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Șerban-Alexandru Popină – DTP

ISSN 2344-4088

ISSN-L 2344-4088

Address: 6D Regiei Blvd.

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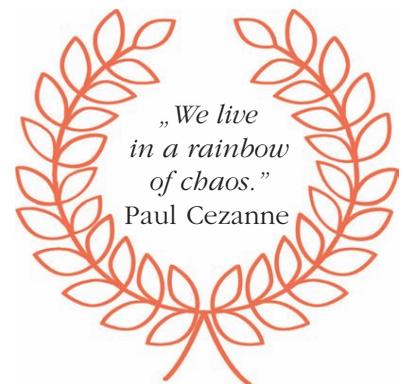
# Environmental Power

**W**e live in a world which is completely dynamic. Rapid changes keep taking place and are frequent because of the changes in the social, political and economic environment. These changes occur because of the advancement in technology and education, so the new ideas for a better society enriched with high standard of living demands the business to be adjustable to these changes and it demands the business to be very flexible and to provide the right thing at the right price at the right time. But the product should be of high quality to ensure customer satisfaction. So these changes surround the business enterprise and influence it in various aspects. A business organization is successful only when it quickly adapts to these changes. As per Keith Davis „Business Environment is the aggregate of all conditions, events and influences that surround and affect the business”. It means that all the happening in the surroundings of the business affect it. So it is important for the business to identify and understand these changes and change the business strategies accordingly.

In the words of Bayard O. Wheeler „business environment is the total of all things external to business firms and industries which affect their organization and operations”. And Dunham and Pierce emphasizes: „the business environment represents a set of conditions, circumstances and influences that surround and affect the functioning of the organization”. Both definitions highlight on the external factors affecting the business. The operations of the business enterprises are highly affected by the external environmental factors.

Business environment is very important to an organization, because it will help the firm to identify opportunities and getting the first mover advantage. Besides, it can also improve performance of an organization. The companies that continuously monitor their environment and adopt suitable business practices are the ones which not only improve their present performance, but also continue to succeed in the market for a longer period. Environmental understanding helps an organization in improving its image by showing its sensitivity to the environment within which it is working and in ensuring its sustainability.

The internal business environment is the combination of 5 M's i.e.: man, material, money, machinery and management. Business can make changes in these factors as per the requirement and the change in the functioning of enterprise. Internal environment includes all those factors, usually under the control of business, which influence business and which are present within the business itself.





- These factors are:
- Objectives of Business,
  - Policies of Business,
  - Production Capacity,
  - Production Methods,
  - Management Information System,
  - Participation in Management,
  - Composition of Board of Directors,
  - Managerial Attitude,
  - Organisational Structure,
  - Features of Human Resource, etc.

The external environment comprises of such factors which are beyond the control

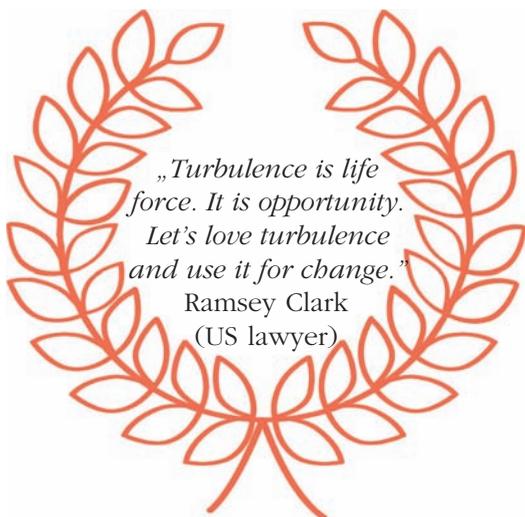
of business enterprise. It includes Government and Legal Factors, Geo-Physical Factors, Political Factors, Socio-Cultural factors, Demographical Factors. The External Environment includes all those factors which influence business and exist outside the business. Business has no control over these factors. Some of these factors are those with which a particular company has very close relationship. However, there are some other factors which influence the entire business community. These factors influence every industrial unit differently. These factors are: (i) Customers; (ii) Suppliers; (iii) Competitors; (iv) Public; (v) Marketing Intermediaries.

Thus, we can say that the business environment is the combination of internal and external factors that influences a company's operating situation.

We have understood that the internal and external factors affect the business. The business can be successful only when it is flexible and easily adaptable to the change because the external factors as well as the internal factors keep on changing they are not constant. The business policies and strategies should be found in such a way that the business become completely adjustable to the external changing environment.

The manager or the business owner should concentrate on analyzing and understanding the external factors, that is they should foresee what all changes that can take place in the external environment and form the business strategies and policies accordingly for the growth and development of the business.

Only by taking into account environmental turbulence, can the firm ensure sustainable development. In 2012 Vinod Kumar wrote: „The companies should keep in mind that sustainability has become a requirement; it does not remain as an option. There is need to consider sustainability to develop marketing strategy, which means that the company has to adopt sustainability in strategic marketing practices and marketing mix”.



*Florin Dănălache  
Senior Editor*

# Rural Entrepreneurship Development

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## Abstract

*This study analyzes the favouring and the inhibiting factors for the development of rural entrepreneurship. More specifically, the study explores the impact of entrepreneurial orientation on regional opportunities and rural areas development. The main contribution of this study is that families and friends in rural areas have an important role in entrepreneurial orientation. In terms of concluding observations related to our findings, we find that education, training, rural infrastructures and financial assistance are the key drivers of entrepreneurial orientation in rural regions. Another contribution from this study is that the average age of farmers is increasing and it does not appear to regenerate. The findings suggest that education, training, rural infrastructures and financial assistance are the key drivers of entrepreneurial orientation in rural region. Finally, the paper ends with discussion and conclusions that can be drawn from this study and make proposals for future research.*

**Keywords:** entrepreneurs, rural entrepreneurship, entrepreneurial orientation

## Introduction

Entrepreneurship is the dynamic process of creating incremental wealth by individuals who take major risks in terms of financial, social and psychic results (Rauch *et. al.*, 2009). Thus, rural entrepreneurial orientation is a means to create value within new or existing organizations from rural areas. Entrepreneurship in rural areas finds a unique blend of resources, either inside or outside agriculture and has strong extended family linkages. By entrepreneurial orientation, farmers





are focused on regional opportunities for development. Entrepreneurial orientation would help farmers organize resources to take advantage or to create value. The entrepreneurial spirit is seen as a new beginning and the investments in infrastructure (e.g., irrigation), creation of family farms of an „optimal size” and re-launching industrial sector related to the agriculture are essentially the main vectors of growth in rural areas.

This study attempts to identify and analyze the favoring and the inhibiting factors for the development of rural entrepreneurship. Rural areas are experiencing many phenomena such as low quality of life, the lack of infrastructure and services, the ageing population and out-migration, which together generate serious social and economic problems. In this case, we explore how entrepreneurial orientation can stimulate people from rural area to start and develop businesses. The research was completed in the rural areas from the developing regions of Bucharest-Ilfov and South-West Oltenia focused on the analysis of starting potential of a new business and abilities of entrepreneurs to develop own businesses.

The main purpose of this study is to develop a comprehensive research framework which integrates the influences of entrepreneurial orientation on the start of

new businesses in rural areas. It is expected that by improving the living standard in rural areas one can increase the attractiveness of this region and promotes sustainable growth. Stimulation of rural entrepreneurship can only be achieved in collaboration with inhabitants from rural areas by taking into account their needs and aspirations. For example, small private shops and services offered by family businesses were successfully developed with low investment and low risk by using existing facilities.

In this study, we fill the gap in the literature regarding how entrepreneurs differ systematically from non-entrepreneurs in terms of entrepreneurial processes that are at the heart of new venture creation in rural areas. Therefore, the literature review gives an overall picture on entrepreneurship, but gives poor evidence regarding entrepreneurship in rural areas. Previous research has pointed out that people from rural areas appear to be less willing to take risks normally associated with entrepreneurial processes (Estrin *et al.*, 2006).

The structure of the paper is as follows. The first section presents the research goals and the aim of this paper. The following section provides substantial literature review on entrepreneurial orientation in rural areas. We then present the results of an exploratory research followed by a discussion of our findings. Finally, the paper ends with a summary of the conclusions that can be drawn from this study and makes proposals for further research.

## Theoretical Background on Entrepreneurial Orientation

One of the key factors that defines rural area is the prevailing agrarian structure. The rural area is defined as the administrative

territory including all communes of the country. A commune consists of several villages. Rural entrepreneurship does not differ in essence from entrepreneurship in urban areas. However, the economic and social goals of rural development are more strongly interlinked than in urban areas and have strong extended family linkages with large impact on rural community (Carland *et al.*, 1984). In rural areas is difficult to see opportunities that may translate into economic advantages. Entrepreneurial orientation is a psychological construction that reflects the intentions and propensity of the business' key players toward innovative, risk taking, and proactive operations (Covin & Miles, 1999).

Entrepreneurial orientation reflects the extent to which a person is able to accept risk and is innovative. It can strengthen the advantages of knowledge-based resources (Hisrich & Drnovsek, 2002). The quality of human capital has a positive impact on business growth. The firm's likelihood of starting-up, survival, growth and successful performance in the market is affected by the education, training and experience of employees and owners.

Innovativeness reflects a state that supports new ideas, novelty, experimentation, and creative processes (Lumkin & Dess, 1996). Investments in education and training are more important in rural regions and a crucial driver of innovation (Drucker, 1998). The diversification of rural economies towards non-agricultural sectors is a solution that might contribute to rural region development. The innovation potential of entrepreneurs from rural areas can develop organic and quality products, agrotourism, bioenergy, social and health services (e.g., telemedicine services allow a diagnosis from thousands of kilometers away) and so on.

Proactiveness refers to a posture of anticipating and acting on future wants and needs in the market place (Lumpkin & Dess, 1996). Entrepreneurship orientation is an essential element in the development of rural areas. Risk taking, adaptation of innovations, and proactive attitude towards change are critical drivers for economic and social development in rural region (Carland *et al.*, 1984). Proactiveness is a strategy towards changes and gain competitive advantage by development new skills, the anticipation of future barriers for the rural development and anticipation of future needs in the rural word.

Risk-taking is associated with a willingness to commit large amounts of resources to projects where the cost of failure may be high (Miller & Friesen, 1978). It implies that the outcomes are unknown. The average age of farmers is increasing and we noted that older farmers are less likely to be entrepreneurs. Community changes in the rural economy but it does not appear to regenerate its ageing population (Shane & Venkataraman, 2000). Entrepreneurial firms tended to take more risks than other



types of firms and were more proactive in searching for new business opportunities (Brandly & Louis, 2011).

Opportunity identification occurs early in the life of the farm and is a critical organizational capability at the heart of entrepreneurship (Ardichvili et al., 2003). It is generally acknowledged that entrepreneurs are able to identify unique opportunities because of distinctive life circumstances. A new business need to attract the innovative entrepreneurs who can identify an opportunity. Market orientation of the farms can stimulate investments in intensive production, assuming better living conditions and employment possibilities in rural areas. Changing markets and global restructuring of the economy strongly affected industry in rural areas as well as part-time farmers. There is a difference between „necessity-driven” and „opportunity-driven” entrepreneurship (Estrin *et al.*, 2006). For example, the „opportunity-driven” entrepreneurs may contribute significantly to economic growth compared to their „necessity-driven” entrepreneurs.

The local population is a potential source for rural entrepreneurship. Rural

population may have limited ability to engage in new opportunities. Entrepreneurship is the main tool to exploit rural capital. Rural capital is the combination of natural capital (e.g. natural environment), human capital, and social capital (Castle, 1998). Human capital reflects the size of rural population and investment in education and training of people. An entrepreneur has a commitment to continuous capital accumulation and business growth (Scase, 2003).

The education, work and life experiences are important sources of knowledge about entrepreneurial opportunities. Opportunity identification is emerging as a critical component of the entrepreneurial process (Man *et al.*, 2002). The social community may be more or less supportive for entrepreneurial orientation depending on its norms and values (Ronning & Ljunggren, 2007). It has been found that linking the rural entrepreneurs to new sources of capital, partnerships and employees, building the skills of entrepreneurs, developing local resources and creating support networks may improve entrepreneurship in the rural area.

The cooperation between farmers can accelerate the rural development because small farmers can organize and optimize limited resources to grow their performance. By joining isolated and scattered resources, the cooperation between marginalized farmers may be improved (Ronning & Ljunggren, 2007). All these can be fostered by developing entrepreneurial orientation in rural areas. For example, the landscape or cultural heritage are fascinating to outsiders who are willing to pay to experience more, such as the potential of ecotourism need to be developed.



## Exploratory Research

We conducted an exploratory study to better understand the favoring or inhibiting factors for the development of entrepreneurial orientation in rural areas. We started our research with the collection of secondary data using personal interviews with entrepreneurs and people who want to start a business attending the training activities provided by the project „Rural entrepreneur” co-founded by The European Social Fund implemented by National Young Managers Foundation. The need of extensive research on entrepreneurial orientation suggests a need to conduct in-depth, open-ended interviews with entrepreneurs or person from rural areas who are interested to initiate a business. In-depth interviews were conducted with farmers, managers, specialists and other persons from rural areas. Respondents were interviewed as to identify the factors which have an influence in the improvement of the entrepreneurial activity in rural areas. The interview data was further supplemented with personal observations drawn from trips to the rural areas and using secondary data.

In Romania rural areas cover 87% of the territory, include 9.7 million inhabitants, and have substantial growth potential. Rural areas have natural resources with high level of biodiversity and valuable agriculture landscapes. In rural areas entrepreneurs have many opportunities to start businesses, for example, the organic farming sector is underdeveloped compared to the EU average, installations for renewable energy using biomass, water saving through modernization of existing inefficient irrigation systems or improving basic services for the rural economy and population by village renewal and development.



In the agriculture sector lack of efficiency, shortage of machinery, tools and equipment, and poorly developed infrastructure led to underemployment in this sector. Three out of four million farms survive at the subsistence level and 58% of rural young people are faced with difficulties in finding a job that matched their qualifications in the rural economy, according to The National Strategic Plan of Rural Development (2008).

Rural areas in Romania face depopulation have inadequate infrastructure and are highly dependent on agriculture, lower human capital levels, reduced access to skilled labor, technology, and equity capital, low purchasing power of inhabitants, and poor entrepreneurial climate in the communities. The young population born and raised in rural areas has a tendency to leave their communities, mainly to advance their education and for a better life in urban areas because rural areas offer few employment opportunities. Unemployment in rural areas reached the level of 24% among youths of 15-24 years. Lately there has been an increase of the temporary migration of labor force abroad due to an economic motivation.

The target market of this study consists of people who have started or want to start

a business in rural areas. Statistically, this market consists of 60% men, and 40% women. The proportion of men is higher among employers (82%), while the number of women as civil servants who want to start a business is about 48%. The average age is 31 years, varying between 18 and 63 years. Almost half of them (48%) have university degree, mostly in economics (30%) and the fewest in the arts (1%) and medicine (2%). Their families are composed on average of 3.5 people, 8% are made up of one member and 14% of more than 5 people. The majority of entrepreneurs and potential entrepreneurs (86%) know a foreign language, especially English (58%) and use a computer, internet and email on average 23 days a month. One third of people from the target market make money from activities on their own, and two thirds earn money from salaries, scholarships, and unemployment.

A structured interview format was used consisting of open-ended questions about the innovativeness, risk-taking and proactiveness of entrepreneurial orientation. Basically, we were interested in identifying the factors which improve the entrepreneurial orientation and how this factor levels can effectively achieve this objective. As discussed in the introduction, our aim is to identify and analyze the favoring and the inhibiting factors for the development of rural entrepreneurship.

Following focus-group discussions and in-depth interviews we found that businesses success depends on the opportunities in rural areas and the region's economic circumstances existing at a given time, the ability to organize and conduct a business, the resources available and abilities of the entrepreneurs. Between various personal features of the potential entrepreneurs some are very important

such as the persuasion power in 80% of cases, confidence in 60%, ambition in 90%, risk taking in 80%, intellectual potential in 45%, hard work in 80%, creativity in 65%, and communication skills in 90% of cases. For example, Mr. S.A. 34 years old, who is an entrepreneur from Dolj said „... *for me a successful business is achieved when a 100% of the communication with employees and others individuals is appropriate. If you communicate very well with your collaborators then you actually leave an open door there...*” Mr. C.L., 25 years old, who is a civil servant from Timiș believes that if an individual does not have ambitions and doesn't want to do something this individual will never succeed in business. An individual have to work hard to achieve his or her goals.

Following the results obtained through the investigation of subjects, the accessibility of education may be lower (inhibiting



factor). Furthermore, rural population is not characterized by its high level of education, while the existence of experienced entrepreneurs is extremely limited. Education and skill development in rural areas remain especially important for the economic prosperity of rural areas. The need to provide more education from a young age on entrepreneurship will ensure the viability of communities in rural areas. The education, training and financial support are the key factors to improve entrepreneurial orientation in rural areas. However, the reduced participation in entrepreneurship training courses for people from rural areas is not given, to a small extent, only by the refusal or by accepting their utility, but because that most of them (74%) did not have the opportunity to attend such courses. Farmers, unemployed and private sector employees said that they did not have opportunities to pursue entrepre-

neurial training (85%) and they want to participate in entrepreneurship education programs.

However, some 56% of the entrepreneurs interviewed consider that expertise is vital to business success, the key is the economic, law, and accounting knowledge obtained abroad eventually. Previous practical experience increases the chance of success in business. For example, Mr. M.I. 60 years old, who is an entrepreneur from Gorj said that „... *our training field was agriculture. My wife and father-in-law worked in agriculture, in mechanization services and they had to make use of this experience to...*”

Study results revealed that rural entrepreneurs had their first experience in business before the age of 22 years. The residents near major cities made the first business earlier, at age of 19 years. The greater is distance to the city the greater is the age of the first business. By correlating the mean of the age of those who started their first business with various socio-demographic characteristics we can notice that men started to do business on their own earlier than women. Those who are graduates of economics or law faculties begin a business earlier than medical or technical school graduates.

Markets have a negative influence in the emergence of rural entrepreneurship in Romania. The development of forms of local co-operations constitutes the main distribution channel for agricultural produce of small and medium-sized farmers and a solution for land concentration. Market proximity effects reflected by rural areas close to the main urban agglomerations facilitate access to the large consumer market and capital. Rural areas near urban agglomerations of significant size, such as the Ilfov region, have a diversified economic

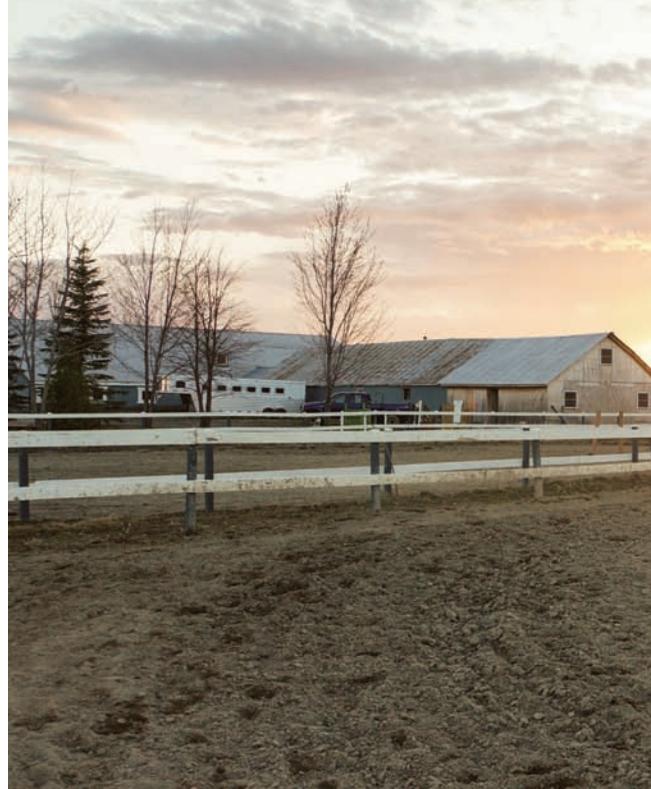


base, the improvement the quality of rural population lives and their natural environment.

There are rural areas with poor access and poor physical resources. For example, mountainous areas with low population density and unfavorable living conditions or rural area from the region South-West Oltenia have poor access to resources. The growth of corruption also contributes to reducing competitive environment in which the market fails to allocate resources efficiently because some market players operate outside the law.

In order to become an entrepreneur, the education received in the family, entrepreneurship, risk taking, opportunities to gain are very important. About 60% of the respondents have supported the idea that entrepreneurial orientation is essential to be developed in the family since childhood. For example, Mr. G.H. of 52 years old, an entrepreneur from Ilfov said that *„...my father taught me a lot of stuff about capitalism and I did not want to know anything about it, I was an army officer. But I was young and had to learn about it, I gave this drug to my child now and I wait for him to become a physician and to give him my business...”*

In-depth interviews and focus groups revealed several factors that act as inhibitors of entrepreneurial orientation development in rural areas. Among the leading inhibitors of entrepreneurial orientation may be mentioned the following: expensive credits, mentality, lack of money, excessive taxation, lack of entrepreneurial education, bureaucracy, corruption and the current economic crisis. Faced with a chronic deficiency in entrepreneurial orientation, Romanian rural areas are subject to pressure of economic crisis.



The summary of key factors and their influence on entrepreneurial orientation are presented in Table 1. For each entrepreneurial orientation dimensions we have identified a set of factors with significant impact and some specimen experience related by eight respondents. As shown in Table 1, findings of the exploratory study provide evidence that land concentration, as well as market orientation of entrepreneurs will lead to a decrease in the number of small subsistence farms in the near future. Farmers need to develop new skills and capabilities to remain competitive. The lower educational level of rural inhabitants, excessive bureaucracy and unnecessary regulation are the inhibiting factors for entrepreneurial orientation. Quality of life in rural areas and the diversification of the rural economy are the favouring factors, and the limited opportunities for non-agricultural jobs are the inhibiting factors and so on. The best motivation is the good examples of individuals with their own ideas and the creation of an entrepreneurial climate in the rural community.



More than a third of rural entrepreneurs interviewed have travelled abroad on business. They consider that each trip is an opportunity for entrepreneurs to reinvent it, to redefine the goals, and to adapt to a changing world. Moreover, the people noticed the rules that govern the life of other communities or other markets and business models. These findings push them into getting involved in local economic development. The older people are less willing to participate in training programs. Except for those who want to engage to do something radically different from what he had done before, for instance, a priest who wants to open a textile factory, a former military employee who wants to initiate a business in tourism or a farmer who wants to build a milk processing plant and live an entrepreneurial dream with great passion and energy.

In encouraging entrepreneurship in rural areas the optimism is the heart and soul of the entrepreneur. The availability of capital has an influence on entrepreneurship. The majority of rural areas are defined by

low per capita incomes except the region of development Bucharest-Ilfov. The majority of rural population is employed in low productivity businesses of agriculture while the employment opportunities in the other sector of economic activity are extremely limited. As a result, few individuals can initiate a new business assuming risks generated by entrepreneurial activity. In recent years the launching new businesses is lower in rural than in urban areas. The number of new businesses started in rural areas is 3 times lower than in urban while the urban population is 1.2 times higher than rural one.

Additionally, respondents have mentioned that there is a gap between infrastructure, facilities and utilities that creates unequal opportunities for rural residents. Among the causes of entrepreneurial gap between urban and rural residents, we can notice the lack of entrepreneurial skills in all its components: knowledge, skills, behaviors or attitude. Almost all respondents believe that people from rural areas are less informed about business opportunities than those from urban areas because they do not know where to find the right information, they do not have time to seek them and they are not helped to find them. We should promote rural entrepreneurship in a sustainable way, by stimulating rural economic and social development and by improving the entrepreneurial skills. If we want our rural areas to be attractive places to live and work in, it is important that people view them as viable areas to set up their own business.

Approximately 60% of respondents refused business with a small and constant profit margin and preferred large profits sometimes in conditions of great risk. Our study shows that people from rural areas continue to rely mostly on their own

**Table 1** – *The summary of key factors and their influence on entrepreneurial orientation*

Entrepreneurial orientation dimensions	Factors (drivers)	Specimen experience
<i>Innovativeness</i>	Innovative culture Education level Opportunities Skills Bureaucracy	<ul style="list-style-type: none"> <li>• Mr. I.O. 38 years old, self-employed, Gorj – <i>Management training is probably absent in rural areas. You do not have possibility to obtain information about training opportunities, in our region there do not come leaflets and it is not announced anywhere about such initiatives. We have a local newspaper, we have clip boards that are pursued, but they do not post anything on them. Good quality training is taught in the city and it is expensive. In addition, an inhabitant from a rural region also needs to pay transport costs, accommodation and meals. So a good training is not seen as an opportunity to gather and attract many people.</i></li> </ul>
<i>Proactiveness</i>	Assets holding Family influence Education level Land concentration	<ul style="list-style-type: none"> <li>• Mr. J.U. 40 years old, self-employed, Dolj – <i>When you see that people don't have opportunities to develop in their country, what do you do? You may introduce into politics, you can do different combinations with the mayor or you look for opportunities trying to live on other people's money or you start stealing or drinking.</i></li> <li>• Mr. A.D. 31 years old, entrepreneur, Dolj – <i>In rural regions, the problem is land fragmentation. Farmers are reluctant to land concentration in agricultural associations or production companies.</i></li> </ul>
<i>Risk-taking</i>	Entrepreneur age Financial assistance Income-expectation Infrastructure Training	<ul style="list-style-type: none"> <li>• Mr. R.A. 49 years old, farmer, Arad – <i>There is a time to learn and a time to work. In our village nearly all inhabitants are older and if they hear that I want to go to school to learn they say I want to leave village, or that I go just to walk around to see how things are there. Well what opportunities does the school show me that may be put to use in this God forsaken village?</i></li> <li>• Mr. S.I. 29 years old, entrepreneur, Arad – <i>We rejected the offer of money from the European Union because its requirement was that each peasant family should contribute with 10.000 Euros. In our village, inhabitants don't have so much money. If Romanian citizens had some money in the bank, he or she would risks to start a new the business.</i></li> </ul>

experience and less on education in schools specialized in business field. That is why in rural areas there is a higher rate of failure than in urban areas. Following the investigations made on rural areas, 38% of respondents declared they would prefer the status of entrepreneur for reasons of personal independence, 43% for the perspective of a better income and 21% for the choice of time and place of work.

## Discussion

In this study we have examined some possibilities to stimulate and support the entrepreneurial orientation in rural areas by identifying and analyzing the favoring and the inhibiting factors for the development of rural entrepreneurship. Entrepreneurial orientation may contribute to develop rural areas by facilitating an individual's capacity to identify opportunities with potentially large returns. A focus on entrepreneurial orientation is insufficient in rural areas because there are some distinctive characteristics of rural businesses, such as the small size of local markets, limited opportunities to trade with others, and the small size and skills base of local labor markets.

Several implications can be derived from this research. First, findings show that the need to overcome local constraints can induce entrepreneurs to become more innovative. The locations which are remote from urban regions can be a source of innovation. This research reveals that families have an influential role in entrepreneurship orientation. Non-agriculture jobs have to be created in order to avoid the depopulation of the villages. The challenges for businesses in rural areas include the limited scale and scope of local market

opportunities. Existing and potential entrepreneurs in all rural areas require advice and support to modernize and diversify their businesses. For the entrepreneurs in rural areas the main concerns are training and customized consultancy, the creation of partnerships and networking to transfer good practices. Thus, we find that education, training, rural infrastructures and financial assistance are the key drivers of entrepreneurial orientation in rural region.

Second, the results of the study specifically highlight uneven entrepreneurial activity across different geographical areas. Our findings support the increasing of the interaction between the existing entrepreneurs by creating network facilities with potential entrepreneurs. Entrepreneurs have the role of a catalyst for the economic development of the rural area. Nevertheless, according to our findings, education, as the most basic form of human capital, plays an important role in rural entrepreneurship development. The low density of the businesses in rural area leads to a small number of potentially collaborating local firms.

Third, this paper extends research to analyzing how entrepreneurship can be

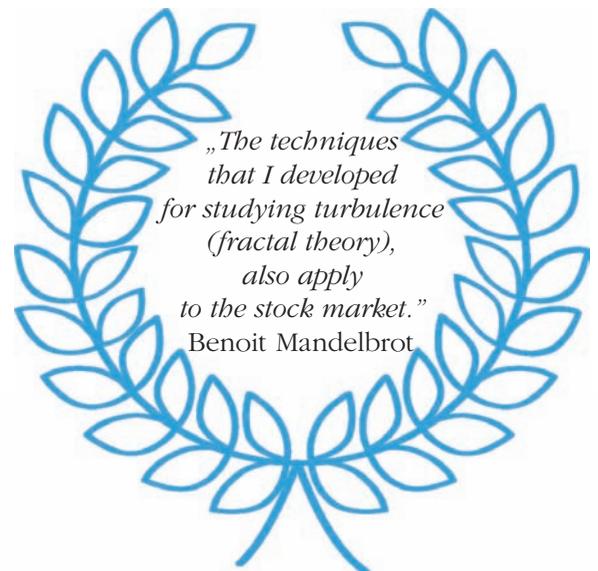


encouraged in rural areas by marginal direct state interventions in stimulating entrepreneurial ventures. These interventions are often perceived as an efficient instrument in the realization of entrepreneurial orientation. The skills needed to develop rural areas may be best provided by attracting people into rural areas. Moreover, with the transition process progressing, the improvement in the institutional environment, and adaptation to a new economic system, macroeconomic stability, technological opportunities, the decrease the frequent changes in rules and regulations influenced the entrepreneurial orientation in rural areas.

## Conclusions

Although previous research has argued the entrepreneurial orientation is a critical factor to economic and social development

in rural areas, our research only provides limited support for this argument. Based on our results, we believe that at this point there is not enough justification for people from rural region to become entrepreneurs. More research on the role of financial assistance, sustainable use of resources, rural infrastructures, public services, intensification and reconfiguration of people mobility patterns and how these factors can affects the entrepreneurial spirit in rural region is clearly needed.



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# The University as a Driver for the Future

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Abstract

*The paper is looking for evidence of important milestones in the historical evolution of technology development processes and it clarifies the involvement of academics and their impact on the business growth. There are identified nine important milestones in this evolution: the traditional university and the business community – two separate „worlds”, the Research University, Edison’s first laboratory, the third mission of the university, the first innovation processes in universities, the pressure for change from the industry, the partnerships between University and Society, the complex university technology development processes of the present, new possible paths of technology development in technical universities. There is a remarkable evolution regarding the technology development in universities that, at historical scale, unfolded in a relatively short period of time taking into account the long history of the university as an institution. University technology development processes are very complex, both at individual and organizational level and imply entrepreneur professors enter social relations with professionals of different backgrounds and take part in highly specialized business activities. In short, successfully developed university technologies are a driver for business growth.*

**Keywords:** technology development, university mission, academic entrepreneurship, business growth

## Introduction

It is well known that the universities’ traditional missions are teaching and research, but the entrepreneurial component of the academic activity has increased in importance over the last decades. There are authors that assert the fulfillment of the „second academic revolution”, which „transformed the university into a teaching, research and economic development enterprise” (Etzkowitz, 2003, p. 110).



Through this transformation the university acquired the third major mission of „economic and social development”, which is carried out along the traditional ones. On the other side, there are many adversaries to the market orientation of the universities, who see in these transformation processes the seeds that will lead to the system’s downfall (Noble, 1998).

There are many sides to the concept of entrepreneurial university (Brustureanu, 2013), different authors are proposing various definitions and approaches and present the roles in society / the tasks that the institution should take on in a new globalized world.

It is the belief of these authors that the new concepts/activities/processes should be explored with the aim of finding the most appropriate ones for each institution and also to try to preserve the traditional academic values.

Previous studies have provided classifications of the academic entrepreneurship activities. For example, taking into account their degree of compatibility with the traditional view regarding the role of the university and of the university people in society, in Louis *et. al.* (1989) the authors distinguish between five basic forms of academic entrepreneurship: (1) large-scale science (obtaining large, externally funded research projects), (2) earning supplemental income outside the university, mainly through consulting (knowledge transfer for personal gain), (3) soliciting funds from industry (capitalizing on university-industry relationships to provide new sources of funding for research), (4) patenting the results of research, and (5) forming companies based on the results of research.

In this paper the focus is on university technology development processes and their impact on business growth. Of course,



technical universities, in particular, are favorably placed to engage in such processes. The aim of the study is to provide an answer to the following research question: is the university technology a driver for business growth?

## Methodology

The paper is analyzing the evolution of technology development processes and their connection with the university research from a historical perspective. More precise, the method is to look in the specialty literature for evidence of important milestones in the historical evolution of technology development processes and clarify the involvement of academics and their impact on the business growth. For each milestone identified, there are presented the main features that characterized that particular historic moment.

There are identified two levels of analysis: the individual university professor/researcher going on an entrepreneurial path and the organizational level, the institution/the structure to which the individual belongs to.

## Results and Discussion

### *The traditional university and the business community – two separate „worlds”*

Fuller (2005) describes some features of the university world from the early 19<sup>th</sup> century, where the academics had the maximum degree of academic freedom, being able to search for the „truth” even if „the findings upset established pieties”. In the Humboldtian model of university the re-

search function was integrated with the teaching one, while in the Napoleonic model the two functions were separated. At that time the academics were not interested in technology development and they were not under any financial pressure to involve in such activities. Figure 1 expresses figuratively the fact that between the university and the business community there were no economic connection, they were two separate „worlds”.

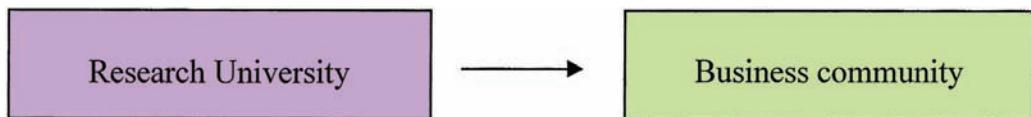


**Figure 1** – *Two separate entities*

### *The Research University*

In the late 19<sup>th</sup> century, starting from the German model, in the United States of America (USA) evolved the so-called Research University. Thus, professors, but also assistant professors, engaged in research activities and reached outside the university environment in order to receive funding, due to the lack of funding from the state. Etzkowitz [1, p. 110] calls this process

„the first academic revolution”. The academics organized themselves in research groups that gradually developed to be organized as „quasi-firms”, i.e. the professor devoted most of his/her time to organizing the activity, rather than performing the traditional teaching and research activities. Figure 2 shows in a figurative way the effort of academics to gain financial support for research activities from the industry.



**Figure 2** – *The first academic revolution*

### *Edison’s first laboratory*

Outside the university environment, the streams of scientific discoveries lead to the development of new technologies, a process which increased at a high rate and led to business growth. The most important example in this sense is that of Thomas Edison, who put the bases for what the literature now refers to as „The original innovation factory”, that is the Menlo Park,

New Jersey, laboratory „the world’s first dedicated R&D facility” (Hargandon and Sutton, 2001, p. 72). Thus, in The Thomas Edison Center at Menlo Park (2015) one can see the stream of inventions that were achieved in a very short time – from the spring of 1876 until 1887, when Edison built and moved to a much larger laboratory. In fact, he worked at Menlo Park at full capacity for six years, until 1882, and

he was able to achieve a staggering number of patents more than 400, with what he called „a minor invention” delivered every ten days and a major one every six months (Hargandon and Sutton, 2001, p. 73). Figure 3 expresses figuratively the process

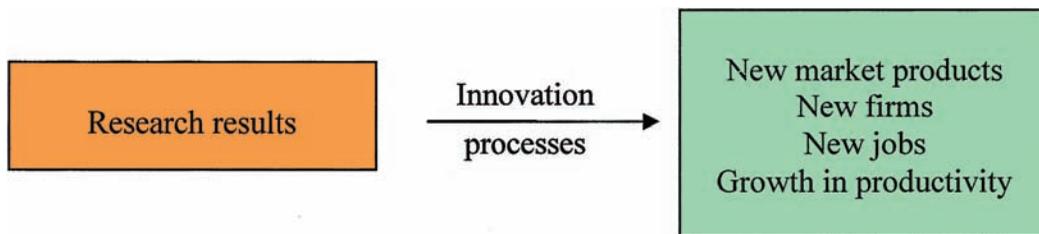


**Figure 3** – *Cooperation with universities*

### ***The third mission of the university***

Etkowitz (2003) shows that the „embryonic entrepreneurial academic dynamic” originated in the „lack of a formal research funding system”, which lead the academics to close ties to outside funders. This process lead to „the second academic revolu-

tion”, which in Etkowitz opinion, resulted in the addition of a third mission to the university, that of „economic and social development”. Figure 4 shows how the research results, though innovation processes lead to new market products and, as a consequence, new firms and new jobs and increased productivity.



**Figure 4** – *The second academic revolution*

### ***The first innovation processes in universities***

But this second „revolution” was not a smooth process, as Etkowitz lets us infer from his unfolding of events. Thus, there is evidence that the university and the university people came much later into the innovation processes described by Figure 3. Shane (2004, p. 43) presents the case of Professor Harry Steenbok from the University of Wisconsin at Madison. He invented a way to enhance the Vitamin D content of foods, beverages and medicines through irradiation and, in 1924, de-

cidated to patent his invention. This action resulted in „severe criticism from his academic colleagues”, who, at that time, did not conceive that universities should be involved in technology commercialization processes. Shane makes reference to two other works (Mowery *et. al.*, 2001 a, b) that present the „ambivalence” of US universities between the World Wars. On the one hand, there were the public universities which produced many research results in collaboration with the industry and in some cases these lead to the development of technologies that were capitalized upon by the business sector. On the other



hand, many academics and important stakeholders of the higher education system considered the university should not be involved in such processes.

***The pressure for change from the industry***

Critics of these processes of university entrepreneurial transformation present other facts. Noble (1998) shows that the



**Figure 5 – Innovative research**

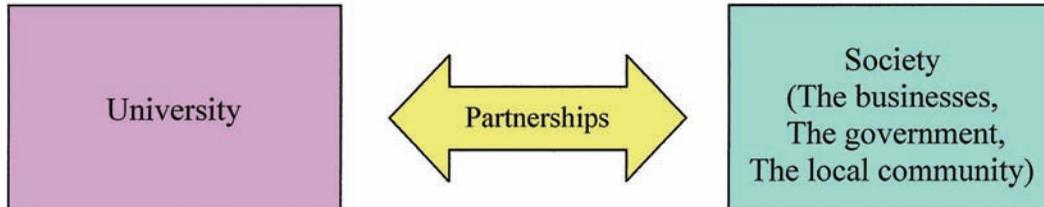
***The partnerships between University and Society***

To the contrary, other higher education scholars are convinced, and are bringing many arguments for their theses, that there should be partnerships between universities and the business sector. Their emphasis is on the role of the university in society. Thus, Cherwitz and Hartelius (2006) define a new role for the university in our society. They introduce and analyze the concept of „engaged university” which means that higher education institutions have to respond to much more challenges than before. One of these challenges refers to their „partnerships with the public” that should become an essential element

business representatives were the drivers of change in US universities and the processes, he even coined terms to describe these processes „the commoditization of university research” and „the commoditization of university instruction”. Also Fuller (2004) analyzes in detail the processes that are unfolding in universities in the new Knowledge Society. The Knowledge Management specialists are advising universities „to disaggregate their research and teaching functions so as to acquire the ‘lean and mean’ spirit associated with, on the one hand, a corporate R&D division and, on the other, a vocational training center” (Fuller, 2004, p. 2). Figure 5 shows figuratively that the increase in the amount of funding from the large corporations in what is called „innovative research” created a pressure for change in the university’s organization.

in the academic activity. Thus, to be an engaged university means to work „with government, businesses, and non-profit agencies to respond to community needs”. But the most known and debated model of partnership between the university, business and government is The Triple Helix of University-Industry-Government Relations (Etzkowitz and Leydesdorff, 1995, Etzkowitz and Leydesdorff, 2000). The model has been „broadened to accommodate the culture of a society and the distinctive environment in which universities operate” (Coyle *et. al.*, 2013, p. 14). This model is closely related to Mode 2 of knowledge production which entails that the research inquiry „is directed by the consumers of

knowledge products". In this situation, one could discuss about „a diffuse group of public and private constituencies that pull knowledge producers in various directions" (Fuller, 2005, p. 36). Figure 6 shows



**Figure 6** – *Partnerships between universities and society*

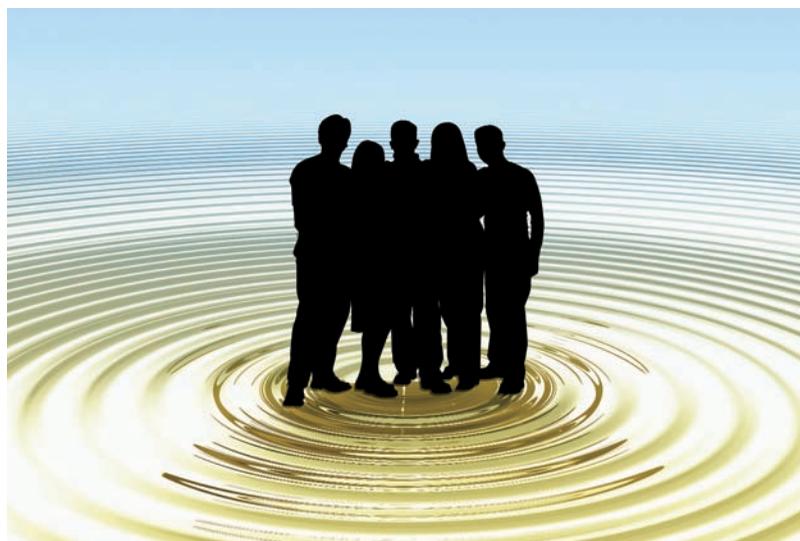
### ***The complex university technology development processes of the present***

The technology development processes represent only one dimension of these partnerships. Entrepreneurship scholars describe in detail the way in which the university and the academics as individuals enter in technology development processes. Thus, according to Shane (2004), the stages of the technology development processes are: use of funded research, creation and disclosure of invention, decision to seek Intellectual Property protection, marketing the technology, licensing decision. Only the first of these stages can be characterized as traditional academic activity; for the rest the researcher enters into contact with different types of professionals working within the university or outside: Technology Transfer Offices' (TTO) experts, investors, and entrepreneurs. Boni and Emerson (2005) describe other categories: technologists, service providers, and partners for the emerging companies. One could see only be looking at this brief enumeration that the entrepreneur professor enters a completely different social environment from that specific to the research activity. The process can be described at a figurative level as a spiraling process having at its core the entrepreneur

figuratively that in the current turbulent, globalized economic environment, universities are developing partnerships with society, which includes the business sector, the local, regional and national authorities.

professor who involves close colleagues, the university department and other stakeholders until the technology is brought to the market (Brustureanu and Scarlat, 2014, Johannisson, 1987).

Other authors (Audretsch and Phillips, 2009, Audretsch *et. al.*, 2013) are describing processes of technology development that have at their core academics that start firms without the help from the university TTOs. One could say that from the beginning they are moving away from the higher education system. Aldridge and Audretsch (2010, 2011) show that there exists an important number of scientists that choose what they call another „commercialization route”, university specific structures. Their





Still, from the point of view of the research question, even if an academic entrepreneur chooses to leave the university his/her path in the technology development drives to business growth.

### ***New possible paths of technology development in technical universities***

Before concluding, one could take a quick look at possible new developments that could take place in the university environment. There can even be envisioned new paths for product innovation that can

only happen in universities. Thus, Brustureanu and OGREZEANU (2015) propose technology development processes that benefit from the user input of students. Figure 7 presents an innovation process that could be developed especially in technical universities. Thus, instead of continuing the technology development process as described by Shane (2004) with the fourth stage of „marketing the technology”, it continues with a stage of „further development of technology”, which leads to the final stage of „spin-off creation”.



**Figure 7** – *Entrepreneurial university*

## **Conclusions**

Seeing the processes from historical perspective, it can be noted a remarkable evolution regarding the technology development in universities. At historical scale, this change process has unfolded in a relatively short period of time, taking into account the long history of the university as an institution. Universities' structures have evolved at a great pace trying to cope with the changes in society and in the business environment in particular.

The examples presented in the paper offered insights into the processes of technology development and emphasized two levels of analysis: the university and the academic as individual. Thus, on the one hand, there was briefly presented the way the university has evolved as an institution, its connection to the business environment as a whole and, on the other hand, it was given a glimpse into the indi-

vidual inventor's experience going through these processes.

University technology development processes are very complex, both at individual and organizational level and imply very different activities than those traditional of teaching and research. Entrepreneur professors enter social relations with professionals of different backgrounds and take part in highly specialized business activities.

To answer shortly and clearly to the research question: successfully developed university technologies are a driver for business growth.

## **Acknowledgment**

The work has been funded by the Sectoral Operational Programme Human Resources Development 2007-2013 of the Ministry of European Funds through the Financial Agreement POSDRU/159/1.5/S/134398.

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# Innovation Consulting Services

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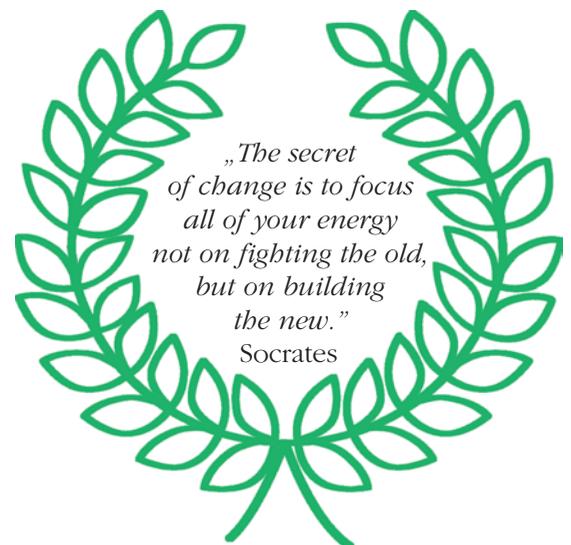
Abstract

*There are multiple reasons from which innovation processes fall. There is, indeed, an inherent risk associated to the innovation processes and the managers or the engineers, used to work with measurable predetermined tasks and processes, feel often uncomfortable when they have to deal with the fuzzy front-end of innovation. The present paper addresses the issue of identification and analysis of the subjects for innovation, of discovering the opportunities and formulating a clear problem, before starting the idea generation and the creativity-related innovation phases. A false start of the innovation journey can bring the innovation teams into a blockage, a dead end or to meaningless results. In order to avoid this, the first early phases of the innovation are critical as they provide the solid basis for future meaningful innovations. One of this phases to which we have to pay attention in the early stages of the front-end innovation process are the discovery of the opportunities and the sharpening of this opportunities. The paper presents a structured approach for this aim.*

**Keywords:** innovation, opportunities, structured analysis

## Introduction

There are multiple reasons from which innovation processes fall. Not enough resources, not the right team or simply bad luck; here are just a few reasons which comes to our mind at once. There is, indeed, an inherent risk associated to the innovation processes and the managers or the engineers, used to work with measurable predetermined tasks and processes, feel often uncomfortable when they have to deal with the fuzzy front-end of innovation.

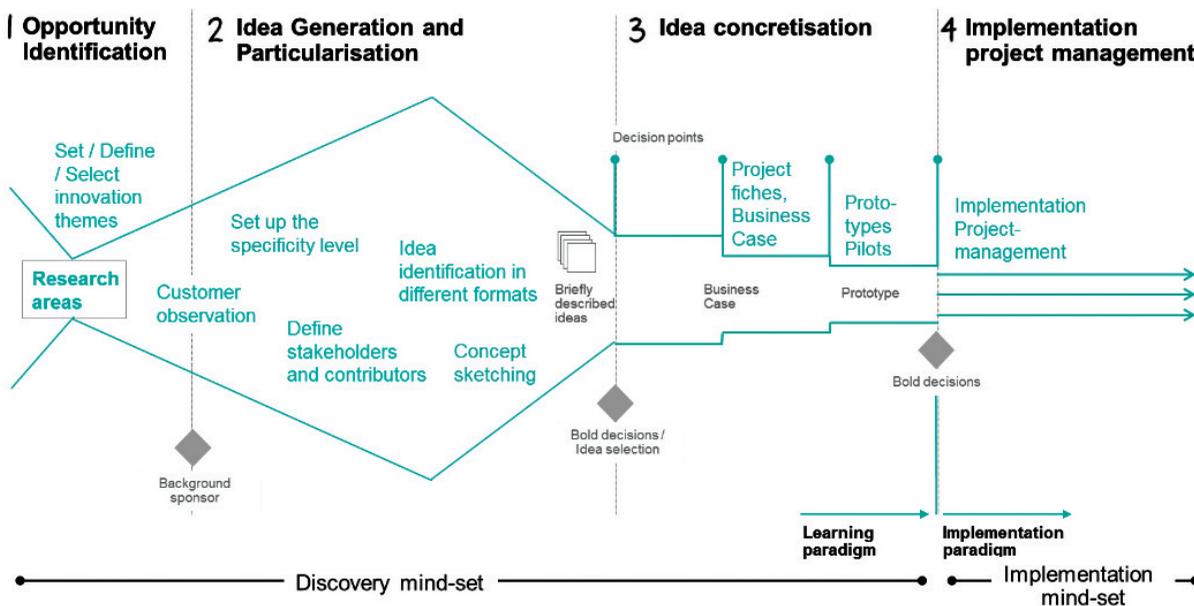


The principle that it is more expensive not to innovate than to innovate is widely accepted; however, it is often not clear for managers how to start this endeavour. In our view, there could be several steps to be taken as starting actions, eventually in parallel: to assess the corporate culture for innovation, to form the innovation team(s) and to identify the areas/topics for innovations. But strangely, if we look to the real business life, usually these are not the first steps taken when organisations start innovating.

Very often, a mistake made by many organisations is to jump directly into the generation of ideas, into the creativity part of the innovation. There could be several reasons for this: often there is confusion between invention and innovation or al-

ternatively, it is more attractive to work in the creativity part, in the idea generation part, and it is much easier to attract people to get involved into this and to cooperate enthusiastically.

As a result of this approach, hundreds of ideas are generated with no results. Some of them are generated in the wrong direction, but even the correctly generated ones tend to die at the stage of ideas and they are not concretised into tangible services, products, processes. The present paper addresses the issue of identification and analysis of the subjects for innovation, of discovering the opportunities and formulating a clear problem, before starting the idea generation and the creativity-related innovation phases.



**Figure 1 – Innovation process**

Figure 1 presents the positioning of the approach within the innovation process; the current paper is addressing the Phase 1 of the innovation process – Opportunities Identification, while providing a solid fundament for Phase 2 – Idea Generation and Particularisation.

## Discover the opportunity

One of the innovation myths is that the innovator wakes up in one good morning with a brilliant idea and here it is the innovation. The reality shows that things are completely different. „While innovation can appear to be random, the best



innovators follow a disciplined process to discover opportunities to do something different that has impact” says Anthony D. Scott (2012). In his book A. Scott suggests that in order to identify the opportunities for innovation, one must „watch for the early warning signs, because the urgency of innovation and the ability to innovate are inversely related, to take a consumer-is-boss perspective and to look for an important, unsatisfied job to be done, or a problem the customer can’t adequately address today” (Scott, 2012).

Peter F. Drucker (1995) considers that it is change that always provides the opportunity for the new and different. Drucker considers that „Systematic innovation therefore consists in the purposeful and organised search for changes and in the systematic analysis of the opportunities such changes might offer”. More specifically, in Drucker’s view, systematic innovation means monitoring seven sources for innovative opportunities.

The first four sources lie in the organisation and they are therefore visible primary to the people involved. They are basically symptoms:

- The unexpected – the unexpected success, the unexpected failure, the unexpected outside event;

- The incongruity – between reality as it actually is and reality as it is assumed to be;
- Innovation based on process need;
- Changes in the industry structure or market structure that catch everyone unawares.

The second set of three sources for innovative opportunities are, in the vision of P. Drucker (1995), changes outside the organisation or the industry:

- Demographics;
- Changes in perception, mood and meaning;
- New knowledge, both scientific and non-scientific.

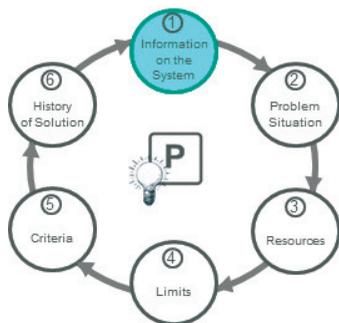
Same orientation towards proactive research for the innovation opportunities can be found in the IDEO Design Thinking approach (Kelly and Kelly, 2013). „Don’t wait for the proverbial apple to fall on your head. Go out in the world and proactively seek experiences that will spark creative thinking. Interact with experts, immerse yourself into unfamiliar environments and role-play customer scenarios. Inspiration is fuelled by a deliberate, planned course of action” says Chris Flink from IDEO in Creative Confidence and he continues „after your time in the field, the next step is to begin the complex challenge of „sense making”. You need to recognise patterns, identify themes and find meaning in all that you’ve seen, gathered and observed. We move from concrete observation and individual stories to more abstract truths that span across groups of people”.

This glissade, from observation and discovery to the definition of more abstract truths that fit anthropologically or organisationally, we call sharpening the opportunity.

## Sharpening the opportunity

Once we acknowledge the opportunity for innovation, we are just halfway there. The next challenge is to sharpen the problem, the subject for innovation, to reduce it to a commonly understandable task, ready to be approached by the innovation teams and to be inserted into the whirlpool of idea generation phase.

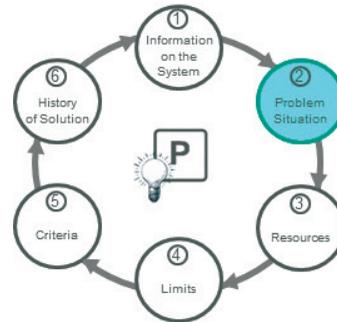
Inspired by the TRIZ (Altshuller, 2004), here is a 6 phases approach for the problem definition and for the idea generation foundation layout.



*Phase 1 – Information on the system*

In this phase we consider and analyse the system. This means we name the system and its relevant sub-systems (components; parts). We try to use a simple language so that non-subject matter experts understand it. Second, we try to workout a system model, prototypes, examples, sketches or drawings to help to understand the system and its sub-systems. In a third step we try to list the primary function(s), to formulate a first version (guess) of the primary function(s) of the system while we remain prepared that this will be refined along the process. The output of this phase is a description of the existing or desirable System Structure, Ideal Final Result of the System and Way of Working

of the System. In this phase we describe the Ideal Final Result and we describe by what concretely we recognize that the ideal final result has been achieved.



*Phase 2 – Problem situation*

In this phase we try to analyse the problem and to sharpen it as much as possible. Therefore we address: expected Improvement of the System or a problem that shall be eliminated, problem history, how the problem evolved, we use tools like Problem Hierarchy Analysis and Function Analysis, we explain the interactions of all sub systems and components in order to perform the primary function.

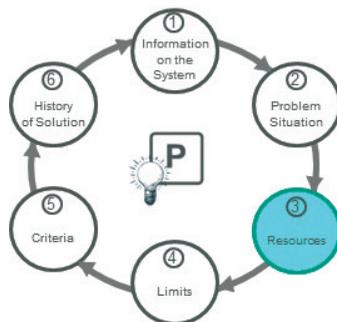


# Counseling



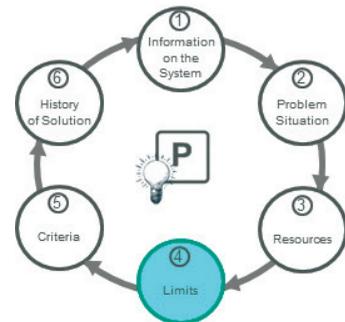
In this phase we can formulate also the technical conflicts or contradictions: „in order to solve the problem in a creative way we need the following things”. Also here we re-address the definition of the primary function. Is it still appropriate?

We identify harmful functions in the system and corresponding conflicts and we workout a list of identified conflicts. If we find a number of problems or conflicts agree on a priority of the different problem or conflict that we will address. Define the 9 Windows for the selected Problem (once we focus on a selected problem the formulation of the 9-Windows around this specific problem can help to regain the big picture).



*Phase 3 – Resources*

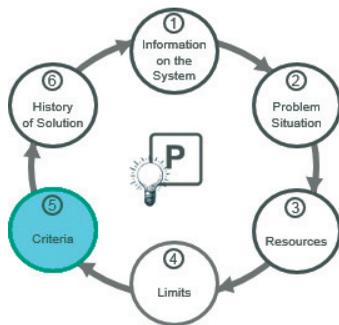
In this phase we collect the resources we have/need to address the problem. We may use the defined 9-Windows for the problem to collect them systematically. Usually we consider the following types of resources: Substances; Fields; Space; Time; Function; Knowledge.



*Phase 4 – Limits*

The fourth phase deals with the limits which appears in the process, and which are to be considered and address in the next phase, the idea generation one. Here we pay attention to the degree of change of the system, what is the degree of allowed change to the system, limits for the change of the system. One may also consider which attributes of the system shall remain unchanged, and for what reason: Technical Limitations or Economical Limitations.

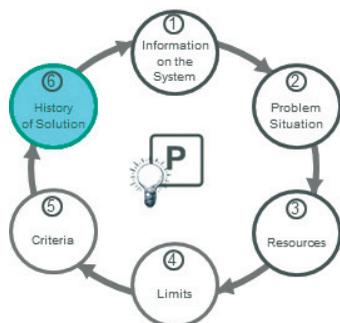
A specific method in this phase is the „Mini or Maxi Problem”, as TRIZ distinguishes between Mini- and Maxi-problem. A Mini problem is given if the system remains unchanged but becomes simpler, its weaknesses disappear or the expected improvement is reached. A Maxi-problem has no limitations for the allowed change to the system. In this case a new system based on a new function principle may be developed. Typically, we start with addressing the Mini-problem, as its solution requires typically minimal resources.



*Phase 5 – Criteria*

One of the significant challenges of the idea generation is to select the relevant idea. Idea generation sessions are moments in which people, stimulated by relevant tools, generate hundreds or thousands of ideas. This is very good, because innovation needs a lot of raw material, of unsorted and sometimes crazy ideas to choose from. However, the challenge is the method of choosing. In this phase we define the criteria by which we will later evaluate the created ideas.

Usually we consider the following dimensions: Technical; Economical; Time; Newness; Benefit; Strategic Fit; Emotional Attractiveness. But, as innovation can address any field of activity, these dimensions can be specifically enriched.



*Phase 6 – History of solutions*

In this phase we try to identify if somebody else has eventually invented the wheel before us. We consider therefore

the history of solutions, i.e. what kind of solving efforts for this problem have been tried in the past (successful and non-successful), other systems that have similar problems, or analyze systems that have similar problems and the solutions that are applied in these systems.

## Preparation for the idea generation phase

Now that we have analysed the problem from several perspectives and the problem is clearly understood and sharpened, it is time to select the appropriate idea generation strategy.

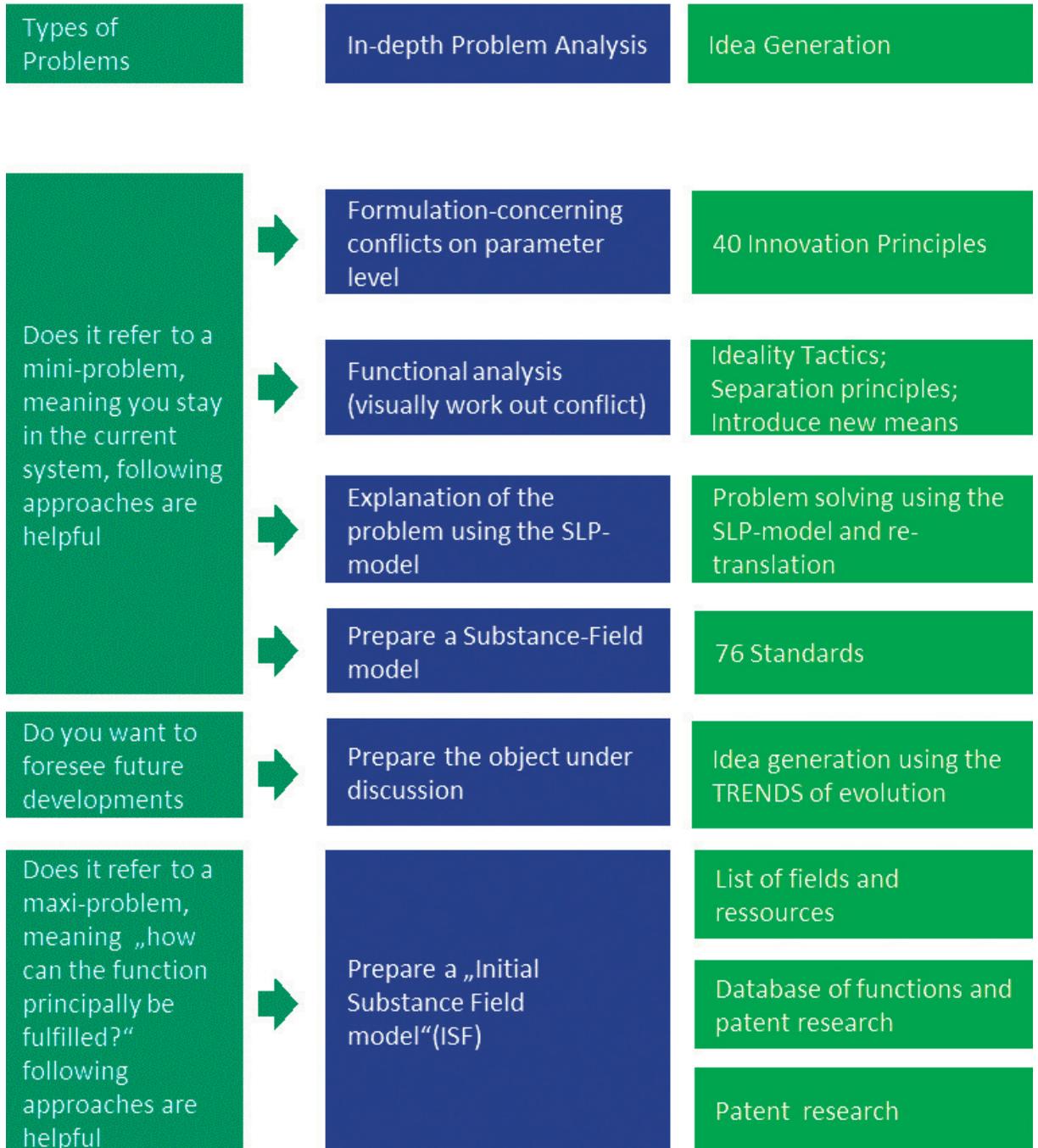
Depending on the type of problem you face you may select one or more of the proposed strategies mapped as in the drawing below. It is possible to use more than one strategy if needed.

After you have created and reflected some ideas you might want to revisit the problem analysis part again and sharpen



some aspects; this is normal as the innovation, as any creation process, is a helix type process. Then you go into a second

round of idea creation. Actually, for a difficult problem it is recommended to do the process minimum twice.



**Figure 2** – A proposal for idea generation strategies

Sharpening of the problem formulation, through analysis and/or iterative analysis, it will prove very useful also in the innova-

tion phase that follows the idea generation, the concept development phase, as it will conduct to much more appropriate,

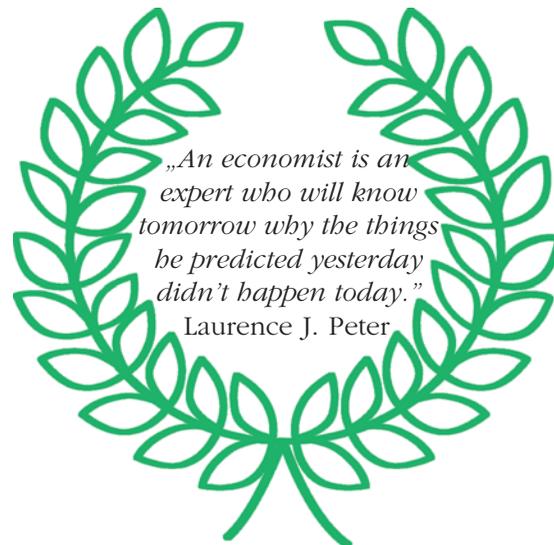
specific and problem-solving concepts. Actually, a very sharpened and analysed problem brings in the minds of the innovation team, in their subconscious, the premises for the solution, for the innovation or even the innovation in a draft form. Now we are truly ready to start the idea generation, the creativity phases of innovation.

## Conclusions

Innovation means making money out of knowledge, obtaining tangible results from ideas. A false start of the innovation journey can bring the innovation teams into a blockage, a dead end or to meaningless results. In order to avoid this, the first early phases of the innovation are critical as they provide the solid basis for future meaningful innovations. One of this phases to which we have to pay attention

in the early stages of the front-end innovation process are the discovery of the opportunities and the sharpening of this opportunities.

Before diving into the attractive world of creating new ideas it is truly necessary to discover the opportunities in the organisation or in the environment and to work to deepen, to sharpen, to conceptualise the innovation subject as much as possible, allowing the individual or collective subconscious of the innovation team to work, explore, create towards the correct direction.



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# False Expectations in a Chaotic Environment

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Abstract

*This paper aims at providing vivid examples of false expectations experienced by authors during their years-long project-based consulting activity – possibly leading to tensions and, eventually, to conflicts between main actors (consulting firms, their clients, and funding entities). The analysis is based on two basic models, described by authors as two-actor scheme and three-actor-scheme. As conclusion, the paper provides a few lessons to be learnt by both the managers and experts working in consulting projects.*

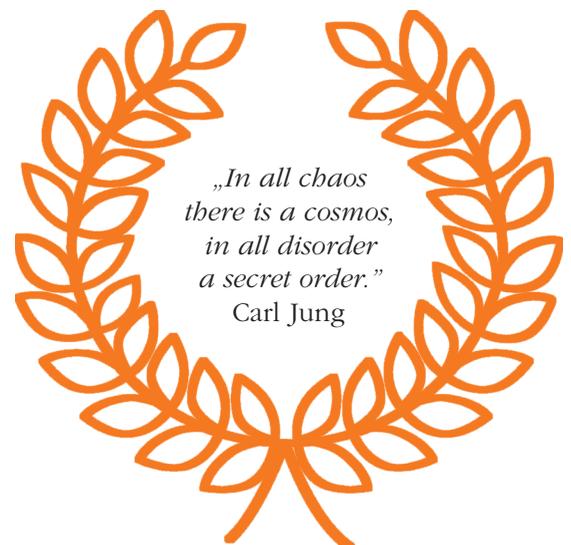
**Keywords:** false expectations, consulting business, two-actor-scheme, three-actor-scheme, consulting

## Introduction

Technically speaking, consulting activity – and business consulting specifically – is a service by nature (Bäcklund and Werr, 2008), enjoying all the characteristics of services. Economically speaking, consulting business is part of the consulting industry (in which the business consulting is a consulting service for business community).

Consulting service is a business itself (i.e. consulting business) and, as any other business, consulting activity – developed as a profession and even career (Adams and Zanzi, 2004; Furusten, 2013) has to be solidly developed organization-like (Cohen, 2009; Weiss, 2009) and profitable as well. This is why the fee setting is an important issue in the consulting business (Shenson, 1990).

Besides business advice and business counselling, a good part of consulting service is project-based: the consulting firm sells consulting projects. More complex the problem, larger the consulting project is,



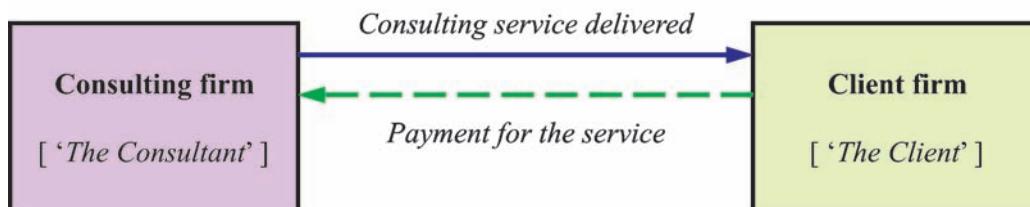
and, of course, more expensive (not necessarily longer as a duration). The success of consulting projects is influenced by three sets of factors (Jang and Lee, 1998, p.67): „characteristics of the client organisation such as top management support for consulting, the commitment of client team members, and the presence of a client/sponsor; the competence of a consultant; and the consultation mode such as clearly defined goals, methodological compatibility, standardisation of procedures, and clients’ participation”. It is important to note that „clearly defined goals” is one of the success factors.

The purpose of this paper is not to go into details of consulting projects – related to comprehensive and challenging subjects (as consulting technology or consulting methods, technics and instruments; consulting fee setting or consulting ethics) but to focus on possible miscommunication issues and to exhibit some frequent misunderstandings during consulting process – possibly leading to tensions, even conflicts and court solutions (if not correctly identified and properly addressed) – all generated by false expectations. Pellegrinelli (2002) underlined the importance of mediation and reconciliation while managing such tensions of consulting interventions. Hence, it is important to emphasize the setting the right expectations in consulting business.



## Success factors in consulting

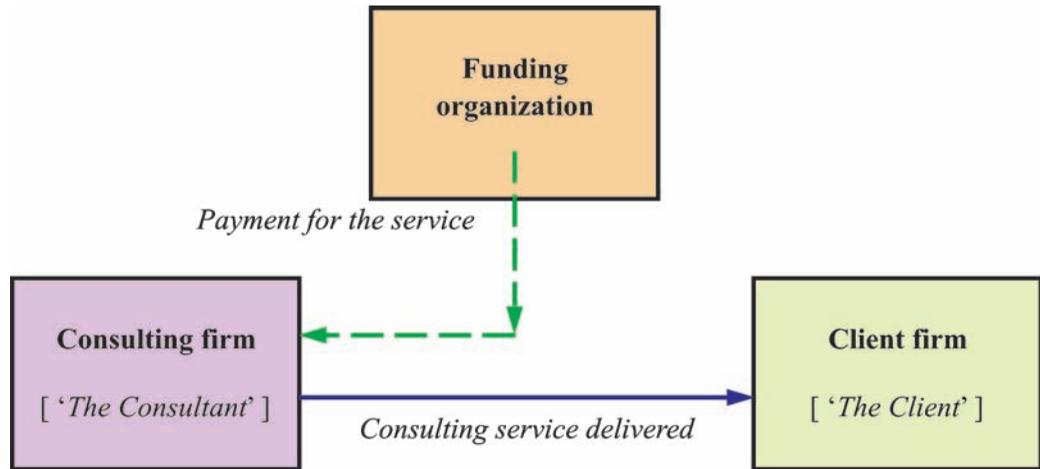
Even if the consultant masters a number of success factors (Jang and Lee, 1998) the client has also its role in the consulting relationship (Williams, 2001). The false expectations might be generated by any actors involved in the consulting process. It is important to emphasize that false expectations could origin either on the consulting company side or on the client side. The authors call this analysis model *two-actor-scheme*: the relationship between the consulting company and its client is analysed (as depicted in Figure 1). Not as complex as the recent „behavior induced by the asymmetry of information between the principal (leader-client) and the agent (consultant)” (Lalonde and Adler, 2015, p. 177), earlier literature (Edvardsson, 1990; Fullerton and West, 1996; Appelbaum and Steed, 2005; Chalutz Ben-Gal and Tzafir, 2011) has identified and discussed the importance of quality relationships between client and consulting firm.



**Figure 1** – *Two-actor-scheme in consulting process*

A more common model is the *three-actor-scheme*; besides consulting firm and its client, this scheme implies the third actor, the funding organization: government and/or EU programmes and/or other international donors (USAID, British Know How Fund, World Bank, United Nations specialized programmes, etc.) as well as banks, private or public organizations. There are

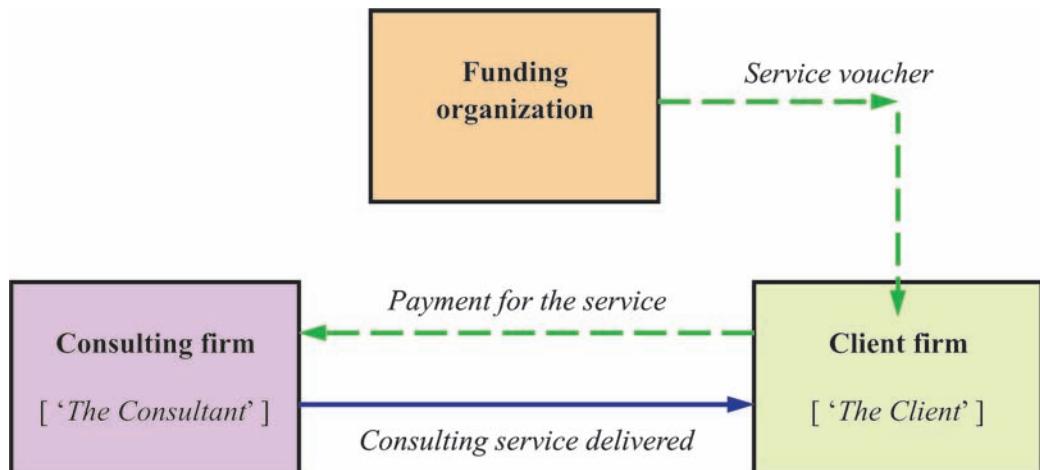
two possible basic financing structures: the financing body pays the consulting firm to provide the consulting service to the client (Figure 2); or the financing organization offers the necessary funds to the client (e.g. vouchers) and let it decide what consulting company to hire in order to solve its problem (Figure 3).



**Figure 2** – *Three-actor-scheme in consulting process*  
(The consulting firm is paid by funding organization)

As scheme, the case presented in Figure 2 is simplified: the funding is the positive result of a funding application developed by the consultant – usually following

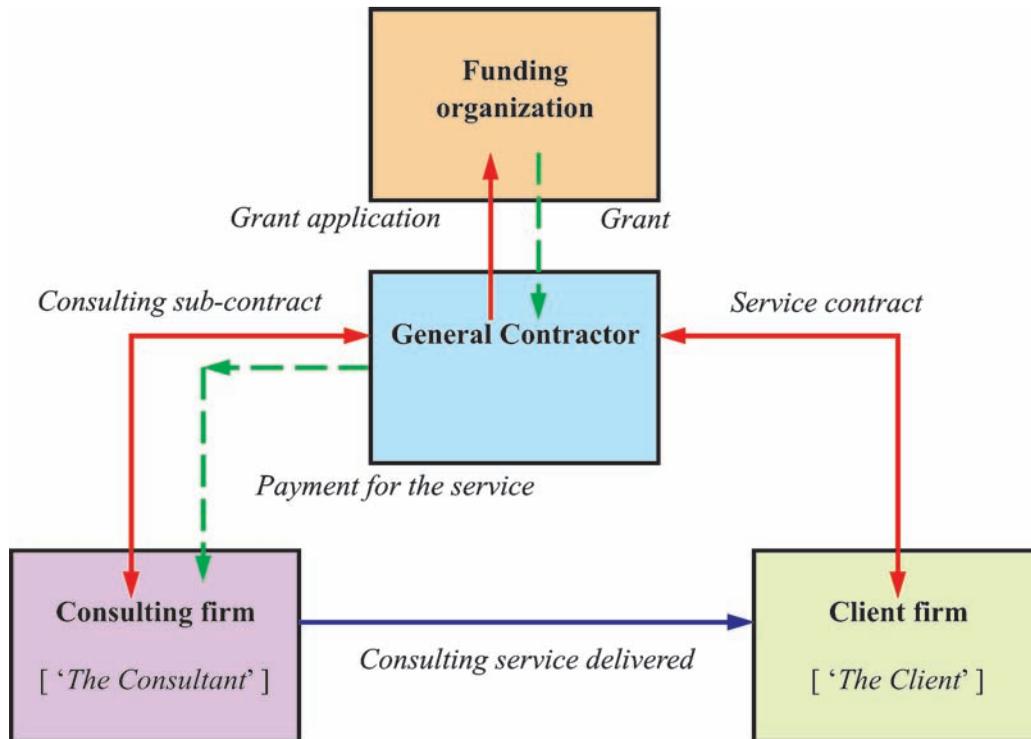
to a market survey that reveals the client/s problem/need. In the case schematized in Figure 3, typically the client applies for funding.



**Figure 3** – *Three-actor-scheme in consulting process*  
(The client is offered consulting vouchers)

The current practice of many EU programmes providing financial support for RDI (research & development & innovation) is to favour joint (consultant and its client(s) applications for funding.

It is well understood that the schemes presented above are just basic; various combinations, mix and/or extensions to more than one actor of a kind are developed and met in current practice (Figure 4: multi-actor-scheme).



**Figure 4** – Multi-actor-scheme in consulting process

The remaining of this paper deals with some typical examples or cases experienced by authors during their years-long consulting activity (Scarlat, 2001; Scarlat, 2003), mainly in Romania but also internationally – followed by conclusions, lessons learnt and managerial implications.

## Two-actor-scheme

As old as consulting business, so the consulting firm's expectations are different from the client's. The latter thinks that „the consultant” is all-knowing guru, Master of Science, the keeper of Golden Key of all business solutions (the other extreme – the [academic] consultant lives in his/her Ivory

Tower, far away from concrete, human size problems – is not less common today). Conversely, many consulting firms consider their clients as unable to understand the scientific principles and language, to make sound decisions, and find viable business solutions. This communication obstacle and mind-set gap was visible and widespread during first informatics crisis in 1960s (Haigh, 2010). Actually, each disruptive technology comes with its own gap between new technology pioneers and the rest of the respective industry (Christensen, 2003, 2011). On top of all these, there always and everywhere are less professional consultants and naïve clients...



The following examples illustrate some of these situations.

### **Example 1: Client's standpoint versus Consultant's standpoint – parallel paths**

The following situation was met in a large Romanian telecom company, during a period when communist establishment, in desperate effort to reduce the budgetary deficit, has reduced dramatically the imports (late '70s – early '80s). However, some academics, specialists in economics theory, assembled as a consulting group, have tried to apply the revolutionary-by-then value analysis method in order to find a solution to the company problem: reduce de cost of a complex device that included imported components and materials.

Applying the theory of value analysis, the consulting group has reached the conclusion: to make one of the most expensive components of the device (made of costly, imported alloy) from cheaper, locally available plastic materials. Everybody was happy with this recommendation; that critical part was quickly manufactured and, of course, eventually tested by the company.

The decision proved to be a failure. The device did not work. One of the company

young engineers provided the elementary answer (amid their pretty similar rigidity, the two materials have different density and inertia – which hampered the right functioning of the component and device).

It is important to note that the consulting group was made of economists; they work in their offices; they never met the company engineers working in manufacturing lines and testing stands, which leads to false expectations on both sides.

The overall results were: consulting project failure; client's problem unsolved; significant waste of time and resources. The lesson learnt: Always work in mixed teams – consultant plus client's experts.

The previous example is over three decades old; however, sometimes, the time has no power – as the next example demonstrates.

### **Example 2: Too much trust (placed on dishonesty)**

In late '90s, one of the authors was running a business development centre and, in a larger training project, co-worked with several training organizations across the country.

It happened, in the same period, that a client asked for a marketing research project, very challenging and rewarding, unfortunately with rigid deadline (this deadline was not negotiable).





Consequently, the following dilemma had to be sorted out: outsource some parts of the study or simply refuse the contract (to complete a superficial survey and provide less reliable study being out of question). Still, finding appropriate outsourcing solutions was also time-consuming.

Under this time pressure, one of the partners in the national training project has offered its services as a subcontractor in this marketing project. The subcontract was quickly signed and everything was looking favourably.

Shortly, the subcontractor provided its part of the study. Unfortunately, when different parts were finally assembled, lots of errors were identified in subcontractor's work... Another, more expensive subcontractor had to be selected – in order to meet the tight deadline.

This was the costly mistake made: relying on someone, even fairly known, without solid examination, seriously checking his/her professional competences – relying only on declarations (which finally proved to be dishonest). Nevertheless, assuming that a good marketing trainer is also a good marketing researcher is a false expectation as well.

The overall results were: consulting project completed at a higher cost; waste of resources; business dishonesty revealed. The lesson learnt: Trust, but check!

### **Example 3: Different expectations**

A relatively newer consulting project (2011-2012) came with different examples of false expectations, unfortunately not singular cases. As EU-funded project, it clearly is an example of multi-actor-scheme (Figure 4); yet this example displays the false expectations between two basic actors: the consultant and the client.

Acting in his capacity of business development expert, one of the authors had the opportunity to provide business consulting to a number of individuals from one Sub-Carpathian region – aiming at developing social enterprises in that area.

The first meetings between consultant and would-be social entrepreneurs have revealed the first surprise – false expectations on each side:

- the consultant has expected clients to actively be involved in the process of developing their business plans – as they were happy beneficiaries of significant grants to start their social enterprises (normal expectations for a professional business consultant);
- the would-be entrepreneurs [erroneously] expected consultant to produce business plans for them ... (the business plan was considered just another



bureaucratic document like many others to be enclosed in their grant application file).

In spite of initial different expectations (as well as various levels of education and business knowledge of the future entrepreneurs), hard work and systematic, professional counselling sessions have built better communication bridges and – finally – made the development of business plans possible (as a joint effort of the team consultant-client), finally contributing to the project success (Scarlat, 2011).

The overall result was: consulting project completed; flexible, more intense consulting work.

The lesson learnt: professional consulting skills can bridge the gap generated by different expectations; the earlier, the better!

On top of all these difficulties, the cultural differences might worsen the consulting process (from the standpoint of setting the right expectations and make them mutually clear) – as other examples demonstrate (Zarzu and Scarlat, 2015; Zarzu, Scarlat and Stroe, 2014).

### Three-actor-scheme

The next example is at the border of the two models: it focuses on two main actors (consulting firm and its client) but in both cases the third actor (the donor) is playing a role.

#### *Example 4: Two consulting contracts*

This example is made of two examples actually, face-to-face – in order to better make the case. Both cases are three-actor-schemes; yet they fit in the multi-actor consulting framework (Figure 4).

**a.** In late '90s, a well-known British university Business School was awarded a

British Know How Fund grant – in order to provide technical assistance to Romanian SMEs (small & medium size enterprises). To do so, the British university worked with a leading Romanian centre for business development to design a framework strategy. The good cooperation contributed to mutual trust and, in two-year-time, has led to a second phase of cooperation (two-year-long as well).

The contractual terms of cooperation were negotiated (even parsimoniously as far as financial terms – by the British side); the negotiation was tough but the rights and obligations of each side – as well as respective sets of expectations – were clearly explained and understood.

Because of legal and administrative procedures that involved several organizations and decision levels, the contract was signed after several good months. Even so, the work started right after the



contractual terms were agreed and sealed by ... a handshake. The assignment was completed on time, and all the contract provisions were strictly observed; the payments were made on the agreed deadlines (even by the time when the contract was not signed yet).

The British university proved to be a tough negotiator but a reliable business partner; it took even the risk by the time when the contract was not signed yet but the consulting work was completed and – according to the mutual agreement – the payment had to be done (regardless the grant instalments received).

**b.** In late 2000s, an active by then Italian firm signed a rewarding contract with a Romanian visible beneficiary, funded by an EU programme. The Italian firm selected several local and foreign consultants, and assembled an international consulting team – in order to fulfil the assignment.

The consulting contract was negotiated and, after several rounds of discussions and numerous drafts, a two-column, many-page, bilingual contract was finally sealed (mostly for the protection of the Italian side).

The consulting team has completed the assignment, and the beneficiary was satisfied with the results. In spite of these, and disregarding the contract provisions, the Italian firm did not pay the consultants – delaying answers, hiding behind bureaucratic procedures, invoking various pretexts and excuses; using all legal and even illegal means to avoid payment; eventually it has changed the legal status.

Similar cases, similar expectations but ... What a difference between the prestigious British university Business School and this Italian Gruppo, located somewhere in Turin, on Corso Matteotti ...

The overall results were: consulting project completed successfully and client's problem solved (both cases); however, consulting work unpaid, business fraud and imposter revealed (last case).

***The lesson learnt:*** Trust and good will are key-issues in business.

#### ***Example 5: „I did hear; yet I hoped ...”***

The Romanian branch of a US global organization successfully apply for a USAID grant in late '90s – in order to get a study on their specific market. A local consulting firm was selected and – from the American side – the contract terms were negotiated by the new, young, and „ambitious” boss of the Romanian branch. The local consultant came with an offer to match the terms of reference. The foreign boss has tried to halve the associated cost, arguing the low grant budget; at his turn, the local consultant made his case clear: the offer is cost-based (zero-profit); to halve the cost





simply means limited research potential (as travel costs involved by primary research cannot be covered). The deal was closed at this half-cost point: the local consultant promised a slightly improved secondary research while the closing remark of the branch boss was „you do your best and maybe you can provide full study” (i.e. secondary and primary research).

The study was completed within that narrow budget and submitted on time; it presented (as expected and promised by the local consultant) the results of secondary research, completed by the information collected during a single-trip primary research.

Each party left away unhappy – as their expectations were not met: local consultant expected a satisfied client; the American client expected a more comprehensive study, at half-cost: „I do remember what you have promised but still I hoped you can make it” [i.e. full study at half-price]. It is useless to say that they never made another deal or cooperative activity together.

The overall results were: consulting project completion (still on time and within budget) let both partners dissatisfied.

The lesson learnt: Expectations should be realistic; fact-based not illusions/hope-based.

In the case of multi-actor-schemes, in the context of different funding programmes, it is worthy to note that a distinct category of false expectations are unintentionally generated by lack of knowledge and/or

experience while developing Applicant’s Guides by the respective authors. The exercise of finding illustrative examples is left at reader’s discretion.

The overall environment plays a key-role in many consulting projects, mainly in turbulent, transition periods. A strong, convincing case when political factor can overthrow a well-designed and successfully implemented consulting project is presented by Scarlat (2010).

## Conclusions

Undoubtedly, as Werr and Stjernberg (2003) reported, the consulting firms are „Knowledge Systems” in which the lessons learnt are important elements. The lessons learnt from the examples presented in this paper are summarized below as conclusions. They might prove useful for managers of consulting projects and experts working in such projects.

- Consultant’s professionalism and professional business communication are prerequisites;
- Honesty, trust, and good will (principles of ethics, in general) must be the base for good relationship between consultant and client;
- Set the right expectations – by both consultant and client – and make sure they are mutually well understood;
- Always work in joint consulting project teams (experts from consulting firm plus representatives of the client);
- Be aware of cultural differences between consultant and client;
- Try to identify the false and/or different expectations, and address them as soon as possible – to be solved by mutual consent;
- Avoid – as much as possible – the influence/impact of political factor.

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# Agile Companies Establishment

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Abstract

*The main issues developed in the communication include the following original orientations: the conceptual approach of agility used for research companies – operation integrated in the competitive market of the innovative digital economies; modelling the functional structures of agile companies resorting to operational research based on quantum, super-quantum decisions supervised neurogenetic; practical aspects of agile production structures assisted neurogenetic.*

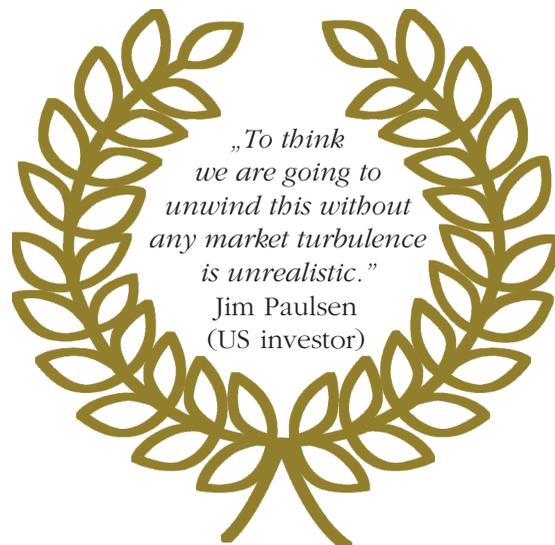
**Keywords:** agility concept, quantum and super-quantum decisions, agile software model, agile production structures

## Introduction

The main characteristics of agile companies integrated in digital economy are presented in the following suite of innovating ideas (Warner, 2002):

- The agility concept can be applied in area where changes are unpredictable which grants possibility that companies will leverage flexible production systems, run by specialized neuroinformatics computers.
- Agility claims finding the solution to prevent and control vulnerabilities in order to spot the opportunities offered by the competition market assisted by intelligent economic agents.
- The agile production companies are perfectible Japanese structures based on Lean Management and Just in time

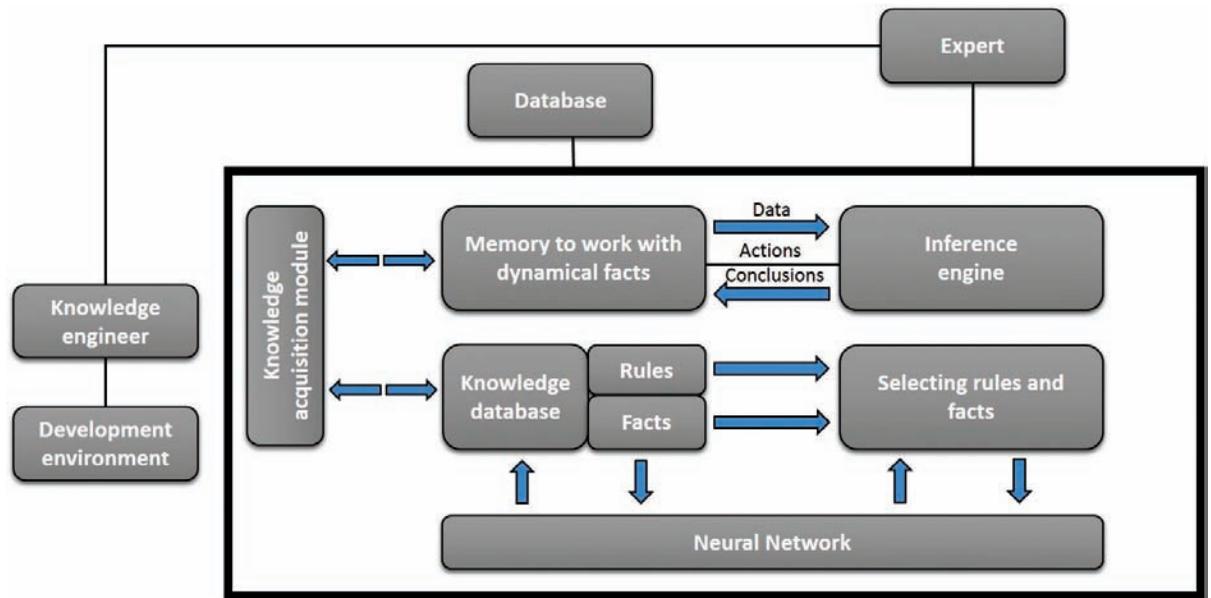
Logic run by intelligent structures which assures functionalities with a high precision degree (Ionescu 2000), (Grecu and Ionescu 2009).



- The functional premises of the actual agile structures supervise the production using the PC, namely: design new products based on CAD concept (Computer Aided Design), CAT concept (Computer Aided Testing), CAL concept (Computer Aided Sale and Supply), CAP concept (Computer Aided Production Preparation) and the CFP (Financial – Accounting activity supervised by computers from generation V-VIII).
- The significant characteristics of the agile companies refer to following proprieties of change engineering imposed by an uncertain operating environment namely: the human resource should correspond to high resolution professional brands, accepting abilities to make continuous changes imposed by optimizing the archemo-systemic correlations of the production units; accepting from the beginning the definition for virtual units capable of creating products with added value, demanded continuously by the

consumer; accept the increase of the automation level of functions up to the level indicated by neuroinformatics; modify production in order to satisfy any type of request received from an uncertain environment and applying in real life the new concept imposed by the operational research which assures strictness of the collaboration between production and agile market assisted by technical-managerial and economical-financial successful agents.

Models of operational research can be used to develop agile production companies integrated in the competition market; they are part of the neuroinformatics software, which contains modules regarding usage of quantum and super-quantum decisions. Aim is to define the solution which can be used to anticipate real time disturbances (Figure 1). It is presented the structure of a neuroexpert system, as a stepping-stone for the process of modeling agile companies:



**Figure 1** – Structure of a neurogenoeexpert system (Source: Degroot 1970)



## Modelling structural functions of agile companies

The quantum psychology develops the neuronal concepts of the new decision models using informatics entropy and relationships to quantify human intelligence in different applications. The antientropic models allow usage of smart agents to diminish losses generated by internal and external factors during the process of reaching the optimal operation point of the neurogenetic configuration, provided we are going to use following quantum and super-quantum decisions (Baragan 2010).

**a.** Quantum decisions based on uncertainty degree, are decisions at brain level, having following shape (Sofronie 2006)

$$M_1 = [E_{\max}^{0.5} + 0,44 * \Delta S/S]$$

$$M_2 = [H_{\max}^{0.5} + h*(r - i)/S]$$

where:

E, H – empathy of the critical point of the operational arhem.

$$\Delta S = (S_1 - S_2);$$

$S_1$  – positive quantum system; (decisions from this system allow a smooth operation);

$S_2$  – negative quantum system – the decisions of this system generate disturbances;

r – rational quantum system – defines beneficial factors;

i – irrational quantum system – refers to uncertain factors.

This models helps identify the level of knowledge of managers, able to diminish disturbances.

**b.** Super-quantum decisions based on models of operational research, refer to applying quantum decisions in developing agile companies while factoring in restrictions ( $R^*$ ).

The operational form of super-quantum models can be defined using following relationship:

$$M = [C_{DD} * C_{CA} * C_{PR} * C_{HR} * C_{EF} * C_{DC}] + c_p * (R_{DD} * R_{CA} * R_{PR} * R_{HR} * R_{EF} * R_{DC}).$$



- $M_{PR}$  – production model (PR) includes information technology renewal, assuring optimal operation and production quality increase;
- $M_{HR}$  – model Human Resources (HR) allows calculation of work empathy and ergonomics, remuneration and productivity, informatics dialogue and creativity;
- $M_{EA}$  – model Economical Activities (EA) includes funding, price forecast, administrative structure modernisation;
- $M_{DD}$  – Durable development model (DD), includes optimal solution, forecast, vulnerabilities study;
- $M_{DC}$  – decisions and entrepreneurship communications (DC) includes managers training, decisions projection, development/increase of entrepreneurship culture.

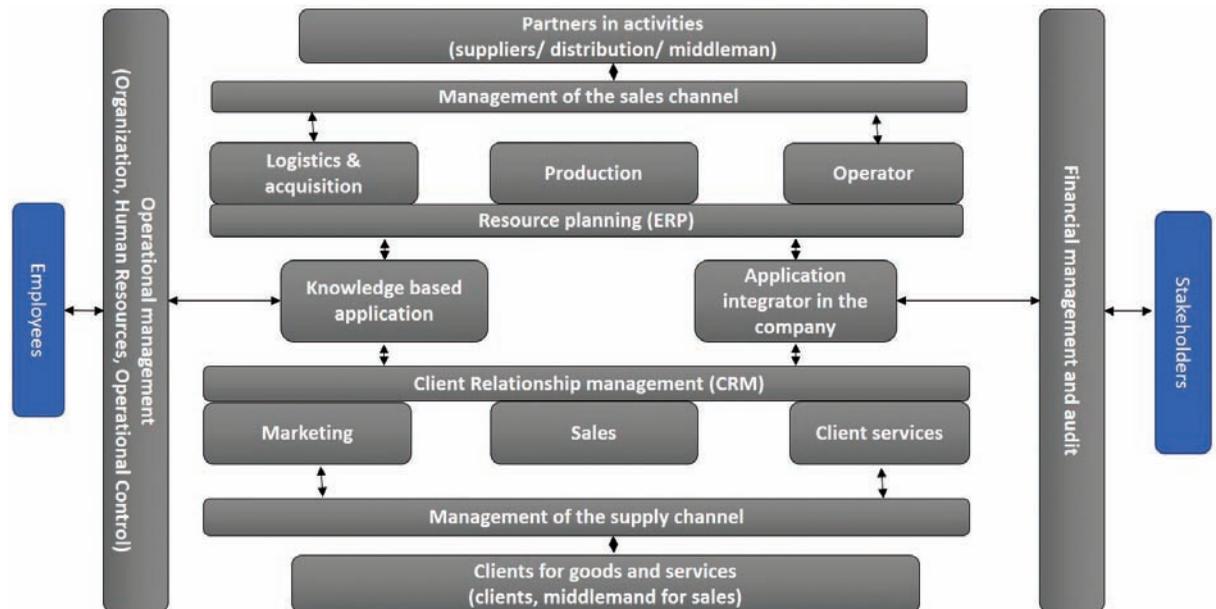
The generic equation is  $M = C + R * c_p$ , where:

- C – yearly incurred costs;
- $c_p$  – (0-1) coefficient to penalize restrictions (R);
- M – models of operational research.

For each models on quantify following parameters, activities:

- $M_{CA}$  – model for Commercial Activities (CA) includes goods acquisition, work schedule optimisation, optimisation/study of competitive market;

The neurogenetic management concept for agile companies is presented synthetic in Figure 2 (one can identify the architecture of applications in an agile company integrated to a digital economy).



**Figure 2** – Application architecture in an agile company integrated to a digital economy

## A new structure for an agile company

The production system of an agile company is based on configurations and flexible objectives (quick introduction of new systems, handling difficult requests, quick development of prototypes) as a response or a quick reaction to market movement (Dover 2001).

An agile factory is defined by three key elements: an information network able to transmit information from the client direct to the production line, a flexible manufacturing technology able to handle any type of requests, a well trained, flexible workforce able to take anytime decisions.

Excellence factors within an agile company are the following:

- **action:** is of highest importance to solve a problem while building up the „ad-hoc” team avoiding the never ending stories, which could be show stopper;
- **always listening to client:** underlines the request that the company knows or anticipates the client wishes, providing them quality, differentiation, availability while focusing on fulfilling client demands;
- **competitiveness:** as a factor which depends on people, emphasizes active involvement of the staff to accomplish objectives, reengineering of human relations;
- **easy structures and simple procedures:** impose that companies will give attention to improving the structures and procedures so as to reduce the number of hierarchical levels; information should flow freely between them; the presence of informal relationship should be noticed and the procedures should be as short as possible in order to facilitate quick reaction time;



- **to do attitude:** must be formed in order to facilitate the creative & innovation element, to stimulate the internal competition, staff motivation, for a perfect execution of tasks;
- **the specific culture based on values:** must insure that the staff will acquire beliefs which from qualitative point of view, meaning attention to be the best, the concern to innovate, to assure a higher quality of the products delivered to the free market;
- **executing the vocational call:** emphasizes that the company should focus on activities which she know to do best, avoiding mixtures of totally different activities, reasoning that each activity needs competencies and specific methods;
- **gracefulness and strictness:** requires finding the perfect balance between centralization and decentralization for a company, provided each participant will develop responsibility, accuracy and promptitude while executing tasks. Gracefulness assumes possibility to quickly adapt to changes.

From the aspects defining the agile structure of companies assisted neuroinformatic, in a first stage are necessary expenses to sustain durable development,

licences acquisition, normative and explorative forecast as well as diminishing vulnerabilities using neuroinformatics.

A second stage contains the commercial and economical-financial expenses, work schedule optimisation of the financial resource as well as the study of the competition market.

It follows production enhancement, assuring economical operating model and leverage of models to optimise quality.

The human resources needs to be re-configured based on antientropic models. Empathy will be correlated with ergonomics and remuneration will be based on productivity and creativity.

Last stage is marked by forming the decision takers, building up quantum and super-quantum decisions, as well as developing the organisational culture with regard to entrepreneurship.

## Conclusions

In this article have been presented the main characteristics of agile companies, modelling of structural functions of agile companies as well as a new structure for and agile company. The shaping process of agile companies used for production is enforced like a request to optimize the new structures able to be integrated in the competition market, part of the digital economy.

Based on this new approach we proposed in the actual research a new model based on quantum and super-quantum decisions. This model quantifies the development and operating efforts of management, including neurogenetic software, dedicated to optimal development and real facts: acquisition of success licenses, correlating forecast with demand of the consumption market, renewing technologies while assuring the parameters for economic operation and for increasing total quality, reconfiguring human resource in order to realize the professional brands, correlating empathy, work ergonomics related to remuneration and creative productivity of all real factors and building up decisions which allow foresight and reduction of holistic vulnerabilities.

These new structures can be applied in real life with help of neuroinformatics (neuroexpert systems, architecture to streamline the application to complete the key performance indicators backed up by calculations, networks used to build up the invested capital at development and operation level of agile structures, correlation of income with entropic losses and quantifying the losses based on managerial antientropic models assisted by intelligent economic agents).

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# Implications of Industrial Decline

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Abstract

*It seems that the biggest challenge for many companies today is managing businesses in declining industrial environments. In particular, in the case of inter-industrial B2B relationships, the most serious challenge is managing business while the partner industry is declining. In the case of monospecialized engineering design services firms the phenomenon of client-industry decline may have a direct and significant impact on them because of their strong and vital dependence on their client-industries. The purpose of this paper is to briefly review the phenomenon of industry decline, the concept of declining industry and explore the strategic implications of client-industry decline for the firms belonging to the supplier-industry.*

**Keywords:** industry life cycle, decline, declining industry, client-industry, supplier-industry

## Introduction

In their heydays, declining industries were probably growth industries. Today, however, they find that demand or market for their products or services has been shrinking for some time. For almost four decades declining industries have become an important part of the most economies in the world, even of the developed economies. Of interest for this paper is decline affecting the partner industries in business-to-business (B2B) inter-industrial relationships (business relationships between industrial firms belonging to different industries), in particular the impact of declining „client-industry” on the evolution of

firms belonging to the „supplier-industry”. This is the case of monospecialized engineering design services sector that





represents the supplier-industry for industrial production firms belonging to various client-industries.

A client-industry is defined here as the industry that includes all the firms that are clients or potential clients for other firms belonging to another single industry named supplier-industry. A monospecialized engineering design services firm is defined here as an engineering design company whose field of specialized engineering competence covers and is limited exclusively to the engineering problems, of technical and technological nature, related to processes, technologies, plants, and equipment specific to a single client-industry. Thus, there are engineering firms specialized in providing engineering consulting and design services exclusively to a single industry such as iron and steel, cement, oil and gas, mining, pulp and paper, heavy machinery, ship-building etc.

The analysis in this paper is supported by the extant literature on industry life cycle, industrial and organizational decline, engineering design services firms, also draws from author's own studies on the monospecialized engineering design services sectors and their client-industries.

The present paper starts with a general discussion regarding the concepts of decline, decline stage of industry life cycle and declining industries, and the causes of decline. The paper aims at identifying and discussing the strategic implications of industrial environment decline on the firms delivering professional engineering services (monospecialized engineering design services) to a declining industry (client-industry) within an industrial value chain. The paper ends up with a set of conclusions and managerial implications, also with a set of proposed directions for further research on the subject.

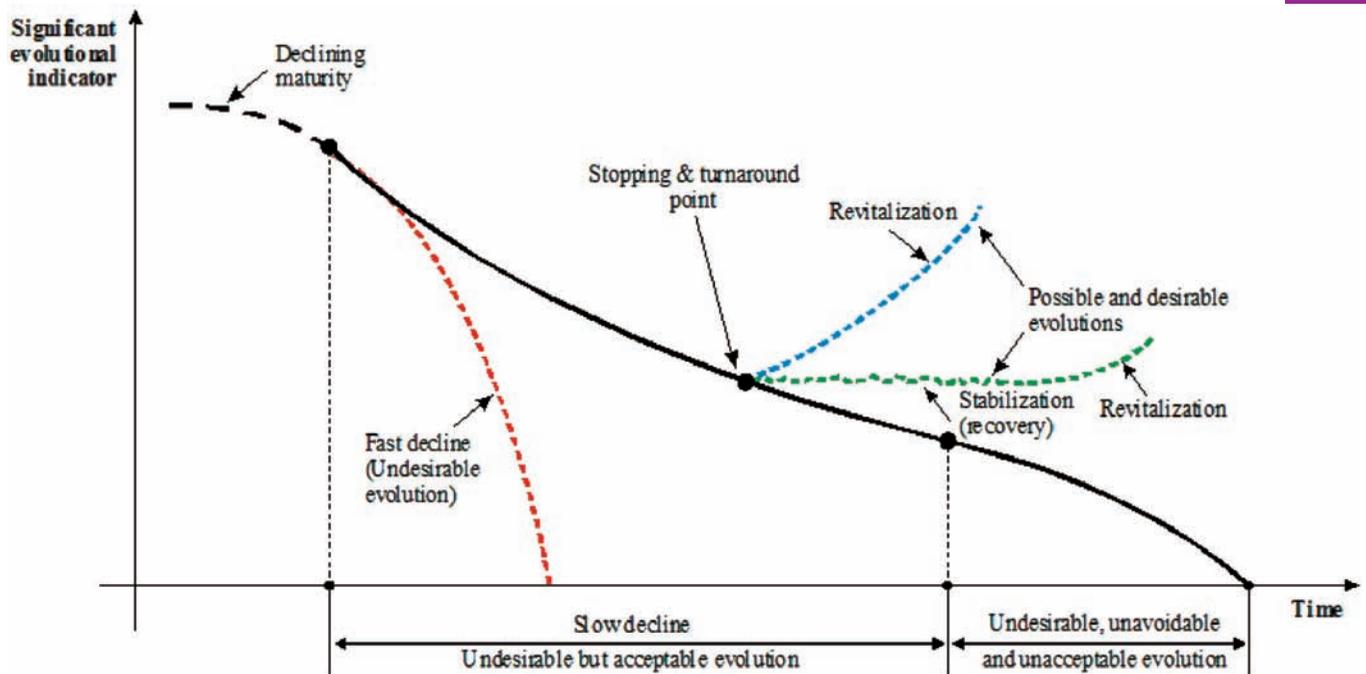
## **Decline stage of the industry life cycle**

Industries are not static but evolve over time at various rates and this evolution may lead to maturity but also to decline of an industry. One prominent approach within the field of strategic management focusing on industry evolution is the industry life cycle theory. Industry life cycle theory seeks to explain, from a strategic perspective, the different stages that an industry goes through as it ages. According to Porter, the industry is the most important part of the environment of a firm (Porter, 1980). Based on the historical industrial evolution, the industry life cycle graph may exhibit different patterns and number of stages but the classic model (the „bell-shaped” curve) consists of four stages out of which the decline stage is the last and is the focus of the present paper.

The Oxford English Dictionary provides two related definitional aspects of the word decline. As a verb, the word stands for becoming smaller, weaker, or less in quality or quantity. As a noun, the word means a gradual and continuous loss of strength,

numbers or value. Therefore, decline first implies diminishing of an entity, and second implies gradualism and continuity. That is, decline in itself implies explicitly weakening or loss, but it also implicitly implies preservation.

Decline itself may exhibit various progress patterns and temporal lengths depending on the evolution rate and process finality as portrayed in Figure 1.



**Figure 1** – *Industry decline progress patterns and possible desirable evolutions*

As one can notice, decline can progress quickly leading to dissolution and firms' death. But, decline may also exhibit a slow progress during which, depending on the managerial decisions and actions taken, it can be stopped and stabilization can be achieved. Moreover, by radical innovation, the industry can „de-mature” and „regenerate” its life cycle, „rejuvenate” and „revitalize” itself and may enter a new growth stage. If no managerial actions are taken and no radical innovation is implemented, eventually decline ends up with companies' and industry's death.

Although decline is a real and well known phenomenon in different industries from several countries and decline

stage of the industry life cycle is general knowledge, there does not seem to exist a precise, comprehending and universally accepted definition for the concept of declining industry.



For a declining industry, definitions in the existing academic literature range from „a twenty percent drop in the industrial value added index over a time period of three years” (Schreuder *et. al.*, 1991), an industry where growth is either negative or is not growing at the broader rate of economic growth, an industry characterized by an absolute decrease of sales over a longer period of time, „several years of decline of turnover and sales” (Beal and Yasai-Ardekani, 2001), to a simple „decline in demand” (Ghemawat and Nalebuff, 1990). It is also characterized by falling profit margins, reduction in production lines, lower investments in research and development to implement changes in the way that production is carried out, lower investments in marketing, also by fewer competitors. Some other researchers state that a declining industry is the one that has a negative and to some extent irreversible market outlook for the long term, in an

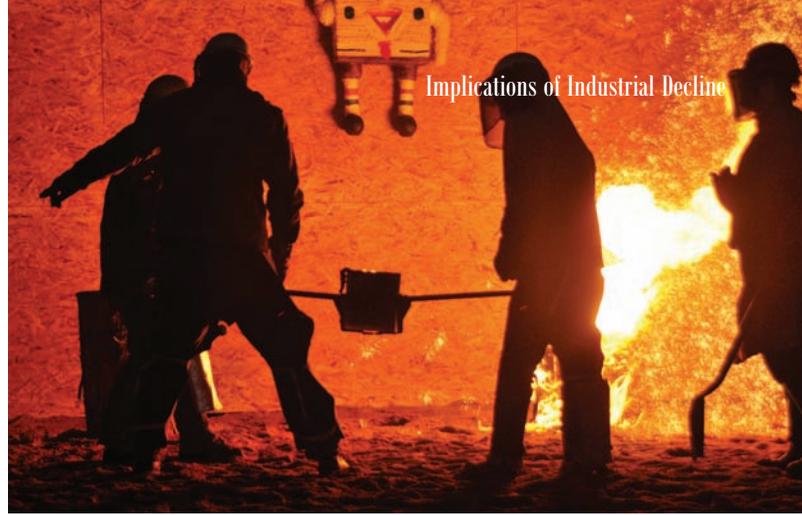
economic environment characterized by high levels of uncertainty. Porter defines the declining industries „as those that have experienced an absolute decline in unit sales over a sustained period” (Porter, 1980). Declining industry can also be defined as a deteriorating environment that leads to diminished opportunities for incumbent firms operating in it. This definition explicitly states that the environment deteriorates, and it also implicitly states that it offers continuity and possibilities for companies, as otherwise industries would not decline but only seize to exist.

After having synthesized various definitions, approaches and perspectives, in the present paper’s context we define decline as a process with irreversibility aspects, of passing from a superior state to an inferior one, of downfall, of qualitative and/or quantitative regression, of downsizing, of reduction, that takes place within a significant period of time. Referring to an



industry's evolution, one can draw two important conclusions: first, that decline means a reduction of size, capacity, capabilities, competences, product/services quality, and financial, informational, human and material resources, and second, that being a process is continuous and evolves over a finite but unknown period of time. Also, we define a declining industry as an industry whose relevant evolutionary indicators have regressed continuously following a general decreasing trajectory, in terms of quantity and/or quality, in a significant period of time, with irreversibility aspects, and that has a low and decreasing potential to create future opportunities for both its own firms and for the firms belonging to its related industries, downstream and upstream along the industrial value chain (supplier-industries and client-industries).

An example of declining industry is the U.S. defence industry after the Cold War. The industry has made significant investments into intangible assets and after the Cold War ended, it faced declining defence expenditures and had little hope of successfully deploying assets elsewhere through diversification (Anand and Singh, 1997). Another example of a declining industry is the railroad industry, which has experienced decreased demand at global level, largely because of the newer and faster means of transporting goods (primarily air transport and trucking), and has failed to remain competitive in pricing, at least in relation to the benefits of faster and more efficient transport provided by airlines and trucking services (Investopedia). An interesting aspect is that one industry may enter decline at a country level but be in a growth or maturity stage at a global level (e.g. in Romania steel industry suffered a decline over the past 25 years,



while at global level doubled its production within the same period of time).

There are many reasons that make an industry enter the decline phase, such as: demand may be steadily evaporating, the depletion of a natural resource may be occurring, or there may be the emergent substitutes because of technological innovation. The most common environmental causes that could result in declining demand are technological advances that result in the introduction of a superior substitute product, shrinking clients group, industrial clients in trouble, changes in clients needs, rising costs of inputs or complementary products, declining economy. As seen, clients demand reduction may be caused by various reasons but the one we focus on here is the decline of the industry the clients belong to, that is the decline of the client-industry.

## **Declining industries in B2B industrial relationships**

In the business relationships of industrial firms, the status (economic, strategic, financial) and evolutionary stage (within the life cycle) of supplier-industry is of paramount importance for the firms belonging to the client-industry, and conversely, the status and evolutionary stage of the client-industry is critical for the firms belonging to the supplier-industry. Taking the

evolutional stage as a context factor, in B2B inter-industrial relationships along a certain industrial value chain, decline of an industry is not only affecting the incumbent firms operating in it, but also may become of critical strategic importance for other firms from other industries, upstream (suppliers) or downstream (buyers) the industrial value chain they belong to. This is the case of monospecialized engineering design services firms – as expert services suppliers – in relationship with their client-industries – as buyers of these engineering services (Stroe, 2015). As for the engineering design services there are no substitutes and survival of engineering design firms is demand-supported (Stroe, 2015), one of the main critical external causes leading to decline of the engineering design firms and implicitly of their sector is declining demand.

The industrial engineering design services are mainly required in conjunction with procurement, fabrication, construction, installation and commissioning activities to implement industrial investment projects that are usually undertaken to build new industrial facilities, increase the capacity or improve the productivity of industrial facilities, although revamping, upgrading, safety and environmental based projects are also common. Engineering design services, rendered during the project implementation stage (project engineering), are particularly defined as activities involved in the application of engineering knowledge in order to develop data, diagrams, assembly drawings, detail drawings, models, simulation and calculation reports, process specifications, bills of materials and fabrication specifications, wear and tear parts specifications, painting, packing, labelling and transport specifications, procurement specifications for spe-



cial plant components and equipment, instructions for assembly, erection, installation, commissioning, start-up, operation, maintenance, required for procurement, fabrication, construction, installation and commissioning activities to be carried out by other firms.

Since the outputs of engineering design activities are not products that feed the final consumption in a society or industry, but inputs to other industrial activities (mostly industrial investments projects), the demand for these services largely depends on the volume of these industrial activities which are themselves related to the extent of actual or planned changes in a client-industry (Aráoz, A., 1981), also on the evolutional stage of the industrial sectors they serve (Stroe, 2015). Consequently, the engineering design services are rendered upon request to solve the problems or satisfy the needs of the industrial clients. Thus, the engineering design services sector cannot be viewed in isolation since their sector's trends and evolution are influenced, among others, by a wide range of exogenous factors and stakeholders, out of which the clients and client-industries are of vital importance.

It is argued that there is a strong, close, and vital dependence of monospecialized engineering design services firms on their industrial clients, both industries are strongly connected, and that much of engineering design services firms behavior is directly driven by what their clients are doing and

not by any internal competitive logic or deliberate strategic direction. The markets for engineering design services firms are primarily related to the development and growth of industries (metals, mining, power, oil and gas, heavy machinery, cement, pulp and paper, chemical, etc.) and construction sector, and businesses in this industry tend to fluctuate with the cycles of growth and stagnation in manufacturing and production in major markets.

Demand of engineering design services is regularly characterized by uncertainty, unpredictability, severe fluctuations, stagnation, or even discontinuity over time, depending on the economic cycles and investment policies of the firms from their client-industries. This means that there may be a causal directionality that determines and explains the evolution of the monospecialized engineering design services sector as compared to the evolution of its client-industry.

Generally, engineering design services firms tend to follow the same economic cycle as their customers but with more exaggerated swings between peaks and

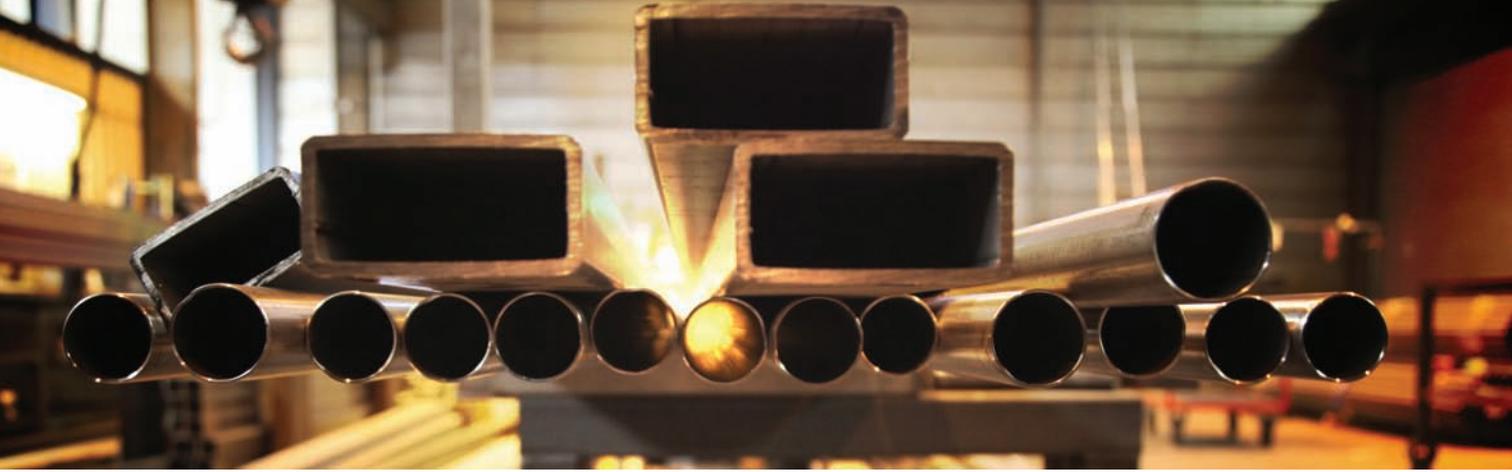
troughs, for the simple reason that they are, in many cases, the first thing on which cash is spent on upswings and the first to get dumped in downturns. In our opinion, a serious demand-related issue the engineering design services firms may face, especially the monospecialized engineering design services firms, is the evolutionary status of their client-industries. Thus, when the client-industries enter the decline stage, things may sometimes change dramatically and irreversibly for some monospecialized engineering design services firms.

For the monospecialized engineering design services firms serving declining client-industries, the decline of their client-industries is beyond their control, thus the managerial challenges and strategic implications are very complex and difficult. This is because it is said that the strategic actions and behaviors of these firms seem to be determined in fact by the actions, strategies and evolutions of their clients, and not by an own strategy or internal logic (Scott, 1998, Løwendahl, 2005).

## Discussions and managerial implications

The managers of the monospecialized engineering design services firms usually face a lot of problems and challenges. Of course, projects schedules are becoming tighter, clients' requirements are getting more complex, quality and performance requirements are becoming higher, and budgets are shrinking. But these are all simply constraints and managers of these firms, most of them being engineers, are used to dealing with constraints. Strangely enough, the biggest challenges for the managers of monospecialized engineering design services firms today are not of technical but non-technical nature, which





are often the stickiest. They need to take actions and pursue initiatives that will keep the engineering companies productive and competitive on the market. They should not consider the firm as a victim of its environment but as an actor that is able to make choices at least partly regardless of the environment. Adapting to decline is a capability engineering companies leaders have to develop in order to survive. Running an engineering business in a declining industrial environment calls for an entirely new plan than the one an engineering company relied upon through a period of market growth.

In a declining marketplace, there may be many years left in the client-industry's life cycle. But it is essential for engineering firms managers not to let wishful thinking colour their judgment. Instead, they must survey the competitive landscape accurately, assess long-range prospects, and face up to the problems inherent in competing in a declining marketplace. Management's acceptance of the reality of the continued slowing demand is a prerequisite for developing successful survival strategies.

## Conclusions

It is concluded that the most important strategic issue today for a monospecialized engineering design firm is the evolutionary stage of its client-industry. Since the Romanian economy has been passing a difficult

period being characterized by an advanced decline of almost all industrial sectors which are now being in precarious strategic and economic situations, still exhibiting declining trends and seemingly having an uncertain future, the survival and viability of the Romanian monospecialized engineering design services firms serving declining industries are being seriously questioned. Therefore, till they formulate competitive strategies and fight for a competitive advantage, these firms have to focus first on finding smart strategic solutions and implementing radical innovations able to secure their formal survival and continuity.

As scholars have an implicit bias towards studying growth, the decline of industries, and particularly the decline of client-industries in B2B inter-industrial relationships, has received less attention and our knowledge on the declining industries and their impact within the industrial value chain is still imperfect. This opens up a fertile ground for new research.

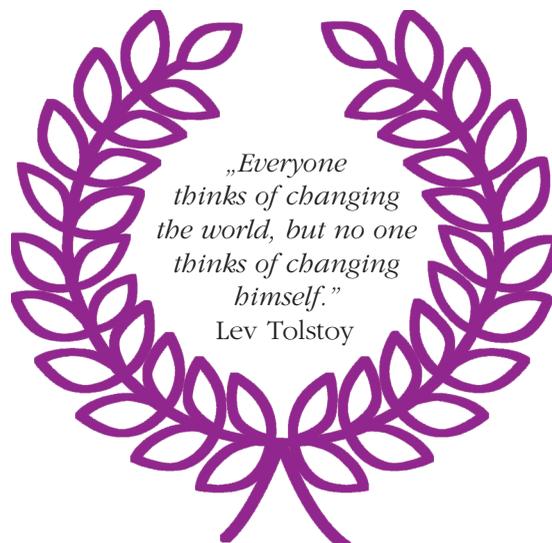
The theoretical analysis of industrial decline shows that monospecialized engineering design services firms in general are being faced with a number of challenges with strategic and managerial implications generated by the evolutionary stage in the life cycle of their client-industries. The most critical seem to be the challenges arising from the strong and vital dependence of the monospecialized engineering design services firms on the client-industry.

Therefore, detailed studies can be conducted at national and global level by focusing on different monospecialized en-

gineering design firms serving declining client-industries (e.g. steel, mining, heavy machinery, pulp and paper, chemical etc.).

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# The Flexibilization of Information Systems

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Abstract

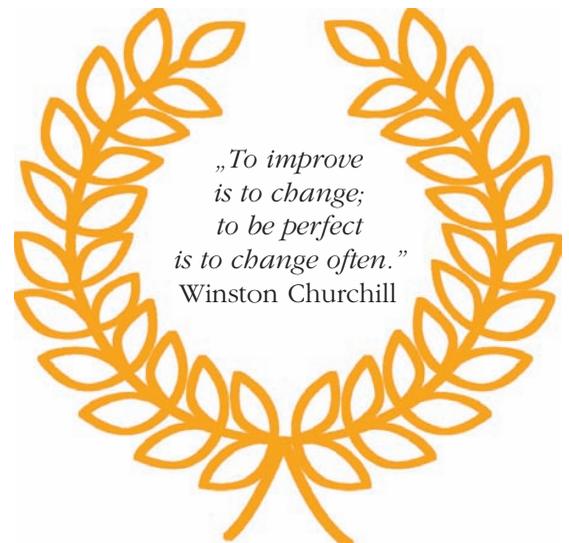
*This paper is about the information flexibility which highlights the ability of a system to perform data transfer and processing in all spheres of activity of the organization, in a quick, efficient and competitive way. An efficient information system can increase the flexibility of the organization, as it can generate increased and customized to requirements productivity in a reduced time unit. At the organization level, a flexible information system provides the connection between the decision making and the operational systems, the results reflecting an increase in performance.*

**Keywords:** labour productivity, flexible information systems

## Introduction

It was noted that new information technologies help the organization have a better productivity, as „they speed up the old ways of working”, the calculations or other work being done at a fast pace (Drucker, 1988). For flexible systems, other authors propose certain performance indicators and a utilization rate of the parts of a system (Jaikumar, 1986). In the early development of information systems, the Institute of Chartered Accountants of Scotland noted that it is more cost effective to use an electronic network for the distribution of documents, which is why it was decided to use an innovative system for those times, to provide stakeholders the many reports prepared as soon as possible (ICAS, 1988). It is known that the information system is a complex system that integrates work procedures at the department or organization's

computer system, the latter needing to be continuously adapted to business needs. A performance information system can increase the flexibility of the organization, as it can generate increased productivity and customized to the requirements of the moment in a small unit of time. Therefore



Winston Churchill

the computer system is only one component of the information system which is a set of electronic and computing equipment (hardware and software) that enable automatic data processing for information retrieval.

Romania ranks second lowest in the European Union on labor productivity per hour worked, ranking ahead of Bulgaria which has productivity of approx. 5 euro per hour.

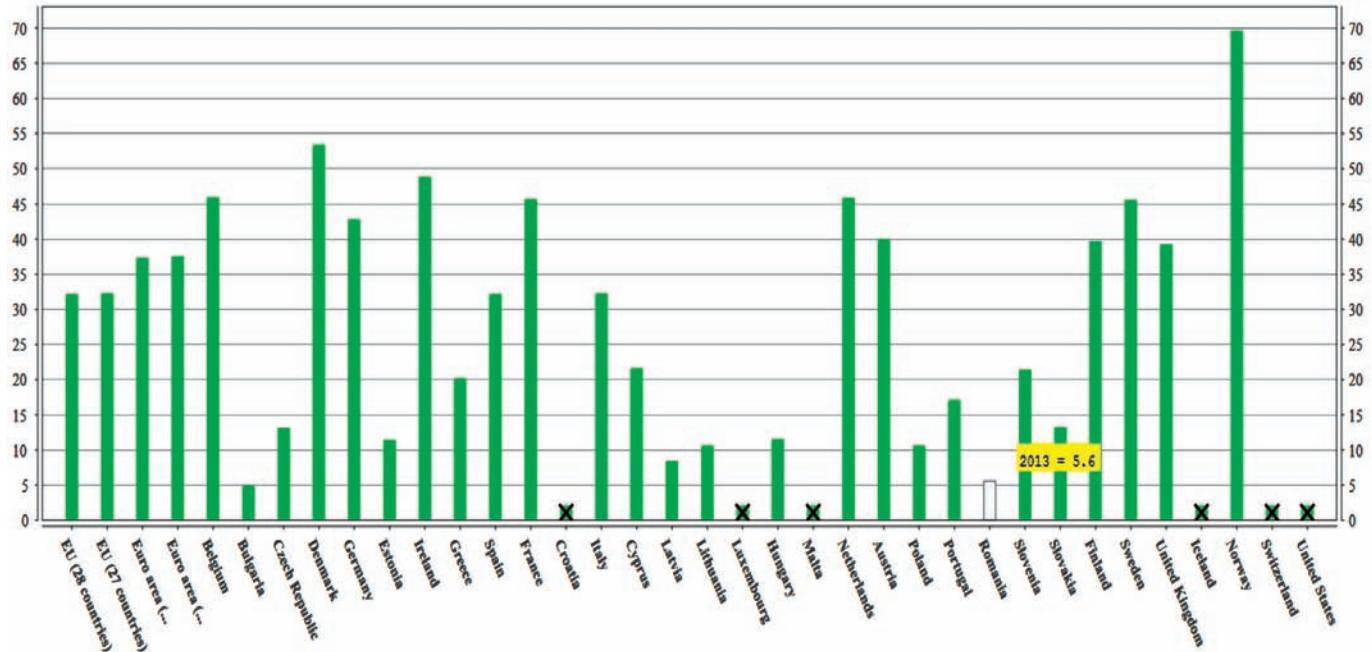


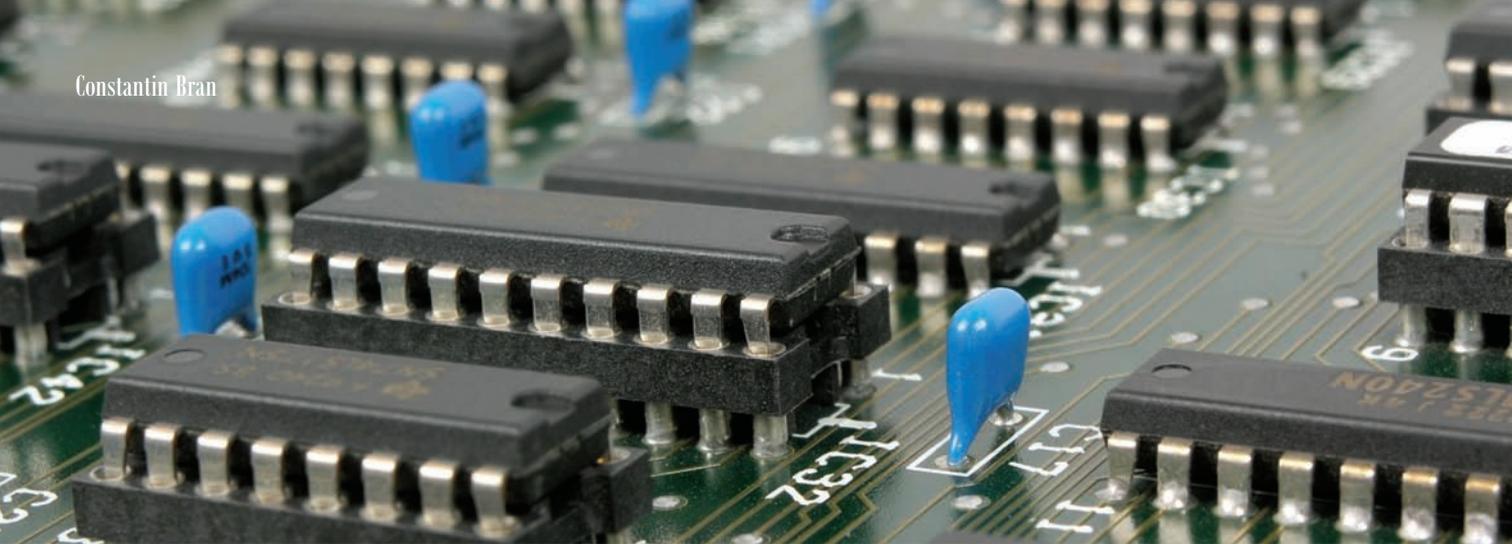
Figure 1 – Labor productivity per hour in the EU. (Source: Eurostat, 2015)

This statistical indicator – labor productivity per worked hour – gives a better picture of evolutions in labor productivity in the national economy compared to full time productivity. The causes of low productivity at the country level are numerous, but in this study we will pay special attention to flexibility of organization-wide information system (Figure 1) considered a key driver of productivity growth for the overall level of organization.

### The information and computer systems

The Information System is a complex system that integrates the organization’s computer system, the latter needing to be

continuously adapted to business needs. A performance information system can increase the flexibility of the organization, as it can generate increased and customized to current requirements productivity in a reduced time unit. On an economic level, the information system provides the connection between the decision making and operational systems (management system and execution system) thus functioning of the information system involves the following activities: data entry and processing, obtaining required information, decisions to be transmitted to the operating system, inspection and monitoring of compliance with decisions. In a modern information system (MIS), most activities can be carried out using computers. They



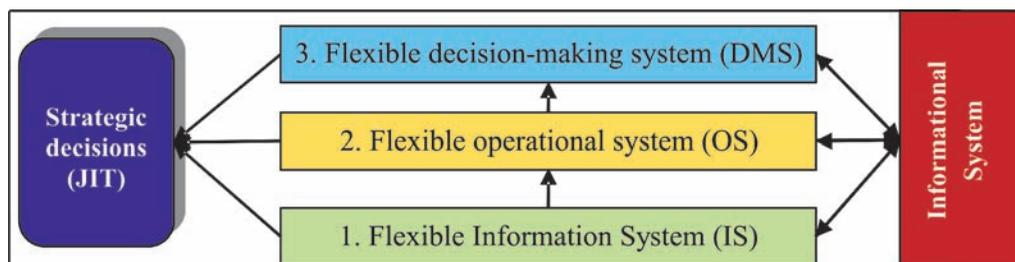
can process raw data and then the result can be transferred further to another department for processing. The transfer can be done electronically through a computer network (Castano & Schagaev, 2015; Nastase & Zota, 2004). The components of an information system are (Zota, 2004):

1. Data – numerical or textual description of actions, processes, phenomena (Khodorovskii, 2014);
2. Information – data set that provides new elements useful to achieving the objectives;
3. Information circuit – data and information sent from the transmitter to the receiver;
4. Information flow – the amount of data and information circulated between transmitter and receiver in information flow;
5. Information procedure – a way of collecting, recording, transmission and processing of information;

6. Means for information analysis – the technical support of the informational support, which can be: manual, mechanical, manual-mechanical, automated.

**The computer system** is a structured set of procedures and electronic equipment enabling automatic data processing and information retrieval consisting of computer hardware and software, computing exploiting staff, methodology, data processing, processing algorithms, etc. (Castano & Schagaev, 2015; Nastase & Zota, 2004).

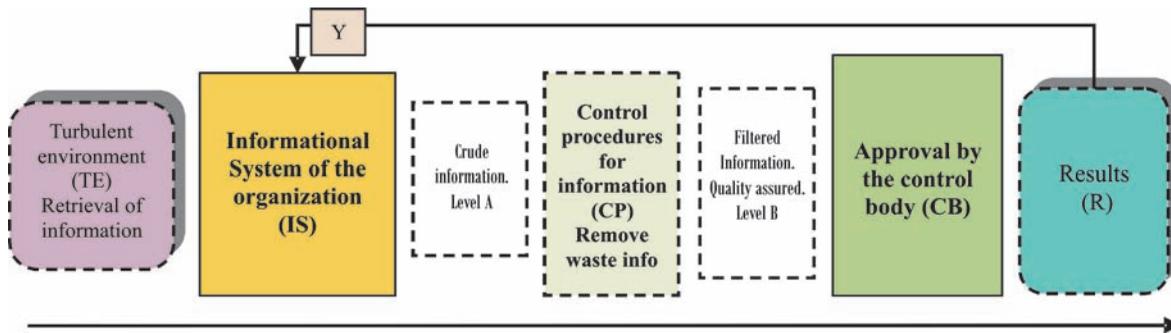
As we noted, informational system helps improve communication, incorporates information system and helps superior management base decisions quickly (Just in Time – JIT). At the same time, the informational system provides quality information to the organization (Kovalev: 2013) in line with contemporary realities (Semenyuk: 2013). In Figure 2 one can see the role of the information system:



**Figure 2** – *The role of the information system in the strategic decision-making*

## Rigid and Flexible Information Systems

The issue of flexibility can be shown as a „game” between the information system (IS) and the control body (CB). The Information system enables collection and correction of information from turbulent environment (per procedures). Through the



**Figure 3** – *The control of information in a flexible information system*

The purpose of the organization can be achieved regardless of the disturbances that occur in the „TE”. Information from the turbulent environment (TE) is verifiable and for each type of disturbance there is a procedure drawn up so that the result „R” is satisfactory and errors are eliminated.

If errors occur in the system, the procedure provides return of information „Y” in the information system (IS) to be checked and processed again. The results are provided to senior management who will use them for formulating strategic decisions. For better illustration we note rigid information system (RIS) and flexible information system (FIS) (Figures 4 and 5).

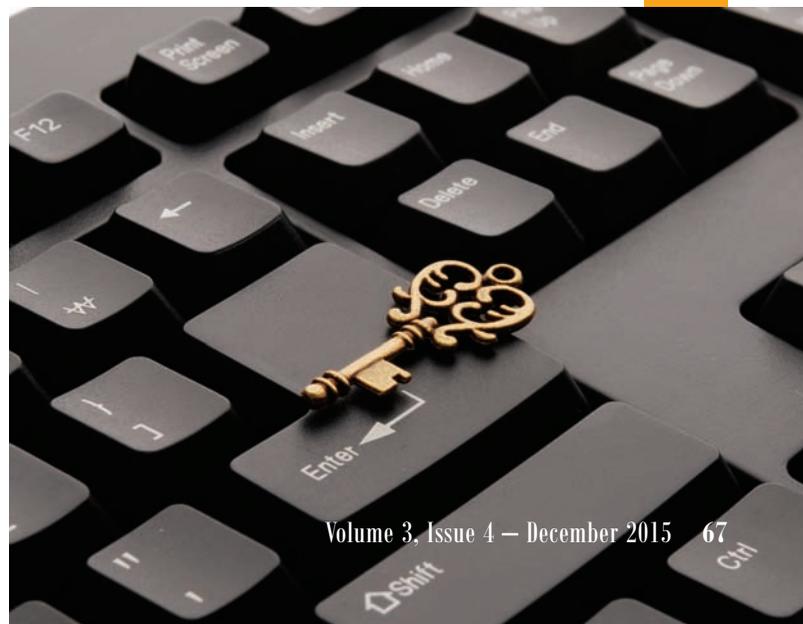
Rigid information system (RIS) – at the level of an economic agent, the information system provides the connection between the decision making and operational systems (management system and execution system) thus the functioning of the information system involves the following

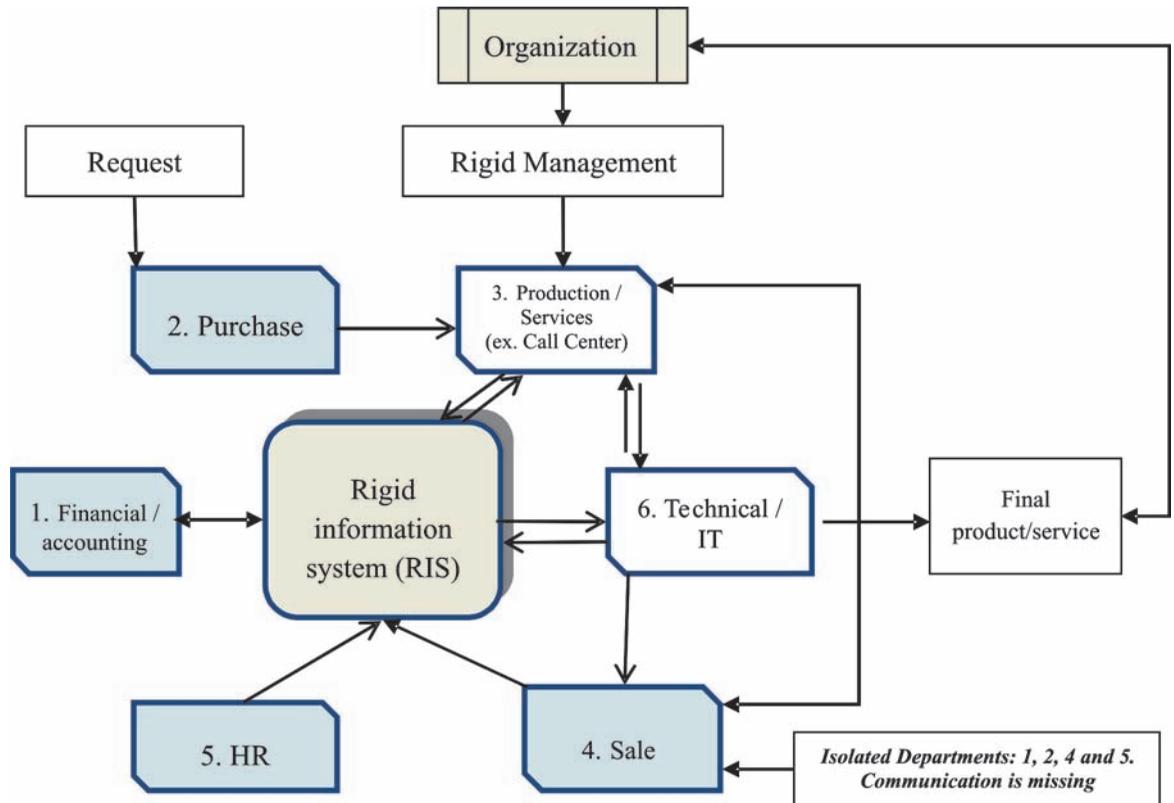
control procedure, only certain results (R) are considered useful to the organization, and they may be capitalized (Figure 3).

The factor that determines the behavior of an efficient information system is not just the ability to control the information system, but also the desire for change and implementing of new environmental elements.

activities: data entry and processing, obtaining required information, adopting decisions to be transmitted to the operating system, inspection and monitoring of compliance with decisions. In a modern information system (MIS), most activities can be carried out using computers and working procedures constantly improved.

In Figure 4 there are no links between departments. So, one finds that in the Ac-





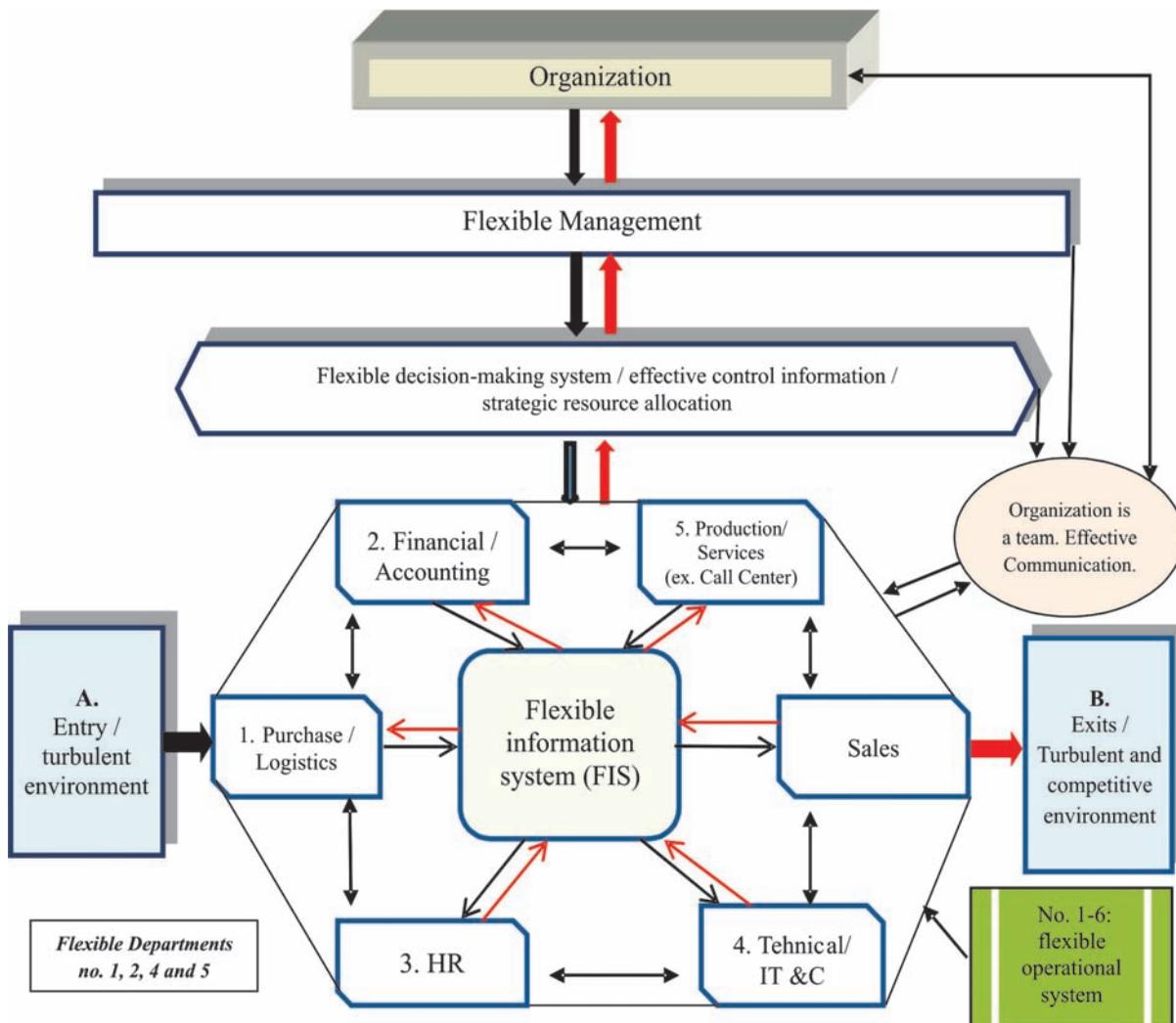
**Figure 4** – *Rigid information system (RIS)*

quisitions, Finance, HR and Sales Departments there is a lack of communication. Departments are isolated and, thus, rigid from the exchange information point of view. The result is low productivity or no productivity, as the work cannot be controlled.

Since the performance of a system derives from the ability to facilitate the implementation of flexibility in organizations, one can conclude that there is a good communication performance as a result of continuous control, in an effective manner, plus an appropriate feedback procedure. For some authors the accounting department is more appropriate to provide support to improve production performance and to help measure and assess progress to achieve company's objectives, although this is insufficient (Kaplan R.S., 1983).

Flexible Information System (FIS) – the flexibility is necessary to achieve a performance increase, such that the current system being a rigid information system (RIS) can be turned into a flexible information system (FIS). An example of flexibility in this case is the following figure where, through the „correction” of the system at the communication level, situations encountered in the departments Acquisitions, Finance, HR and Sales have been „tailored” to the needs of the functional information system. The information system was corrected by improving internal procedures or through small investments in IT & C equipment enabling the smooth conduct of core activities within the organization.

In Figure 5 there are links between departments and all departments are working



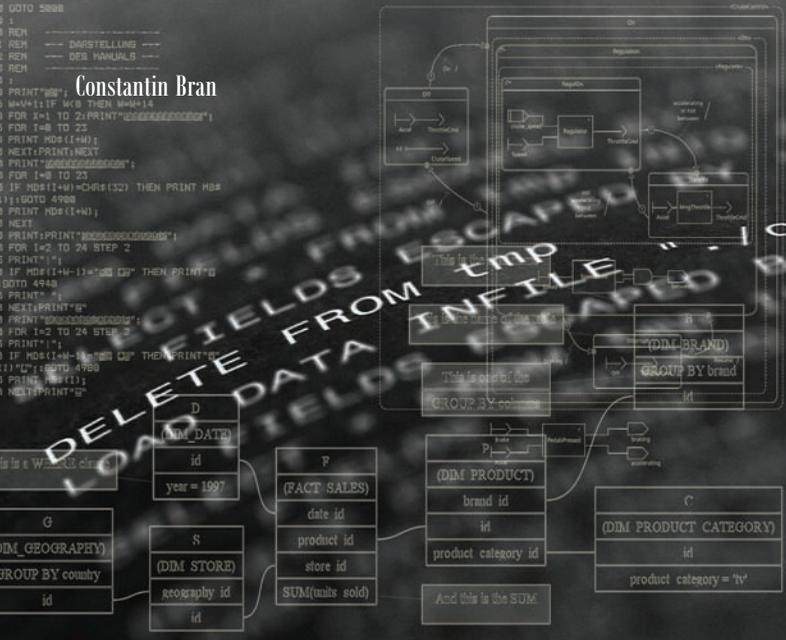
**Figure 5** – Flexible operational system (FIS)

optimally. Information exchange is done in real time, the expected result being increased productivity. The system FIS allows the exchange of information which allows decision makers to take quick decisions and adjust the organization to the environmental requirements. From this perspective, correcting the shortcomings encountered internally, the organization proved flexible by its prompt response to environmental impulses. Implementation of flexibility to the FIS level is a necessary step when you want to increase and/or maintain organizational performance.

## Productivity analysis – case study

### Data source

The current research analyzed data from 30 Romanian companies whose business is international air transport (goods) and that have established a Call Center Department. There were selected only the companies that, according to statements of managers, have made investments in modern information technologies of at least 10% of the total budget in the previous year, namely: hardware, software with a high degree of flexibility, equipment allowing



rapid preparation of reports and effective monitoring of working time. The easy customization of database with „user-friendly“ access interface enabling secure management of data was taken into account. Also, they bought performance headsets and microphones, etc).

It was felt that improvements brought to the information system (overall, upgraded software and hardware with enhanced computing power), meet the requirements of flexibility. In the research on analyzed two distinct situations to see how productivity evolves in relation to working time under the influence of flexibility which was „imposed“ on an efficient information system:

- *Productivity 1 – within existing IT system;*
- *Productivity 2 – in flexible information system (improved);*

Daily working time remained unchanged in both cases. Data on daily working time and labor productivity were extracted (interviews, questionnaires, email) of the monthly reports of the 30 companies that were surveyed:

- a) Data from the previous month of improving the information system (RIS);

- b) Data from the month after improving the information system (FIS).
  - *Working time* – no. of compulsory calls in a normal working day;
  - *Results* – what the agent actually does in a workday;
  - *The variables used are scales of intervals.*

The research aims to determine whether there is a correlation between performance and daily working time as a result of investments made in computing, which generated improved overall flexibility of the whole information system of the entire organization and therefore, the end result is the growth of productivity.

### Analysis no. 1

The research hypotheses are as follows:

- H<sub>0</sub>** – *There is no correlation between the daily norm and the average daily productivity in the rigid information system (RIS).*
- H<sub>1</sub>** – *There is a correlation between the daily norm and the average daily productivity in the rigid information system (RIS).*

Also, the research intended to discover whether in an improved (flexible) information system there *is a correlation between the daily norm (workload) and average daily productivity.* In Table 1 data about the number of calls (workload) and achievements (productivity) of the RIS and FIS were collected and centralized.

The correlation coefficient was then calculated for the collected data:

$$r = \frac{\sum[(X - Med.X) * (Y - Med.Y)]}{\sqrt{\sum(X - Med.X)^2 * \sum(Y - Med.Y)^2}} = -0,06 \quad (1)$$

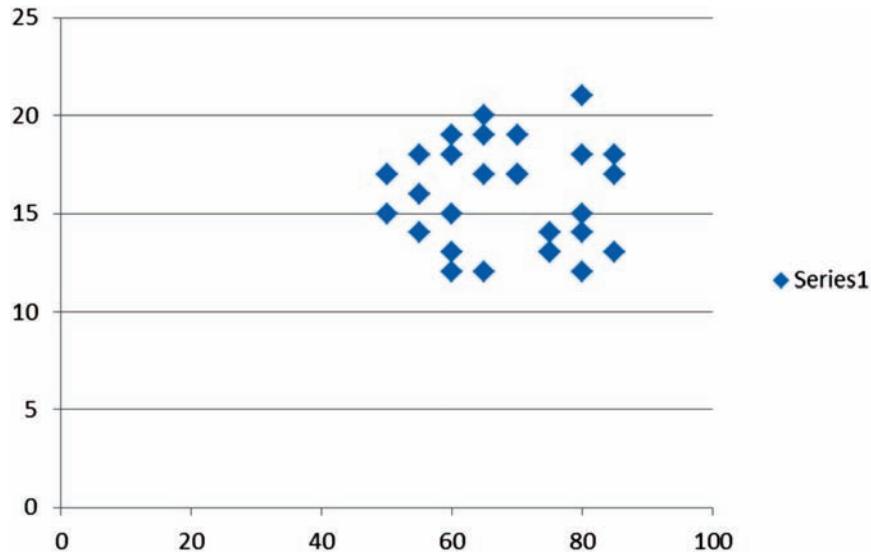
In the RIS system it is difficult to achieve the desired productivity. For H<sub>0</sub>, Figure 6 shows that productivity cannot be correlated to the workload, since there is no correlation between data.

**Table 1** – Data regarding employees' workloads and average daily productivity for the two information systems

A. RIGID INFORMATION SYSTEM (RIS)			B. FLEXIBLE INFORMATION SYSTEM (FIS)		
Employees	Workload (norm/no. of calls per hour)	Average daily productivity (no. of calls <u>before</u> implementation)	Employees	Workload (norm/no. of calls per hour)	Average daily productivity (no. of calls <u>after</u> implementation)
1	60	15	1	60	63
2	70	17	2	70	73
3	50	17	3	50	54
4	65	12	4	65	67
5	55	14	5	55	56
6	80	21	6	80	82
7	75	13	7	75	76
8	70	17	8	70	72
9	80	12	9	80	79
10	65	17	10	65	64
11	80	15	11	80	82
12	60	18	12	60	61
13	60	12	13	60	61
14	75	13	14	75	73
15	85	13	15	85	85
16	80	14	16	80	77
17	60	19	17	60	60
18	85	18	18	85	86
19	55	16	19	55	57
20	65	19	20	65	64
21	50	15	21	50	51
22	75	14	22	75	73
23	60	13	23	60	58
24	55	18	24	55	54
25	70	17	25	70	69
26	50	17	26	50	48
27	80	18	27	80	77
28	65	20	28	65	67
29	85	17	29	85	88
30	70	19	30	70	70

An information system cannot be productive in the absence of flexibility. In case of RIS, taking into account a 5% confidence interval and  $gdl = (30 - 2) = 28$

degrees of freedom, the Bravais-Pearson table of correlation generates a critical correlation coefficient „r” of 0,3060. The calculated „r” is below this value, so we can



**Figure 6** – *The absence of correlation between daily workload and productivity*

admit the null hypothesis  $H_0$ . The conclusion is that in the absence of flexibility of the information system, there is no correlation between contractually agreed workload (daily norm) and productivity. So, the hypothesis  $H_1$  cannot be admitted.

**Analysis no. 2**

The hypotheses made were:

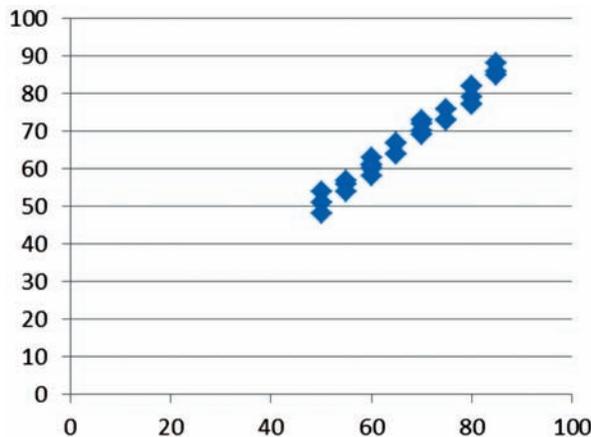
- $H_0$  – *There is no correlation between workload and productivity in a flexible information system (FIS).*
- $H_1$  – *There is a correlation between workload and productivity in a flexible information system (FIS).*

The correlation coefficient can be calculated as follows:

$$r = \frac{\sum[(X - Med.X) * (Y - Med.Y)]}{\sqrt{\sum(X - Med.X)^2 * \sum(Y - Med.Y)^2}} = 0,98 \quad (2)$$

In case of FIS, taking into account a 5% confidence interval risk and  $gdl = (30 - 2) = 28$  degrees of freedom, the Bravais-Pearson table of correlation generates a critical coefficient „r” of 0,98.

For  $H_1$ , according to Figure 7, we note that there is a correlation between the workload and the results obtained by workers after the implementation of flexibility at the information system level.



**Figure 7** – *FIS – The correlation between daily workload and productivity*

After implementing flexibility, the productivity of the information system increased. In case of the studied FIS, taking into account a 5% confidence interval and  $gdl = (30 - 2) = 28$  degrees of freedom, the Bravais-Pearson table of correlation generates a critical „r” coefficient of 0,98. The calculated „r” is above this value, so we can admit hypothesis  $H_1$ , meaning that in case of the flexible information system, there is a positive correlation between the daily workload and the productivity of employees.

The main characteristics of FIS and RIS, their differences in information system flexibility are discussed in Table 2:



**Table 2** – Differences between flexible and rigid information systems

FIS Features	RIS Features
There is a flexible management	There is no flexible management
It capitalizes on market opportunities	It capitalizes on market opportunities rarely or not at all
The organization has increased productivity	The organization has average or very poor productivity
Internal communication procedures are continuously optimized	There are no internal communication procedures or they are not optimized
It motivates and encourages team spirit	No attention to teamwork. Individualism and self-interest prevails
Resources are allocated in accordance with the organization's requirements related to market requirements	No resources are allocate in time or at all
Investments are made as permanent sources of income	Investments are rare, they are considered a waste
The information system is continuously optimized and meets the expectations of the organization	The information system is underdeveloped. It works isolated or it is not functional
The company's offer is constantly improved to satisfy consumers	The company's offer is rarely improved and is inadequate to market requirements
Internal and external environment of the organization are continuously scanned, the information obtained is immediately exploited	Internal and external environment is scanned according to casual interest, information obtained are often obsolete and unnecessary for the organization
Organization issues are resolved promptly	The problems of the organization are ignored or postponed



## Conclusions

In Analysis 1, in the old rigid system (RIS) productivity could not be correlated with the workload, the hypothesis  $H_0$  being accepted as it stipulated no relation between the two variables.

In Analysis 2, the old system has been added flexibility (as a consequence of investments), allowing an increase in the workload and increasing volume of productivity. According to this analysis, hypothesis  $H_1$  was accepted, showing a statistical correlation between daily norm and real productivity after implementing flexible systems.

By implementing a flexible information system in a Call Center Department, the results include better control of its activities, increased work productivity and increased overall performance of the entire organization.

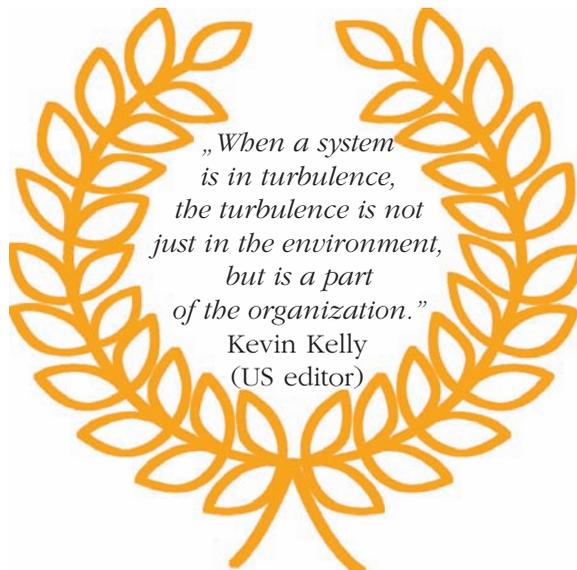
## Acknowledgements

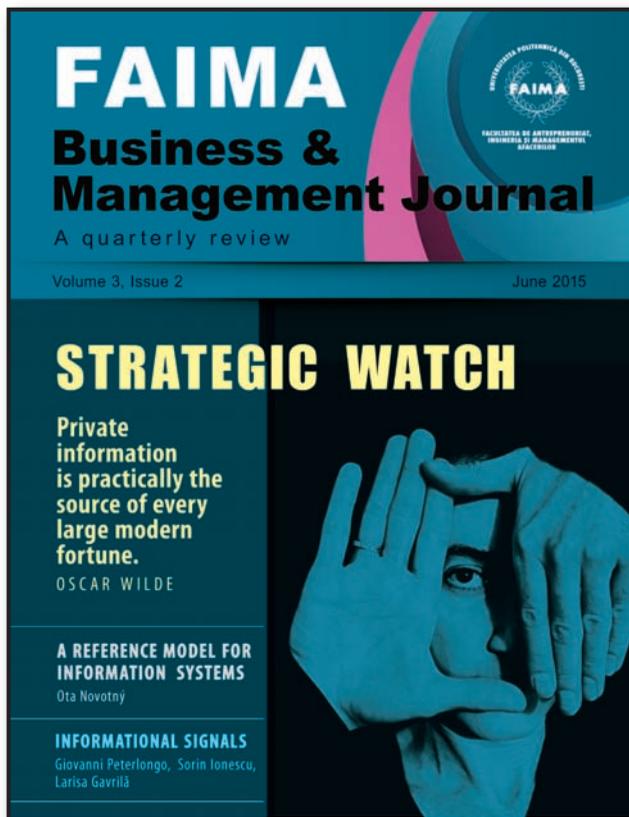
The work has been funded by the „Sectoral Operational Programme Human Resources Development 2007-2013 of the Ministry of European Funds through the Financial Agreement POSDRU 187/1.5/S/155536”.

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