human governance creates a favorable environment for human development and elimination of poverty. If the preoccupations of the governance institutions are centered on the interests, needs, and fundamental rights of the population, progress may be achieved in the fight against poverty. If a country tries to apply economic policies in order to promote a beneficial increase to the poor ones, along with programs meant to help reach the targeted goals, the effects may be attenuated or annulled, when the governance institutions are ineffective or passive. The conclusion is that the governance is the missing link between the efforts of struggle against poverty and reaching the objective of poverty reduction.

**Keywords:** governing; governance; corruption; economic freedom; poverty

**JEL Classification:** H11; G18; G28

*Governing* has been defined in many ways: as people managing an entire nation, or as an exercise of authority to administrate the country's resources and businesses. (United Nations, 2004, p. 9) "Governing is the sum of various ways in which individuals and institutions, both public and private, manage their own businesses." (Commission on Global Governance, 1995, pp. 2-3) "Governing is the manner in which power is exercised within the administration of a country's economic and social resources." (World Bank, 1994, p. xiv) Inside international organizations promoting economic strategies and politics, the notion of governing is not limited to descriptive acknowledgments, but is also qualified, thus upholding the idea of efficient governing.

The notion of *governance* can be understood as a more active and horizontal form of governing when compared to the traditional forms which have a rather pronounced hierarchic and vertical feature. "Governance is about an apparatus implying institutions, relations, rules and behaviors, all at the same time, meaning much more than the present concept of governing." (Pérez, 2003) (Feleagă & Vasile, p. 24)

The notion of *governance* has been introduced in the European Commission's "White Charta" (2001) and defined as being a set of rules and methods for ruling, based upon five basic principles: transparency, participation, responsibility, efficiency and coherence of the European communitarian system. The finality of this process' intercession is given by the increase in the average citizen's involvement, ensuring a democratic, flexible framework in order to facilitate elaborating coherent, transparent and responsible decisions.

Governance is multidimensional. The system of governance is made up of a variety of processes, systems, organizations and rules regarding demand and offer of public bureaucracy, starting with non-executive surveillance institutions and citizens responsible for the performances of bureaucracy. Everything could be summed up to this: *Governance encompasses those methods used by societies in order to distribute power and manage public resources and issues.*

*Human governance* creates a favorable environment for human development and elimination of poverty. Human governance has *three essential qualities: dominance* (it is active and it serves the public interest); *equity* (it contributes to creating a society ensuring equality of chances to all individuals); *responsibility* (it is grouped in transparent structures, which answer to the people). (PNUD, 2000) If the

preoccupations of the governance institutions are centered on the interests, needs, and fundamental rights of the population, progress may be achieved in the fight against poverty. If a country tries to apply economic policies in order to promote an increase beneficial to the poor ones, along with programs meant to help reach the targeted goals, the effects may be attenuated or annulled, when the governance institutions are ineffective or passive. The conclusion is that *governance is the missing link between the efforts of struggle against poverty and reaching the objective of poverty reduction*.

Governance can be measured using *two types of indexes*<sup>1</sup>:

- 1) *Global indexes* – monitoring the system’s global performance and helping in obtaining the best set of global results;
- 2) *Specific indexes* – focusing on the quality of the globally distributed elements of national governance, being more adapt at frequent changes taking place in the field of governance, which enforces their feature of being “usable” in view of improving the results of governance.

The purpose of using these types of indexes: increasing the state’s awareness regarding the importance of governance; improving governance reforms on a national level; monitoring the advancement of these reforms and comparing them nationally and internationally; assigning help granted by international institutions; carrying out research on the economic impact and determinant factors for governance; assessing the country risk (e.g. investment risks).

The following table presents a typology of the indexes regarding the measurement of quality in institutions and processes, as well as the results of these institutions:

**Table 1. Types of governance indexes**

	Measuring the quality of processes / models	Measuring the results
<i>Specific measurements</i>	CPRF index (public spending and financial responsibility) CFPAP sub-index (the quality of the management systems of public finance and the quality of	Assessing the climate for investments Inquiries/ Polls regarding the analysis of the business

<sup>1</sup> „Plan d’exécution pour le renforcement de l’engagement du Groupe de la Banque Mondiale en matière de gouvernance et de lutte anti-corruption”, 17 aug. 2007.

	public administration) Sub-index for the index of global professional ethics (IDM) Sub-index for the Open Budget index (IOB) The acquisitions index of OCDE (IAOCDE) The Doing Business index (IDB)	environment and the performance of companies (BEEPS) Global governing index (IMG)
<i>Global measurements</i>	Global CFPAP Global IDM Global IOB DB global index	Transparency International IMG Freedom House Polity IV

Source: „*Plan d'exécution pour le renforcement de l'engagement du Groupe de la Banque Mondiale en matière de gouvernance et de lutte anti-corruption*”, 17 aug. 2007, p. 25

Out of the multitude of the index measuring the results of governance, we will be referring only to the following:

### **Global Governance Indexes**

As this dimension is difficult to measure, *the qualitative evaluation of the governing act* raised the interest of the World Bank researchers, who elaborated and monitored the dynamics of a set of indicators, which includes six major dimensions of the governing: respect for political, civil and human rights; ensuring political stability and avoiding violent conflicts; efficient governing through an active and functional democracy and through high quality public services; ensuring a favourable business environment; edification of a working state of law; fight against corruption. (Kaufmann, 2005, pp. 82-83)

A retrospective concerning the *image of governing in Romania* during the period from 1996 to 2005 suggests a modest increase of the score: from -0.138 (1996) to 0.008 (2002); that was partially achieved based on the voice and responsibility

index and on the political stability index, not on those that measure more directly the administrative performance or the integrity of the governing act. In Romania, the quality of the administrative level has fallen behind, with the quality of regulations following a sinuous ascending – descending curve, reaching a negative value in 2004. As for corruption control, it has also followed a descending trajectory, “which justifies the negative assessments Romania received in that time, including the Annual Reports of the EU Commission, which do not seem to be purely subjective and politically motivated, as it has sometimes been said” (SAR, 2003).

**Table 2. The quality of Romania’s governing, 1996-2005**

	<i>1996</i>	<i>1998</i>	<i>2000</i>	<i>2002</i>	<i>2005</i>
<i>Voice and responsibility</i>	0,03	0,24	0,43	0,38	0,57
<i>Political stability</i>	0,54	0,20	0,01	0,42	0,46
<i>Governing efficiency</i>	-0,53	-0,63	-0,58	-0,33	-0,57
<i>Quality of regulations</i>	-0,43	0,30	-0,27	0,04	0,58
<i>State of law</i>	-0,27	-0,25	-0,21	-0,12	-0,45
<i>Fight against corruption</i>	-0,17	-0,38	-0,48	-0,34	-0,52

*Source: Kaufmann D., Kraay A., Mastruzzi M. – “Governance Matters III: Governance Indicators for 1996-2002”, World Bank Research Department Working Paper, 2003; „A decade of Measuring the Quality of Governance”, sept. 2006; PNUD -România– „RNDU România, 2007 – Aderarea la UE în beneficiul tuturor”*

In 2002, Bulgaria<sup>1</sup> managed a score higher than Romania’s, 0.26, registering higher values for its indexes, except the quality of governing and the control of corruption which registered small negative values. But in just a few years, remarkable results have emerged on the scene of the anti-corruption campaign, due to cooperation between the nation and the government (Bryane, 2003).

<sup>1</sup> Furthermore, in a Report of the World Bank, in July 2007, referring to the quality of governing in 212 world countries, Bulgaria scores better than Romania for the following indexes – freedom of speech, quality of public services, political stability, the rule of the law, corruption control, as well as the government’s capacity to formulate politics which allow the development of the private sector.

For a comparative study, we chose seven countries for the purposes of analysis (two new European Union member states: Romania and Bulgaria; two older member countries of the European Union: Slovenia and Latvia; three non-member states: Moldova, Ukraine, and Georgia), which reveal the quality of the governing from a comparative perspective.

**Table 3. The quality of Romania's governing in 2004 – comparative analysis**

	<i>Slovenia</i>	<i>Latvia</i>	<b><i>Romania</i></b>	<i>Moldova</i>	<i>Ukraine</i>	<i>Georgia</i>	<i>Bulgaria*</i>
<i>Voice and responsibility</i>	1,12	0,96	0,36	-0,47	-0,62	-0,34	0,56
<i>Political stability</i>	0,99	0,95	0,22	-0,62	-0,27	-1,26	0,56
<i>Governing efficiency</i>	1,02	0,6	-0,15	-0,73	-0,67	-0,8	-0,06
<i>Quality of regulations</i>	0,89	1,02	-0,06	-0,49	-0,48	-0,64	0,62
<i>State of law</i>	0,93	0,48	-0,18	-0,65	-0,83	-0,87	0,05
<i>Fight against corruption</i>	0,97	0,23	-0,25	-0,86	-0,89	-0,91	-0,17

Source: Kaufmann et al, 2005 – [www.worldbank.org/wbi/governance](http://www.worldbank.org/wbi/governance)

\*statistics date from 2002 ; Scores are between -2.5 and 2.5, where the higher values mean better governing performances, with 2.5 representing the highest score possible.

The *Voice and responsibility* index registered positive values for EU member states, the highest ones being registered in Slovenia and Latvia who had clearly taken the lead, followed by Bulgaria and Romania, with values a little above 0. Georgia, Moldova and Ukraine formed an almost compact group on the negative scale of values for the respective index.

The *Political stability* index registered the same trend of values for the analysed countries as the previous index, mentioning that Georgia had registered a very low value, -1.26, proving the granted possibility of a dramatic change in government compromising the quality of governing. The fact that the index shows positive values for Romania and Bulgaria proved that, despite the changes in leadership, the

perspective of the EU integration has determined these countries to take measures in stabilizing the political situation in the region.

Bureaucratic competence, the quality of public services, the consistence and the orientation towards the future of government politics, were all measured in and through *governing efficiency*. Among the group of the analyzed countries, only Slovenia and Latvia registered positive values, all the other countries presenting very low values for this index, yet mentioning that the values for Romania and Bulgaria were close to the middle of the interval. This polarity in two groups of countries meant an obvious situation: not all the analyzed countries had issues elaborating and implementing government politics.

*The quality of regulations* measured the incidence of commercial politics, the efficiency of norms and regulations applied to various fields of activity. Latvia, Slovenia and Bulgaria were far ahead, registering positive values, with Romania close to the middle of the interval, and all the other three countries registering negative values, reflecting the low performance of regulation politics.<sup>1</sup>

In Romania, consolidating a *state of law* is being prevented by the judicial system dependant on political power. During the rush of the EU member states ratifying Romania's Treaty of Accession, at the highly publicized moment of uncovering several grand cases of corruption to the nation, some Romanians from Germany questioned the "Romanian state of law".<sup>2</sup> "As for the good functioning of the state of law, fighting corruption and applying laws, the pressure to reform the

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<sup>1</sup> Report regarding the implementation process of the Regulatory Reform in Moldova – The reform of the regulations framework for the enterprise activity (2004), constituting one of the fundamental measures foreseen by SCERS, is meant to substantially reduce the level of the enterprises depending on the administrative regulations, as well as reducing financial and temporal expense supported by economic agents willing to obtain various authorizations, certificates and permits. Law no. 424- XV, also called the Law of the "guillotine", has entered into force on February 7, 2005, and sets principles and actions necessary to revisiting the existing normative framework, in view of eliminating regulations which do not match the current legislation and present barriers for the development of the business environment.

<sup>2</sup> „Romania is not a state of law”, said the academic counselor from Bremen University, Viorel Roman, within the "What are Romanians doing in Germany?" circle of discussions, organized by the German-Romanian Association in Stuttgart, in March 2006. The above-mentioned statement was also upheld by the writer Liviu Valenas from Nürnberg, as well as other participants to the circle, who have amply treated the corruption issue in Romania. Political, economic and administrative corruption still jeopardize a fundamental right, that of the rule of the law. Our opinion would be that: Romania is not yet a real state of law. And all this, despite the principles of the Constitution, in art.1 al.3 where it says that: "Romania is a democratic and social state, governed by the rule of law, in which human dignity, the citizens' rights and freedoms, the free development of human personality, justice and political pluralism represent supreme values and shall be guaranteed."

institutions has to come from inside Romania, to build slowly through the use of coherent action of the political forces of the society. The pressure of the UE has definitely been a positive, even if late, influence, which has helped in the long run”, said *John Nellis*, an expert of the World Bank, about the help granted to post-communist countries for the process of privatization. So why wonder that in 2004, under these circumstances, Romania registered a score similar to that of 2000.<sup>1</sup> Bulgaria (even if it has a low score), together with Latvia and Slovenia, have registered positive scores. In Moldova, Ukraine and Georgia, the situation of very low scores is easily explained, as these countries are faced with severe problems concerning organized crime.

*Corruption control* completes the image created by the analyzed indicators.

### **Index of Corruption Perception at Transparency International**

Corruption undermines economic growth, eats away at democracy and causes numerous disorders at a social level. “Despite certain progress, corruption still determines a waste of imperatively necessary resources for education, health and infrastructure”, declared *Huguette Labelle*, chair of Transparency International (TI), 2007. Poor countries suffer the most because of corruption, the tight correlation between corruption and poverty becoming obvious due to the fact that almost half of the countries in which corruption is perceived as endemic<sup>2</sup> - 82 countries out of 180 in 2007 (45.5%) have registered scores lower than three – are considered by the World Bank as being countries with low income. Meanwhile, the countries in a state of crisis, like Afghanistan, Iraq, Sudan and Somalia occupy the last positions of the index, with an IPC score between 1.4 and 1.8<sup>3</sup>. “Countries torn apart by conflict register immense costs for their ability to govern. With poor or no public institutions at all, mercenary-like individuals steal public resources, and corruption blossoms”, said *Labelle*. The corruption of a limited number of powerful individuals, as well as failure from leaders and institutions in controlling and preventing corruption does not imply that a country or its citizens are the most

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<sup>1</sup> According to Freedom House, Romania’s score for “state of law” shows a stagnant evolution between 1997-2004 (4.25 for the entire analyzed period), registering the same level as EU non-candidate countries: Albania, Serbia and Montenegro.

<sup>2</sup> IPC uses a scale from zero to ten, where zero indicates a high level of perceived corruption, and ten indicates the purest country concerning corruption. A value of the index higher than 3 indicates an endemic corruption.

<sup>3</sup> Transparency International the global coalition against corruption 2007, [www.transparency.org](http://www.transparency.org) sau [www.ICGG.ORG](http://www.ICGG.ORG)



corrupt, but only that the great majority of people in these countries are merely victims of corruption.

*Three priorities* on the current agenda of countries with a low IPC should be: improving the transparency of financial management, from collecting taxes and levies to public expense being carried out; improving monitoring and control mechanisms; an independent and professional judicial system, which can guarantee stopping the impunity of corrupt officials, and which can earn and stimulate the trust of both the public and of the donors and investors.<sup>1</sup>

However, some relatively poor countries show that there is a possible exit from the vicious circle of poverty – corruption, good IPC scores – in Botswana, Cape Verde, Chile, Dominica, Estonia, Ghana, Samoa, Senegal, Saint Lucia, Saint Vincent and Grenadine and Uruguay – by proving that these countries manage to control corruption to some extent. The progress registered in the fight against corruption in Africa show that political strong will and constant reforming can improve perception on corruption. Namibia, Seychelles, South Africa and Swaziland are among the countries with an IPC score between 3.3 and 5.1 in 2007. Many of the countries which have registered score improvements in 2007 are located in Eastern and South-Eastern Europe (Croatia, The Czech Republic, Italy, Macedonia and Romania); this trend represents the past and present effect of joining the EU in the fight against corruption.

*For 10 years, Romania, one of the countries with a strong and negative tradition of corruption, has been marked by an endemic and systemic corruption at nearly all levels of all institutions. Endemic corruption leads to decrease in public income, undermines general trust and weakens the credibility of the state. The cultural explanation regarding the Balkan tradition and the explanation of communist economic and institutional structures, as well as the reflex of adapting an ever-changing environment, generated by the effects of the post-communist transition, have both contributed in marking the corruption phenomenon as a fatality, impossible to remove. The beginning of negotiations for joining the EU and NATO have brought forth new elements: elaborating anti-corruption strategies and plans, initiating anti-corruption studies and campaigns<sup>2</sup>, which led to an improvement*

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<sup>1</sup> Press release, “Persistența corupției în țările sărace necesită măsuri la nivel mondial”, Londra/Berlin, 26 septembrie 2007.

<sup>2</sup> The first strategy, the first anti-corruption plan and the law of free access to information of public interest were all adopted in 2001; the National Anti-corruption Directorate was formed in 2002; in 2003, the Parliament adopted law 52 concerning the transparency of decisions in public

regarding the perception of corruption, so that the year 2006 was the first one after 1999 in which the level of corruption reached a score of 3.1, only to follow a new ascending trend in 2007, reaching 3.7.

**Table 4. Romania's evolution in TI's corruption standings, 1997-2007**

Country/ Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<b>Romania</b>	3,44	3,0	3,3	2,9	2,8	2,6	2,8	2,9	3,0	3,1	3,7
<b>Bulgaria</b>	-	2,90	3,30	3,50	3,90	4,0	3,90	4,10	4,0	4,0	4,1
<i>EU Average</i>	7,19	6,67	6,53	6,5	6,49	6,51	6,57	6,58	6,6	6,74	6,51
<i>Romania's standing*</i>	37	61	63	68	69	77	83	87	-	84	69

Source: [www.transparency.org](http://www.transparency.org)

\* the score registered by a country is a much more important index for the level of corruption perceived for that country, given the fact that a country's standing can be modified because the fact that new states are being included in the index, while others are being excluded.

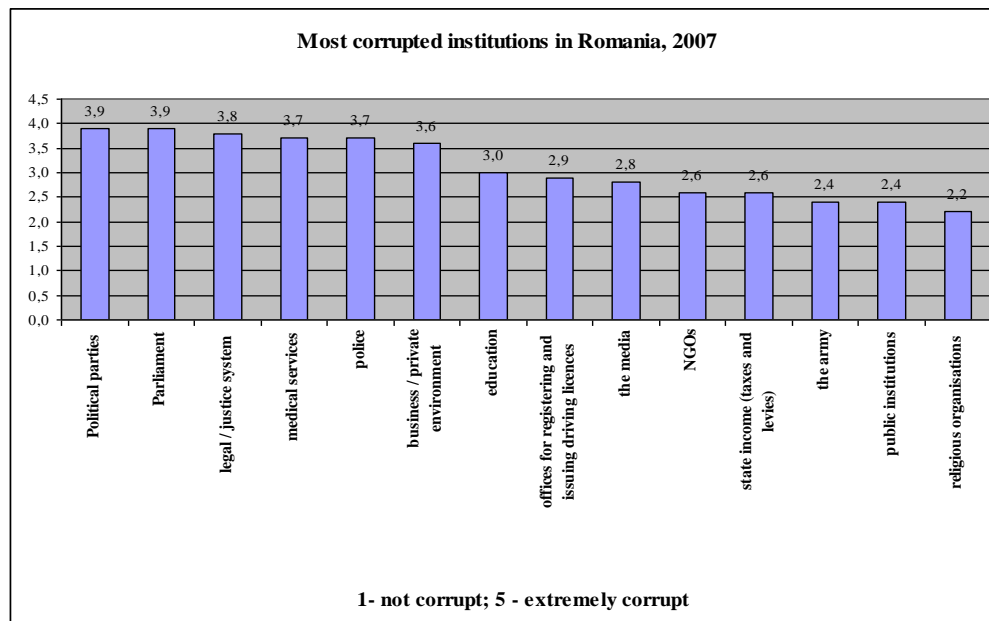
The mere formal accomplishment of commitments made in the pre-accession activity, doubled by recent internal evolutions, bring doubts about the credibility of the anticorruption reforms, as Romania continues to be considered the country with the highest CPI in the European Union. *Romania ranked 69, together with Ghana, while Bulgaria, with a much more obvious evolution in the last decade, ranked 64, together with Croatia and Turkey. Almost a year after joining the EU, the general audience's perception of the so-called "small corruption"<sup>1</sup>, especially referring to individual perspective, could be represented under the form of the following graph:*

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administration; a set of anti-corruption laws was adopted, regulating for the first time the conflict of interest of persons occupying leading positions within the state; a National Control Authority was formed to monitor and control wealth and interests; 2004 saw a new reform seeking to secure the independence of the judicial system; in 2005 a new anti-corruption plan; in 2007 the Senate ratified the law concerning the founding of The National Agency for Integrity (Transparency International considers this method to have been belatedly adopted and under the pressure of the safeguard clause). Romania is involved in the Stability Pact against Anti-corruption Initiative (S.P.A.I.), is a founding member of GRECO "Group of states fighting corruption", founded in 1999.

<sup>1</sup> Global Barometer for Corruption (BGC) is a poll measuring the general audience's perception of corruption and people's experiences about this phenomenon. The poll is made by Gallup International for Transparency International.

Having their trust altered and considering the government's efforts in fighting corruption inefficient (55% of the participants considered them completely inefficient, 19% considered them somewhat efficient), in 2007 the public opinion considered that the most corrupted were still the political parties and the Parliament, with 3.9 points, the justice system with 3.8 points, as well as both the police and the health system with equal points, 3.7 (even if the points were lower than the previous year for the health system; the police registered an increase of 0.1). The same increase when compared to 2006 can be applied to public services and institutions and to offices issuing official documents, with 2.4 and 2.9 points respectively. The general perception of the business environment, mass-media and civil society was also worrying, all the three continuing to register increasing values.



**Graphic 1.**

Source: Transparency International The global Barometer of Corruption, 2007

Considering the category of declared bribes, there were five groups of countries, and Romania fell in the first one (more than 30% of the participants, namely 59%, admitted of bribery), together with Albania, Cambodia, Cameroon, Macedonia, Kosovo, Nigeria, Pakistan, the Philippines and Senegal. Our Bulgarian neighbors

*ranked much better (16%), falling in the third bribery “platoon” with a percentage of 8%-16%, together with Croatia, Turkey, the Czech Republic and Luxembourg. The Global Barometer of Corruption highlights an amazing aspect: most of the times, bribes are demanded of those coming from poor families, whether from countries under development or already developed – “All over the world, those with a smaller income have to pay more often.” With no access to a fundamental human right – free access to public services, poor people feel the worst effects of corruption, reflected on income, while the decrease in the possibility of a bribe features a strong connection to age ( under 30 years – 18%, over 65 years – 4%).<sup>1</sup>*

*The pessimism of public opinion and the fact that only 34% of the Romanian people consider that the level of corruption will decrease in the following three years constitutes an alarm signal addressed to the governance, in view of the real reformation of the administration system, of giving a sense of responsibility to the public and private sectors, of imposing, observing, and materializing a real commitment for preventing and fighting corruption, the risk of which may be a threat to national security.*

Rich countries and lands from Europe, Eastern Asia and North America scored high IPC, reflecting the existence of relatively clean public sectors, upheld by political stability, solid regulations concerning conflicts of interests and free access to information, as well as a strong civic society, free to exert monitoring activities. If in 2006 Finland, Iceland and New Zealand occupied the first place in Transparency International’s standings, with an equal score of 9.6, meaning the smallest level of corruption, in 2007 the least corrupt states were Denmark, Finland and New Zealand (9.4 points).

High-level corruption in poor countries has gained an international dimension, involving countries ranked among the first in the IPC. IPC is complementary to TI’s *Index of the Bribers* (IPM)<sup>2</sup> – a study carried out from the perspective of the “offer” part of corruption, taking into consideration the opinions of those inside the system. Most of the times, bribe money come from multinational companies in

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<sup>1</sup> Transparency International in the global coalition against corruption - “Raport asupra Barometrului Global al Corupției 2007 al Transparency International”, Departamentul de Politici și Cercetare TI, Berlin, dec. 2007.

<sup>2</sup> The Index of the Bribers is a ranking of the main exporting countries, in view of the willingness of their companies to bribe outside the national borders. The index uses the Executive Opinion Survey (EOS) research, carried out by partner institutes of World Economic Forum. Only three editions of this index have taken place, in 1999, 2002 and 2006; Romania is yet to join, as it does not fulfill the request of being a world / regional leader of exports.

developed world countries, which consider bribing on export markets as a legitimate business strategy, and the world's financial centers create the possibility that corrupt officials may transfer, hide or invest ill-gained fortunes.<sup>1</sup> Although the OCDE anti-bribe Convention entered into force in February 1999, forbidding the corruption of foreign clerks, "bribes and steps taken in inclining clerks and politicians towards corruption undermine the country's wishes, poorly managed and not prepared for the long run" (Eigen, 2003). What is interesting is that, despite international regulations (OCDE Convention and UNCAC) and modifying national legislations, further incriminating this practice, there are still grave issues with implementing and respecting such measures; thus in 2006, Labelle stated: "Companies which bribe compromise the countries' best efforts to improve governing, thus forcefully enlisting them in poverty's vicious circle."

In the IPM standings, India, China and Russia occupy the last places, with the weakest indexes. If these countries, among the great exporters (China ranks fourth), would ratify the anti-bribe Convention, things would probably get better. The fact that they are placed outside the system they are taking advantage of, strongly discourages companies in OCDE countries and the OCDE countries themselves to play fair concerning correct norms of behavioral conduit, economically and commercially speaking. In full process of joining the EU, Turkey questions the commitments taken by signing the Convention in 2003. France and Italy have also scored low, as the companies from these countries are considered by African participants as being the most corrupt of all the EU countries, from a total of six countries. Despite numerous scandals related to the British Aerospace company, Asians believe that Great Britain has proven a minimal respect for the Convention, as it ranks 6<sup>th</sup> out of the first 30. With all their internal anti-corruption measures in Hong Kong, Singapore, Taiwan and the Arab Emirates have been negatively assessed by participants outside the OCDE, who have indicated a double standard in business practices. In the Americas, while Brazil scores 5.65, Mexico fares a lot better, probably due to the fact that most of the exports head towards the US.

However, one has to note the fact that, even if there are no absolute champions (between Switzerland's top score of 7.81 and the possible maximum of 10, there are still a lot of things to regulate), along with adopting the OCDE anti-bribe Convention, progress has started to appear. Yet for the future there has to be further rigorousness in monitoring and applying it; restricting the access to development

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<sup>1</sup> Offshore financing have played a central role in stealing enormous sums from poor countries, like Nigeria or the Philippines, facilitating breaking the law by corrupt leaders.

banks for companies condemned of bribing; adopting, strict observation and monitoring of internal anti-bribe politics by subsidiary firms and branch offices as well; criminal investigations of bribing companies, supported by international financial and judicial cooperation. <sup>1</sup>

### Freedom House Index

A country's index is calculated considering the practical effect of the actions of the state and of the non-governmental elements, on civil rights and freedoms, thus allowing the analysis of the long term evolution of the respective country, as well as a comparison on a regional level.

**Table 5. A comparison regarding corruption\* in South-Eastern European countries, during 1999-2004**

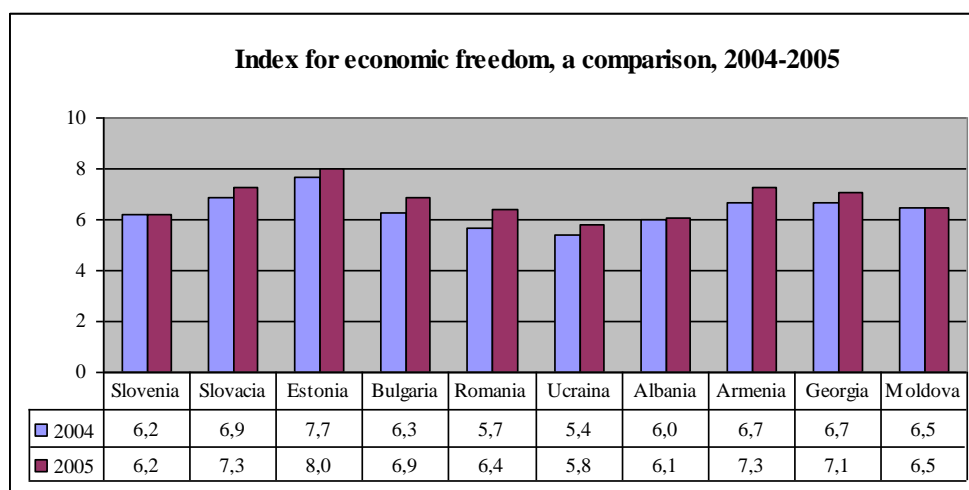
Corruption	1999	2001	2002	2003	2004
Albania	6,00	5,50	5,25	5,00	5,25
Bosnia	6,00	5,75	5,50	5,00	4,75
Bulgaria	4,75	4,75	4,50	4,25	4,25
Croatia	5,25	4,50	4,50	4,75	4,75
Kosovo	-	-	-	-	6
Macedonia	5,00	5,00	5,50	5,50	5,00
<b>Romania</b>	<b>4,25</b>	<b>4,50</b>	<b>4,75</b>	<b>4,50</b>	<b>4,50</b>
Serbia	6,25	6,25	5,25	5,00	5,00
Slovenia	2,00	2,00	2,00	2,00	2,00

Source: Freedom House, Poll „Nations in Transit”-2004, [www.freedomhouse.org/nit](http://www.freedomhouse.org/nit). in Windsor J., Walker C. et al. – „Politicile anticoruptiale ale Guvernului României – Raport de evaluare”, Freedom House, Inc., Washington D.C., 2004, p. 14

<sup>1</sup> Transparency International the global coalition against corruption - “Les grands exportateurs compromettent le développement par des pratiques douteuses à l'étranger - Les versements occultes à l'étranger par les puissances exportatrices émergentes, étonnamment élevés”, Communiqué de presse, Berlin/ Bruxelles, le 4 octobre 2006.

Note:\* Scores have been established based upon the methodology elaborated by Freedom House, taking into consideration 10 elements. *Scale is from 1 to 7 (1 = no corruption, 7 = maximum corruption)*

According to Freedom House estimates, in 1997 (the first year when this index has been taken into account), the level of corruption in Romania scored similar points to those estimated by TI. During 1997-2003, this index's evolution gradually deteriorated, and briefly registered a positive evolution (in 2003), through adopting the anticorruption law and its afferent strategy).



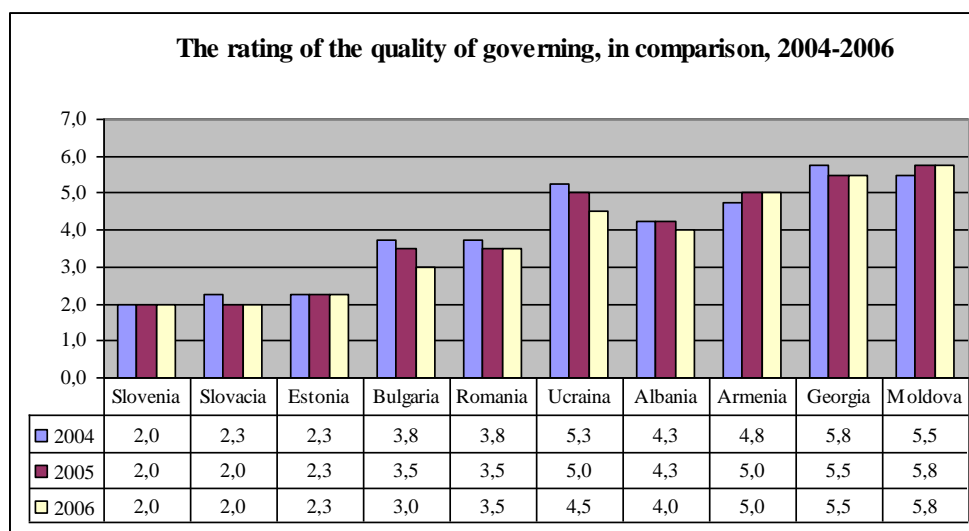
**Graphic 2. Index for economic freedom, a comparison, 2004-2005**

Source: Alexandru Gamanjii – “Moldova în ratingurile economice internaționale”; <http://www.eco.md/article/4545/> ECO magazin economic

*The level of freedom is summed up through a mark (1 to 10), calculated as a weighted average of marks granted for certain domains/criteria<sup>1</sup>, economic performance being as better as the level of intervention is lower, and the set of politics is applied on longer time periods.*

<sup>1</sup> The dimension of governing; the structure of the economy and the level of market usage (state enterprise and investments, controlled prices, compulsory military service, taxes); financial politics and the stability of prices; the possibility of utilizing alternative means; respecting the right to property (risk of confiscating, independent justice); international commerce; capital and financial markets.

Economic freedom means more income per capita and, what is at least as important, it also means economic growth. Romania's situation is getting better, after a long period in which its economic freedom has been much lower than other European countries, including its "sisters" from under the communist regime. According to the 2006 report *Economic Freedom of the World* (EFW), Romania ranked 95 of 130, scoring 5.7 out of 10. The 2007 report *Index of Economic Freedom* (IEF) places Romania the 67<sup>th</sup> out of 157 assessed countries, its economic freedom index being 61.26%. In the **EFW-2006** report, the fields of activity where Romania gets penalized (or better yet, penalizes itself) are the justice system (which is not independent and impartial), government intervention (privatizations are still in effect) and prices (some still being controlled and subsidized). In **IEF-2007**, the justice system and the high level of corruption are the main causes for the relatively low index of economic freedom. The freedom of investments is attenuated by bureaucracy, by administrative baffles and by legal instability. Romania's success will depend on a type of competitive spirit, meaning the capacity of satisfying the others' needs as efficiently as possible.



**Graphic 3.**

Sursa: Alexandru Gamanjii – “Moldova în ratingurile economice internaționale”; <http://www.eco.md/article/4545/> ECO magazin economic



*Scale is from 1 to 7, where 1 is the superior level of governing quality, and 7 the inferior level.*

*The rating of countries in transition is based upon six domains: governing quality, the electoral process, the civil society, independent mass-media and justice, as well as the level of corruption.*

The governing quality – the ability of those in charge to make the best decisions after consulting available information – can be noticed in the graph, and it can be compared to an imperfect model, due to the rigorous and difficulties of keeping track of each country’s specific features and of the effects of development politics.

Macroeconomic stability guarantees a healthy climate for investments and a selective commercial openness, positively influencing growth. An efficient governing favorably influences development. Even if it is a difficult process, those in charge have to try and understand causality connections and assess what is efficient and what is not, at the level of the individual, household, community, enterprise, region, country.

This explains why international financial institutions like BM, IMF or governments, in view of allocating financial facilities at their disposal, grant special importance to analyzing government criteria, adopted politics and undergoing programs in the respective country.

However, answering to political and historical conditions, there have been benefactors not interested by the efficiency of help granted to countries in need, or by the influence of local elements on applied politics. Limiting the efficiency of the help for beneficiaries is influenced by: the number of benefactors, the volatility of help, lack of predictability and administrative costs.

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## European Union - Space of Regeneration, Learning and Innovation in the Context of Sustainable Multidisciplinary Research

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**Abstract: Objective** The Lisbon Strategy set a new goal for the EU economy: the transition to a knowledge based economy, competitive and sustainable at macro and regional levels, by creating the European Research Area – a geographic area without frontiers for researches, where scientific resources are better managed to create more jobs and improve Europe's competitiveness. That means an interaction between specific and multidisciplinary research network. **Approach** However, general research methodology sustains the importance of static and revolutionary specific criteria of Scientific Research Programs but also reveals the natural process of multidisciplinary researches. In this context, the European Union could be regarded as a specific and multidisciplinary research area, as a network of flows, connections, relationships, interdependencies, and interferences between natural - experimental and social-humanistic research spheres (economics, management, sociology and complex systems ecology). **Prior Work:** In this respect some researchers suggested that both natural and social systems could be considered as multidisciplinary complex adaptive systems consisting of specific cluster network connections ( in the form of biotic and abiotic nodes, respectively, the competitive and regional poles) with the ability to continuous self-organizing, learning and regenerating process especially in crisis situations. **Implications and Value Paper Utility** The present paper might be useful to illustrate the contribution of technical-economic and socio-ecological researches to increasing the sustainability framework of European Research Area by considering the transition from the R&D approach (development through research process) to the L&D approach (development through learning process).

**Keywords:** European research area; industrial and regional clusters; complex adaptive systems; productive and social learning

**JEL Classification:** B4; F15; Q01

Considering the significant role played by research and development in generating economic growth, job creation and social cohesion The Lisbon Process states that the EU should engage in creating the European Research Area (ERA) -a geographic area without frontiers for research, where scientific resources are better exploited to create more jobs and improve Europe's competitiveness.

In essence, ERA reveals the importance of creating, restructuring and developing the scientific research market both at EU communitarian and national state levels, through the regulatory and financial instruments to activate the technical-economic and social innovations potential of the EU human resources.

Within this framework are measures that pursue the creation both of excellence centers and European organizations of scientific and technological cooperation-ESF(European Science Foundation), ESA (European Space Agency),COST (European Cooperation in the Field of Scientific and Technical Research), EUREKA (Extra-EU Research Program) - encouraging investments in venture capital research, in a European dynamic, open and attractive space for researchers and the investors, taking into account the environment protection and regional development principles applied to specific and multidisciplinary researches and innovations.

The European strategic goal of transition to knowledge based society is therefore closely related to creating a strong and dynamic European research network.

However, the European Research Area can be approached also from the perspective of sustainable research area concept – as a spatial and temporal established network of interactions in the fundamental research and practical application to the binomial specificity- multi disciplinarily.

The scientific research methodology point of view reveals the importance of scientific progress by considering the static and revolutionary specific criteria of Scientific Research Programs but also reveals the natural process of multidisciplinary research (e.g. Thomas Kuhn, Imre Lakatos, Brundtland Report);

Briefly speaking that means the specific field of study is not addressed in isolation but reveals exogenous inter related different research area suggested in the well known popular phrase: *disciplinary* versus *multi- disciplinary*, *inter- disciplinary*, *trans- disciplinary* .

Thus, while *pluri-disciplinary* concerns studying a research topic not in only one discipline but in several at the same time, *inter-disciplinary* means the transfer of

method from one discipline to another (in a factual, methodological or creative way) and *trans-disciplinary* concerns - as indicated by the prefix "trans" - which is also between disciplines and within different disciplines and beyond disciplines.

These two possible features of endogenous and exogenous scientific progress spirit changed the history of human society. So as is a keyword which expresses the evolution in time of the principles and institutions that generally define a certain type of human society (from ideal, real, possible society to the state of modern democracy transition) so the notion of knowledge society expresses the process of continuous adaptation and optimization of the specific arrangements for policy management and recovery the potential of sustainable productive resources of human society, manifested through the concrete transition from traditional economic research to entropic sustainable approach in which is considered the transition from agrarian, industrial, society to the to tertiary service - industrial, knowledge based – information society .

From the real world perspective is important to observe the interaction between human beings and their environment in a process of locating and adapting to the changes occurring in bi-univocal entropic exchanges between the natural environment on one hand and the artificially socio economic human environment, on the other.

In this context, we mentioned some theoretical and practical considerations that might be useful to approach the European research topics:

- the concept of network as a matrix of structured elements to highlight not only the actors involved but mainly the very nature of specific links between them (economic, financial, technologic, socio institutional);
- transition from classic sustainable development approach to regenerative development paradigm (triple bottom line versus triple top line);
- considering the impact of environmental features of complex social systems nonlinearity, unpredictability, decentralization, self organization, continuous learning and adaptability to the face of crisis risk;
- considering the binomial innovation & learning as interaction between elements both of project management and learning management by considering the path from idea to its market successfully application through individual and social learning with the possibility of application in different contexts (technical-economic and socio-ecologic);

Firstly, we are talking about the network concept as an matrix of natural and socio institutional structured elements *-nodes-* and the nature of specific multiple links between them *-synapses-* is proposed the emphasis not only on socio-economic agents involved, but especially on the very nature of interconnection between these processes i.e. the biunivocally connections, flows and interferences of scientific information established between different spheres and fields of research (real experimental techno-economic areas - economics, management, mathematics, ecology, physics - and social humanistic spheres - such as sociology, politics, history).

Secondly, are taking into account the strategic variables of regeneration and research space development opportunities- culture, education, work experience - which maintain a state of permanent and continuous interconnectivity between the natural environment, social organization and economic process, adapted to both survival biological, endo - somatic requirements and exo-somatic spiritual and cultural aspirations of human beings.

This implies an organic integration in the research network space of so-called concepts of project management, transition management and adaptive management.

In this framework, on one hand it is considered the subjective, comparative, analytic and parametric research of the interconnections shown between the components of project management (early details of general and specific business needs, relations between project beneficiaries and the stakeholders directly or indirectly involved, issues arising the multiphase cycle stage, the project cost-benefit analysis by considering an matrix of risks and responsibilities in respect of organization, management, technical contractual, financial and environmental issues).

On the other hand, are emphasized the issues related to the continuous transformation of the economic and technical socio institutional processes and because some researchers sustain that both natural and social systems are in fact multidisciplinary complex adaptive systems (*panarchies*) - able to be resilient and regenerated especially from external unpredictable shocks and crisis by the way of adapting, self organizing, and learning.

Thus, the literature of social economic networking space researches illustrates the importance of the relationship between learning and innovation (innovation as a process of learning) that could be approached from multiple angles, such as:

- traditional view of knowledge as product of research working, with the opportunities to become a success story and market profit winner, or as a lifelong learning process in terms of individualistic (the characteristics of persons involved in the process), structuralist (and social organization of production characteristics) and interactive (the process multidisciplinary collaboration) features of learning process;
- network perspective of complex systems, of interactions between agents (individuals, teams, organizations) and the as so called learning process of single, double and triple loop, so that innovation, learning organization and culture is in continuous interaction.

This requires reconsideration of endo-somatic and exo-somatic socio economic metabolism in a the dynamic vision, which creates a turbulent tension for a continuous permanent change, to encourage multidisciplinary research communication flexibility in different contexts (technical-productive and socio-communitarian), through a process individual and social learning (professional expertise and “table round” multidisciplinary communication),structured on three levels (*single-loop*-correcting errors diagrams through conceptual models- *double-loop*- error correction by examining the principles and policies, and *triple loop levels*-the development of standards and protocols of governance and government).

The evolving historical process of Toffler agrarian, industrial and information waves illustrates the spiritual transfiguration of human society and its specific nature of economic process from traditional economic approach, to the entropic one.

Advancement of knowledge process and its impact on the resilience of natural and socio-economic environment are closely linked to Michael Porter concept of cluster-industrial competitive and regional integrative poles. In essence, it is a process of managing the interaction between the concept, objectives and learning outcomes on one hand and natural environmental regeneration on the other, aimed towards innovation in the field of technical- industrial and socio communitarian fields of human activity (spin off, spin out, sustainable economic communities).

The economic and technical context, it illustrates not only the multiphase financing support requirement on the road from invention to innovation well known in the framework of EASD projects -Early Stage Technology Development- but also is needed the presence of a spiritual mentor named “angel”, that brings together a

large portfolio of physical, intellectual and financial assets in the absence of him appears the waste of money, time and energy.

Due to market failures, risk and uncertainty of invention to innovation way but also of non-synchronizing of actors behavior involved in innovative research networking process (coordinator, researcher, strategist, accountant, seller, public authority) it became clearly the necessary transition from R&D approach (development through research) to the L&D (development through learning process), in the concrete forms of productive type of learning by doing and interdisciplinary round table dialogue of social learning to ensure resonance between team members to attain the ultimate final goal- a successful winning story on market and recognition of professionalism.

The space research approach is also evident in the context of social organization by considering the sociological concept of community network that reveals both the common shared general issues (territory, language, culture) as well as the processual aspects of social interaction between society and individuals through the economic, social, political or educational-cultural functions of nation state.

In this framework it is considered the so-called sustainable communities notion which derive from the general concept of community and principles of sustainable economic development, as a form of manifestation of human social communities that support human potential and give the opportunity to all its members to participate in the social, economic and institutional governance and government in a such a way as to protect the natural environment, to promote moderation and to allocate resources as needed.

Sustainable communities concerns not only concerns the city or region, is not related to a fixed parameter but rather illustrate a network process like a social learning containing community multidisciplinary "round table debates" connections and relationships of between individuals or groups of stakeholder interests involved, such as individual and legal persons, central public and local authorities financial banking players, different specialists such as engineers, architects, other specific NGOs.

Research space approach driven by the nature of network processes in various contexts reveals the importance of taking into account the beneficial and negative impact effects in terms of recovery incentives including financial but also the risk vulnerability exposure applied on the triad regeneration - innovation - learning.



On one hand, it noted the positive aspects induced by positive butterfly effect and self organization of complex networks, but on the other is about the very nature of interest conflicts revealed by socio institutional actors' behavior that increase or decrease the capacity of adapting and learning.

In conclusion, the nature and context of technical - economic and socio- ecological of research area approach transfigures continuously the regeneration - innovation - learning triad, showing how human being is related to working productive process or acts in the space of social networks in the context of the entropic flows between natural and socio economic environments.

These aspects concerning the regeneration, productive and social learning-innovative features of research space network could be illustrated through two possible examples in the EU space.

The first one illustrates the techno industrial context - for example the Belgian experience of national funds and European funds (FEDER, FSE) utilization.

In this framework we can mention the following aspects:

a) *stimulating the creation of industrial competitive clusters* - i.e. network regenerative researches market (products, services operators in the field of biotechnology, chemical and pharmaceutical and information technology, agro food industry, space, construction materials, etc.) through a project management to reveal the relationship between the main coordinator of the project (Minister of Small and Medium Enterprises), Executive Coordinator (direction or relevant specialized agency), and beneficiaries (e.g. S.M.E-s).

Thus, the main objective of research network area reveals regenerative markets both in terms of efficiency (value-added new products) in view of the emergence of new agents in this market as well as terms of their contribution to a more balanced regional development. In this respect, there are important the economic eligibility criteria (classification structure of possible new regenerative products and research areas e.g. biotechnology) as well as the financial eligibility criteria (inclusion of businesses in the European Community definition of Small and Medium Enterprises described in the Recommendation of 6 May/2003 (not to be a "lazy" business in sensitive sectors or with other financial problems).

Thus, we are taking into account some catalytic measures aimed to creating new businesses and jobs, through a financial and technological mix (angel investors, corporate firms economic, financial, banking and public budget), and some other

incentives for training, strengthening and development of innovative entrepreneurship (e.g. by developing so-called multidisciplinary economy of scientific incubators).

b) promotion, development and enhancement of human capital potential in terms of technological innovation, the concepts of integration of Research University centers with real economy through spin off and start ups that means stimulation measures of aimed to revealing the essential role of the school environment, academic education and training specialists, or obtaining patents in the process of recovery productive. It is of note in this regard the granting of "moral subsidies" that encourages firms employing highly skilled professionals PhD respectively acquiring companies reputation by providing the name of "**First Doctor**".

Briefly speaking the technical economic context of research space network is valued through some performance indexes like creative competitive cluster poles, patent and brectes and training of high skilled researchers.

The second example reveals among other perspectives the so called The Natural Step (**TNS**), New Urbanism (**NU**) and Melbourne Principles (**MP**) approaches.

The general framework of classic TNS approach takes into account basic conditions of social and industrial metabolism that affects the society-economy-environment interaction processes both in products (by highlighting discrepancies between the consumption of raw materials extracted and slow regeneration capacity of their land), those between of industrial noxious and natural recycled products requiring the integration of production processes with environmental cycles) and the recreational services degrading (services that keep life degradation in general).

Taking into account the entropy law the TNS authors appealed to so-called funnel metaphor that reveals a limited metabolic margin for maneuver between two limits social and economic environment regarding the ecosystem capacity to provide products and services reflecting the need for better strategic management thinking (designing a mental model of awareness axiomatization, instrumentation, deployment) oriented to practical possibilities of implementation. In this framework, TNS approach illustrates the importance of social innovation and creativity of all stakeholders implied in the sociological communitarian process (individual and legal persons, public and local authorities, economic and financial banking actors) through the strategic planning of education and cultures sustaining through school-church- economic agent-public authorities partnership.

Secondly, the NU perspective is a urban regenerative design form emerged in the '80s as a reaction to human habitat and environmental conditions degradation, of increasing urbanization and metropolitan congestion. Based on the round table principle the NU approach reveals aspects of human habitat issues (car traffic fluidity, extension of pedestrian streets, built in profile design of houses, business and economic opportunities of stakeholders (economic agents, population), i.e. essentially turning green space in the sense of quantity, quality and intensity to benefit members community.

That means a multidisciplinary social learning process between different stakeholders (well trained specialists, investors and public authorities) to be aware of the interaction between nature and social environment.

As concerning the MP, this approach is based on the 2002 United Nation Conference „Melbourne Principles for Sustainable Communities” (Melbourne, Australia, 2002) and points out the strong position of public authorities as the main decision stakeholder through effective promotion of sustainable consumption as well as transparency of social, political and financial accountability.

All these illustrate that analysis of space research network focused on innovation - learning binomial both at environmentally, socially, and productive levels, open new strategic opportunities within the production processes (a new market of products and services incorporating more added value through innovation and human capital development, productive conservation engineering technology, methods of using non-conventional and interactive information systems, organic farming and organic trade, development of natural biological disciplines, art and philosophy) but also in the sphere of social organization processes (a new organic architecture human habitat - the regenerative landscape architecture and urban regeneration process of relations between the EU social actors involved - politicians, specialists and society at large).

In fact, finally the research space network development implies the transition from R&D (development through research process) to L&D (development through learning process) approach. And that means a continuous battle for a better and better fulfillment of professional and social duties as is said by Elena Antonacopoulou: what does mean *learning in practice* versus *learning in practice*?

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## **Accounting - a Normative Representation of Economic Reality?**

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**Abstract.** Accounting is currently a very dynamic field at international level. Accounting information or its derivatives comprise an important segment of the information conveyed in the economic environment. Therefore, accounting is considered by some authors as the most important information source of a nation. Widening and diversifying the request for information from the scope of financial accounting is generated by modernization and restructuring economy and society development as a whole. In these circumstances, accounting has a very important role. Establishing decision based on a real, pertinent, relevant, timely information system insures a performance administration, management of the current situation, with many phenomena of crisis. Accounting involves the perception of real which is based on a conceptual system, which means that the entire accounting system is based on a set of objectives, postulates, principles, rules and regulations. When different objects are placed in different areas, the differentiation between real and ideal is only formal.

**Keywords:** accountancy; accounting information; economic reality; normative accounting

**JEL Classification:** M40; M41

As domain and tool of economic reality knowledge, regarding the economic resources, patrimonial separated, accounting is a true guide in directing every business; it is actually the condition for any honest transaction.

Accounting, as empirical science, aimed at understanding economic realities accomplished by human activity. As science of social reality, particularly economic, accounting tends to create its own theories, a discourse that has handy assumptions and concepts, postulates and principles, which form a reference system for accounting practice, in order to achieve an image, a representation of the object of knowledge - the economic reality of an entity. Accounting theory formation *means a conceptual model of an economic reality* which involves the simplification and representation of an object of knowledge, involves a certain way of interpretation and understanding the object, which means in fact, choosing a

cognitive attitude towards the knowledge subject. The development of accounting practice was accompanied by the evolution of accounting knowledge, a development where the accounting route gradually formed into a set of information that try to explain a economic reality in a continuous change; knowledge should be placed in field of theorizing accounting, providing concepts, reasoning and understanding of accounting process. (Manolescu, 2006)

Accounting information must be real, understandable, relevant, complete, useful, consistent and verifiable. Qualitative characteristics are attributes that determine the usefulness of accounting information. To be useful, they must be relevant to decision making by users. They have such quality when they influence economic decisions of users, helping them to evaluate past, present and future events, to confirm or correct their previous evaluations<sup>1</sup>.

Providing relevant and accurate information to different users represents the accounting knowledge of economic reality, so that it can take *decisions and elaborate strategies*.

The value of accounting information will be assessed in relation to its usefulness in decision-making process in order to ensure the expected results. The amount of information can be determined as the difference between the net benefit generated by a decision after obtaining the information and the net benefit generated by the same decision-making unaffected by the information. (Burlacu, 2009)

From this point of view, it is necessary that the *accounting information is verifiable and controllable*, the same for all users, easily understood and used, which implies the existence of formation rules of accounting information, of some conventions and normative codes. The offer of accounting information must be evenly distributed in society, but also selectively, and it involves the regulation, normalization of accounting in order to meet correctly the demand for accounting information, making possible the knowledge of the truth about the economic entity.

The normative accounting science achieves knowledge in carrying out accounting practice, accounting information and accounting knowledge, forming in a system of standards and rules, must be obeyed. Accounting rules are not an accounting science, but a subject to accounting knowledge, thus *accounting is a normative*

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<sup>1</sup> O.M.F.P. no. 3055/2009 for approving accounting regulations with European directives (accounting regulations comply with Directive IV of the European Economic Communities), published in Official Monitor no. 766/10.11.2009, p. 6.

*science*, that analyzes, explains and develops the standards, providing the methodology of accounting rules. (Manolescu, 2006)

Undoubtedly, in this respect, a company's accounting practice is influenced by the objectives of economic activity, by the conditions, restrictions, influences of the society, economy, policy and legal framework. All these factors form the accounting environment that marks the truth of their accounts. The economic, political, legal and education system is influenced by the information provided by the accounting system.

At the basis of any important decision of financial accounting domain and uses of accounting policies are the quantification problems: finding, assessing and classifying problems.

The difficulties that arise from international comparisons, diversity in accounting policies and estimation techniques or the presence of several options in a country's accounting referential and also the presence of more referential in a country's accounting system may create a condition of quasi-hierarchy with serious consequences in decision-making process. (Mihalache, 2005)

Based on principles, rules and regulations, accounting leaves the possibility of choosing between more accounting and evaluation methods, which has always been a source of controversy on the construction and acceptance of accountants' truth.

Official accounting „truth” is first defined starting from a normative referential, it must be according to the rules. Then it is „composed” of accountants, that is the accounts officers, within the limitations set by this referential under the restriction of sincerity and of fidelity. He is guaranteed by the intervention of auditors and the quality of practices depends on this truth. (Colas, 2009)

Often it is found that the published accounting information is questionable in terms of feature relevance, because, in order to provide a true situation for helping policy makers, the accountants apply a professional reasoning, making decisions for using one other treatment for achieving better information. The produced information can have a general feature, since the court plays a very important role in accounting. The objectivity of a professional accountant may be affected in different situations, as they cannot be fully defined and described.

The records provide information that have already undergone some treatment or restatements, and not raw information. It all depends on the use, interpretation and



the meaning of accounting principles. Given the fact that the rules and principles cannot provide everything, while leaving room to maneuver for enterprises to account certain transactions or certain economic phenomena; they make possible the existence of some limits of presenting certain accounting phenomena and these limits would not lead to the loss of the relevancy of information by delaying them nor the loss of credibility, by a too fast presentation, cost-benefit report and finding a balance between quality features.<sup>1</sup>

Therefore it is assessed that the reality of accounting knowledge is a reality constructed by human activity, accounting knowledge *provides a representation of a built universe*, recognized representation and accepted by human subjects, its logical consistency should ensure intelligibility. (Manolescu, 2006).

The practice of accounting for cash accounting information can be obtained more real or pure, where there are highlighted specific aspects of the cash accounts: cash in bank accounts, bank checks and other banking effects. Regarding the rest of the records, there is only interpretation, although they are shown on a plan sheet. Often there may be some hesitation, even if it is used a plane sheet, and thus the necessity of selecting a type of accounting, this aspect would be impossible to exclude.

According to some economic, political, legal, fiscal, social, but also epistemological references, the economic facts are selected by accounting, therefore it does not record all the reality. As a way of knowledge, accounting is a neutral to the object and to reality; it *constructs the accounting reality* throughout the accounting cycle, from collecting data on primary documents to preparing synthesis data. Accounting is not reality, *it is a reduction, by selecting and schematizing through formalizing reality*, an interpretation of it. It can be said about accounting that it provides a *built model* of a pluri-valence economic reality, which can be known from different perspectives, building a cognitive matrix of reality, helping to build a specific economic universe. Accounting is *a human construction*, a way to capture the economic reality, a means and a path of knowledge. (Manolescu, 2006)

In so far as to establish the most appropriate information, there are judgments for each case, one cannot say that accounting is an exact science.

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<sup>1</sup> IASB, International Financial Reporting Standards (IFRS). Official rules issued on January 1, 2009, General framework for the Preparation and Presentation of Financial Statements paragraph 43-46. Translation conducted by CECCAR. Bucharest: CECCAR.

The concept of fair presentation, of British origin, submits the accounting principles to some rational and intelligent judgments, allowing the exemption for increasing the usefulness of financial statements for users by improving the quality of decisions that depend largely on the quality of information. And if we consider that once the financial statements do not include any information that may give the reader an erroneous view of the firm's position, an accurate picture is achieved, we cannot but agree with the possibility of a total lack of errors at the level of transmitted information. In the case of an accrual accounting, accounting exactness is complex and bears the imprint of subjective interpretations. In this case the error is inevitable.

Accounting is getting farer from the rigid rules and principles of application, aspiring to greater flexibility, aiming at satisfying all users, defining authentically the reflection of the true situation of a company.

Exemption may be practiced only within the limits of its significance i.e. to the extent that its application is likely to give another idea and to change the decision of the user.

Significance is not an absolute term. For a wide range of users of financial statements, documents are used for specific objectives. Therefore, the relative importance is according to users. The ones that set up the financial statements are required to mobilize their efforts in order to provide a true picture, according to its objectivity and each user will compose or evaluate in relation the provided information, the image that it is considered to be as more satisfactory. (Mihalache, 2005)

Although it is difficult to achieve this objective, the truth, in the sense of fair presentation, has the potential and the obligation of synthesis accounting documents (balance sheet, income statement and explanatory notes) in order to provide true and fair information (correct) on the patrimony of the financial situation and the results of an enterprise. One such fact is both a truth *of reflection* and *of construction* that is a direct truth of observing the reality (photographing) and truth of direct processing input information provided by observation. *Reflection truth* is in fact the relationship between object and its representation. In the requirements of a true image it should be noted the observation and the reproduction of the object. Thus, the justified documents which provide input information for the construction of truth must contain true and accurate data, therefore the subject that makes them must be in good faith. In order to legitimize

this requirement, it must verify the documents, among its objective being the reality and the recorded data. *Truth construction* concerns the fact that accounting information is produced on a recipe, the one of principles and procedures (accounting standards) as a reference. In these circumstances, the reflecting data of the reality is raw material, which turns into the product by processing information in a position to render a true and fair view of the company. This image is subject to rules as assumptions, options and agreements observation, measurement and real referral. *The balance on financial position, profit and loss account or cash flow statement and notes or annex to the balance sheet* that contain information supplementing the first three, are the four major important clichés that present the true image. (Ristea et al., 2003)

There are two important results in terms of true image interpretation:

- 1) The **Anglo-Saxon** origin, which is accepted in countries where accounting was disconnected from tax and shows preference to reflect economic reality. A feature of this system is to obtain accounting information without taking into account the tax rules, regulations of accounting documents based on general accounting principles. Financial administration role is restricted upon accounting practice, with no interference into published accounts and the accounts of investors. It is noted, in this case, the Dutch and the Anglo-Saxon accounting system.
- 2) The **mainland**, in countries where *fiscal goals* were and are met on the basis of financial accounting. Reflecting the economic reality of accounting was not a requirement to implement the 4<sup>th</sup> directive by companies that work in these countries. The specific of accounting system is connected to taxes that are taken into account in terms of tax regulations in order to obtain accounting information. Accordingly, law stipulations texts on accounting rules and national regulations are more difficult to change. Game rules are determined by tax, whereas financial administration, as a user of accounting information has a crucial role. In this area it is required by the code of trade and by the general plan of accounts, the German-French system.

Only in the conditions where the accounts are issued by fiscal constraints we consider that true image may be relevant.

It can be argued that accounting is a requirement of objectivity. Objectivity is not seen within the meaning of “accurate representation of the real world”, but in the sense of technical objectivity, i.e. the correct application of rules under different accounting principles. In accounting system, as any information system, the truth is

based on good faith (honesty), audited regularly to a more or less specific request of the users. (Dimitriu, 2007)

The fact that the true image can be manipulated<sup>1</sup> or that in practice it proves to be an incomplete truth, it does not invalidate its reality. (Ristea et al., 2006)

Therefore accounting representation cannot be and will never be totally objective. (Colas, 2009)

If we ask ourselves “is there one accounting truth? the answer would be definitely negative, but still we can answer that accounting provides each player in economic and social life the truth that it needs. (Mihalache, 2005)

### **Conclusions**

The statements based on accounting data should provide a fair picture of reality. But accounting involves perceiving the real, based on a conceptual system that consists of objectives, postulates, principles, rules and regulations. Meanwhile, the area of accounting research is restricted due to statements made without taking into account the qualitative, human or environmental features.

Requiring financial statements to portray the full reality about the position and financial performance would involve the use of assessments and estimates that may be wrong sometimes.

The representation of economic reality through accounting is the result of professional skill.

The true picture cannot be identified with a facsimile of economic reality, but it is represented by the image that you can rely on, that you can count on in determining economic decisions.

Although it is always sought, discussed and researched, the accounting truth about an economic entity is not accessible from all points of view.

Finally, since the normalization cannot be and it is never perfect, we may say that a normative representation of economic reality cannot achieve accounting, at least not entirely. The provided accounting data are perfectible, as in any other domain, therefore accounting is determined by many factors.

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<sup>1</sup> See WorldCom financial scandals, Enron, Vivendi, Parmalat, etc.

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**A Method of Determination of an Acquisition  
Program of N Goods in Order to Maximize the Total Utility**

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**Abstract.** This paper solves in a different way the problem of maximization of the total utility for  $n$  goods. The author uses the diophantic equations (equations in integer numbers) and after a decomposing in different cases, he obtains the maximal utility.

**Keywords:** utility; maximization; diophantic

**JEL Classification:** C02; C5

**A method of maximization the total utility for  $n$  goods**

Let a consumer which has a budget of acquisition of  $r$  goods,  $r \geq 2$ , in value of  $S \in \mathbf{N}$  u.m. The prices of the  $r$  goods  $x_i$ ,  $i = \overline{1, r}$  are  $p_i \in \mathbf{N}$ ,  $i = \overline{1, r}$ . The marginal utilities corresponding to an arbitrary number of doses are in the following table:

No. of dose	$U_{m1}$	...	$U_{mr}$
1	$u_{11}$	...	$u_{1r}$
...	...	...	...
$i$	$u_{i1}$	...	$u_{ir}$
...	...	...	...
$n$	$u_{n1}$	...	$u_{nr}$

We want in what follows to determine the number of doses  $a_i$  for the good  $x_i$ ,  $i = \overline{1, r}$  such that the total utility:  $U_i = \sum_{j=1}^r \sum_{i=1}^{a_j} u_{ij}$  to be maximal.

Let therefore  $S_1 \leq S$  and the equation:

$$(1) \sum_{i=1}^r a_i p_i = S_1.$$

Let denote with  $d = (p_1, \dots, p_r)$  the greatest common divisor of  $p_i$ ,  $\overline{1, r}$ . We well know the fact that in order the equation has entire solutions we have necessarily  $d \mid S_1$ . Also, we shall consider:

$S_1 > S - \min\{p_1, \dots, p_r\}$  because if  $S_1 \leq S - \min\{p_1, \dots, p_r\}$  with a supplementary unit of o good  $i$ , where  $1 \leq i \leq r$ , the total utility will grow.

Dividing (1) at  $d$ , we have:

$$(2) \sum_{i=1}^r a_i \frac{p_i}{d} = \frac{S_1}{d}$$

and with the notation:  $q_i = \frac{p_i}{d}$  follows:

$$(3) \sum_{i=1}^r a_i q_i = \frac{S_1}{d}.$$

where the greatest common divisor of  $q_i$ ,  $\overline{1, r}$  is  $(q_1, \dots, q_r) = 1$ .

It is well known that for any relative prime numbers  $A, B \in \mathbf{N}$  it exists  $\alpha$  and  $\beta \in \mathbf{Z}$  (determined eventually with the Euclid algorithm) such that:  $\alpha A + \beta B = 1$ .

Let therefore  $d_1 = q_1$  and  $d_i = (d_{i-1}, q_i)$ ,  $i = \overline{2, r}$ . Because  $(q_1, \dots, q_r) = 1$  it follows obviously that  $d_r = 1$ .

We have now  $\exists \alpha_i, \beta_i \in \mathbf{N}$ ,  $i = \overline{2, r}$ , such that:

$$(4) \alpha_i d_{i-1} + \beta_i q_i = d_i, \quad i = \overline{2, r}$$

In what follows we shall denote:  $d_0 = 0$ ,  $\alpha_0 = 1$ ,  $\beta_0 = 1$ ,  $\alpha_1 = 1$ ,  $\beta_1 = 1$  such that:  $\alpha_1 d_0 + \beta_1 q_1 = d_1$ .

Writing in detail the relation (4), we obtain:

$$\begin{aligned} (5) \quad & \alpha_1 d_0 + \beta_1 q_1 = d_1 \\ & \alpha_2 d_1 + \beta_2 q_2 = d_2 \\ & \alpha_3 d_2 + \beta_3 q_3 = d_3 \\ & \dots \\ & \alpha_r d_{r-1} + \beta_r q_r = d_r \end{aligned}$$

Substituting the first of (5) in the second:

$$(6) \quad \alpha_2 \alpha_1 d_0 + \alpha_2 \beta_1 q_1 + \beta_2 q_2 = d_2$$

after, the second in the third:

$$(7) \quad \alpha_3 \alpha_2 \alpha_1 d_0 + \alpha_3 \alpha_2 \beta_1 q_1 + \alpha_3 \beta_2 q_2 + \beta_3 q_3 = d_3$$

we shall obtain, by induction:

$$(8) \quad \sum_{i=1}^{r-1} \prod_{j=i+1}^r \alpha_j \beta_i q_i + \beta_r q_r = d_r.$$

We have therefore:

$$(9) \quad \sum_{i=1}^r \sigma_i q_i = 1$$

with the obvious notations:  $\sigma_i = \beta_i \prod_{j=i+1}^r \alpha_j$ ,  $i = \overline{1, r-1}$  and  $\sigma_r = \beta_r$ .

From (3), (9) we have now:

$$(10) \quad \sum_{i=1}^r a_i q_i = \frac{S_1}{d} \sum_{i=1}^r \sigma_i q_i$$

or, in other words:

$$(11) \quad \sum_{i=1}^r q_i (a_i - \frac{S_1}{d} \sigma_i) = 0$$

For a fixed  $k = \overline{1, r}$  we can write (11):



$$(12) \quad q_k \left( a_k - \frac{S_1}{d} \sigma_k \right) + \sum_{\substack{i=1 \\ i \neq k}}^r q_i \left( a_i - \frac{S_1}{d} \sigma_i \right) = 0$$

Let now  $\delta_k = (q_1, \dots, \hat{q}_k, \dots, q_r)$  where the sign  $\wedge$  means that the term is missing.

Because  $(\delta_k, q_k) = 1$  follows:

$$(13) \quad \delta_k \mid a_k - \frac{S_1}{d} \sigma_k$$

therefore:

$$(14) \quad a_k - \frac{S_1}{d} \sigma_k = \zeta_k \delta_k, \quad k = \overline{1, r}$$

From (11), (14) we have that:

$$(15) \quad \sum_{i=1}^r \zeta_i \delta_i q_i = 0$$

We can write (14) also like:

$$(16) \quad a_k = \frac{S_1}{d} \sigma_k + \zeta_k \delta_k, \quad k = \overline{1, r}$$

Because  $a_k \geq 0, k = \overline{1, r}$ , we obtain that:

$$(17) \quad S_1 \sigma_k + \zeta_k \delta_k d \geq 0, \quad k = \overline{1, r}$$

From (1) we can see easily that:

$$(18) \quad a_k \leq \min \left( \frac{S_1}{p_k}, n \right), \quad k = \overline{1, r}$$

From (16), (17) and (18) we find that:

$$(19) \quad \left\{ \begin{array}{l} \zeta_k \geq -\frac{S_1 \sigma_k}{\delta_k d} \\ \zeta_k \leq \min \left( \frac{S_1 (d - p_k \sigma_k)}{p_k \delta_k d}, \frac{nd - S_1 \sigma_k}{\delta_k d} \right) \end{array} \right., \quad k = \overline{1, r}$$

We have therefore:

$$(20) \quad \zeta_k \in \left[ -\frac{S_1 \sigma_k}{\delta_k d}, \min \left( \frac{S_1(d - p_k \sigma_k)}{p_k \delta_k d}, \frac{nd - S_1 \sigma_k}{\delta_k d} \right) \right] \cap \mathbf{N}, k = \overline{1, r}$$

The length of the range is less than or equal with  $\frac{S_1}{p_k \delta_k}$ , therefore there exist at

most  $\left\lceil \frac{S_1}{p_k \delta_k} \right\rceil + 1$  integer values of  $\zeta_k$  (where  $[z]$  denotes the integer part of  $z$ ) that verifies the acceptability conditions.

**Example**

No. of dose	$U_{mx}$	$U_{my}$	$U_{mz}$
1	10	20	15
2	8	16	12
3	7	15	10
4	6	14	7
5	5	13	5
6	4	10	3
7	3	8	2
8	2	7	1

$p_x=4, p_y=6, p_z=10, S=50$ .

**Solution**

We have  $d=(4,6,10)=2$  therefore  $S_1 > 50 - \min(4,6,10) = 46$ . Because  $d | S_1$  we shall have  $S_1 \in \{48, 50\}$ .

Dividing by 2 the reduced prices become:  $q_1=2, q_2=3, q_3=5$ .

Let now:  $d_1=2, d_2=(d_1, q_2)=(2,3)=1, d_3=(d_2, q_3)=(1,5)=1$ .

We have:  $\alpha_1=1, \beta_1=1$  and from (4) the equation:  $2\alpha_2 + 3\beta_2 = 1$  implies:  $\alpha_2 = -1$  and  $\beta_2 = 1$ . Also, the equation:  $\alpha_3 + 5\beta_3 = 1$  implies:  $\alpha_3 = -4$  and  $\beta_3 = 1$ .

Let now:  $\sigma_1 = \beta_1 \prod_{j=2}^3 \alpha_j = \beta_1 \alpha_2 \alpha_3 = 4$ ,  $\sigma_2 = \beta_2 \prod_{j=3}^3 \alpha_j = \beta_2 \alpha_3 = -4$ ,  $\sigma_3 = \beta_3 = 1$

and:  $\delta_1 = (q_2, q_3) = (3, 5) = 1$ ,  $\delta_2 = (q_1, q_3) = (2, 5) = 1$ ,  $\delta_3 = (q_1, q_2) = (2, 3) = 1$ .

The relation (15) becomes:  $2\zeta_1 + 3\zeta_2 + 5\zeta_3 = 0$ .

From (20):

$$\zeta_k \in \left[ -\frac{\sigma_k S_1}{2}, \min \left( \frac{S_1(2 - p_k \sigma_k)}{2p_k}, 8 - \frac{S_1 \sigma_k}{2} \right) \right] \cap \mathbf{N} \text{ therefore:}$$

$$\zeta_1 \in \left[ -2S_1, \min \left( -\frac{7}{4}S_1, 8 - 2S_1 \right) \right] \cap \mathbf{N}$$

$$\zeta_2 \in \left[ 2S_1, \min \left( \frac{13}{6}S_1, 8 + 2S_1 \right) \right] \cap \mathbf{N}$$

$$\zeta_3 \in \left[ -\frac{S_1}{2}, \min \left( -\frac{2}{5}S_1, 8 - \frac{S_1}{2} \right) \right] \cap \mathbf{N}$$

and also from (16):

$$a_1 = \frac{S_1 \sigma_1 + \zeta_1 \delta_1 d}{d} = \frac{4S_1 + 2\zeta_1}{2} = 2S_1 + \zeta_1.$$

$$a_2 = \frac{S_1 \sigma_2 + \zeta_2 \delta_2 d}{d} = \frac{-4S_1 + 2\zeta_2}{2} = -2S_1 + \zeta_2.$$

$$a_3 = \frac{S_1 \sigma_3 + \zeta_3 \delta_3 d}{d} = \frac{S_1 + 2\zeta_3}{2} = \frac{S_1}{2} + \zeta_3.$$

Finally we have the following cases:

$$S_1 = 48 \Rightarrow \zeta_1 \in [-96, -88] \cap \mathbf{N}$$

$$\zeta_2 \in [96, 104] \cap \mathbf{N}$$

$$\zeta_3 \in [-24, -20] \cap \mathbf{N}$$

$$S_1 = 50 \Rightarrow \zeta_1 \in [-100, -92] \cap \mathbf{N}$$

$$\zeta_2 \in [100, 108] \cap \mathbf{N}$$

$$\zeta_3 \in [-25, -20] \cap \mathbf{N}$$

with  $2\zeta_1 + 3\zeta_2 + 5\zeta_3 = 0$

For  $S_1=48$  and certainly:  $a_1=96+\zeta_1$ ,  $a_2=-96+\zeta_2$ ,  $a_3=24+\zeta_3$  we have:

$$\zeta_1=-96, \zeta_2=99, \zeta_3=-21 \Rightarrow a_1=0, a_2=3, a_3=3, U_t=20+16+15+15+12+10=88$$

$$\zeta_1=-96, \zeta_2=104, \zeta_3=-24 \Rightarrow a_1=0, a_2=8, a_3=0, U_t=20+16+15+14+13+10+8+7=103$$

$$\zeta_1=-95, \zeta_2=100, \zeta_3=-22 \Rightarrow a_1=1, a_2=4, a_3=2, U_t=10+20+16+15+14+15+12=102$$

$$\zeta_1=-94, \zeta_2=96, \zeta_3=-20 \Rightarrow a_1=2, a_2=0, a_3=4, U_t=10+8+15+12+10+7=62$$

$$\zeta_1=-94, \zeta_2=101, \zeta_3=-23 \Rightarrow a_1=2, a_2=5, a_3=1, U_t=10+8+20+16+15+14+13+15=111$$

$$\zeta_1=-93, \zeta_2=97, \zeta_3=-21 \Rightarrow a_1=3, a_2=1, a_3=3, U_t=10+8+7+20+15+12+10=82$$

$$\zeta_1=-93, \zeta_2=102, \zeta_3=-24 \Rightarrow a_1=3, a_2=6, a_3=0,$$

$$U_t=10+8+7+20+16+15+14+13+10=113$$

$$\zeta_1=-92, \zeta_2=98, \zeta_3=-22 \Rightarrow a_1=4, a_2=2, a_3=2, U_t=10+8+7+6+20+16+15+12=94$$

$$\zeta_1=-91, \zeta_2=99, \zeta_3=-23 \Rightarrow a_1=5, a_2=3, a_3=1, U_t=10+8+7+6+5+20+16+15+15=102$$

$$\zeta_1=-90, \zeta_2=100, \zeta_3=-24 \Rightarrow a_1=6, a_2=4, a_3=0,$$

$$U_t=10+8+7+6+5+4+20+16+15+14=105$$

$$\zeta_1=-89, \zeta_2=96, \zeta_3=-22 \Rightarrow a_1=7, a_2=0, a_3=2, U_t=10+8+7+6+5+4+3+15+12=70$$

$$\zeta_1=-88, \zeta_2=97, \zeta_3=-23 \Rightarrow a_1=8, a_2=1, a_3=1, U_t=10+8+7+6+5+4+3+2+20+15=80$$

For  $S_1=50$  and:  $a_1=100+\zeta_1$ ,  $a_2=-100+\zeta_2$ ,  $a_3=25+\zeta_3$  we have:

$$\zeta_1=-100, \zeta_2=100, \zeta_3=-20 \Rightarrow a_1=0, a_2=0, a_3=5, U_t=15+12+10+7+5=49$$

$$\zeta_1=-100, \zeta_2=105, \zeta_3=-23 \Rightarrow a_1=0, a_2=5, a_3=2, U_t=20+16+15+14+13+15+12=105$$

$$\zeta_1=-99, \zeta_2=101, \zeta_3=-21 \Rightarrow a_1=1, a_2=1, a_3=4, U_t=10+20+15+12+10+7=74$$

$$\zeta_1=-99, \zeta_2=106, \zeta_3=-24 \Rightarrow a_1=1, a_2=6, a_3=1, U_t=10+20+16+15+14+13+10+15=113$$

$$\zeta_1=-98, \zeta_2=102, \zeta_3=-22 \Rightarrow a_1=2, a_2=2, a_3=3, U_t=10+8+20+16+15+12+10=91$$

$$\zeta_1=-98, \zeta_2=107, \zeta_3=-25 \Rightarrow a_1=2, a_2=7, a_3=0, U_t=10+20+16+15+14+13+10+8=106$$

$$\zeta_1=-97, \zeta_2=103, \zeta_3=-23 \Rightarrow a_1=3, a_2=3, a_3=2, U_t=10+8+7+20+16+15+15+12=103$$

$$\zeta_1=-96, \zeta_2=104, \zeta_3=-24 \Rightarrow a_1=4, a_2=4, a_3=1, U_t=10+8+7+6+20+16+15+14+15=111$$

$$\zeta_1=-95, \zeta_2=100, \zeta_3=-22 \Rightarrow a_1=5, a_2=0, a_3=3, U_t=10+8+7+6+5+15+12+10=73$$

$$\zeta_1=-95, \zeta_2=105, \zeta_3=-25 \Rightarrow a_1=5, a_2=5, a_3=0, \\ U_t=10+8+7+6+5+20+16+15+14+13=\mathbf{114}$$

$$\zeta_1=-94, \zeta_2=101, \zeta_3=-23 \Rightarrow a_1=6, a_2=1, a_3=2, U_t=10+8+7+6+5+4+20+15+12=87$$

$$\zeta_1=-93, \zeta_2=102, \zeta_3=-24 \Rightarrow a_1=7, a_2=2, a_3=1, U_t=10+8+7+6+5+4+3+20+16+15=94$$

$$\zeta_1=-92, \zeta_2=103, \zeta_3=-25 \Rightarrow a_1=8, a_2=3, a_3=0, \\ U_t=10+8+7+6+5+4+3+2+20+16+15=96$$

Finally, the maximal utility will be  $U_t=114$  for 5 goods x and 5 goods y.